Serial No. 849

Roll No. 170080719
Regn. No. 17-IP-197

52

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Legislature Act – XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that .... Deepak .... Son/Daughter

of Shri/Smt. .... Joginder .... has passed

the Certificate Course in Computer Education (Level-I) Examination held in ... Oct. 2020 ...

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	84	100
2.	Practical	72	100
	Total	156	200
	Grade (on the basis of total marks scored in Theory & Practical)	A	

For Grading Formula, see overleaf

Place .... Panipat

Dated 24.12.2020

Prepared By .... Vicu

Checked By ....

CONTROLLER OF EXAMINATION

PRINCIPAL

Serial No. 241

Roll No. 17008057

Regn. No. 17-IP-72

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Legislature Act - XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that MS. Suman Rani .... Son/Daughter

of Shri/Smt. Jai Narayan .... has passed

the Certificate Course in Computer Education (Level-I) Examination held in ...May 2018

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	65	100
2.	Practical	65	100
	Total	130	200
	Grade (on the basis of total marks scored in Theory & Practical)	'B'	

For Grading Formula, see overleaf

Place   Panipat

Dated   22-12-2018

Prepared By   Vinay

Checked By

CONTROLLER OF EXAMINATION

PRINCIPAL

Serial No. 396

Roll No. 180072005 66

Regn. No. 18-1P-359

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Legislature Act-XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that............ Vishal ....Son/Daughter

of Shri/Smt. .... Jogindu pal ....has passed

the Certificate Course in Computer Education (Level-I) Examination held in May 2019

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	65	100
2.	Practical	72	100
	Total	137	200
	Grade (on the basis of total marks scored in Theory & Practical)	`B'	

For Grading Formula, see overleaf

Place Panipat

Dated 15.12.2020

Prepared By Vinay

Checked By

CONTROLLER OF EXAMINATION   PRINCIPAL

Serial No. 303

Roll No. 180072152 [5]

Regn. No. 18-1P-244

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Legislature Act-XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that.......... Anju ....Son/Daughter

of Shri/Smt. ..... Ram Niwas .....has passed

the Certificate Course in Computer Education (Level-I) Examination held in May 2019

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	50	100
2.	Practical	60	100
	Total	110	200
	Grade (on the basis of total marks scored in Theory & Practical)	C	

For Grading Formula, see overleaf

Place Panipat

Dated 15-12-2019

Prepared By Vinay

Checked By

CONTROLLER OF EXAMINATION

PRINCIPAL

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Registature Act – XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that .... Ravinder Kumar .... Son/Daughter

of Shri/Smt. .... Ishwar Singh .... has passed

the Certificate Course in Computer Education (Level-I) Examination held in ... Aug 2021

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	92	100
2.	Practical	82	100
	Total	174	200
	Grade (on the basis of total marks scored in Theory & Practical)	A	

For Grading Formula, see overleaf

Place   Panipat

Dated   May 2022

Prepared By

Checked By   Karuna

CONTROLLER OF EXAMINATION

PRINCIPAL

Serial No.

Roll No. 191075176

5192

Regn. No. 19-IP-328

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Registature Act - XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that .... Sawan .... Son/Daughter

of Shri/Smt. .... Skinder Singh .... has passed

the Certificate Course in Computer Education (Level-I) Examination held in ...Aug 2021

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	72	100
2.	Practical	82	100
	Total	154	200
	Grade (on the basis of total marks scored in Theory & Practical)	A	

For Grading Formula, see overleaf

Place   Panipat

Dated   May 2022

Prepared By

Checked By   Karuna

CONTROLLER OF EXAMINATION

PRINCIPAL

Serial No. **5326**

Roll No. **201071708**

Regn. No. **20-IP-463**

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

Kurukshetra University Kurukshetra

(Established by the State Registature Act – XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that .... **KAJAL** .... Son/Daughter

of Shri/Smt. .... **MADAN** .... has passed

the Certificate Course in Computer Education (Level-I) Examination held in ... **Aug. 2021** ..

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	70	100
2.	Practical	80	100
	Total	150	200
	Grade (on the basis of total marks scored in Theory & Practical)	A	

For Grading Formula, see overleaf

Place **Panipat**

Dated **May 2022**

Prepared By

Checked By

CONTROLLER OF EXAMINATION

PRINCIPAL

Serial No. 5368

Roll No. 201071537
Regn. No. 20-IP-464

I.B. (PG) COLLEGE, PANIPAT

Affiliated to

𝕶uruksḥetra 𝕶niversity 𝕶uruksḥetra

(Established by the State Registature Act – XII of 1956)

('A' Grade, NAAC Accredited)

CERTIFICATE COURSE IN COMPUTER EDUCATION (LEVEL-I)

Certified that ..... GEETA ..... Son/Daughter

of Shri/Smt. ..... TILAK RAM ..... has passed

the Certificate Course in Computer Education (Level-I) Examination held in ..... Aug 2021 .....

Sr. No.	SUBJECTS	MARKS OBTAINED	MAXIMUM MARKS
1.	Theory	48	100
2.	Practical	68	100
	Total	116	200
	Grade (on the basis of total marks scored in Theory & Practical)	C	

For Grading Formula, see overleaf

Place   Panipat

Dated   May 2022

Prepared By

Checked By

CONTROLLER OF EXAMINATION

PRINCIPAL

I.B. (PG) College, Panipat

Sr. No. 14

G.T. Road, Panipat-132103, Haryana

Website : lbpgcollegepanipat.ac.in, Email: principalibcollege@gmail.com

Estd. 1956

SESSION 2020-21

E-CERTIFICATE

This is to certify that Mr./Mrs **Anuradha**, class <u>BA Ist</u>, Roll no. **22800120025** of I.B.(PG) College, Panipat has Participated in Certificate Course in **BHAV SANGEET** held From **1 January, 2021** TO **20 Feburary, 2021** organised by Department of Music (Vocal).

Dr. Ajay Kumar Garg

Principal & Patron

Prof. Dharam Singh

Activity Incharge

I.B. (PG) College, Panipat

Sr. No. 09

G.T. Road, Panipat-132103, Haryana

Website : Ibpgcollegepanipat.ac.in, Email: principalibcollege@gmail.com

SESSION 2020-21

E-CERTIFICATE

This is to certify that Mr./Mrs **Bhawna** , class <u>BA Ist</u> , Roll no. **3161310154** of **I.B.(PG)**

College , Panipat has Participated in Certificate Course in **BHAV SANGEET** held From **1**

January, 2021 TO **20 Feburary, 2021** organised by Department of Music (Vocal).

Dr. Ajay Kumar Garg
Principal & Patron

Prof. Dharam Singh
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Kashish Dhingra, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Internet of Things organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: **ibpgcollegepanipat.ac.in**   Email: **principalibcollege@gmail.com**

E-CERTIFICATE

This is to certify that Mr./Ms. Nikita, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Internet of Things organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: **ibpgcollegepanipat.ac.in**   Email: **principalibcollege@gmail.com**

E-CERTIFICATE

This is to certify that Mr./Ms. Anjali, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Internet of Things organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Anjali, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Web Designing (CCWD) organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Alka, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Web Designing (CCWD) organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Pankaj Dahiya, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Web Designing (CCWD) organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Harsh, BA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Digital Marketing organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Vikram, BA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Digital Marketing organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Vishal, BA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Digital Marketing organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms **Aditi**, B.A I Eng. Hons. of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Stress Management by Yoga** organized by Department of yoga and meditation club on 15 November, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Pooja Dudeja
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Yachna, B.A I Eng. Hons. of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Stress Management by Yoga** organized by Department of yoga and meditation club on 15 November, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Pooja Dudeja
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Anjali, B.A I Eng. Hons. of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Stress Management by Yoga** organized by Department of yoga and meditation club on 15 November, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Pooja Dudeja
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Yash Bansal, BBA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Account Executive organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Rohit Mehta, BBA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Account Executive organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Aniket Tyagi, BBA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Account Executive organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Sunny Malik, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Computer Hardware and Maintenance organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Anju, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Computer Hardware and Maintenance organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

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Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Anish, B.Sc.-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Computer Hardware and Maintenance organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Megha Guglani, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Web Designing & Office Automation organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Manish Kumar, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Web Designing & Office Automation organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Aman Kumar, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Web Designing & Office Automation organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Jyoti, M.A English of I.B. (P.G.) College, Panipat participated in 40 days Certificate Course on Yogasana and Meditation organized by Yoga and meditation club on 10 Nov, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Rekha Sharma
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Shrishti, M.A English of I.B. (P.G.) College, Panipat participated in 40 days Certificate Course on Yogasana and Meditation organized by Yoga and meditation club on 10 Nov, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Rekha Sharma
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Rahul, M.A English of I.B. (P.G.) College, Panipat participated in 40 days Certificate Course on Yogasana and Meditation organized by Yoga and meditation club on 10 Nov, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Rekha Sharma
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Himanshu , B.COM-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Accounting & Tax Procedure organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Ankit Kumar , B.COM-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Accounting & Tax Procedure organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Abhishekh Kumar , B.COM-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Accounting & Tax Procedure organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Deepak, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Python Programming organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Amit, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Python Programming organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Lakhan, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Python Programming organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Soni, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Artificial Intelligence & Machine Learning organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Som Nath, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Artificial Intelligence & Machine Learning organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Suraj, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Artificial Intelligence & Machine Learning organized by Department of Computer Science in October 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Harshit Sharma, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Cloud Computing organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Amit, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Cloud Computing organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Vishal, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Cloud Computing organized by Department of Computer Science in October, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Kashish Dhingra , BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Desktop Publishing organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Nikita , BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Desktop Publishing organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Anjali , BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Desktop Publishing organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Neetu Bhatia
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Subham, BA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in CCTV Installation organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Vishal, BA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in CCTV Installation organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Puneet Atri, BA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in CCTV Installation organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ashwani Gupta
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Yash , BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Programming in C / C++ organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Pankaj Rohilla, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Programming in C / C++ organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Rohit Kumar, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Programming in C / C++ organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

E-CERTIFICATE

This is to certify that Mr./Ms Dheeraj, BBA I of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Yoga and Diet Management** organized by Department of yoga and meditation club on 13 April, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Pooja Dudeja
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Sachin, BBA I of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Yoga and Diet Management** organized by Department of yoga and meditation club on 13 April, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Pooja Dudeja
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

E-CERTIFICATE

This is to certify that Mr./Ms Ankush, BBA I of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Yoga and Diet Management** organized by Department of yoga and meditation club on 13 April, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Pooja Dudeja
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Himanshu, B.COM-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Accounting on Computers organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Ankit Kumar, B.COM-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Accounting on Computers organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Abhishekh Kumar, B.COM-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course on Accounting on Computers organized by Department of Computer Science in April, 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Vinay Bharti
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Soni, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Android Development organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
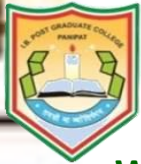**Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com**

E-CERTIFICATE

This is to certify that Mr./Ms. Som Nath, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Android Development organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Suraj, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Android Development organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Vaishali, M.A. English of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Shatkarma, Pranayam and Meditation** organized by yoga and meditation club on 15 april, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Rekha Sharma
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Aman, M.A. English of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Shatkarma, Pranayam and Meditation** organized by yoga and meditation club on 15 april, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Rekha Sharma
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms Sangeeta, M.A. English of **I.B. (P.G.) College, Panipat** participated in 40 days **Certificate Course on Shatkarma, Pranayam and Meditation** organized by yoga and meditation club on 15 april, 2021.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Rekha Sharma
Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Som Nath, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Java Script (CCJS22) organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Suraj, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Java Script (CCJS22) organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Dinesh, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Java Script (CCJS22) organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) College, Panipat

G.T. Road, Panipat-132103, Haryana

Website : ibpgcollegepanipat.ac.in, Email: principalibcollege@gmail.com

Estd. 1956

SESSION 2021-22

E-CERTIFICATE

This is to certify that Mr./Mrs **Sunny Saini** , class **BA I**st , Roll no. **1212192002228**

of I.B.(PG) College , Panipat has Participated in Certificate Course in **BHAV SANGEET** held

From **1 January, 2022** to **20 Feburary, 2022**organised by Department of Music (Vocal).

Dr. Ajay Kumar Garg
Principal & Patron

Prof. Dharam Singh
Activity Incharge

I.B. (PG) College, Panipat

G.T. Road, Panipat-132103, Haryana

Website : Ibpgcollegepanipat.ac.in, Email: principalibcollege@gmail.com

Estd. 1956

SESSION 2021-22

E-CERTIFICATE

This   is to certify   that Mr./Mrs **Anuj** , class **BA Ist** , Roll no **1212192002370** of

I.B.(PG) College , Panipat has Participated in Certificate Course in **BHAV SANGEET** held

From **1 January, 2022** to **20 Feburary, 2022**organised by Department of Music (Vocal).

Dr. Ajay Kumar Garg

Principal & Patron

Prof. Dharam Singh

Activity Incharge

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Manish Kumar, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Web Development using PHP organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Aman Kumar, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Web Development using PHP organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA

Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Kashish Dhingra, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Web Development using PHP organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Deepty Juneja
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Pankaj Rohilla, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Network Security (CCNS22) organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Priyanka, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Network Security (CCNS22) organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

I.B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103, HARYANA
Website: ibpgcollegepanipat.ac.in   Email: principalibcollege@gmail.com

E-CERTIFICATE

This is to certify that Mr./Ms. Anju, BCA-II of I.B. (PG) College, Panipat participated in 40 days Certificate Course in Network Security (CCNS22) organized by Department of Computer Science in April 2022.

Dr. Ajay Kumar Garg
Principal cum Patron

Prof. Ritu Bhardwaj
Co-ordinator

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : www.ibleducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/2020/435

DATED. 30/9/20

Notice

Certificate Course in Bhav Sangeet

All the students are hereby informed that Department of Music is going to start a certificate course in "Bhav Sangeet". The course may commence on 1st January 2021. For further inquiry, the interested students may contact Prof. Dharam Singh.

Dr. Ajay Kumar Garg
Principal
Principal
I.B. (PG) College, Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

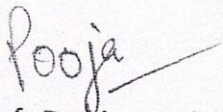**(Affiliated to Kurukshetra University, Kurukshetra)**

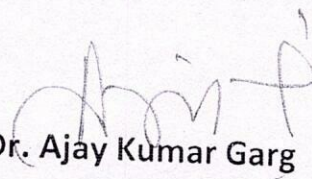REF. NO. IBS/2021/834   DATED. 16/12/21

Notice

Certificate Course in Bhav Sangeet

All the students are hereby informed that Department of Music is going to start a certificate course in "Bhav Sangeet". The course may commence on 1st January 2022. For further inquiry, the interested students may contact Prof. Dharam Singh.

Dr. Ajay Kumar Garg

Principal

Principal

I.B. (PG) College, Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.: I.B.C./Notice/2022/374(ii)   DATED 7.4.2022

NOTICE

This is to inform all the students that Our College is Organising a certificate course in **Yoga And Diet Management** is being launched from 13 April, 2022. The course is open to all bonafide regular students (Arts, Science and Commerce) of the college. The duration of the course is 40 days.

Interested students kindly give their name to the following members of the course committee before 13 April, 2022.

1. Prof. Pooja Dudeja (9253086848)
2. Prof. Rekha Sharma (9991560146)

Prof. Pooja Dudeja
(Activity Incharge)

Dr. Ajay Kumar Garg
(Principal)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBc/Notice/2021/206 (ii)   DATED 9/11/2021
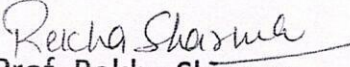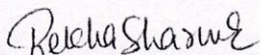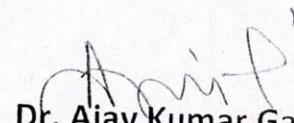
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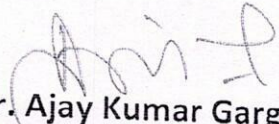
It is hereby notified for the general information of all concerned that under Student Development Programme, Our College is Organising a certificate course in **Shatkarma, Pranayam And Meditation** is being launched from 10 November, 2021. The course is open to all bonafide regular students (Arts, Science and Commerce) of the college. The duration of the course is 40 days. The course is free of cost.

After the completion of the course, each successful candidate will receive a certificate to the effect.

Those interested in the course should give their names to the following members of the course committee on or before 5 November, 2021.

1. Prof. Rekha Sharma (9991560146)
2. Ms Pooja (9253086848)

Prof. Rekha Sharma
(Activity Incharge)

Dr. Ajay Kumar Garg
(Principal)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. I.BC./Notice/2021/216 (ii)　　　　　　　　DATED 12|11|2021

NOTICE

All the students will be pleased to know that Our College is Organising a certificate course in **Stress Management By Yoga** is being launched from 15 November, 2021. The course is open to all bonafide regular students (Arts, Science and Commerce) of the college. The duration of the course is 40 days.

Those interested in the course should give their names to the following members of the course committee before 15 November, 2021.

1. Prof. Pooja Dudeja (9253086848)
2. Prof. Rekha Sharma (9991560146)

Prof. Pooja Dudeja
(Activity Incharge)

Dr. Ajay Kumar Garg
(Principal)

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✉ principalibcollege@gmail.com
🌐 www.ibpgcollegepanipat.ac.in

I. B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103 (HARYANA)

An ISO 9001:2015 & ISO 14001:2015 Certified Premier Co-Educational Institute

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.: IBC/Notice/2023/69(iii)   DATED: 11/4/2021

NOTICE

It is hereby notified for the general information of all concerned that under Student Development Programme, Our College is Organising a certificate course in **Yogasana And Meditation** is being launched from 15 April, 2021. The course is open to all bonafide regular students (Arts, Science and Commerce) of the college. The duration of the course is 40 days. The course is free of cost.

After the completion of the course, each successful candidate will receive a certificate to the effect.

Those interested in the course should give their names to the following members of the course committee on or before 10 April, 2021.

1. Prof. Rekha Sharma (9991560146)
2. Ms Pooja (9253086848)

Prof. Rekha Sharma
(Activity Incharge)

Dr. Ajay Kumar Garg
(Principal)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.IBC/2021/665(i)　　　　　　　　　　　DATED 30/9/21

Notice

Certificate Course in Web Designing & Office Automation (AOCWDOA)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Web Designing & Office Automation (AOCWDOA)". The course may commence in the second week of October. This course is specially designed for BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Vinay Bharti (9034810908).

Dr. Ajay Kumar Garg
Principal
I.B. P.G.College, Panipat
Principal

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. I.B.C.) 2021) 665 (ii)   DATED 30/9/21

Notice

<u>Certificate Course in Hardware and Maintenance (AOCCHM)</u>

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Hardware and Maintenance (AOCCHM)". The course may commence in the second week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Neetu Bhatia (9996675885).

Dr. Ajay Kumar Garg
Principal
Principal Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/2021/66 (iii)   DATED 30/9/21

Notice

Certificate Course in Internet of Things (CCIOT)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Internet of Things (CCIOT)". The course may commence in the second week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Vinay Bharti (9034810908).

Dr. Ajay Kumar Garg
Principal
I.B. (P.G.) College, Panipat
Principal

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC.|2021|.575(i)   DATED..28.|.8/.21........

Notice

Certificate Course in Python Programming (CCPP22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Python Programming (CCPP22)". The course may commence in the second week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ashwani Gupta (9896143747).

Dr. Ajay Kumar Garg
Principal
I.B. (P.G.) College Panipat
Principal

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. I.B.C./2021/575(ii)   DATED 28/8/21

Notice

Certificate Course in Digital Marketing (CCDMW1)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Digital Marketing (CCDMW1)". The course may commence in the second week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Deepty Juneja (Mob. No. 7404166235).

Dr. Ajay Kumar Garg
Principal
I.B. P.G. College, Panipat
Principal

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(Affiliated to Kurukshetra University, Kurukshetra)

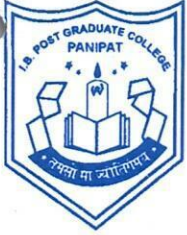REF. NO. IBC/2021/575(iii)   DATED 28/8/21

Notice

Certificate Course in Artificial Intelligence & Machine Learning (CCAIML22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Artificial Intelligence & Machine Learning (CCAIML22)". The course may commence in the third week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ritu Bhardwaj.

Dr. Ajay Kumar Garg
Principal
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Principal

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G.T. ROAD, PANIPAT-132103 (HARYANA)

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REF. NO. IBC/2021/652 (i)   DATED. 22/9/21

Notice

Certificate Course in Accounting & Tax Procedure (AOCATP)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Accounting & Tax Procedure (AOCATP)". The course may commence in the second week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Neetu Bhatia (9996675885).

Dr. Ajay Kumar Garg
Principal
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Principal

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(ESTD. 1956)

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(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC(2021) 652(ii)   DATED 22/9/21

Notice

Certificate Course in Account Executive (CCAE)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Account Executive (CCAE)". The course may commence in the second week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ashwani Gupta (9896143747).

Dr. Ajay Kumar Garg
Principal
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Principal

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(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. I.B.C./2021/659(iii)   DATED. 22/09/21

Notice

Certificate Course in Cloud Computing (CCCC22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Cloud Computing (CCCC22)". The course may commence in the third week of October. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ritu Bhardwaj.

Dr. Ajay Kumar Garg
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I.B. Principal Panipat

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REF. NO.IBC/2022/8.6(i)   DATED..29/.1./.22

Notice

Certificate Course in Java Script (CCJS22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Java Script (CCJS22)". The course may commence in the second week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Deepty Juneja (Mob. No. 7404166235).

Dr. Ajay Kumar Garg
Principal
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REF. NO. IBC/2022/110 (i)   DATED 9/2/22

Notice

Certificate Course in Network Security (CCNS22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Network Security (CCNS22)". The course may commence in the third week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ritu Bhardwaj (7988571193).

Dr. Ajay Kumar Garg

Principal
I.B. Principal Panipat

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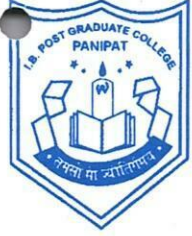REF. NO. I.B.C./2022/.110(v)   **Notice**   DATED 9/2/20.22

Certificate Course in Android Development (CCAD22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Android Development (CCAD22)". The course may commence in the third week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ritu Bhardwaj (7988571193).

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Principal

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REF. NO. IBC /2022/ 110 (iv)   **Notice**   DATED 9/2/22

Certificate Course in Accounting on Computers (AOCAC)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Accounting on Computers (AOCAC)". The course may commence in the third week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Vinay Bharti (9034810908).

Dr. Ajay Kumar Garg
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Principal

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REF. NO. IBC|2022|110(iii)   DATED 9|2|22

Notice

Certificate Course in Java Script (CCJS22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Java Script (CCJS22)". The course may commence in the second week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Deepty Juneja (Mob. No. 7404166235).

Dr. Ajay Kumar Garg

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REF. NO.IBC/2022/86(IV)   DATED.29.11.22

Notice

Certificate Course in Programming C/C++ (CCPCCPP)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Programming in C/C++ (CCPCCPP)". The course may commence in the second week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Vinay Bharti (9034810908).

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REF. NO. I.B.C./2022/86(iii)   DATED. 29/1/22

Notice

Certificate Course in Desktop Publishing (CCDP)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Desktop Publishing (CCDP)". The course may commence in the second week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Neetu Bhatia (9996675885).

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REF. NO. IBC|2022|86(ii)   DATED 29/11/22

Notice

Certificate Course in CCTV Installation (CCCCTVI)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "CCTV Installation (CCCCTVI)". The course may commence in the second week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/ B.SC. to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Ashwani Gupta (9896143747).

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Principal

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(ESTD. 1956)

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(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IB/2022/110(ii)   DATED. 09/2/22

Notice

Certificate Course in Web Development using PHP (CCWDPHP22)

All the students are hereby informed that Department of Computer Science is going to start a certificate course in "Web Development using PHP (CCWDPHP22)". The course may commence in the second week of April. This course is specially designed for final year students of BCA/ BA/ B.COM/ BBA/B.SC to develop their IT skills for their career objectives. Further, for any inquiry, the interested students may contact Prof. Deepty Juneja (7404166235).

Dr. Ajay Kumar Garg

Principal
I.B. (PG.) College, Panipat
Principal

ARTIFICIAL INTELLIGENCE & PYTHON PROGRAMMING

I.B.(PG) College, Panipat

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Department of Computer Science

(UNDER THE AEGIS OF IQAC)

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Artificial Intelligence & Python Programming
In Collaboration with
PANTECH Prolabs Pvt Ltd.

Date : 05.10.2020 to 04.11.2020
Time :   08.00 PM to 08.45 PM

To Register Please click on the following link :

http://shorturl.at/oCGIO

Prof Ashwani Gupta
Co-Convener

Dr Vikram Kumar
Convener

Dr. Ajay Kumar Garg
Patron & Principal

NEWS

आईबी कालेज में 30 दिन की कार्यशाला 5 से

पानीपत (विनोद पांचाल) : जी.टी.रोड स्थित आईबी महाविद्यालय ने राजस्थान की एक नामी यूनिवर्सिटी के साथ मिलकर बीसीए एवं बीएससी कंप्यूटर साइंस के विद्यार्थियों के लिए 30 दिन की ऑनलाइन कार्यशाला का आयोजन किया जा रहा है। प्राचार्य डॉ. अजय कुमार गर्ग ने बताया कि यह गर्व की बात है कि हम एक नामी यूनिवर्सिटी के साथ मिलकर कार्यशाला का आयोजन करने जा रहे हैं। यह ऑनलाइन कार्यशाला 5 अक्टूबर से 4 नवंबर तक चलेगी, जिसका विषय है कृत्रिम बुद्धि और अजगर प्रोग्रामिंग।

दैनिक सवेरा (५-१०-२०२०)

NOTICE

I.B. POST GRADUATE COLLEGE

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
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G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO._____

DATED 15.12.2020

All the students are informed that our college is going to start a certificate course in **"TALLY ACE"** in collaboration with **TALLY Education Pvt. Ltd.** This course is commencing from **28-12-2020.** Total charges of the course are Rs.5500/- out of which Rs.3200/- per student will be arranged by the college management for your career sake. Nominal fee of Rs.2000/- will have to be paid by the student. Despite this, first 30 registrations will be given **extra 20% scholarship** by the TALLY Academy.
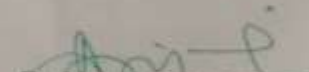
This Certificate Course will give an opportunity to your career with verifiable digital certificate in Tally's, which will make you job ready and accelerate your professional career in present competitive era.

Feel free to contact for more information:

Organizing Committee

1. Prof. Ajay Pal Singh (Course Co-ordinator) 9991608176
2. Dr. Ranju (Member) 7015265350
3. Prof. Sukhjinder Singh(Member) 7015552507

Dr. Sunit Sharma
Convener

Dr. Ajay Kumar Garg
Principal

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Dr.Sunit Sharma
Convener

Prof.Ajay Pal Singh
Course-Coordinator

Dr. Ajay Garg
Principal

INAUGURAL CEREMONY

NEWS

आई.बी(पीजी) कॉलेज में ऑनलाइन 1 महीने का टेली सर्टिफिकेट कोर्स शुरू

शगुन

पानीपत(नगर संवाद)। आई.बी कॉलेज पानीपत में कॉमर्स डिपार्टमेंट के द्वारा टेली एजुकेशन प्राइवेट लिमिटेड के साथ मिलकर ऑनलाइन 1 महीने का टेली सर्टिफिकेट कोर्स शुरू किया गया। इस अवसर पर टेली सर्टिफिकेट कोर्स का शुभारंभ करते हुए प्राचार्य डॉ. अजय कुमार गर्ग जी ने कहा कि कोविड-19 की वजह से बहुत से लोगों की जॉब गई है लेकिन जिन लोगों में कुछ अतिरिक्त दक्षता या क्षमता थी उन लोगों को रोजगार भी मिले हैं और उनके व्यवसाय में बढ़ोतरी भी हुई है इसलिए, आप सब लोगों को अपनी पढ़ाई के साथ-साथ दूसरे क्षेत्रों में भी स्किल्स को बढ़ाना होगा तभी आप इस प्रतियोगिता के युग में सफल हो सकते हैं। टेली एजुकेशन प्राइवेट लिमिटेड की तरफ से रीजनल मैनेजर विजय कुमार जी ने भी विद्यार्थियों को संबोधित करते हुए कहा कि टेली एजुकेशन प्राइवेट लिमिटेड टेली

सॉफ्टवेयर का कोर्स करने के बाद आपको रोजगार के अवसरों की कमी नहीं रहेगी। इस सर्टिफिकेट कोर्स में आपको मैनेजिंग चार्ट एकाउंटिंग, स्टॉक कीपिंग, एमआईएस रिपोर्ट, जीएसटी और ऑर्डर प्रोसेसिंग आदि के बारे में सिखाया जायेगा। इस कोर्स को करने के बाद आपका एकाउंटिंग से संबंधित सभी जरूरी प्रोसेस सीख जाएंगे और आप जीएसटी के साथ अकाउंट बनाने लायक हो जाएंगे। इस अवसर पर सर्टिफिकेट कोर्स के कोऑर्डिनेटर प्रोफेसर अजयपाल सिंह ने विद्यार्थियों को संबोधित करते हुए

कहा कि आपको अपनी हार्ड स्किल के साथ-साथ सॉफ्ट स्किल और प्रोफेशनल स्किल को भी बढ़ाना होगा क्योंकि आजकल हार्ड स्किल से ज्यादा उन लोगों की मांग है जिनके पास प्रोफेशनल और सॉफ्ट स्किल है। मंच का संचालन डॉक्टर रंजु गंभीर ने किया। इस अवसर पर बीसीए कंप्यूटर सेंटर के संचालक रविंद्र जी ने विद्यार्थियों को टेली सर्टिफिकेट कोर्स के सिलेबस के बारे में विस्तृत जानकारी दी। अंत में वाणिज्य विभाग के विभागाध्यक्ष डॉक्टर सुनित शर्मा जी ने सभी का धन्यवाद करते हुए कहा

कि जिन विद्यार्थियों को इस सर्टिफिकेट कोर्स में भाग लेने का मौका नहीं मिला उनको दूसरे कोर्स में दाखिला जरूर लेना चाहिए ताकि आपका सर्वांगीण विकास हो सके और उन्होंने इस कोर्स को शुरू करने वाली टीम प्रोफेसर अजयपाल सिंह, डॉ. रंजु गंभीर और प्रो. सुखजिंदर जी को इस कोर्स को शुरू करने में किए गए योगदान के लिए बधाई दी। अंत में कार्यक्रम के सफल आयोजन के लिए प्रबंधक समिति के महासचिव श्री एल.एन. मिगलानी जी और प्राचार्य डॉ. अजय कुमार गर्ग जी ने वाणिज्य विभाग के सभी सदस्यों को बधाई दी। इस अवसर पर कॉलेज की उप-प्राचार्या डॉ. मधु शर्मा, प्रो.पी. के. नरूला, प्रो. रंजना शर्मा, डॉ. मो. ईशाक, डॉक्टर सुनित शर्मा, डॉ. विक्रम, प्रो. अजयपाल सिंह, प्रो. माधवी, डॉक्टर रंजु गंभीर, प्रो. सुखजिंदर सिंह, प्रो. रूहानी शर्मा, प्रो. राजेश बाला, प्रो. सोनिया डींगरा, प्रो. रुचिका बजा, प्रो. मनीत कौर और प्रो. नीतू भाटिया आदि उपस्थित रहे।

आईबी कॉलेज में 30 दिवसीय टैली कोर्स का आयोजन

आज समाज नेटवर्क

पानीपत। आईबी पीजी कॉलेज के कॉमर्स डिपार्टमेंट ने टैली अकैडमी के संयुक्त तत्वावधान में 30 दिवसीय सर्टिफिकेट कोर्स ट्याली का आयोजन किया, जिसकी नियमित कक्षाएं 28 दिसंबर 2020 से लगातार जारी है। प्राचार्य डॉ अजय कुमार गर्ग ने कहा कि टैली कोर्स के माध्यम से विद्यार्थियों का अकाउंटिंग सिस्टम की प्रैक्टिकल ज्ञान प्राप्त होगा तथा साथ ही साथ टैली अकैडमी का सर्टिफिकेट कोर्स करने के बाद विद्यार्थी को यह फिक्र करने की जरूरत नहीं पड़ती की जॉब मिलेगी या नहीं, क्योंकि आपको अगर अकाउंटिंग आती है, तो लोग आपसे खुद बोलेंगे कि आप उनका अकाउंट मेंटेन कर दें। कोर्स के मुख्य वक्ता रविंद्र

टैली अकाउंटिंग सिस्टम के एक्सपर्ट है। वह बहुत सरल तरीके से हर पहलू को बता रहे हैं। और साथ ही साथ प्रैक्टिकल नॉलेज भी विद्यार्थी को दे रहे हैं कोर्स कोऑर्डिनेटर प्रोफेसर अजय पाल जी ने कहा कि इस कोर्स को करने के बाद जो विद्यार्थी अकाउंटिंग और फाइनेंस सेक्टर में करियर बनाना चाहते हैं उनके लिए अपार संभावनाएं खुल जाएंगी। अकाउंटिंग एंड जीएसटी के सभी प्रैक्टिकल इन बच्चों को इस कोर्स में सिखाए जाएंगे। वाणिज्य विभाग के विभागाध्यक्ष डॉ सुनीत शर्मा ने कहा कि इस तरह के शॉर्ट टर्म कोर्स करके विद्यार्थियों का ज्ञान वर्धन होता है तथा उनका सर्वांगीण विकास संभव हो पाता है। डॉ सुनीत शर्मा ने विद्यार्थियों को उनके उज्जवल भविष्य के लिए शुभकामनाएं दी।

आईबी कॉलेज में चल रहा टैली कोर्स

पानीपत (विनोद पांचाल) : आईबी पीजी कॉलेज के कॉमर्स डिपार्टमेंट ने टैली अकैडमी के संयुक्त तत्वावधान में 30 दिवसीय सर्टिफिकेट कोर्स टैली का आयोजन किया। जिसकी नियमति कक्षाएं 28 दिसंबर 2020 से लगातार जारी हैं। प्राचार्य डॉ.अजय गर्ग ने कहा कि टैली कोर्स के माध्यम से विद्यार्थियों का अकाऊंटिंग सिस्टम की प्रैक्टिकल ज्ञान प्राप्त होगा तथा साथ ही साथ टैली अकैडमी का सर्टीफिकेट कोर्स करने के बाद विद्यार्थी को यह फिक्र करने की जरूरत नहीं पड़ती की जॉब मिलेगी या नहीं क्योंकि आपको अगर अकाऊंटिंग आती है तो लोग आपसे खुद बोलेंगे कि आप उनका अकाऊंट मेंटेन कर दें। कोर्स के मुख्य वक्ता रविंद्र अंजे टैली अकाऊंटिंग सिस्टम के एक्सपर्ट हैं। वह बहुत सरल तरीके से हर पहलू को बता रहे हैं। कोर्स कोऑर्डिनेटर प्रो. अजय पाल ने कहा कि इस कोर्स को करने के बाद जो विद्यार्थी अकाउटिंग और फ इनेंस सेक्टर में कैरियर बनाना चाहते हैं उनके लिए अपार संभावनाएं खुल जाएंगी। इस अवसर पर वाणज्यि विभाग के विभागाध्यक्ष डॉ.सुनीत शर्मा, डॉ.रंजू, प्रो.सुखिजंदर, खुशबू व कुलदीप आदि उपस्थित रहे।

VALEDICTORY & CERTIFICATION DISTRIBUTION FUNCTION

करनाल, 21 फरवरी 2021

दैनिक एक्शन इंडिया

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'आज की आवश्यकता है कंप्यूटर से एकाउंटिंग का ज्ञान'

पानीपत/एक्शन इंडिया ब्यूरो
स्थानीय आई. बी स्नातकोत्तर
महाविद्यालय पानीपत में
अल्पकालीन कोर्सेंज के अंतर्गत
ऑनलाइन TALLYACE
सर्टिफिकेट कोर्स के समापन पर
सर्टिफिकेट वितरण समारोह
आयोजित किया गया। इस समारोह
का शुभारंभ प्राचार्य डॉ अजय कुमार
गर्ग, वाणिज्य विभाग अध्यक्ष डॉ
सुनीत शर्मा, कोर्स कोऑर्डिनेटर
प्रोफेसर अजयपाल सिंह, डॉ रंजू,
प्रोफेसर सुखजिंदर सिंह व रविन्दर
वत्स द्वारा दीप प्रज्वलित करके किया
गया। प्राचार्य डॉ अजय कुमार गर्ग ने
अपने संबोधन में कहा कि प्रत्येक
युवा एवं विद्यार्थी को अधिकतम
कौशल प्राप्त करने को हमेशा तैयार

रहना चाहिए। व्यक्ति स्वयं जानता है,
वह अधिक सफल हो सकता है
और उन्होंने इस सर्टिफिकेट कोर्स
की आयोजक टीम के कोर्स
कोऑर्डिनेटर डॉ अजयपाल सिंह,
डॉ रंजू व प्रोफेसर सुखजिंदर सिंह
को सफल आयोजन के लिए बधाई
दी। वाणिज्य विभाग अध्यक्ष डॉ
सुनीत शर्मा ने विद्यार्थियों को
संबोधित करते हुए कहा कि
एकाउंटिंग की जानकरी तो आज के

अर्थ युग में सबके लिए आवश्यक
बन गई है। टैली और जीएसटी के
ज्ञान को कैरियर बनाने के लिए
उपयोगी विधा बताया। कोर्स
कोऑर्डिनेटर प्रोफेसर अजयपाल
सिंह ने विद्यार्थियों और अतिथियों
का स्वागत करते हुए कहा कि हमारी
एकेडमिक ज्ञान के साथ-साथ हमारी
प्रोफेशनल स्किल भी जीवन में बहुत
काम आती है इसीलिए आपको जब
भी मौका मिले अपने ज्ञान और

दक्षता बढ़ाने का उसे गंवाना नहीं
चाहिए इस अवसर पर टैली प्राइवेट
लिमिटेड के रीजनल मैनेजर विजय
कुमार ने कहा कि यह टैली
सर्टिफिकेट कोर्स आपको राष्ट्रीय
अंतर्राष्ट्रीय स्तर पर रोजगार दिलाने
में सहायक होगा। इसी क्रम में
विद्यार्थियों ने भी अपने विचार प्रस्तुत
किए और कहा कि इस टैली कोर्स
से हमारे व्यवहारिक ज्ञान को बढ़ावा
मिला है इस अवसर पर मंच का
संचालन कंप्यूटर साइंस विभाग से डॉ
रंजू ने किया और अंत में आईबी
गवर्निंग बॉडी के उपप्रधान बलराम
नंदवानी और सचिव एल.एन.
मिगलानी ने कोर्स के सफल
आयोजन के लिए आयोजक टीम व
सभी विद्यार्थियों को बधाई दी।

अमर उजाला

'लेखांकन का ज्ञान आज की आवश्यकता'

पानीपत। आईबी स्नातकोत्तर महाविद्यालय में अल्पकालीन कोर्सेज के
अंतर्गत ऑनलाइन टेलीएस सर्टिफिकेट कोर्स के समापन पर सर्टिफिकेट
वितरण समारोह आयोजित किया गया। समारोह का शुभारंभ प्राचार्य डॉ.
अजय कुमार गर्ग, वाणिज्य विभाग अध्यक्ष डॉ. सुनीत शर्मा, कोर्स
कोऑर्डिनेटर प्रोफेसर अजयपाल सिंह, डॉ. रंजू, प्रोफेसर सुखजिंदर सिंह व
रविंद्र वत्स द्वारा दीप प्रज्वलित करके किया गया। प्राचार्य डॉ. अजय कुमार
गर्ग ने अपने संबोधन में कहा कि प्रत्येक युवा एवं विद्यार्थी को अधिकतम
कौशल प्राप्त करने को हमेशा तैयार रहना चाहिए। जो व्यक्ति स्वयं जानता है,
वह अधिक सफल हो सकता है। वाणिज्य विभाग अध्यक्ष डॉ. सुनीत शर्मा
,कोर्स कोऑर्डिनेटर प्रोफेसर अजयपाल सिंह , टैली प्राइवेट लिमिटेड के
रीजनल मैनेजर विजय कुमार, कंप्यूटर साइंस विभाग से डॉ. रंजू, आईबी
गवर्निंग बॉडी के उपप्रधान बलराम नंदवानी और सचिव एलएन मिग्लानी ने
इस सर्टिफिकेट कोर्स के सफल आयोजन के लिए बधाई दी। प्रोफेसर
सुखजिंदर सिंह, प्रोफेसर करुणा व प्रोफेसर रीना रानी उपस्थित रहे। संवाद

NEWS

ऑनलाइन टेली कोर्स के समापन पर सर्टिफिकेट वितरण समारोह आयोजित

आज समाज नेटवर्क

पानीपत। स्थानीय आई. बी स्नातकोत्तर महाविद्यालय पानीपत में अल्पकालीन कोर्सेज के अंतर्गत ऑनलाइन टेली सर्टिफिकेट कोर्स के समापन पर सर्टिफिकेट वितरण समारोह आयोजित किया गया। इस समारोह का शुभारंभ प्राचार्य डॉ अजय कुमार गर्ग, वाणिज्य विभाग अध्यक्ष डॉ सुनीत शर्मा, कोर्स कोऑर्डिनेटर प्रोफेसर अजयपाल सिंह, डॉ रंजू, प्रोफेसर सुखजिंदर सिंह व रविन्दर वत्स द्वारा दीप प्रज्वलित करके किया गया। प्राचार्य डॉ अजय कुमार गर्ग ने अपने संबोधन में कहा कि प्रत्येक युवा एवं विद्यार्थी को अधिकतम कौशल प्राप्त करने को हमेशा तैयार रहना चाहिए। जो व्यक्ति स्वयं जानता है, वह अधिक सफल हो सकता है और उन्होंने इस सर्टिफिकेट कोर्स की

विद्यार्थियों को टेली सर्टिफिकेट वितरित करते प्राचार्य डॉ अजय गर्ग एवं अन्य।

आयोजक टीम के कोर्स कोऑर्डिनेटर डॉ अजयपाल सिंह, डॉ रंजू व प्रोफेसर सुखजिंदर सिंह को सफल आयोजन के लिए बधाई दी। वाणिज्य विभाग अध्यक्ष डॉ सुनीत शर्मा ने विद्यार्थियों को संबोधित करते

हुए कहा कि एकाउंटिंग की जानकारी तो आज के अर्थ युग में सबके लिए आवश्यक बन गई है। उन्होंने टैली और जीएसटी के ज्ञान को कैरियर बनाने के लिए उपयोगी विधा बताया।

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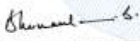**AKASH**

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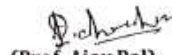
REF. NO. IBC/Notice/01/2021

DATED 13/1/2021

NOTICE

It is hereby notified for the general information of all concerned that under Student Development Programme, a certificate course (Online) in **English Communication and Soft Skills** is being launched in collaboration with **Curtina Study Visa** with effect from 15 January, 2021. The course is open to all bonafide regular students (Arts, Science and Commerce) of the college. There are 40 seats in all. The seats will be allotted on first come, first served basis. The duration of the course is one month. The total fee of the course is Rs 2000/- per student. The student will be required to pay Rs 1000/- only. After the completion of the course, each successful candidate will receive a certificate to the effect.
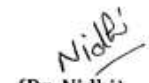
Those interested in the course should give their names to the following members of the course committee on or before 14 January, 2021:

1. Prof. Sonal (9466100045)

2. Prof. Vandana (9034200040)

3. Prof. Sukhjinder Singh (7015552507)

4. Prof. Vinay Bharti (9034810908)

(Dr. Ajay Kumar)
Principal

(Prof. Neelam)
Convener

(Prof. Ajay Pal)
Coordinator

(Dr. Nidhi)
Coordinator

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Principal	Convener	Co-odinator	Co-odinator

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(15 JANUARY, 2021)

DR. AJAY GARG	PROF. NEELAM	PROF. AJAY PAL SINGH	DR. NIDHI
PRINCIPAL	CONVENER	CO-ORDINATOR	CO-ORDINATOR

ENGLISH COMMUNICATION & SOFT SKILLS

ENGLISH COMMUNICATION & SOFT SKILLS

ENGLISH COMMUNICATION & SOFT SKILLS

NEWS

कम्युनिकेशन एंड सॉफ्ट स्किल्स ऑनलाइन सर्टिफिकेट कोर्स शुरू

सड़क-सुरक्षा सप्ताह के तहत लगाया वेबीनार

सड़क-सुरक्षा सप्ताह के तहत कार्यक्रम में उपस्थित विद्यार्थी व प्रोफेसर।

भास्कर न्यूज | पानीपत

आईबी पीजी कॉलेज में शुक्रवार को कम्युनिकेशन एंड सॉफ्ट स्किल्स ऑनलाइन सर्टिफिकेट कोर्स शुरू किया गया। इस मौके पर प्रोफेशनल लाइफ के साथ-साथ पर्सनल लाइफ में भी सॉफ्ट स्किल्स के महत्व के बारे में जानकारी दी। प्राचार्य ने कहा कि अगर आपमें एक बेहतर कम्युनिकेशन स्किल है तो आप अपनी बातों को लोगों के सामने एक बेहतर ढंग से रख सकते हैं। वहीं कॉलेज में मनाए जा रहे 32वें सड़क-सुरक्षा सप्ताह के तहत गुरुवार को भारत में सड़क सुरक्षा युवा शक्ति के माध्यम से परिवर्तन लाना नामक विषय पर राष्ट्रीय वेबीनार का आयोजन किया गया। मुख्य वक्ता डीएसपी सतीश कुमार वत्स रहे।

आईबी कालेज में सॉफ्ट स्किल्स ऑनलाइन सर्टिफिकेट कोर्स शुरु

पानीपत, 15 जनवरी (विनोद पांचाल) : जी.टी.रोड स्थित आईबी कालेज में एक महीने का कम्युनिकेशन एंड सॉफ्ट स्किल्स ऑनलाइन सर्टीफिकेट कोर्स का प्रारंभ प्राचार्य डॉ. अजय कुमार गर्ग, उप.प्राचार्य डॉ. मधु शर्मा, प्रो. नीलम दहिया, प्रो. अजयपाल सिंह, डॉ. निधि द्वारा दीप प्रज्ज्वलन करके किया गया। कालेज प्राचार्य डॉ. अजय गर्ग ने कहा कि सही जगह पर सही भाषा का चुनाव करना बेहद जरूरी है। अगर आपमे एक बेहतर कम्युनिकेशन स्किल है तो आप अपनी बातों को लोगों के सामने बेहतर ढंग से रख सकते हैं। उप.प्राचार्य डॉ. मधु शर्मा ने कहा की आज के इस दौर में अपने विचारों को

सॉफ्ट स्किल्स ऑनलाइन सर्टीफिकेट कोर्स के शुभारंभ पर मौजूद विद्यार्थी व स्टाफ।(मोहन लाल)

शेयर करने की कला हर व्यक्ति को आनी चाहिए। जिसमें कम्युनिकेशन और सॉफ्ट स्किल्स का विकसित होना बहुत जरूरी है। कन्वेनर आफ द कोर्स डॉ. नीलम ने कहा कि जॉब इंटरव्यू के दौरान बाकी स्किल्स के साथ सॉफ्ट स्किल्स को भी परखा जाता है। सॉफ्ट स्किल्स सिर्फ प्रोफेशनल लाइफ के लिए ही नही बल्कि पर्सनल लाइफ के लिए भी जरूरी है। इस अवसर पर कार्यक्रम की प्रमुख वक्ता प्रो. साक्षी गुप्ता, प्रो. सोनल डोगरा, प्रो.पिंकी नरूला, कॉमर्स विभागाध्यक्ष डॉ. सुनित शर्मा, डॉ.

निशान सिंह, डॉ. विनय वाघबा, प्रो. सोनिया व प्रो. गीतिका आदि मौजूद रहे। वहीं कालेज एवं जिला रेड क्रॉस सोसाइटी के संयुक्त तत्वाबधान में मनाए जा रहे 32वें सड़क सुरक्षा सप्ताह के तहत आज पांचवे दिन भारत में सड़क सुरक्षा युवा शक्ति के माध्यम से परिवर्तन लाना के विषय पर राष्ट्रीय वेबीनार का महाविद्यालय के रेड सेफ्टी क्लब, एनएसएस, एनसीसी और संस्कारशाला क्लब के सहयोग से आयोजित किया गया। वेबिनार के मुख्य वक्ता डीएसपी मुख्यालय सतीश वत्स रहे। सतीश वत्स ने अपने अनुभव व सड़क के नियमों के बारे सभी को विस्तार से समझाया।

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संवाद न्यूज एजेंसी

आईबी कॉलेज में कम्युनिकेशन एंड सॉफ्ट स्किल्स ऑनलाइन सर्टिफिकेट कोर्स के प्रतिभागी। संवाद

पानीपत। आईबी कॉलेज में एक महीने का कम्युनिकेशन एंड सॉफ्ट स्किल्स ऑनलाइन सर्टिफिकेट कोर्स का प्रारंभ किया गया। कार्यक्रम का शुभारंभ प्राचार्य डॉ. अजय कुमार गर्ग, उप प्राचार्य डॉ. मधु शर्मा, प्रो. नीलम दहिया, प्रो. अजयपाल सिंह, डॉ. निधि के द्वारा दीप प्रज्वलित कर किया गया।

इस अवसर पर प्राचार्य डॉ. अजय गर्ग ने कहा कि सही जगह पर सही भाषा का चुनाव करना बेहद जरूरी है। अगर आपमें एक बेहतर कम्युनिकेशन स्किल है तो आप अपनी बातों को लोगों के सामने एक बेहतर ढंग से रख सकते हैं। कॉलेज की उप प्राचार्य डॉ. मधु शर्मा ने कहा कि आज के इस दौर में अपने विचारों को शेयर करने की कला हर व्यक्ति को आनी चाहिए। जिसमें कम्युनिकेशन और सॉफ्ट स्किल्स का विकसित होना बहुत जरूरी है। कन्वेनर ऑफ दा कोर्स डॉ. नीलम ने कहा कि जॉब इंटरव्यू के दौरान आपकी बाकी स्किल्स के साथ सॉफ्ट स्किल्स को भी परखा जाता है। इस अवसर पर कार्यक्रम की प्रमुख वक्ता प्रो. सक्षी गुप्ता ने विद्यार्थियों का उत्साहवर्धन करते हुए कहा कि कम्युनिकेशन भी सॉफ्ट स्किल का ही प्रमुख हिस्सा है।

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आईबी कॉलेज में ऑनलाइन सर्टिफिकेट कोर्स का प्रारंभ

पानीपत। शुक्रवार को आईबी कॉलेज में एक महीने का कम्युनिकेशन एंड सॉफ्ट स्किल्स ऑनलाइन सर्टिफिकेट कोर्स का प्रारंभ किया गया। कार्यक्रम का शुभारम्भ प्राचार्य डॉ. अजय कुमार गर्ग, उप-प्राचार्य डॉ. मधु शर्मा, प्रो. नीलम दहिया, प्रो. अजयपाल सिंह, डॉ. निधि के द्वारा दीप प्रज्वलन करके किया गया। कॉलेज प्राचार्य डॉ. अजय गर्ग ने कहा कि सही जगह पर सही भाषा का चुनाव करना बेहद जरूरी है। अगर आपमें एक बेहतर कम्यूनिकेशन स्किल है तो आप अपनी बातों को लोगों के सामने एक बेहतर ढंग से रख सकते है। कॉलेज की उप-प्राचार्या डॉ. मधु शर्मा ने कहा की आज के इस दौर में आपने विचारो को शेयर करने की कला हर व्यक्ति को आनी चाहिए जिसमे कम्युनिकेशन और सॉफ्ट स्किल्स का विकसित होना बहुत जरुरी है। कन्वेनर ऑफ दा कोर्स डॉ. नीलम ने कहा कि जॉब इंटरव्यू के दौरान आपकी बाकी स्किल्स के साथ सॉफ्ट स्किल्स को भी परखा जाता है। सॉफ्ट स्किल्स सिर्फ आपकी प्रोफेशनल लाइफ के लिए ही नही बल्कि आपकी पर्सनल लाइफ के लिए भी जरूरी है।

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इंग्लिश कम्युनिकेशन एंड सॉफ्ट स्किल्स सर्टिफिकेट विद्यार्थियों के लिए महत्वपूर्ण : डॉ गर्ग

आज समाज नेटवर्क

पानीपत। आई.बी स्नातकोत्तर महाविद्यालय पानीपत में इंग्लिश कम्युनिकेशन एंड सॉफ्ट स्किल्स सर्टिफिकेट कोर्स के विद्यार्थियों के लिए फंक्शन का आयोजन किया गया। कार्यक्रम का शुभारम्भ कॉलेज की प्रबंध समिति के महासचिव एलएन मिगलानी, प्राचार्य. डॉ अजय कुमार गर्ग, उपप्राचार्या डॉ. मधु शर्मा, प्रो. नीलम,प्रो. अजय पाल, डॉ. निधि मल्होत्रा के द्वारा दीप प्रज्वलित करके किया गया। यह कोर्स आई.बी. स्नातकोत्तर महाविद्यालय में कैरटिना स्टडी वीजा संयुक्त तत्वावधान में कराया गया। कॉलेज प्रबंध समिति के महासचिव श्री एल. एन. मिगलानी जी ने सभी विद्यार्थियों और कोर्स के

आयोजको को बधाई दी और सर्टिफिकेट कोर्सेज महता को बताते हुए कहा कि पढ़ाई के साथ झ साथ अगर ऐसे विद्यार्थी ऐसे सर्टिफिकेट कोर्सेज करते रहेंगे तो वो कोर्सेज भविष्य में उनके पढ़ाई में बहुत काम आएंगे और उन्हें आगे बढ़ने में और सफलता प्रदान करने में सहायक होंगे।

इस अवसर पर महाविद्यालय के प्राचार्य. डॉ अजय कुमार गर्ग ने विद्यार्थियों का उत्साह वर्धन करते हुए कहा कि डिग्री के साथ-साथ ये सर्टिफिकेट कोर्सेज विद्यार्थियों के लिए बहुत महत्वपूर्ण रहेंगे। कोरोना के समय में इन विद्यार्थियों ने समय का सदुपयोग किया और अपने आप को बेहतर बनाने

का प्रयास किया है और अपनी कम्युनिकेशन और सॉफ्ट स्किल्स को इंप्रूव किया है। उन्होंने आयोजको को कार्यक्रम के सफल आयोजन के लिए बधाई दी और बताया कि आई.बी सनात्कोतर महाविद्यालय में इस प्रकार के कोर्सेज समय-समय पर करवाए जाते हैं। इस सत्र में भी विभिन्न प्रकार के सर्टिफिकेट कोर्स शुरू किए जा रहे है। महाविद्यालय की उपप्राचार्या डॉ. मधु शर्मा ने सभी विद्यार्थियों को बधाई देते हुए कहा कि अपनी कम्युनिकेशन स्किल्स को बढ़ाना वर्तमान समय में बहुत आवश्यक है और अपने व्यक्तित्व को निखारने के लिए ये कोर्सेज करना बहुत आवश्यक है। प्रो. साक्षी ने कहा कि उनका सभी विद्यार्थियों के साथ बहुत अच्छा अनुभव रहा है। इस कोर्स के बाद विद्यार्थी अपनी क्षमताओं को

इंग्लिश कम्युनिकेशन एंड सॉफ्ट स्किल्स सर्टीफिकेट कोर्स के विद्यार्थियों का किया विदाई समारोह

पानीपत, (विनोद पांचाल) : आईबी स्नातकोत्तर महाविद्यालय में इंग्लिश कम्युनिकेशन एंड सॉफ्ट स्किल्स सर्टिफिकेट कोर्स के विद्यार्थियों के लिए विदाई समारोह का आयोजन किया गया।

महासचिव एलएन मिगलानी व प्राचार्य डा. अजय गर्ग विद्यार्थी को सम्मानित करते हुए। (मोहन लाल)

कार्यक्रम का शुभारम्भ प्रबंध समिति के महासचिव एलएन मिगलानी, प्राचार्य डा. अजय गर्ग, उप प्राचार्या डा. मधु शर्मा, प्रो. नीलम, प्रो. अजय पाल, डा. निधि मल्होत्रा द्वारा दीप प्रज्विलत करके किया गया। इस अवसर पर प्रो. नीलम, डा.सीमा, प्रो. अजय पाल, डा. निधि, प्रो. माधवी, प्रो. वन्दना, प्रो. सोनल, प्रो. सुरेंदर, प्रो. अंशिका उपस्थित रहे।

सर्टिफिकेट कोर्स विद्यार्थियों के लिए बहुत महत्वपूर्ण : प्राचार्य

स्मृति चिह्न भेंट करते कालेज प्रबंधक समिति के महासचिव एलएन मिगलानी व प्राचार्य डा. अजय गर्ग। ● सौजन्य पीआरओ

पानीपत : आइबी पीजी कालेज में इंग्लिश कम्युनिकेशन एंड साफ्ट स्किल्स सर्टिफिकेट कोर्स के विद्यार्थियों के लिए समापन समारोह का आयोजन किया गया। शुभारंभ कालेज प्रबंधक समिति के महासचिव एलएन मिगलानी व प्राचार्य डा. अजय कुमार गर्ग ने दीप प्रज्वलन के साथ किया। कोर्स कालेज में कार्टिना स्टडी वीजा के संयुक्त तत्वाधान में कराया गया। कालेज प्रबंधक समिति के महासचिव एलएन मिगलानी ने सर्टिफिकेट कोर्स की महत्ता बताते हुए कहा कि पढ़ाई के साथ अगर विद्यार्थी ऐसे सर्टिफिकेट कोर्सेज करते हैं तो वो भविष्य में उनके काम आएंगे। उन्हें आगे बढ़ने में और सफलता मिलेगी। वहीं प्राचार्य डा. अजय गर्ग ने कहा कि डिग्री के साथ सर्टिफिकेट कोर्स विद्यार्थियों के लिए बहुत महत्वपूर्ण रहेंगे। कोरोना के समय में विद्यार्थियों ने समय का सदुपयोग किया और अपने आप को बेहतर बनाने का प्रयास किया है। उपप्राचार्या डा. मधु शर्मा ने कहा कि अपनी संचार कौशलता को बढ़ाना वर्तमान समय में बहुत आवश्यक है। इस मौके प्रो. साक्षी, प्रो. नीलम दहिया, प्रो. सोनल, डा. सीमा, प्रो. अजय पाल, डा. निधि, प्रो. माधवी, प्रो. वन्दना, प्रो. सोनल, प्रो. सुरेंदर और प्रो. अंशिका मौजूद रहीं।(जास)

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(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/Notice / 140/2021   DATED 17/8/2021

NOTICE

The Career and Guidance Cell of our college is going to organise an online training programme for the students of final year as per the details:

Theme: How to Develop Great Interview Skills
Duration: 18 hours.

It will be a certificate course. Interested students register on the following link on or before 19th August 2021.

Link for registration

https://forms.gle/9nTKJTwA4ExHwb4Q8

(Dr. Arpana Garg)
Training & Placement Officer

(Dr. Ajay Kumar Garg)
Principal

CERTIFICATE

rubicon

CERTIFICATE
— OF PARTICIPATION —

THE CERTIFICATE IS PRESENTED TO:

Parth

For successfully participating in Online Training Session from 14th September 2021 to 23rd September 2021 on "Employability Skills" under "LifeSkills" program organized by Rubicon in collaboration with I.B. (PG) College, Panipat, Haryana.

Dhanya Narayanan
Chief Operating Officer

rubicon

CERTIFICATE
— OF PARTICIPATION —

THE CERTIFICATE IS PRESENTED TO:

Aashad

For successfully participating in Online Training Session from 14th September 2021 to 23rd September 2021 on "Employability Skills" under "LifeSkills" program organized by Rubicon in collaboration with I.B. (PG) College, Panipat, Haryana.

Dhanya Narayanan
Chief Operating Officer

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC|Notice|2021|210
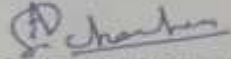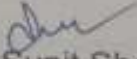
DATED...9|11|2021

NOTICE

All the students are informed that our college is going to start a certificate course in "TALLY ESSENTIAL" in collaboration with TALLY Education Pvt. Ltd. This course is commencing from 10-11-2021. Nominal fee of Rs.2000/- will have to be paid by the student. Despite this, first 40 registrations will be given extra 25% scholarship by the TALLY Academy. This Certificate Course will give an opportunity to your career with accelerate your professional career in present competitive era.
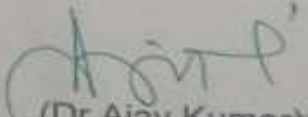
Those interested in course should give their names to the following members of the course committee on or before 09 November, 2021:

Organizing Committee

1. Dr. Ranju (Member) 7015265350
2. Prof. Sukhjinder Singh (Member) 7015552507
3. Prof. Sonia Dhingra (Member) 9812716325

(Prof. Ajay Pal Singh)
Co-ordinator

(Dr. Sunit Sharma)
Convener

(Dr. Ajay Kumar)
Principal

TALLY ESSENTIAL

TALLY ESSENTIAL

हरियाणा वाटिका

गुरूवार, 11 नवम्बर 2021

वाणिज्य विभाग एवं टैली एजुकेशन प्राइवेट लिमिटेड के संयुक्त तत्वाधान में 1 महीने का टैली का सर्टिफिकेट कोर्स शुरू

आईबी कालेज में वाणिज्य विभाग एवं टैली एजुकेशन में एक माह का टैली सर्टीफिकेट कोर्स किया शुरू

आईबी कालेज के प्राचार्य डा . अजय गर्ग अतिथि का पुष्प गुच्छ देकर स्वागत करते हुए। (मोहन लाल)

पानीपत (विनोद पांचाल) : जीटी रोड स्थित आईबी स्नातकोत्तर महाविद्यालय में वाणिज्य विभाग एवं टैली एजुकेशन प्राइवेट लिमिटेड के संयुक्त तत्वावधान में एक महीने का टैली का सर्टीफिकेट कोर्स शुरू किया गया।

टैली अकैडमी के संयुक्त तत्वाधान में 30 दिवसीय टैली कोर्स का आयोजन किया

आईबी कॉलेज में विद्यार्थियों को सिखाया जा रहा टैली कोर्स

TALLY ESSENTIAL

TALLY ESSENTIAL

30 दिवसीय ऑनलाइन टैली एसैंशियल सर्टीफिकेट कोर्स का समापन

पानीपत, 12 मार्च (खर्ब): जी.टी. रोड स्थित आई.बी. स्नातकोत्तर महाविद्यालय में 30 दिवसीय ऑनलाइन टैली एसैंशियल सर्टीफिकेट कोर्स के समापन पर सर्टीफिकेट वितरण समारोह आयोजित किया गया। समारोह का शुभारंभ प्राचार्य डा. अजय कुमार गर्ग, वाणिज्य विभाग अध्यक्ष डा. सुनित शर्मा, कोर्स को-ऑर्डिनेटर प्रो.

कार्यक्रम के दौरान बच्चों को सर्टीफिकेट वितरित करते हुए प्राचार्य व अन्य। (पंकेस)

अजयपाल सिंह व इनोवेटिव कम्प्यूटर एकैडमी पानीपत से दीपांशु ग्रोवर ने किया।

प्राचार्य डा. अजय कुमार गर्ग ने कहा कि इस टैली कोर्स के माध्यम से विद्यार्थियों ने आज के युग में इस्तेमाल होने वाली टैक्नोलॉजी के बारे में विस्तार से जाना, जिसका लाभ उन्हें भविष्य में मिलेगा।उन्होंने इस सर्टीफिकेट कोर्स की आयोजक टीम के कोर्स को-ऑर्डिनेटर प्रो. अजयपाल सिंह, डा. रंजू, प्रो. सोनिया ढींगड़ा व प्रो. सुखजिंद्र सिंह को सफल आयोजन के लिए बधाई दी।

टैली कोर्स के संयोजक व वाणिज्य विभाग अध्यक्ष डा. सुनित शर्मा ने कहा कि प्रत्येक विद्यार्थी को अधिकतम कौशल प्राप्त करने के लिए हमेशा तैयार रहना चाहिए। आज के अर्थ युग में अकाउंटिंग की जानकारी सबके लिए आवश्यक है। प्रो. अजयपाल सिंह ने बताया कि

यह सर्टीफिकेट कोर्स टैली प्राइवेट लिमिटेड के साथ मिलकर आयोजित किया गया था। इस एक माह के कोर्स में विद्यार्थियों ने पहले थ्योरी और फिर प्रैक्टिकल सीखा। यह सर्टीफिकेट कोर्स आपको आगे चलकर अकाऊंट व फाइनैंस के क्षेत्र में रोजगार दिलाने में सहायक होगा।

इनोवेटिव कम्प्यूटर एकैडमी पानीपत के निदेशक दीपांशु ग्रोवर ने कहा कि जिन विद्यार्थियों ने यह टैली कोर्स पूर्ण किया है, उनको टैली कंपनी के साथ मिलकर रोजगार दिलवाने का प्रयत्न किया जाएगा व जो विद्यार्थी स्वरोजगार करना चाह रहे हैं, उनकी भी पूरी सहायता की जाएगी। इस मौके पर प्रो. माधवी, डा. शर्मिला यादव, प्रो. राजेश बाला, प्रो. रूहानी शर्मा, डा. रंजू, प्रो. सोनिया ढींगड़ा आदि उपस्थित रहे।

कोर्स के समापन पर प्रमाणपत्र बांटे

पानीपत। आईबी स्नातकोत्तर महाविद्यालय में 30 दिवसीय ऑनलाइन टेली एसेंशियल सर्टीफिकेट कोर्स के समापन पर प्रमाणपत्र वितरण समारोह आयोजित किया गया। समारोह का शुभारंभ प्राचार्य डॉ. अजय कुमार गर्ग, वाणिज्य विभाग अध्यक्ष डॉ. सुनित शर्मा, कोर्स कोऑर्डिनेटर प्रोफेसर अजय पाल सिंह व इन्नोवेटिव कंप्यूटर अकेडमी पानीपत से दीपांशु ग्रोवर ने किया। कोर्स कोऑर्डिनेटर प्रोफेसर अजय पाल सिंह ने बताया कि कोर्स में विद्यार्थियों ने पहले थ्योरी और फिर प्रैक्टिकल सीखा। यह सर्टीफिकेट कोर्स आपको आगे चलकर अकाउंट व फाइनेंस के क्षेत्र में रोजगार दिलाने में महत्वपूर्ण योगदान देगा। संबद

NEWS

संक्षिप्त समाचार

आनलाइन टैली एसेंशियल सर्टिफिकेट कोर्स का समापन

आनलाइन टैली एसेंशियल सर्टिफिकेट कोर्स करने वाले विद्यार्थियों को प्रमाण पत्र वितरित करते आईबी पीजी कालेज के प्राचार्य डा. अजय कुमार व अन्य। ● सौजन्य विज्ञप्ति

पानीपत : आइबी पीजी कालेज में 30 दिवसीय आनलाइन टैली एसेंशियल सर्टिफिकेट कोर्स के समापन पर शनिवार को सर्टिफिकेट वितरण समारोह आयोजित किया गया। शुभारंभ प्राचार्य डा. अजय गर्ग, वाणिज्य विभाग अध्यक्ष डा. सुनित शर्मा, कोर्स कोआर्डिनेटर प्रो. अजय पाल सिंह व इन्नोवेटिव कंप्यूटर अकेड्मी से दीपांशु ग्रोवर ने किया। मंच संचालन डा. रंजु ने किया। प्राचार्य डा. अजय गर्ग ने कहा कि टैली कोर्स के माध्यम से विद्यार्थियों ने आज के युग में इस्तेमाल होने वाली टेक्नोलाजी के बारे में विस्तार से जाना। इसका लाभ उन्हें अपने जीवन में मिलेगा। वहीं टैली कोर्स के संयोजक डा. सुनित शर्मा ने कहा कि प्रत्येक युवा विद्यार्थी को अधिकतम कौशल प्राप्त करने को हमेशा तैयार रना चाहिए। सर्टिफिकेट कोर्स टैली प्राइवेट लिमिटेड के साथ मिलकर आयोजित किया गया। इस मौके पर प्रो. सोनिया ढींगरा, प्रो. सुखजिंदर सिंह, प्रो. माधवी, डा. शर्मिला यादव, प्रो. राजेश बाला, प्रो. रूहानी शर्मा आदि मौजूद रहे। (वि.)

टैली एसेंशियल सर्टीफिकेट कोर्स के समापन पर बांटे सर्टीफिकेट

पानीपत (मोहन लाल) : आईबी स्नातकोत्तर महाविद्यालय में 30 दिवसीय ऑनलाइन टैली एसेंशियल सर्टीफिकेट कोर्स के समापन पर सर्टीफिकेट वितरण समारोह आयोजित किया गया। समारोह का शुभारंभ

आईबी कालेज में टैली एसेंशियल सर्टीफिकेट कोर्स के समापन पर सर्टीफिकेट बांटते प्राचार्य डा. अजय गर्ग। (मोहन लाल)

प्राचार्य डा. अजय गर्ग, वाणज्यि विभाग अध्यक्ष डा. सुनित शर्मा, कोर्स कोऑर्डिनेटर प्रोफेसर अजय पाल सिंह व इन्नोवेटिव कंप्यूटर एकैडमी से दीपांशु ग्रोवर ने किया। प्राचार्य डा. अजय गर्ग ने कहा कि इस टैली कोर्स के माध्यम से विद्यार्थियों ने आज के युग में इस्तेमाल होने वाली टैकनोलॉजी के बारे में विस्तार से जानकर इसका लाभ जीवन में मिलेगा। उन्होंने सर्टीफिकेट कोर्स की आयोजक टीम के कोर्स कोऑर्डिनेटर प्रो. अजय पाल सिंह, डा. रंजू, प्रो. सोनिया ढींगरा व प्रो. सुखिजंदर सिंह को बधाई दी। मंच संचालन डा. रंजू ने किया। कोर्स कोऑर्डिनेटर प्रोफैसर अजय पाल सिंह ने सबका धन्यवाद किया। उन्होंने बताया कि सिर्टिफकेट कोर्स टैली प्राइवेट लिमिटेड के साथ मिलकर आयोजित किया गया था। दीपांशु ग्रोवर ने विद्यार्थियों को संबोधित करते हुए कहा जिन विद्यार्थियों ने यह टैली कोर्स पूर्ण किया है। इस अवसर पर प्रो. अजय पाल सिंह, प्रो. माधवी, डा. शर्मिला यादव, प्रो. राजेश बाला, प्रो. रूहानी शर्मा, डा. रंजू, प्रो. सोनिया ढींगरा, प्रो. रुचिका बता, प्रो. रीना, प्रो. सुखजिंद्र सिंह व विष्णु उपस्थित रहे।

CERTIFICATE

Certificate of Merit

Tally
POWER OF SIMPLICITY

TEPL
Tally Education

This certificate is awarded to
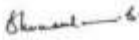
REKHA

Son/Daughter of

BAJINDER

for successfully completing

TallyEssential Level 1

and securing Grade **B**

Place of Issue: Bengaluru
Date Certified: **26-Feb-2022**
Release: **Prime 2.0**

Bhuwaneshwari B
Chief Executive Officer
Tally Education Pvt. Ltd.

Certificate No: **907298802**
Institute Name
I.B.COLLEGE, PANIPAT (A Post Graduate Premier Co-Educational College)

Tally Education Pvt. Ltd., a subsidiary of Tally Solutions, is the only entity authorised to issue certifications on Computerised Accounting with Tally.
This Certificate can be verified at www.tallyeducation.com

Certificate of Merit

Tally
POWER OF SIMPLICITY

TEPL
Tally Education

This certificate is awarded to
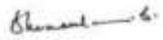
AJAY

Son/Daughter of

VEDPAL

for successfully completing

TallyEssential Level 1

and securing Grade **B**

Place of Issue: Bengaluru
Date Certified: **26-Feb-2022**
Release: **Prime 2.0**

Bhuwaneshwari B
Chief Executive Officer
Tally Education Pvt. Ltd.

Certificate No: **900298782**
Institute Name
I.B.COLLEGE, PANIPAT (A Post Graduate Premier Co-Educational College)

Tally Education Pvt. Ltd., a subsidiary of Tally Solutions, is the only entity authorised to issue certifications on Computerised Accounting with Tally.
This Certificate can be verified at www.tallyeducation.com

ONLINE COURSE ON DIGITAL MARKETING

NOTICE

I.B. (PG) COLLEGE, PANIPAT

Ref. No. IBC/Notice/2021/251

Date: 30.11.2021

NOTICE

We are glad to inform you that the Department of Marketing in collaboration with Career Guidance & Placement Cell is going to organize Online Certificate Course on Digital Marketing. The inaugural session will be held in Room No. 34 on 2nd December, 2021 at 11:30 a.m. sharp. All the staff members are requested to attend the same as per their convenience.

Dr. Arpana Garg
Convener
Placement Cell

Dr. Poonam Madan
Head,
Deptt. of Mktg. Mgmt.

Dr. Ajay Kumar Garg
Patron cum Principal

SR. NO.	NAME	Signature	SR. NO.	NAME	Signature
1	MR. ASHWANI GUPTA (Comp. Sc.)		33	MS. KOMAL	
2	MR. VINAY BHARTI		34	MR. SOURAV	
3	DR. RANJU GROVER		35	MS. DEEPALI	
4	MRS. NEETU MANOCHA		36	MS. BHAWNA	
5	MRS. DEEPTY JUNEJA		37	MS. KIRTI ASIJA	
6	MRS. NITIKA GOEL		38	MS. SAKSHI SHARMA	
7	MS. RITU BHARDWAJ		39	MRS. ERA GARG (Chemistry)	
8	MRS. RAJESH BALA (Commerce)		40	MS. SIMRAN	
9	MRS. RUHANI SHARMA		41	DR. VINAY WADHWA (English)	
10	MS. SONIA DHINGRA		42	DR. VANDANA ROHAL	
11	MRS. VANITA REHANI		43	MRS. SONAL DOGRA	
12	MRS. SAKSHI MUNJAL		44	MS. REKHA SHARMA	
13	MRS. KARUNA SACHDEVA		45	MRS. SHEELA MALIK	
14	MRS. RITIKA JATANA		46	MS. CHESHTHA MADAAN	
15	MS. NISHA GUPTA		47	MS. SHILPA NAIN	
16	MS. REENA RANI		48	MS. SMILEY	
17	MS. RUCHIKA BATRA		49	MS. MANJALI	
18	MS. MANEET KAUR		50	MS. KAJAL	
19	MRS. POOJA DUDEJA		51	MRS. SUMAN MALIK	
20	MS. AKANSHA SHARMA		52	MS. POOJA GROVER	
21	MS. SONIA VIRMANI		53	DR. POOJA MALK (Hindi)	
22	MR. SUKHJINDER SINGH		54	MS. PRIYA (Hindi)	
23	MR. MUNISH GUPTA		55	MS. DOLLY RANA (Economics)	
24	MS. DEEPA SAINI (Physics)		56	MS. SONIA VERMA (Sanskrit)	
25	MS. GARIMA TARIKA (Physics)		57	MS. RADHIKA MALIK (History)	
26	MRS. RAJNI (Botany)		58	MR. RAHUL KUMAR (Political Sc.)	
27	MS. KIRAN (Botany)		59	MR. DHARAM SINGH (Music-V)	
28	ANJUSHREE (Bio-tech)		60	MR. RAMDIYA (Music-I)	
29	MS. MONIKA (Zoology)		61	MS. ANSHIKA (Home Science)	
30	MS. BHAWNA MALIK		62	MS. ANJALI GUPTA (Evs)	
31	MR. MANISH KUMAR (MATHS)		63	MR. SURENDER KUMAR (Physical Education)	
32	MS. MANSI BANSAL				

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Website: www.ibcollegepanipat.ac.in   Emal: principalibcollege@gmail.com

IIDE

Department of Marketing Management and Placement Cell

in collaboration with

Indian Institute of Digital Education (IIDE)

are organizing

Online Course on Digital Marketing

Course Details

Duration - 30 hours

Method – Videos and online sessions

Fee – Rs. 1200

Eligibility - Open for all students

Highlights

- Introduction to FB & Insta Ads
- Build customer base from scratch
- Audience targeting options
- Ads placement and budgeting option
- Types of Ads formats
- Landing pages & Remarketing
- Deep dive into FB & Insta Ads

Registration Steps
1. Fill this form Click here
2. Join this Whatsapp Group

Last registration date - 25th Nov. 2021

Dr. Ajay Kumar Garg Patron	**Dr. Poonam Madan** Head, Dept. of Marketing Management 9416177599	**Dr. Arpana Garg** Convener, Placement Cell 7206441505

Organizing Committee

Mr. Pawan Kumar | Mr. Ajay Pal | Dr. Sharmila Yadav | Ms. Nisha Gupta +91 9466456035 | Deepty Juneja

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G.T. Road, Panipat-132103, Haryana
Website : ibpgcollegepanipat.ac.in, Email: principalibcollege@gmail.com
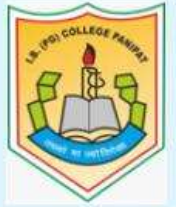
Estd. 1956

Department of Marketing Management
&
Career Guidance and Placement Cell

In collaboration with
Indian Institute of Digital Education (IIDE)

Inaugural Session
of
Certificate Course on Digital Marketing

Date - 2nd December 2021
Time - 11:30 AM
Venue: Seminar Hall

DIGITAL MARKETING

पानीपत सवेरा

आईबी कालेज में 32 विद्यार्थियों को बांटे प्रमाण पत्र

● ऑनलाइन डिजीटल मार्कीटिंग पर आयोजित कोर्स का समापन समारोह मनाया

पानीपत, 11 फरवरी (विनोद चंचल) : जी.टी.रोड स्थित आईबी स्नातकोत्तर महाविद्यालय में मार्कीटिंग विभाग, करिअर गाइडेंस एवं प्लेसमैंट सेल एवं इंडियन इंस्टीच्यूट ऑफ डिजिटल एजुकेशन, मुंबई के संयुक्त तत्वाधान में ऑनलाइन डिजिटल मार्केटिंग पर आयोजित कोर्स का समापन समारोह मनाया गया। इस समारोह में 32 विद्यार्थियों को प्रमाण पत्र प्रदान किए गए। इस अवसर पर महाविद्यालय के प्राचार्य डॉ. अजय गर्ग ने कहा कि कुछ वर्षों से हमारा महाविद्यालय विद्यार्थियों की प्रतिभा को निखारने के लिए समय-समय पर अलग-अलग विषयों पर पंजीकृत कोर्स करवाता रहता है। उन्होंने कहा कि...

प्रमाण पत्र प्राप्त करते विद्यार्थिंयों के साथउपाचार्य डॉ मधु शर्मा व अन्य।   (मोहन लाल)

ऑनलाइन डिजीटल मार्कीटिंग पर आयोजित कोर्स के समापन पर 32 विद्यार्थियों को दिए प्रमाण पत्र

डिजीटल मार्कीटिंग कोर्स के समापन पर प्रमाण पत्र प्राप्त करते विद्यार्थी कालेज प्राचार्य के साथ। (सीम)

अमर उजाला

न्यूज डायरी

डिजिटल मार्केटिंग कोर्स करने पर 32 विद्यार्थियों को दिए प्रमाणपत्र

पानीपत। आईबी स्नातकोत्तर महाविद्यालय में मार्केटिंग विभाग, करिअर गाइडेंस व प्लेसमैंट सेल एवं इंडियन इंस्टीट्यूट ऑफ डिजिटल एजुकेशन मुंबई की संयुक्त पहल पर ऑनलाइन डिजिटल मार्केटिंग पर आयोजित कोर्स का समापन समारोह मनाया गया। इस समापन समारोह में 32 विद्यार्थियों को प्रमाणपत्र प्रदान किए गए। इस अवसर पर प्राचार्य डॉ. अजय कुमार गर्ग ने कहा कि डिजिटल मार्केटिंग में आगे बढ़ने के अवसर असीमित हैं और विभिन्न प्लेटफार्म के आ जाने से यह क्षेत्र तेजी से चल रहा है। मौजूदा उद्योग और कंपनियां भी अपने व्यवसाय की डिजिटल उपस्थिति बढ़ाने की दिशा में काम कर रही हैं। इसलिए इन दिनों डिजिटल मार्केटिंग स्किल काफी डिमांड में है। इस अवसर पर प्रो. अजयपाल सिंह, प्रो. पवन कुमार, प्रो. शर्मिला यादव, प्रो. निशा गुप्ता, प्रो. कोमल एवं लिपिक ममता आदि मौजूद रहे।

CERTIFICATE

Certificate of Completion

THIS IS TO CERTIFY THAT

Deepak Wadhwa

HAS COMPLETED AN ONLINE COURSE IN
FACEBOOK & INSTAGRAM ADS*

15 DECEMBER, 2021

DATE

Karan S

KARAN SHAH
FOUNDER & CEO, IIDE

Mode: Instructor-Led-Live

Certificate of Completion

THIS IS TO CERTIFY THAT

Mohit Bhatia

HAS COMPLETED AN ONLINE COURSE IN
FACEBOOK & INSTAGRAM ADS*

15 DECEMBER, 2021

DATE

Karan S

KARAN SHAH
FOUNDER & CEO, IIDE

Mode: Instructor-Led-Live

I.B.(PG) COLLEGE, PANIPAT

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in
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in Collaboration with
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Patron
Dr. Ajay Kumar Garg
Principal

Convener
Mrs. Neelam Dahiya
Associate Professor

Co-ordinator
Sh. Ajay Pal Singh
Assistant Professor

Co-ordinator
Dr. Nidhi
Assistant Professor
Committee Members
Sh. Vinay Bharti
Mrs. Sonal
Sh. Sukhjinder Singh
Mrs. Sheela Malik
Mrs. Rekha
Mrs. Shilpa

Course Details:
➢ **Duration : One Month**
➢ **Fee : Rs. 1000/-**
➢ **Eligibility : Students of I.B. College**
Last Date of Fee — Deposit
15.12.2021

Seize this unique occasion for the glittering future

Date of Commencement
December 16, 2021

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Course Details:
➢ Duration : One Month
➢ Fee : Rs. 1000/-
➢ Eligibility : Only for the students of I.B. College

Date of Commencement
January 05, 2022

Patron	Convener	Co-ordinator	Co-ordinator
Dr. Ajay Kumar Garg	Neelam Dahiya	Ajay Pal Singh	Dr. Nidhi
Principal	Associate Professor	Assistant Professor	Assistant Professor

Members of Course Committee:
Prof. Vinay Bharti   Prof. Sonal   Prof. Sukhjinder Singh   Prof. Sheela Malik
9728793345   7015552507

Prof. Rekha Sharma   Prof. Shilpa

ENGLISH COMMUNICATION & SOFT SKILLS

ENGLISH COMMUNICATION & SOFT SKILLS

इंग्लिश कम्युनिकेशन स्किल सर्टिफिकेट द...

आईबी कॉलेज में ऑनलाइन आयोजित वन मंथ सर्टिफिकेट कोर्स

संवाद न्यूज एजेंसी

पानीपत। आईबी स्नातकोत्तर महाविद्यालय में अंग्रेजी विभाग के तत्वावधान में वन मंथ ऑनलाइन सर्टिफिकेट कोर्स इन इंग्लिश कम्युनिकेशन एंड सॉफ्टस्किल शुरू हुआ।

कार्यक्रम का शुभारंभ करते हुए प्राचार्य डॉ. अजय कुमार गर्ग ने विद्यार्थियों को बताया कि किस प्रकार कम्युनिकेशन एंड सॉफ्ट स्किल करियर निर्माण एवं उसे दिशा देने में पर्याप्त क्षमता वाले साधन के रूप में उभर कर आया है। आज के प्रतिस्पर्धी युग में विद्यार्थियों के लिए डिग्री के साथ-साथ इस प्रकार का कौशल

हासिल करना
इसी उद्देश
समय पर म
स्किल- डेवल
जाते हैं। का
दहिया ने का
के बारे में जा
प्रो. अजय
कार्यक्रम का
भारती एवं प्रो
के अन्य सदस
डोगरा, प्रो. श
प्रो. शिल्पा अ

सर्टिफिकेट कोर्स इन इंगलिश कम्युनिकेशन एंड सॉफ्टस्किल किया प्रारंभ

आईबी कालेज में आनलाइन सर्टिफिकेट कोर्स इन इंगलिश कम्युनिकेशन एंड सॉफ्टिस्कल में भाग लेते प्रतिभागी।　　　　　–मोहन लाल

पानीपत (विनोद पांचाल): आईबी स्नातकोत्तर महाविद्यालय में अंग्रेजी विभाग के तत्वाधान में वन मंथ ऑनलाइन सिर्टिफ केट कोर्स इन इंग्लिश कम्युनिकेशन एंड सॉपटिस्क ल का प्रारंभ किया गया। प्रोग्राम का शुभारंभ प्राचार्य डा. अजय गर्ग ने किया। उन्होंने विद्यार्थियों को संबोधित करते हुए कहा कि किस प्रकार कम्युनिकेशन एंड सॉफ्ट स्कि ल कैरियर निर्माण एवं उसे दिशा देने में पर्याप्त क्षमता वाले साधन के रूप में उभर कर आया है। प्रतिस्पर्धा के युग में विद्यार्थियों के लिए डिग्री के साथ-साथ इस प्रकार की स्कि ल्स हासिल करना भी अति आवश्यक हो चुका है। इसी उद्देय को ध्यान में रखते हुए समय-समय पर महाविद्यालय में इस प्रकार के स्कि ल डेवलपमेंट प्रोग्राम आयोजित किए जाते हैं। प्रोग्राम की संयोजिका प्रो. नीलम दिहया ने भी प्रोग्राम की महता व उपयोगिता की जानकारी दी। प्रोग्राम के अंत में सह संयोजक प्रो. अजय पाल सिंह ने कार्यक्रम के सफ ल आयोजन का धन्यवाद किया। इस अवसर पर प्रोग्राम का तकनीकी कार्यभार प्रो. विनय भारती, प्रो. सुखिजंदर, डा. निधि मल्होता, प्रो. सोनल डोगरा, प्रो. शीला मलिक, प्रो. रेखा शर्मा व प्रो. शिल्पा ने योगदान दिया।

ENGLISH COMMUNICATION & SOFT SKILLS

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आईबी पीजी कॉलेज में इंग्लिश कम्युनिकेशन एंड सॉफ्ट स्किल ऑनलाइन सर्टिफिकेट कोर्स के विद्यार्थियों हेतु वेलेडिक्ट्री फंक्शन का आयोजन किया

विद्यार्थियों को कोर्स सर्टिफिकेट प्रदान करते और कार्यक्रम का शुभारंभ करते कॉलेज प्रबंधन समिति के महासचिव एलएन मिगलानी व प्राचार्य डॉ. अजय कुमार गर्ग अन्य।

आज समाज नेटवर्क

पानीपत। जीटी रोड स्थित आईबी पीजी कॉलेज में इंग्लिश कम्युनिकेशन एंड सॉफ्ट स्किल ऑनलाइन सर्टिफिकेट कोर्स के विद्यार्थियों हेतु वेलेडिक्ट्री फंक्शन का आयोजन किया गया। इस प्रोग्राम का शुभारंभ दीप प्रज्वलन के साथ कॉलेज प्रबंधन समिति के महासचिव एलएन मिगलानी व महाविद्यालय के प्राचार्य डॉ. अजय कुमार गर्ग, कार्यक्रम संयोजिका प्रोफेसर नीलम दहिया व कमेटी के अन्य सदस्यों द्वारा किया गया। महाविद्यालय द्वारा यह कोर्स कर्टिना

स्टडी वीजा के संयुक्त तत्वाधान में कराया गया। समापन समारोह का मुख्य उद्देश्य कोर्स उपरांत विद्यार्थियों को कोर्स सर्टिफिकेट प्रदान करना था। इस कार्यक्रम के दौरान प्राचार्य डॉ. अजय कुमार गर्ग ने विद्यार्थियों को कक्षा पाठ्यक्रम के साथ-साथ इस प्रकार के सर्टिफिकेट कोर्स में भाग लेने हेतु प्रोत्साहित किया तथा विद्यार्थियों को स्किल्स की महत्ता के बारे में बताया। प्राचार्य द्वारा बताया गया कि कोरोना महामारी के इस दौर में भी महाविद्यालय द्वारा विद्यार्थियों के समुचित विकास को ध्यान में रखते हुए इस प्रकार के विभिन्न स्किल कोर्सेज ऑनलाइन मोड

में आयोजित किए गए। कोर्स संयोजिका प्रो. नीलम दहिया द्वारा विद्यार्थियों को उनके भावी कैरियर हेतु इन सर्टिफिकेट कोर्सेज के महत्व के बारे में बताया गया।

प्रो. नीलम दहिया ने आधुनिक समय में प्रभावी कम्युनिकेशन स्किल एवं अंग्रेजी भाषा के ज्ञान की अति आवश्यकता पर जोर दिया। कोर्स मेंटोर प्रो. साक्षी गुप्ता ने नयी शिक्षा नीति के बारे में बताते हुए अंग्रेजी भाषा की अनिवार्यता का जिक्र किया।

कार्यक्रम के अंत में विभागाध्यक्षा डॉ. मधु शर्मा ने सभी को सफल समापन के लिए बधाई दी तथा इस प्रकार के

कार्यक्रम आगे भी आयोजित करते रहने के लिए प्रेरित किया। कोर्स कोऑर्डिनेटर प्रो. अजय पाल सिंह एवं डॉ. निधि मल्होत्रा ने सभी को कार्यक्रम में उपस्थित रहने तथा सफल समापन में योगदान हेतु धन्यवाद किया।

मंच का संचालन प्रो. रेखा शर्मा द्वारा किया गया। कार्यक्रम का तकनीकी कार्यभार प्रो. विनय भारती तथा प्रो. सुखजिंदर एवं लिपिक ममता द्वारा संभाला गया। इस अवसर पर प्रो. पवन कुमार, डॉ. विनय वधवा, प्रो. सोनल, प्रो. शीला मलिक, प्रो. रेखा शर्मा एवं अंग्रेजी विभाग के अन्य सदस्य भी मौजूद रहे।

इंगलिश कम्युनिकेशन एंड सॉफ्ट स्किल ऑनलाइन सर्टीफिकेट कोर्स विद्यार्थियों के लिए हुआ कार्यक्रम

पानीपत, 19 मई (खबर): जी.टी. रोड स्थित आई.बी. पी.जी. कालेज में इंगलिश कम्युनिकेशन एंड सॉफ्ट स्किल ऑनलाइन सर्टीफिकेट कोर्स के विद्यार्थियों हेतु वैलेडिक्ट्री फंक्शन का आयोजन किया गया। इस प्रोग्राम का शुभारंभ दीप प्रज्वलन के साथ कालेज प्रबंधन समिति के महासचिव एल.एन. मिगलानी व महाविद्यालय के प्राचार्य डा. अजय कुमार गर्ग, कार्यक्रम संयोजिका प्रो. नीलम दहिया व कमेटी के अन्य सदस्यों द्वारा किया गया।

महाविद्यालय द्वारा यह कोर्स कर्टिना स्टडी वीजा के संयुक्त तत्वावधान में करवाया गया। समापन समारोह का मुख्य उद्देश्य कोर्स उपरांत विद्यार्थियों को कोर्स सर्टीफिकेट प्रदान करना था। कार्यक्रम के दौरान प्राचार्य डा. अजय कुमार गर्ग ने विद्यार्थियों को कक्षा पाठ्यक्रम के साथ-साथ इस प्रकार के सर्टीफिकेट कोर्स में भाग लेने हेतु प्रोत्साहित किया तथा विद्यार्थियों

को स्किल्स की महत्ता के बारे में बताया।

प्राचार्य द्वारा बताया गया कि कोरोना महामारी के इस दौर में भी महाविद्यालय द्वारा विद्यार्थियों के समुचित विकास को ध्यान में रखते हुए इस प्रकार के विभिन्न स्किल कोर्सेज ऑनलाइन मोड में आयोजित किए गए। कोर्स संयोजिका प्रो. नीलम दहिया द्वारा विद्यार्थियों को उनके भावी करियर हेतु इन सर्टीफिकेट कोर्सेज के महत्व के बारे में बताया गया।

प्रो. नीलम दहिया ने आधुनिक समय में प्रभावी कम्युनिकेशन स्किल एवं अंग्रेजी भाषा के ज्ञान की अति आवश्यकता पर जोर

दिया। कोर्स मेंटोर प्रो. साक्षी गुप्ता ने नई शिक्षा नीति के बारे में बताते हुए अंग्रेजी भाषा की अनिवार्यता का जिक्र किया। कार्यक्रम के अंत में विभागाध्यक्षा डा. मधु शर्मा ने सभी को सफल समापन के लिए बधाई दी तथा इस प्रकार के कार्यक्रम आगे भी आयोजित करते रहने के लिए प्रेरित किया।

कोर्स को-ऑर्डिनेटर प्रो. अजय पाल सिंह एवं डा. निधि मल्होत्रा ने सभी को कार्यक्रम में उपस्थित रहने तथा सफल समापन में योगदान हेतु धन्यवाद किया। मंच का संचालन प्रो. रेखा शर्मा द्वारा किया गया। कार्यक्रम का तकनीकी कार्यभार प्रो. विनय भारती तथा प्रो. सुखजिंद्र एवं लिपिक ममता द्वारा संभाला गया। इस मौके पर प्रो. पवन कुमार, डा. विनय वधवा, प्रो. सोनल, प्रो. शीला मलिक, प्रो. रेखा शर्मा एवं अंग्रेजी विभाग के अन्य सदस्य भी मौजूद रहे।

कार्यक्रम के दौरान मंच पर मौजूद कालेज प्राचार्य व अन्य स्टाफ।(पंकेस)

विद्यार्थियों के लिए वैलेडिक्ट्री फंक्शन आयोजित

पानीपत (विनोद पांचाल) : आईबी कालेज में इंगलिश कम्युनिकेशन एंड सॉफ्ट स्किल ऑनलाइन सर्टीफिकेट कोर्स के विद्यार्थियों के लिए वैलेडिक्ट्री फंक्शन का आयोजन किया गया। कार्यक्रम का शुभारंभ प्रबंधन समिति के

कार्यक्रम का शुभारंभ प्रबंधन समिति के महासचिव एलएन मिगलानी, प्राचार्य डा. अजय गर्ग दीप प्रज्वलन करके करते हुए।(मोहन लाल)

महासचिव एलएन मिगलानी, प्राचार्य डा. अजय गर्ग, प्रो. नीलम दहिया ने दीप प्रज्वलन करके किया। महाविद्यालय द्वारा यह कोर्स किर्टना स्टडी वीजा के संयुक्त तत्वाधान में कराया गया। समापन समारोह का मुख्य उद्देश्य कोर्स उपरांत विद्यार्थियों को कोर्स सर्टीफिकेट प्रदान करना था। प्राचार्य डा. अजय गर्ग ने विद्यार्थियों को कक्षा पाठ्यक्रम के साथ-साथ इस प्रकार के सर्टीफिकेट कोर्स में भाग के लिए प्रोत्साहित किया। कार्यक्रम संयोजिका प्रो. नीलम दहिया ने विद्यार्थियों को उनके भावी कैरियर के लिए सर्टीफिकेट कोर्सेज के लिए प्रेरित किया। कोर्स मेंटोर प्रो. साक्षी गुप्ता ने नई शिक्षा नीति को लेकर अंग्रेजी भाषा की अनिवार्यता का जिक्र किया। कोर्स कोऑर्डिनेटर प्रो. अजय पाल सिंह एवं डा. निधि मल्होत्रा ने कार्यक्रम में उपस्थित रहने के लिए धन्यवाद किया। मंच संचालन प्रो. रेखा शर्मा ने किया। कार्यक्रम में डा. मधु शर्मा, प्रो. विनय भारती, प्रो. सुखजिंदर, लिपिक ममता, प्रो. पवन कुमार, डा. विनय वधवा, प्रो. सोनल, प्रो. शीला मलिक, प्रो. रेखा शर्मा मौजूद रहे।

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फैशन डिजाइनिंग एक ऐसा पेशा है जिसे किसी के परिचय की जरूरत नहीं : डॉ. सीमा

पानीपत कमाल हुसैन आई.बी. स्नातकोत्तर महाविद्यालय में गृहविज्ञान विभाग में दो सर्टीफिकेट कोर्स फैशन डिजाइनिंग व न्यूट्रिशियस कुसीन के लिए मंगवाई गई आधुनिक मशीनों का उद्घाटन समारोह प्राचार्य डॉ. अजय कुमार गर्ग द्वारा किया गया। विभागाध्यक्षा व कोर्स कन्वेनर डॉ. सीमा ने बताया कि फैशन डिजाइनर, फैशन डिजाइनिंग इंडस्ट्री से जुड़ा एक ऐसा पेशा है जिसे किसी के परिचय की जरूरत नहीं है। यदि आप खुद एक फैशनिस्टा हैं तो आप शीर्ष भारतीय फैशन

डिजाइनरों के साथ फैशन के ट्रेंड को बदलने में सफल रहेंगे। पौष्टिक व्यंजन हमारी इम्यूनिटी बूस्ट तो करते ही है साथ ही वेट लॉस व आंत और दिल की सेहत सुधार में भी मददगार हैं। इम्यूनिटी बूस्ट करने के लिए भारतीय थाली

में काली मिर्च, अदरक, लहसुन, जीरा, लौंग, हींग, पुदीना, कढ़ी पत्ता व तुलसी का प्रयोग भारतीय व्यंजन बनाने में इस्तेमाल होता है। प्राचार्य डॉ. अजय कुमार गर्ग ने कहा कि बदलते दौर में छात्रों की सोच में भी बदलाव हुआ है।

खबर एक्सप्रेस
आईबी कॉलेज में दो नए कोर्सेज की हुए शुरूआत

सिलाई मशीनों का अवलोकन करते प्राचार्य डॉ अजय गर्ग एवं अन्य।

पानीपत। आई.बी. स्नातकोत्तर महाविद्यालय में गृहविज्ञान विभाग में दो सर्टीफिकेट कोर्स फैशन डिजाइनिंग व न्यूट्रिशियस कुसीन के लिए मंगवाई गई आधुनिक मशीनों का उद्घाटन समारोह प्राचार्य डॉ. अजय कुमार गर्ग द्वारा किया गया। विभागाध्यक्षा व कोर्स कन्वेनर डॉ. सीमा ने बताया कि फैशन डिजाइनर, फैशन डिजाइनिंग इंडस्ट्री से जुड़ा एक ऐसा पेशा है, जिसे किसी के परिचय की जरूरत नहीं है।

यदि आप खुद एक फैशनिस्टा हैं तो आप शीर्ष भारतीय फैशन डिजाइनरों के साथ फैशन के ट्रेंड को बदलने में सफल रहेंगे। पौष्टिक व्यंजन हमारी इम्युनिटी बूस्ट तो करते ही हैं साथ ही वेट लॉस व आंत और दिल की सेहत सुधार में भी मददगार है। इम्युनिटी बूस्ट करने के लिए भारतीय थाली में काली मिर्च, अदरक, लहसुन, जीरा, लौंग, हींग, पुदीना, कढ़ी पत्ता व तुलसी का प्रयोग भारतीय व्यंजन बनाने में इस्तेमाल होता है। प्राचार्य डॉ. अजय कुमार गर्ग ने कहा कि बदलते दौर में छात्रों की सोच में भी बदलाव हुआ है।

जिसकी वजह से अब खास परिवहन कोर्सें (बी.ए, बी.एस.सी, बी.कॉम से हटकर कुछ नया कोर्स कर रहे हैं नहीं कारण है मौजूदा समय में फैशन डिजाइनिंग व न्यूट्रिशयस कुसीन कोर्सेज की डिमांड बढ़ गई है। पहले यह कोर्सेज केवल लड़कियों के लिए ही रहने जाते थे लेकिन अहाज समय की मांग व रोजगार की संभावनाएं देखते हुए लड़कों का रुझान इस फील्ड में काफी बढ़ गया है। अगर आपके अंदर भी पहनावे में कुछ नया और रचनात्मक क्रिएट करने की क्षमता है तो आप फैशन डिजाइनिंग के क्षेत्र में बेहतरीन करियर बना सकते हैं।

कोर्स को इस कन्वेनर व इंस्ट्रक्टर प्रोफेसर अंशिका ने बताया कि दोनों कोर्सेज उद्योग जगत को ध्यान में रखते हुए तैयार किए गए हैं। हालांकि यह अभी थोड़ी नई फील्ड है, लेकिन यहां से खास पूरी तरह से पैशन होकर फैशन जगत में बतौर फैशन फोटोग्राफर, विजुअल मरचनडाइस, ग्राफिक डिजाइनर, फैशन जर्नलिस्ट और फैशन एग्जीक्यूटिव आदि बनकर निकलते हैं।

गृहविज्ञान में दो सर्टीफिकेट कोर्स फैशन डिजाइनिंग व न्यूट्रिशियस कुसीन कोर्सेज का किया शुभारम्भ

पानीपत, 18 दिसम्बर (विनोद पांचाल) : आईबी स्नातकोत्तर महाविद्यालय में गृहविज्ञान विभाग में दो सर्टिफ केट कोर्स फैशन डिजाइनिंग व न्यूट्रिशयस कुसीन के लिए मंगवाई गई आधुनिक मशीनों का उद्घाटन प्राचार्य डा. अजय गर्ग ने किया। विभागाध्यक्षा व कोर्स कन्वेनर डा. सीमा ने बताया कि फैशन डिजाइनर, फैशन डिजाइनिंग इंडस्ट्री से जुड़ा एक ऐसा पेशा है जिसे किसी के परिचय की जरूरत नहीं है। यदि आप खुद एक फैशनिस्टा हैं तो आप शीर्ष भारतीय फैशन डिजाइनरों के साथ फैशन के ट्रेंड को बदलने में सफ ल रहेंगे। पौष्टिक व्यंजन हमारी इम्युनिटी बूस्ट तो करते ही है साथ ही वेट लॉस व आंत और दिल की सेहत

आईबी कालेज में गृहविज्ञान में दो सर्टीफिकेट कोर्स फैशन डिजाइनिंग का शुभारम्भ करते प्राचार्य व अन्य। (मोहन लाल)

सुधार में भी मददगार है। इम्यूनिटी बूस्ट करने के लिए भारतीय थाली में काली मिर्च, अदरक, लहसुन, जीरा, लौंग, हींग, पुदीना, कढ़ी पत्ता व तुलसी का प्रयोग भारतीय व्यंजन बनाने में इस्तेमाल होता है। फैशन डिजाइनिंग कोर्स के अंतर्गत

इलस्ट्रेशन, सरफेस ओरनामेंटेशन, पेटर्न मेकिंग, ड्राफ्टिंग एवं गारमेंट कंस्ट्रक्शन आदि तथा न्यूट्रिशयस कुसीन के अंतर्गत इटेलियन, मैक्सिकन, साउथ इंडियन, विभिन्न तरह के न्यूट्रिशयस केक व पेय आदि सिखाए जाएगी।

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Prof.Deepti   Prof.Neetu   Prof.Ritu

आईबी महाविद्यालय में एडवांस एक्सल एवं पावर पॉइंट का कोर्स शुरू

पानीपत (सच कहूँ न्यूज)। स्थानीय आईबी पीजी महाविद्यालय, में बीसीए एकेडमी के साथ मिलकर एडवांस एक्सल एवं पावर पॉइंट का कोर्स कोऑर्डिनेटर डॉ रंजू के मार्गदर्शन में प्रारंभ किया गया। इस कोर्स में रविंद और डॉ रंजू ने विद्यार्थियों को एडवांस एक्सल की सारी कमांडस सिखाई जिसमें विद्यार्थियों ने एडवांस फार्मूले सीखे, जो कि विद्यार्थियों को डाटा एनालिस्ट और डाटा साईंटिस्ट बनने में काम आते हैं। इसी कोर्स में विद्यार्थियों को पावर पॉइंट की बहुत सारी के बारे में भी समझाया गया। या उन्हे प्रेजेंटिशन स्किल्स भी सिखाये गए। प्राचार्य डॉ अजय कुमार गर्ग ने विद्यार्थियों को संबोधित करते हुए कहा कि पढ़ाई के साथ साथ उन्हें हर कोर्स करना चाहिए ताकि उनको आगे चलकर नौकरी लेने में कोई परेशानी ना हो। आज का दौर डिजिटल युग का है। अगर आप एडवांस फार्मूला का उपयोग करें तो आप डाटा को एनालिसिस कर सकते हैं और अनेक प्रकार की रिपोर्ट जनरेट कर सकते हैं और एक बहुत व डेटाबेस को आसानी से रीड और समझ सकते हैं। विभागाध्यक्ष डॉक्टर विक्रम कुमार ने कहा कि अगर आपको एक्सेल के फार्मूला का ज्ञान नहीं है तो आपके लिए एक्सेल सिर्फ एक डाटा कीपिंग टूल है। इस कोर्स को सफल बनाने में प्रोफेसर नीतू का विशेष योगदान रहा।

पढ़ाई के साथ अन्य जरूरी कोर्स सीखना भी जरूरीः अजय गर्ग

पानीपत, 22 जून (खबर) : आई.बी. पी.जी. महाविद्यालय में एडवांस एक्सल एवं पावर प्वाइंट का कोर्स को-ऑर्डिनेटर डा. रंजू के मार्गदर्शन में प्रारंभ किया गया।

इस कोर्स में रविंद और डा. रंजू ने विद्यार्थियों को एडवांस एक्सल की सारी कमांड्स सिखाई जिसमें विद्यार्थियों ने एडवांस फार्मूले सीखे जो कि विद्यार्थियों की डाटा एनालिस्ट और डाटा साईंटिस्ट बनने में काम आते हैं।

इसी कोर्स में विद्यार्थियों को पावर प्वाइंट की बहुत सी कमांड के बारे में भी समझाया गया। उन्हें प्रेजेंटेशन स्किल्स भी सिखाई गई। प्रचार्य डा. अजय कुमार गर्ग ने विद्यार्थियों को संबोधित करते हुए कहा कि पढ़ाई के साथ-साथ उन्हें हर कोर्स करना चाहिए ताकि उनको आगे चलकर नौकरी लेने में कोई परेशानी न हो आज का दौर डिजीटल युग का है।

अगर आप एडवांस फार्मूला का उपयोग करें तो आप डाटा को एनालिसिस कर सकते हैं और अनेक प्रकार की रिपोर्ट जैनरेट कर सकते हैं और एक बहुत बड़े डाटाबेस को आसानी से रीड और समझ सकते हैं।

विभागाध्यक्ष डा. विक्रम कुमार ने कहा कि अगर आपको एक्सेल के फार्मूला का ज्ञान नहीं है तो आपके लिए एक्सेल सिर्फ एक डाटा कीपिंग टूल है। इस कोर्स को सफल बनाने में प्रोफेसर नीतू का विशेष योगदान रहा।

विद्यार्थियों ने प्रश्नोत्तरी प्रतियोगिता में लिया भाग

आई.बी. स्नातकोत्तर महाविद्यालय के गणित विभाग द्वारा बी.एससी. प्रथम वर्ष के गणित के विद्यार्थियों के लिए प्रश्नोत्तरी प्रतियोगिता का आयोजन किया गया जिसमें कक्षा के 20 विद्यार्थियों ने भाग लिया।

प्रतियोगिता में विद्यार्थियों द्वारा गणित से संबंधित विभिन्न पोशियों को भी सुलझाने का प्रयास किया गया। विद्यार्थियों के कुशल प्रयासों की प्रशंसा करते हुए महाविद्यालय के प्राचार्य डा. अजय कुमार गर्ग ने कहा कि इस प्रकार की गतिविधियों से विद्यार्थियों का आत्मविश्वास व उत्साह बढ़ता है और उनके ज्ञान में वृद्धि होती है।

प्रतियोगिता के लिए निर्णायक की भूमिका डा. अर्पणा गर्ग ने निभाई। प्रतियोगिता में दिव्य ने प्रथम, साक्षी ने द्वितीय व मयंक रानी ने तृतीय स्थान प्राप्त किया। विजयी विद्यार्थियों को प्रशस्ति पत्र प्रदान किए गए। विभागाध्यक्ष डा. अर्पणा गर्ग ने कहा कि इस तरह के कार्यक्रम विद्यार्थियों का हौसला बढ़ाते हैं।

आईबी कॉलेज में एडवांस एक्सल एवं पावर पॉइंट कोर्स शुरू

कार्यक्रम के दौरान मौजूद कोर्स कोऑर्डिनेटर डॉ रंजू व विद्यार्थी।

पानीपत। आईबी पीजी कॉलेज पानीपत में की आई सीए एकेडमी के साथ मिलकर एडवांस एक्सल एवं पावर पॉइंट का कोर्स 25 मई 2022 से कोर्स कोऑर्डिनेटर डॉ रंजू के मार्गदर्शन में प्रारंभ किया गया। इस कोर्स में रविंद सर और डॉ. रंजू ने विद्यार्थियों को एडवांस एक्सल की सारी कमांडस सिखाई, जिसमें विद्यार्थियों ने एडवांस फार्मूले सीखे, जो कि विद्यार्थियों को डाटा एनालिस्ट और डाटा साईंटिस्ट बनने में काम आते हैं। इसी कोर्स में विद्यार्थियों को पावर पॉइंट की बहुत सारी के बारे में भी समझाया गया। प्राचार्य डॉ .अजय कुमार गर्ग ने कहा कि पढ़ाई के साथ-साथ उन्हें हर कोर्स करना चाहिए। विभागाध्यक्ष डॉ. विक्रम कुमार ने कहा कि अगर आपको एक्सेल के फार्मूलों का ज्ञान नहीं है तो आपके लिए एक्सेल सिर्फ एक डाटा कीपिंग टूल है। इस कोर्स को सफल बनाने में प्रोफेसर नीतू का विशेष योगदान रहा।

विद्यार्थियों को सिखाई एडवांस एक्सल की कमांड्स

पानीपत : अजय राजपूत

आईबी पीजी कॉलेज में बीसीए एकेडमी के साथ मिलकर एडवांस एक्सल एवं पावर पॉइंट का कोर्स को-ऑर्डिनेटर डॉ. रंजू के मार्गदर्शन में प्रारंभ किया गया। कोर्स में रविंद्र और डॉ. रंजू ने विद्यार्थियों को एडवांस एक्सल की सारी कमांड्स सिखाई। विद्यार्थियों ने एडवांस फार्मूले सीखे, जोकि विद्यार्थियों को डाटा एनालिस्ट और डाटा साईंटिस्ट बनने में काम आते हैं। इसी कोर्स में विद्यार्थियों को पावर पॉइंट की बहुत-सी जानकारी दी। उन्हे प्रेजेंटेशन स्किल्स भी सिखाए गए। प्राचार्य डॉ. अजय कुमार गर्ग ने कहा कि पढ़ाई के साथ ही उन्हें हर कोर्स करना चाहिए, ताकि उनको आगे चलकर नौकरी लेने में कोई परेशानी ना हो। आज का दौर डिजिटल युग का है। अगर आप एडवांस फार्मूले का उपयोग करें तो आप डाटा को एनालिसिस कर सकते हैं। विभागाध्यक्ष डॉ. विक्रम कुमार ने कहा कि अगर आपको एक्सेल के फार्मूले का ज्ञान नहीं है तो आपके लिए एक्सेल सिर्फ एक डाटा कीपिंग टूल है। इस कोर्स को सफल बनाने में प्रोफेसर नीतू का विशेष योगदान रहा।

Certificate Course on
English Communication and Soft-Skills

Purpose of Course

Indian Corporate World is changing enormously and today market has overwhelmingly accepted the fact that Training Workshops can transform the students' personality and confidence. These programs also help to enhance Students Communication skills and further update, and pleasantly refresh their productivity and well-being.

Duration

Total Duration of the course is 45 hours, which will be covered in 30 days – 1.5 hrs. Per day.

Assessment

Assessment will be online with webcam in which a question sheet with 30 multiple choice questions and a paragraph writing will be provided and students will submit the pdf copies of their answer sheet on the given email id. Oral Presentations will also be considered as assessment.

Certificate

After completion of the course certificate will be provided to all the students. It is mandatory to maintain 75% attendance.

Ajay Kumar Garg

Digitally signed by Ajay Kumar Garg
Date: 2023.07.29 15:24:23 +05'30'

Proposal for the College

Duration – 45 hours will be covered in 30 days.
Classes- Per day for 1:30 hour (Online)

Schedule and Syllabus of the Course

Sr. No.	Topics	Duration
1	Introduction and the Importance of Communication	2 hours
2	(Rules of Tenses) Grammar	5 hours
3	Small activities of Speaking (Sentence making)	2 hours
4	Preparation of self-Introduction	3 Hours
5	Extempore Exercises	2 hour
6	Formal/Business Letter Writing	3 hours
7	E-mail Etiquettes	2 hours
8	Group Discussion on Current Topics	4 hours
9	Inspirational Videos and Analysis	2 hours
10	PPT Presentation on Current Topics	2 hours
11	Debate on current issues	3 hours
12	C.V. Making	2 hours
13	Basic preparation of Interview, positive Gestures, symbols and signs, physical appearance & the art of self-presentation & conduct.	4 hours
14	Mock-Interview sessions	3 hours
15	Overall Grooming or Final Wrap-up	2 hours
16	Query Session	2 hours
17	Written Test with Oral Presentation	2 hours

The day and timings could vary in unavoidable circumstances, which will be informed timely to the organization. We would require cooperation for the same. Looking forward to a positive reply from you.

AI MASTER CLASS SERIES(PYTHON) - I B (PG) College , Panipat in Association with PANTECH-Free Online Webinar (YOUTUBE LIVE)

Registration form for 30 DAY CHALLENGE ON AI MASTER CLASS SERIES

The Objective of this Webinar Series is to facilitate the participants to get cognizance of the concepts dealt with for substantial utilization of the same into studying, teaching, Research work, and Upgrading.

ARTIFICIAL INTELLIGENCE

DAY – 1 Overview of this course | Introduction to AI | How to create basic AI application (Chat bot using DialogFlow)
DAY – 2 How to install Python & Libraries | Basics of python Programming for AI.

COMPUTER VISION

DAY – 3 Introduction to Computer Vision| How to install computer vision libraries
DAY – 4 Moving Object Detection and tracking using OpenCV
DAY – 5 Face Detection and Tracking using OpenCV
DAY – 6 Object Tracking based on color using OpenCV
DAY – 7 Face Recognition using OpenCV
DAY – 8 Face Emotion recognition using 68-Landmark Predictor OpenCV

DEEP LEARNING

DAY – 9 Introduction to Deep learning | How to install DL libraries
DAY – 10 Designing your First Neural Network
DAY – 11 Object recognition from Pre-trained model
DAY – 12 Image classification using Convolutional Neural Network
DAY – 13 Hand gesture recognition using Deep Learning
DAY – 14 Leaf disease detection using Deep Learning
DAY – 15 Character recognition using Convolutional Neural Network

DAY – 16 Label reading using Optical Character recognition

DAY – 17 Smart Attendance system using Deep Learning

DAY – 18 Vehicle detection using Deep Learning

DAY – 19 License plate recognition using Deep Learning

DAY – 20 Drowsiness detection using Deep Learning

DAY – 21 Road sign recognition using Deep Learning

MACHINE LEARNING

DAY – 22 Introduction to Machine learning| How to install ML libraries

DAY – 23 Evaluating and Deploying the various ML model

DAY – 24 Fake news detection using ML

DAY – 25 AI snake game design using ML

NATURAL LANGUAGE PROCESSING

DAY – 26 Introduction to NLP & it's Terminology | How to install NLP Libraries NLTK

DAY – 27 Title Formation from the paragraph design using NLP

DAY – 28 Speech emotion analysis using NLP

DEPLOYING AI IN HARDWARE

DAY – 29 Cloud-based AI, Object recognition using Amazon Web Service (AWS) & Imagga

DAY – 30 Deploying AI application in Raspberry Pi with Neural Compute stick & Nvidia Jetson Nano

AI MASTER CLASS SERIES (PYTHON)

Date : OCT 05 - NOV 04, 2020

🔲 Webinar Participation Certificate will be Provided

🔲 Time : 08.00 PM - 08.45 PM (IST)

🔲 Registration Link :

http://shorturl.at/oCGIO

Dr Vikram Kumar(Convener)

Prof Ashwani Gupta(Co-convener)

Mobile : 9896143747

Designation : FACULTY

Department of Computer Science , I.B (PG) College , Panipat

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3. Get the feedback from the students once if the webinar finished.

Take Away

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Course Plan

Check out Agenda of this Course!

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I.B.(PG) College, Panipat

Department of Computer Science

G.T.Road, Panipat-132103 (Haryana)
Website : ibpgcollegepanipat.ac.in , Email: principalibcollege@gmail.com

(UNDER THE AEGIS OF IQAC)

Organizes

30 Days Online Workshop On

Artificial Intelligence & Python Programming

In Collaboration with
PANTECH Prolabs Pvt Ltd.

Date : 05.10.2020 to 04.11.2020
Time : 08.00 PM to 08.45 PM

To Register Please click on the following link :

http://shorturl.at/oCGIO

Prof Ashwani Gupta
Co-Convener

Dr Vikram Kumar
Convener

Dr. Ajay Kumar Garg
Patron & Principal

Estd. 1956

आई.बी. स्नातकोत्तर महाविद्यालय, पानीपत ने राजस्थान के नामी संस्थान के साथ मिलकर 30 दिवसीय कार्यशाला का आयोजन किया है जिसका शुभारम्भ 05.10.2020 को हुआ। वर्कशॉप के आरम्भ में प्राचार्य डॉ. अजय कुमार गर्ग ने कहा कि यह हम सब के लिए बहुत ही सुनहरा अवसर है। हम समय के साथ – साथ नई टेक्नोलॉजी से रूबरू हो रहे हैं। उन्होंने मुख्य वक्ता डॉ. संजय कुमार का परिचय देते हुए कहा की वो Pantech Solutions Pvt. Limited में प्रोडक्ट मैनेजर एवम आर्टिफीशियल इंटेलिजेंस के एक्सपर्ट हैं। लॉकडाउन अवधि के दौरान डॉ. संजय कुमार ने करीब 150 से ज्यादा वेबिनर और 25 से ज्यादा बताया। आगे की वर्कशॉप में होस्ट कर चुके हैं। डॉ. गर्ग जी ने आगे बताया की वर्कशॉप में रोजाना लगभग 5000 प्रतिभागी शिरकत कर रहे हैं।

आई.बी. महाविद्यालय, पानीपत ने राजस्थान की एक नामी यूनिवर्सिटी के साथ मिलकर बी.सी.ए एवं बी.एस.सी (कंप्यूटर साइंस) के विद्यार्थियों के लिए 30 दिन की ऑनलाइन कार्यशाला का आयोजन किया है। प्राचार्य डॉ. अजय कुमार गर्ग जी ने विस्तार से आगे बताया कि यह हमारे लिए हर्ष का विषय है कि हम एक नामी यूनिवर्सिटी के साथ मिलकर कार्यशाला का आयोजन करने जा रहे हैं, यह ऑनलाइन कार्यशाला 5 अक्टूबर 2020 से शुरू होकर 4 नवंबर 2020 तक चलेगी, जिसका विषय रहेगा Artificial Intelligence & PYTHON Programming। उन्होंने बताया कि आज का युग टेक्नोलॉजी का युग है और हमें समय के साथ आगे बढ़ना होगा।

वर्कशॉप के सह-संयोजक प्रो. अश्वनी गुप्ता ने विस्तार से बताया वर्कशॉप के तीसरे चरण में सोलहवें दिन ऑप्टिकल कैरेक्टर का उपयोग करते हुए लेबल को कैसे पहचाने यह बताया गया, सतरहवें दिन DEEP LEARNING (डीप लर्निंग) की मदद से स्मार्ट अट्रेस के बारे में बताया गया, अठारहवें दिन DEEP LEARNING (डीप लर्निंग) की मदद से खोये हुए वाहन को ढूंढना, उन्नीसवें दिन वाहन की लाइसेंस प्लेट को पहचानना बताया गया, बीसवें दिन मनुष्य के अंदर आलस्य के लक्षण का पता कैसे लगाया जाये यह बताया गया और तीसरे चरण के आखिर में यातायात इक्कीसवें दिन सड़क पर लगाये हुए चिह्नों का पता इस पर रोशनी डाली गयी। कैसे लगाये यह बताया गया जाये बाईसवें दिन मशीन वर्कशॉप की चौथा चरण 26 अक्टूबर, 2020 को शुरू हुआ जिसका विषय मशीन लर्निंग है, इसमें तेईसवें दिन मशीन लर्निंग के लर्निंग का विस्तार पूर्वक परिचय एवं उसकी लाइब्रेरीज को इन्स्टॉल करना बताया गया, चौबीसवें विभिन्न मॉडल्स का मूल्यांकन और उसे अपने कंप्यूटर में कैसे इन्स्टॉल किया जाये यह बताया गया, पच्चीसवां दिन दिन मशीन लर्निंग की मदद से फर्जी समाचार का पता लगाना बताया गया और आज वर्कशॉप का पच्चीसवां दिन है जिसमें बहुचर्चित स्नेक गेम को कैसे डिजाईन किया जाये इसके बारे में प्रैक्टिकल ज्ञान दिया जाएगा।

आई.बी. स्नातकोत्तर महाविद्यालय, पानीपत ने राजस्थान के संस्थान के साथ मिलकर 30 दिवसीय कार्यशाला का आयोजन किया हुआ था उसका समापन 06.11.2020 को हुआ है। वर्कशॉप के समापन के अवसर पर प्राचार्य डॉ. अजय कुमार गर्ग ने कहा कि यह वर्कशॉप का आयोजन करके हम सब ने ऑज के युग में इस्तेमाल होने वाली टेक्नोलॉजी के बारे में विस्तार से जाना और हर संकाय के विद्यार्थियों ने इसका भरपूर आनंद उठाया एवम अपने ज्ञान में बढ़ोतरी की।

MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on 14/12/2020 between Governing Body, I.B.College, Panipat as the First party on the behalf of I.B. College, Panipat & ..BICA Computer Center.. as second party/service provider/Education Institute.

This document constitutes an agreement between I.B. College, Panipat and BICA computer center........ for training/educating/teaching/ enhancing entrepreneurs skills among the students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1. Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate/enhance knowledge and skills of students of the UG & PG Courses by imparting industry relevant skill sets and increasing their employability. Knowledge of computerized accounting and more specifically Tally including GST increases the industry exposure and employability of students upon graduation by **Certification of Tally ACE.**

Specific activities will be provided under this MOU to the students of our college by ...BICA Computer Cente

2. Proposed Terms and Conditions:

2.1 Deliverables from BICA Computer Centre

1. Provide training on Licensed Tally.ERP 9
2. Provide authorized courseware from Tally (Digital Form)
3. Enroll all students to the TEPL portal
4. Provide assessment and certification to the enrolled students
5. Training will be provided through online mode

2.2 Deliverables from TEPL for college and all enrolled candidates:

1. Tally.ERP 9 Multiuser License on an annual renewable basis on request
2. 2*2 Tally logo signboard to be affixed outside/ inside the computer lab
3. Online Assessment for the certification
4. Digital verifiable Certificate to students who pass the assessment.
5. Access for students to the TEPL Candidate Portal
6. Mock assessments to students in the Candidate Portal to evaluate their progress

2.3 Deliverables from College:

1. College to make payment to empaneled partner before commencement of the course.
2. Necessary student details for the enrolled students.
3. Fix Tally logo signboard (as provided by TEPL) to the computer lab
4. Minimum of 30 students for certification in order for the license to be renewed

2.4 Programme Details:

Tally ACE official content, training and assessment for certification for B .Com BBA and MBA students. This may also be offered to other disciplines as per mutual agreement.

2.5 Tentative duration: 45 hours

3 General Terms of MOU

3.1 Duration of MOU: This MOU shall be functional after signing and will have an initial duration of three years (for sessions 2020-21, 2021-22 & 2022-23)

3.2 Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

3.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of business or method of carrying on the business of the other without consent of both the parties.

3.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

3.5 Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

3.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement. No amount will be charged from the first party.

3.7 Certification of the program: The clarification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated..14\12\20

Name.. Ravinder M/NO/PMP/55   Name........

Signature.. Prms.   Signature.......

Date:14\12\20   Date:.....15\12\2020

(Second Party)   (First Party)
                       Nominee (Management/Society)

Dr. Ajay Kumar Garg
Principal

Tally
POWER OF SIMPLICITY

Certificate of Empanelment

This is to certify that

BICA (Bajrang Institute Of Computer & Accounting)

is empaneled as

Training & Assessment Centre

to offer Certifications on

TallyACE I TallyPRO I TallyGURU I GST using Tally

Other Certifications offered:

Basics of Tally I GCC VAT using Tally I Financial Accounting using Tally I CFFA I ACPFAT

Address: Shop no. Tau Devi lal Complex,Near Nagar Nigam Office
Railway Road Panipat Panipat-132103, Haryana

Valid Till: 12-02-2022
T&AC Code: N/HA/PNP/85

Bhuwaneshwari B
Chief Executive Officer

No......................

To,

Date.12|12|2.0+.

The Principal

I&PG College

Panipat

Haryana- 132103

Date: 12-12-2020

Subject: Proposal for College Tie-up with BICA Computer Centre – an authorized institute from Tally Education.

Respected Madam/Sir,

Thank you for receiving the proposal.

Tally Education Private Limited (TEPL), the educational division of Tally Solutions, India's leading business management software product company, proposes to collaborate with your esteemed institute to train and certify students on Tally. Tally Certifications include relevant concepts and application of accounting and GST, and have been created with different levels (Tally ACE, Tally PRO, Tally GURU and GST Using Tally) to provide a platform to candidates to enhance their employability and simultaneously offer assurance of skilled resource to the potential employers.

TEPL is the only entity authorised to issue certifications on Tally. Training and Assessment centres (TAC) empanelled with TEPL to offer these certifications and associated training support. The TACs also provide additional support by way of training to the students.

We solicit your support for initiating the Certification programme at the earliest convenient date. Please feel free to contact undersigned for any other information or clarification required.

Thanking you,

Yours truly,

Mr. Ravinder Vats

Director

BICA COMPUTER CENTRE

Shop No. 3 Tau Devi Lal Complex Near Nagar Nigam Office, Railway Road Panipat

Ph. No. 9255888941, 01804018941

MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on **25th day of October 2021** between Governing Body, I.B.College, Panipat as the First party on the behalf of I.B. College, Panipat & **Innovative Computer Academy, Panipat** as second party/service provider/Education Institute.

This document constitutes an agreement between **I.B. College, Panipat** and **Innovative Computer Academy, Panipat** for training/educating/teaching/ enhancing entrepreneurs skills among the students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1. Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate/enhance knowledge and skills of students of the UG & PG Courses by imparting industry relevant skill sets and increasing their employability. Knowledge of computerized accounting and more specifically **Tally including GST** increases the industry exposure and employability of students upon graduation by **Certification of Tally Essential Level 1.**

Specific activities will be provided under this MOU to the students of our college by **Innovative Computer Academy, Panipat.**

2. Proposed Terms and Conditions:

2.1 Deliverables from Innovative Computer Academy.

1. Provide training on **Licensed Tally Prime**
2. Provide authorized **courseware from Tally (Digital Form)**
3. Enroll all students to the TEPL portal
4. Provide assessment and certification to the enrolled students
5. Training will be provided through online/offline mode

2.2 Deliverables from TEPL for college and all enrolled candidates:

1. Tally Prime Multiuser License on an annual renewable basis on request
2. Online Assessment for the certification
3. Digital verifiable Certificate to students who pass the assessment.
4. Access for students to the TEPL Candidate Portal
5. Mock assessments to students in the Candidate Portal to evaluate their progress

2.3 Deliverables from College:

1. College to make payment to empaneled partner before commencement of the course.
2. Necessary student details for the enrolled students.
3. Minimum of 30 students for certification in order for the license to be renewed

2.4 Programme Details:

Tally Essential Level 1 official content, training and assessment for certification for B .Com BBA and MBA students. This may also be offered to other disciplines as per mutual agreement.
2.5 Tentative duration: 35 hours

3 General Terms of MOU

3.1 Duration of MOU: This MOU shall be functional after signing and will have an initial duration of **three years (for sessions 2021-22, 2022-23 & 2023-24)**

3.2 Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

3.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of

business or method of carrying on the business of the other without consent of both the parties.

3.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

3.5 Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

3.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement. No amount will be charged from the first party.

3.7 Certification of the program: The certification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated 25/10/2021.

Name Deepanshu Grover	Name.............................	....
Signature...........	Signature.............................	....
Date: 25...........	Date:.............................	....
(Second Party)	(First Party)	Dr. Ajay Kumar Garg
Innovative Computer Academy	Nominee (Management/Society)	Principal

Witness:

Tally

POWER OF SIMPLICITY

Certificate of Empanelment

This is to certify that

Innovative Computer Academy-Panipat

is empaneled as

Training & Assessment Centre

to offer Certifications on

TallyEssential | TallyProfessional | GST using Tally

Other Certifications offered:

Basics of Tally | GCC VAT using Tally | Financial Accounting using Tally | TDS using Tally

336/1, Opposite Delhi Eye Hospital, New Sukhdev Nagar, Near Salarganj Gate, Panipat-132103, Haryana

Valid Till: 21-05-2022
T&AC Code: N/HA/PNP/064

Bhuwaneshwari B
Chief Executive Officer

INNOVATIVE COMPUTER ACADEMY

A building with 4 Walls & tomorrow inside!!

To,
The Principal
IB (PG) College
Panipat
Haryana- 132103

Subject: Proposal for College Tie-up with Innovative Computer Academy – an authorized institute from Tally Education Private Limited.

Respected Madam/Sir,

Tally Education Private Limited (TEPL), the educational division of Tally Solutions, India's leading business management software product company, proposes to collaborate with your esteemed institute to train and certify students on Tally. Tally Certifications include relevant concepts and application of accounting and GST, and have been created with different levels (Tally Essential, Tally Professional, and TDS Using Tally) to provide a platform to candidates to enhance their employability and simultaneously offer assurance of skilled resources to the potential employers.

TEPL is the only entity authorised to issue certifications on Tally. Training and Assessment centres (TACs) empanelled with TEPL to offer these certifications and associated training support. The TACs also provide additional support by way of training to the students.

We solicit your support for initiating the Certification programme at the earliest convenient date. Please feel free to contact undersigned for any other information or clarification required.

Sincerely,

Mr. Deepanshu Grover
Director
Ipnovative Computer Academy
Sahib Tower, New Sukhdev Nagar, Behind Bus Stand, Panipat-132103 (Haryana)
M. 7015768079, 9817040500

Proposal to IB College Panipat

We share the common vision of empowering the students by imparting industry relevant skill sets and increasing their employability. Knowledge of computerized accounting, and more specifically Tally including GST increases the industry exposure and employability of students upon graduation. TEPL offers digital verifiable certifications to students through its network of empaneled centers. These centers also support the college by training the students at the college premises in mutually convenient timeslots.

Proposed Terms and Conditions:

Deliverables from Innovative Computer Academy

1. Provide training on Licensed Tally Prime
2. Provide authorized courseware from Tally (Digital Form)
3. Enroll all students to the TEPL portal
4. Provide assessment and certification to the enrolled students
5. Training will be provided through online/offline mode

Deliverables from TEPL for college and all enrolled candidates:

1. Tally Prime Multiuser License on an annual renewable basis on request
2. Online Assessment for the certification
3. Digital verifiable Certificate to students who pass the assessment.
4. Access for students to the TEPL Candidate Portal
5. Mock assessments to students in the Candidate Portal to evaluate their progress

Deliverables from College:

1. College to make payment to empaneled partner before commencement of the course.
2. Necessary student details for the enrolled students.
3. Minimum of 30 students for certification in order for the license to be renewed

Programme Details:

Tally Essential Level 1 official content, training and assessment for certification for B .Com BBA and MBA students. This may also be offered to other disciplines as per mutual agreement.

Tentative duration: 35 hours

Price per candidate: INR Rs. 1,200/- for IB college Panipat only. The actual fee for Ace is 5500/-
For any clarifications, please call on the above signed.

Thanking you.

Agreed and Accepted

SYLLABUS & SCHEME OF EXAMINATION CERTIFICATION : TALLY ESSENTIAL LEVEL 1

Purpose of Course:

This Tally course & Certification will help in enabling students to work in Tally Prime software

Duration:

Total duration of the course is 35 Hours and will be covered in 30 days – 1 to 1.5 hrs per day (Theory + Practical)

Assessment:

Assessment will be online mode on Laptop or computer with Webcam and will have 60 multiple choice questions (Theory + Practical) & 2 marks for each Question. Students can come to authorized centre for assessment as well if they have laptop or computer issue.

Certificate :

After completion of the course certificate will be provided to all the students who score minimum 40% marks. It is mandatory to maintain at least 75% attendance in order to get certificate

CERTIFICATION: TALLY ESSENTIAL LEVEL 1

Table of Content

(Subject to change at discretion of Tally Education) Training will be for 1.5 Hrs per day- One hour Theory & Half Hour Self practical/practice

Chapter 1: Fundamentals of Accounting - Day 1 & Day 2

- This chapter summarizes the Fundamentals of Accountancy, starting with the accounting terms, concepts, right up to the double entry system of accounting. It explains the need and usage of Golden Rules of Accounting in the books of accounting and recording the business transactions.

Chapter 2: Introduction to Tally Prime - Day 3

- This introductory chapter on Accounting using Tally explains how simple it is to download and install Tally in the system. This chapter helps you understand the simplest way of creating a company and the company features and configurations.

Chapter 3: Maintaining Chart of Accounts - Day 4 to Day 6

- This chapter shows you how simple it is to create, alter and display the Chart of Accounts such as Ledgers, Groups, Stock Items and Units of Measure Creation.

Chapter 4: Recording and Maintaining Accounting Transactions – Day 7 to Day 16

- This chapter covers how to record transactions such as Receipt, Contra, Payment, Purchase, Sales, Debit Note, Credit Note, and Journal Vouchers with practical scenarios.

Chapter 5: Banking – Day 17 to Day 20

- This chapter covers the basic Banking Feature, Cheque Printing, Bank Reconciliation, Generating Deposit Slips including Payment Advice.

Chapter 6: Generating Financial Statements and MIS Reports – Day 21 to 25

- This chapter covers all MIS reports in Tally; Trail Balance, Balance Sheet, Profit and Loss account, Cash Flow Statement, Ratio Analysis, Daybook, Receipts and Payments, Purchase and Sales Register including Inventory Reports.

Chapter 7: Data Security – Day 26 to Day 28

- This chapter covers Securing Financial Information of the Company, Creating Security Control, User Roles, Creation of Users and Change User.

Chapter 8: Company Data Management – Day 29 & Day 30

- This chapter covers how to securely take company data and restore without any data loss.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated 25/10/2021.

Name Deepanshu Grover   Name.............................

Signature.........................   Signature............................

Date:.............................   Date:...............................

(Second Party)   (First Party)   Dr. Ajay Kumar Garg

Innovative Computer   Nominee (Management/Society)   Principal

Academy   B. (PG) College, Panipat

Witness:

TEPL
Tally Education

TallyEssential

A COMPLETE GUIDE ON BASIC
TO INTERMEDIATE ACCOUNTING

ABOUT THE COURSE

TallyEssential covers topics from basic to intermediate Financial Accounting concepts. The course helps you understand how to perform basic to intermediate Accounting, Inventory and Basic Taxation (GST, TDS), Simplification of Company Books of Accounts to name a few. The practical applications is done on the new TallyPrime software.

Content created
by Tally Education and
Subject Matter Experts

Facility of taking
Assessment Online

Hands-on Project,
Case Studies included
on each levels

Content is aligned with
the Current Market Requirement
and Business Standard

Concepts explained
through Real
Business Scenarios

YOU WILL LEARN

Day-to-Day Transactions

Accounts Payable and
Receivable Management

Banking (BRS)

MIS reports

Maintaining Stock
Keeping Unit (SKU)

Purchase and Sales Order Processing

Budgets and Control Management

Goods and Services Tax (GST)

Tax Dedicated at Sources (TDS) and,

Closing Financial Year Books of Accounts
and beginning the next Financial Year

THE VARIOUS LEVELS OF THE COURSE

Level 1

- Fundamental of Accounting
- Introduction to Tally
- Maintaining Chart of Accounts
- Recording and Maintaining
  Accounting Transactions
- Banking
- Generating Financial Statements
  and MIS Reports
- Data Security
- Company Data Management
- Business Case Studies

Level 2

- Storage and Classification of Inventory
- Accounts Receivable and Payable
  Management
- Purchase and Sales Order Management
- Cost/Profit Centres Management
- Booking Additional Cost Incurred on
  Purchase
- Budgets and Controls Management
- Generating and Printing Reports
- Business Case Studies

Level 3

- Goods and Services Tax
- Tax Deducted at Source
- Management of Business Data
- Moving to the Next Financial Year
- Business Case Studies

Tally Education Pvt. Ltd.
No. 23 -24, AMR Tech Park II B,
Hongasandra,
Hosur Main Road, Bengaluru – 560068
Karnataka, India.
Email: info@tallyeducation.com
Check us on: www.tallyeducation.com

CURTINA TECHNOLOGIES
AN ERP DEVELOPMENT CO.

Curtina Study Visa

Curtina Estate,G.T.Road, Panipat-132103
Email : caestudyvisa@gmail.com

Date : 12-January-2021

The Principal
IB (PG) College
Panipat

Subject- Proposal Letter for the online English Communication Classes

Respected Sir/Mam,
Warm Greetings from **Curtina Study Visa!**

We are glad to introduce ourselves as one of the leading Study Abroad Consultants in this region. We are in the field of education from last 16 years, associated with NIIT, a leading brand in IT education training center and it has been ten years that we are providing consultancy in abroad education. Today we are not only counselling students about the benefits of study abroad but also giving them full assistance in Pre-Departure formalities, IELTS Training and English Communication.

Indian Corporate World is changing enormously and today market has overwhelmingly accepted the fact that Training Workshops have the ability to transform the students' personality and confidence. Such programs also help to enhance Students Communication skills and further update, and pleasantly refresh their productivity and well-being.

Keeping in mind the demands of the Industry, **English Communication and Soft-Skills by Sakshi Gupta** train the students to enhance their employability.

We are looking forward to conduct such sessions in your prestigious College (I.B. P.G.), so that your students can maximize their skills.

The details of the Proposal are attached.

With Warm Regards

Sakshi Gupta
(Career Counsellor and Senior Faculty)
Curtina Study Visa, Panipat

H.O : Curtina Estate, G.T.Road Panipat-132103 (Haryana) Tel. : 0180 - 2668062
www.curtinatechnologies.net Email : enquiry.curtinatechnologies@gmail.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/Notice/2021/269   DATED 7/12/2021

NOTICE

It is hereby notified for the general information of all concerned that under Student Development Programme, an Online Certificate Course in English Communication and Soft Skills is being launched from 16th December, 2021. The course is open to all bonafide regular students (Arts, Science and Commerce) of the college. The duration of the course is one month.
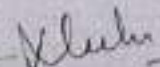
There are 40 seats in all. The seats will be allotted on First-come, first-served basis. The student will be required to pay Rs 1000/- only as the fee of the course.
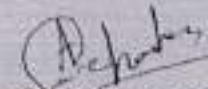
After the completion of the course, each successful candidate will receive a certificate to the effect.
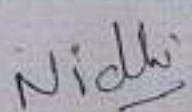
Those interested in the course should give their names to the following members of the course committee on or before 15th December, 2021.

1. Prof. Vinay Bharti (9034810908)
2. Prof. Sukhjinder Singh (7015552507)
3. Prof. Sonal   (9466100045)
4. Prof. Sheela Malik (7988128684)
5. Prof. Rekha Sharma (9991560146)
6. Prof. Shilpa Nain (8570817209)

Dr. Ajay Kumar Garg   Prof. Neelam   Prof. Ajaypal Singh   Dr. Nidhi
(Principal)   (Convener)   (Coordinator)   (Coordinator)

I.B.(PG) COLLEGE, PANIPAT

G.T. Road, Panipat-132103, Haryana

Website : ibpgcollegepanipat.ac.in, Email: principalibcollege@gmail.com

ONE MONTH ONLINE CERTIFICATE COURSE

in

ENGLISH COMMUNICATION AND SOFT SKILLS

in Collaboration with

CURTINA STUDY VISA

First Come First Serve

Date of Commencement
January 05, 2022

Course Details:
- Duration : One Month
- Fee : Rs. 1000/-
- Eligibility : Only for the students of I.B. College

Seize this unique occasion for the glittering future

Patron
Dr. Ajay Kumar Garg
Principal

Convener
Neelam Dahiya
Associate Professor

Co-ordinator
Ajay Pal Singh
Assistant Professor

Co-ordinator
Dr. Nidhi
Assistant Professor

Members of Course Committee:

Prof. Vinay Bharti

Prof. Sonal
9728793345

Prof. Sukhjinder Singh
7015552507

Prof. Sheela Malik

Prof. Rekha Sharma

Prof. Shilpa

"Recent AI achievements imitate human intelligence more closely than before, however machines are still way beyond what human brains are capable of doing."

Aims and Objectives

Communication and soft skills are the main stipulation in the workforce today. Though there is social media to simulate human interaction but interpersonal skills are also equally important in this cut throat era. As each soft skill comes with its own advantage, so this course will help the students to enhance their communication and soft skills. They will also be given certificates after the course.

Elgibility

Under Graduate and Post Graduate students of any stream can get registered for the course.

Course Contents:

Self-introduction, PPT Presentation , CV Making, Activities of speaking, E-mail Etiquettes, Group Discussion , Extempore, Analysis of Inspirational Videos, Debate, Mock interviews, Body Language.

I.B.(PG) COLLEGE, PANIPAT

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ONE MONTH ONLINE CERTIFICATE COURSE
in
ENGLISH COMMUNICATION AND SOFT SKILLS

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Patron
Dr. Ajay Kumar Garg
Principal

Convener
Mrs. Neelam Dahiya
Associate Professor

Co-ordinator
Sh. Ajay Pal Singh
Assistant Professor

Co-ordinator
Dr. Nidhi
Assistant Professor

Committee Members
Sh. Vinay Bharti
Mrs. Sonal
Sh. Sukhjinder Singh
Mrs. Sheela Malik
Mrs. Rekha
Mrs. Shilpa

Course Details:
➤ Duration : One Month
➤ Fee : Rs. 1000/-
➤ Eligibility : Students of I.B. College
Last Date of Fee – Deposit
15.12.2021

Seize this unique occasion for the glittering future

Date of Commencement
December 16, 2021

I.B.(PG) COLLEGE,PANIPAT

ONE MONTH ONLINE CERTIFICATE COURSE

ENGLISH COMMUNICATION & SOFT SKILLS

SESSION: 2021-22

SR NO	ROLL NO	NAME	MOBILE NO	CLASS
1	3161320117	PREETI SHARMA	9518688950	B.A-III
2	1212192002351	RAVI	8930669153	B.A-I
3	1212192002226	MANISH	8607149941	B.A-I
4	1212192002201	AMAN	7027286062	B.A-I
5	120219002050	PREETI	9068500591	B.A-II
6	3161320088	TWINKLE ARORA	7056228231	B.A-III
7	3161320120	SAKSHI	9518455345	B.A-III
8	1212192002151	MANPREET KAUR	9729131386	B.A-I
9	1212192002256	PRIYA	9991035940	B.A-I
10	3161310038	SHIVAM KUMAR	9306162520	B.A-III
11	1212192062034	RUHANI	9350500031	B.A(H)-I
12	1212192062025	MUSKAN SONI	7082707701	B.A(H)-I
13	1212192062019	AKSHITA	9306231619	B.A(H)-I
14	121219062048	MEGHA	8057152384	B.A(H)-I
15	1212192062004	PREETI	9588763468	B.A(H)-I
16	1212192002045	HIMANSHU	9350253758	B.A-I
17	120219002357	RIYA	7206520074	B.A-II
18	120219002252	ARZOO	8221839935	B.A-II
19	120219002292	NANCY	9671535029	B.A-II
20	1212192002141	MUSKAN	8950126317	B.A-I
21	120219002417	TANNU	7206876602	B.A-II
22	1212192002340	SHIVANI	7988182985	B.A-I
23	1212192002212	POOJA	8708420265	B.A-I
24	1212192002326	NEHA	8708420265	B.A-I
25	1212192002390	POOJA	9991943438	B.A-I
26	1212192030020	ASHKIRAT SINGH	9817757430	B.SC(M)-I
27	1212192002192	SANJANA	7404665720	B.A-I
28	1212192002180	TANNU	8307038011	B.A-I
29	1212192002396	SHRUTI TIWARI		B.A-I
30	120219002380	NIKITA	8198948108	B.A-II
31	1212192002453	SHWETA	9050998642	B.A-I
32	120219002374	KIRAN	8950555600	B.A-II
33	1212192002185	KHUSHI	9813903579	B.A-I
34	120219002356	SHIKHA	7988515439	B.A-II
35	1212192002346	SEJAL	9588567531	B.A-I
36	3161320100	JIGYASA	7497096838	B.A-III
37	3161320103	REKHA	8813057469	B.A-III

I.B. (PG) COLLEGE, PANIPAT

CURTINA
TECHNOLOGIES
PVT. LTD.

INAUGURAL FUNCTION

of

ONE MONTH ONLINE CERTIFICATE COURSE

in

ENGLISH COMMUNICATION AND SOFT SKILLS

in Collaboration with

CURTINA STUDY VISA

**Date of Commencement
January 05, 2022**

Patron

Dr. Ajay Kumar Garg

Principal

Convener

Neelam Dahiya

Associate Professor

Co-ordinator

Ajay Pal Singh

Assistant Professor

Co-ordinator

Dr. Nidhi

Assistant Professor

सर्टिफिकेट कोर्स इन इंगलिश कम्युनिकेशन एंड सॉफ्टस्किल किया प्रारंभ

आईवी कालेज में आनलाइन सर्टिफिकेट कोर्स इन इंगलिश कम्युनिकेशन एंड सॉफ्टस्किल में भाग लेते प्रतिभागी।   –मोहन लाल

पानीपत (विनोद पांचाल) : आईबी स्नातकोत्तर महाविद्यालय में अंग्रेजी विभाग के तत्वाधान में वन मंथ ऑनलाइन सर्टिफिकेट कोर्स इन इंग्लिश कम्युनिकेशन एंड सॉफ्टस्किल का प्रारंभ किया गया। प्रोग्राम का शुभारंभ प्राचार्य डा. अजय गर्ग ने किया। उन्होंने विद्यार्थियों को संबोधित करते हुए कहा कि किस प्रकार कम्युनिकेशन एंड सॉफ्ट स्किल कैरियर निर्माण एवं उसे दिशा देने में पर्याप्त क्षमता वाले साधन के रूप में उभर कर आया है। प्रतिस्पर्धा के युग में विद्यार्थियों के लिए डिग्री के साथ-साथ इस प्रकार की स्किल्स हासिल करना भी अति आवश्यक हो चुका है। इसी उद्देश्य को ध्यान में रखते हुए समय-समय पर महाविद्यालय में इस प्रकार के स्किल डेवलपमेंट प्रोग्राम आयोजित किए जाते हैं। प्रोग्राम की संयोजिका प्रो. नीलम दिहया ने भी प्रोग्राम की महता व उपयोगिता की जानकारी दी। प्रोग्राम के अंत में सह संयोजक प्रो. अजय पाल सिंह ने कार्यक्रम के सफल आयोजन का धन्यवाद किया। इस अवसर पर प्रोग्राम का तकनीकी कार्यभार प्रो. विनय भारती, प्रो. सुखिजंदर, डा. निधि मल्होला, प्रो. सोनल डोगरा, प्रो. शीला मलिक, प्रो. रेखा शर्मा व प्रो. शिल्पा ने योगदान दिया।

सर्टिफिकेट कोर्स इन इंगलिश कम्युनिकेशन एंड सॉफ्टस्किल किया प्रारंभ

आईबी कालेज में आनलाइन सर्टिफिकेट कोर्स इन इंगलिश कम्युनिकेशन एंड सॉफ्टिस्कल में भाग लेते प्रतिभागी।   -मोहन लाल

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I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/305/2021   DATED 19/5/2021
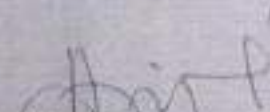
Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **English**

Session (2020-21)

Name of the College   I.B. (PG) COLLEGE

Address   G.T. ROAD   (First Party)

PANIPAT

And

Name of the College   R.K. S.D. College

Address   Ambala Road   (Second Party)

Kaithal

It is agreed to carry out the following activities jointly:

1. Research collaborations.

2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

5. Any other collaborative activity advised by the IQAC and various committees
   of the college.

Both the parties will mutually provide all necessary infrastructure and human resource
for the proposed activities.

Principal

(Signature and Stamp)

Principal
I.B. (P.G.) College, Panipat

Principal

(Signature and Stamp)
R.K.S.D. (PG) College
KAITHAL

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IB4/305/2021   DATED 19/5/2021

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **Chemistry**

Session (2020-21)

Name of the College   I.B. (PG) COLLEGE

Address   G.T.ROAD   (First Party)

                        PANIPAT

                            And

Name of the College   R.K.S.D. College

Address   Ambala Road   (Second Party)

                        Kaithal

It is agreed to carry out the following activities jointly:

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2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

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Both the parties will mutually provide all necessary infrastructure and human resource
for the proposed activities.

Principal

(Signature and Stamp)
Principal
I.B. (P.G.) College, Panipat

Principal
Principal

(Signature and Stamp)
KAITHAL

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/305/2021   DATED 19/5/2021

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of
Cultural Activities

Session (2020-21)

Name of the College	I.B. (PG) COLLEGE	
Address	G.T. ROAD	(First Party)
	PANIPAT	
	And	
Name of the College	R. K. S. D. College	
Address	Ambala Road	(Second Party)
	Kaithal	

It is agreed to carry out the following activities jointly:

1. Research collaborations.

2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

5. Any other collaborative activity advised by the IQAC and various committees
   of the college.

Both the parties will mutually provide all necessary infrastructure and human resource
for the proposed activities.

Principal   Principal
(Signature and Stamp)   (Signature and Stamp)
Principal   Principal
I.B. (P.G.) College, Pani...   R.K.S.D. (PG) College
                                                       KAITHAL

⑧

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC 3348/19   ~ DATED. 30/07/2019

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **Commerce**
Session (2019-20)

Name of the College   **I.B. (PG) COLLEGE**

Address   G.T. ROAD   (First Party)

PANIPAT -132103

And

Name of the College   AGGARWAL COLLEGE BALLABGARH

Address   WING-II, MILK PLANT ROAD, SECTOR 2 RD,   (Second Party)

FARIDABAD, HARYANA 121004

It is agreed to carry out the following activities jointly:

1. Research collaborations.

2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

5. Any other collaborative activity advised by the IQAC and various committees
   of the college.

Both the parties will mutually provide all necessary infrastructure and human resource
for the proposed activities.

Principal

(Signature and Stamp)
Principal
I.B. (PG) College, Panipat

Principal
PRINCIPAL
(Signature and Stamp)
AGGARWAL COLLEGE
BALLABGARH (FBD)

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : ibpgcollegepanipat.ac.in

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC 3348 19   DATED 30 07 2019

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **History Session (2019-20)**

Name of the College	**I.B. (PG) COLLEGE**	
Address	G.T. ROAD	(First Party)
	PANIPAT -132103	

And

Name of the College	**AGGARWAL COLLEGE BALLABGARH**	
Address	WING-II, MILK PLANT ROAD, SECTOR 2 RD,	(Second Party)
	FARIDABAD, HARYANA 121004	

It is agreed to carry out the following activities jointly:

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2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

5. Any other collaborative activity advised by the IQAC and various committees of the college.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

Principal

(Signature and Stamp)
Principal
I B. (PG) College, Panipat

Principal
PRINCIPAL
(Signature and Stamp)
AGGARWAL COLLEGE
BALLABGARH (FBD)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO......IBC/3348/19   DATED....30/07/2019

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **Maths**
Session (2019-20)

Name of the College   **I.B. (PG) COLLEGE**

Address   G.T. ROAD   (First Party)

                                        PANIPAT

                                              And

Name of the College   AGGARWAL COLLEGE BALLABGARH

Address   WING-II, MILK PLANT ROAD, SECTOR 2 RD,   (Second Party)

                                        FARIDABAD, HARYANA 121004

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Both the parties will mutually provide all necessary infrastructure and human resource
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Principal   Principal

(Signature and Stamp)   (Signature and Stamp)
Principal   PRINCIPAL
I.B. (PG) College, Panipat   AGGARWAL COLLEGE
                                                                         BALLABGARH (FBD)

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : ibpgcollegepanipat.ac.in

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO......IBC/313/2021   DATED....26/5/2021

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **History**
Session (2020-21)

Name of the College	**I.B. (PG) COLLEGE**	
Address	G.T. ROAD	(First Party)
	PANIPAT - 132103	

And

Name of the College	AGGARWAL COLLEGE BALLABGARH	
Address	WING-II, MILK PLANT ROAD, SECTOR 2 RD,	(Second Party)
	FARIDABAD, HARYANA 121004	

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Principal
(Signature and Stamp)
Principal
I.B. (PG) College, Panipat

Principal
(Signature and Stamp)
PRINCIPAL
AGGARWAL COLLEGE
BALLABGARH (FBD)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/ 313/ 2021   DATED 26/5/2021

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **Commerce**
Session (2020-21)

Name of the College   **I.B. (PG) COLLEGE**

Address   G.T. ROAD   (First Party)

PANIPAT

And

Name of the College   AGGARWAL COLLEGE BALLABGARH

Address   WING-II, MILK PLANT ROAD, SECTOR 2 RD,   (Second Party)

FARIDABAD, HARYANA 121004

It is agreed to carry out the following activities jointly:

1. Research collaborations.

2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

5. Any other collaborative activity advised by the IQAC and various committees
   of the college.

Both the parties will mutually provide all necessary infrastructure and human resource
for the proposed activities.

Principal

(Signature and Stamp)

I.B. (PG) College, Panipat

Principal

(Signature and Stamp)

PRINCIPAL
AGGARWAL COLLEGE
BALLABGARH (FBD)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/3/3/2021   DATED 26/5/2021

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the department of **Maths**
Session (2020-21)

Name of the College   **I.B. (PG) COLLEGE**

Address   G.T. ROAD   (First Party)

                                      PANIPAT - 132103

                                              And

Name of the College   AGGARWAL COLLEGE BALLABGARH

Address   WING-II, MILK PLANT ROAD, SECTOR 2 RD,   (Second Party)

                                      FARIDABAD, HARYANA 121004

It is agreed to carry out the following activities jointly:

1. Research collaborations.

2. Trainings/Workshops for staff members.

3. Cultural exchange programmes.

4. Guest lectures for students under the faculty exchange programmes.

5. Any other collaborative activity advised by the IQAC and various committees
   of the college.

Both the parties will mutually provide all necessary infrastructure and human resource
for the proposed activities.

Principal

(Signature and Stamp)
Principal
I.B. (PG) College, Panipat

Principal

(Signature and Stamp)
PRINCIPAL
AGGARWAL COLLEGE
BALLABGARH (FBD)

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MEMORANDUM OF UNDERSTANDING (MoU)

This Memorandum of Understanding (MOU) is made on Thursday, April 29, 2021 between I.B. (PG) College, Panipat affiliated to Kurukshetra University, Kurukshetra (Hereinafter called the 'First Party')

And

Teaching Learning Centre (TLC) of Ramanujan College, University of Delhi located at Kalkaji, New Delhi – 110019 (Herein after called the 'Second Party').

And whereas the *First Party* and the *Second Party* have agreed to the following terms and conditions of the agreement:

1. The aim of the hereby agreement is to enhance the capacity building of teachers/faculty members through organizing a 7-days Online Faculty Development Program on 'ICT Tools in Higher Education' from 7th -14th June 2021

2. The **Deliverables by First Party** are given as follows:
   a. Brochure and Poster preparation
   b. Mail management and query handling of the participants
   c. Report Writing (Day Wise) and its compilation
   d. Promotion of the FDP in neighboring states like Punjab and Himachal Pradesh to the north and Rajasthan, Uttarakhand and Uttar Pradesh
   e. Administrative support in terms of organizers
   f. Overall Cooperation

1

3. The **Deliverables by Second Party** are given as follows:
    a. Arrangement of resource persons
    b. Producing video content
    c. Producing written content
    d. Drafting quizzes and assignments
    e. Evaluating assignments
    f. Administrative support for portal development and maintenance like uploading of content on a daily basis
    g. Generation of Certificates
    h. Promotion of the FDP
    i. Collection of Registration Fees

4. Registration fee of **Rs. 950/-** (including staff of First Party and Second Party) will be charged from the academicians and will be **Rs. 550** for PH candidates. The fees will be collected through Online Mode (UPI/ NEFT) and will be used to meet the expenses for the said FDP.

5. Second Party will charge consultancy fees of **Rs. 25,000** from the First Party in lieu of the services rendered by the Second Party to the First Party, like for the development of the MOOC platform, brand, expertise, certificate, and resources. This consultancy fees should be transferred before the start of the FDP.

6. Registration fees will be waived off for 5 participants from the First Party

7. Both the parties have agreed to promote the FDP as given below:

Online Faculty Development Program

On

ICT Tools in Higher Education

Organised by

Teaching Learning Centre (TLC), Ramanujan College (Under PMMMNMTT scheme)

And

I.B. (PG) College, Panipat

7. Logos of both the parties will be used in the promotional material.

8. Name of both the coordinators and Principal and TLC Assistant Directors will appear.

9. Both the parties have agreed that they will extend every form of co-operation to each other.

10. The hereby agreement shall initially be **conducted for this FDP** between **7ᵗʰ – 14ᵗʰ June 2021** however the agreement **can be extended to organize more such FDPs/FDPs in future.** Both the parties will be responsible for organizing and managing the **FDP** as per the provisions mentioned above.

11. The Brochure Contents as agreed can be as follows:

Online Faculty Development Program

On

ICT Tools in Higher Education

Organised by

Teaching Learning Centre (TLC), Ramanujan College (Under PMMMNMTT scheme)

And

I.B. (PG) College, Panipat

12. Coordinator from the First Party shall be Dr. Arpana Pujara whereas Coordinator from Second Party shall be Ms. Nidhi Mathur

13. The hereby agreement shall be made in two identical copies. All the versions are equally valid. Each of the parties of the hereby agreement shall receive one copy of the agreement.

We hereby signify our acceptance of the terms and conditions stated above.

The First Party

Dr. Ajay Kumar Garg
Principal   **Principal**
I.B. (PG) College **I.B. (PG) College, Panipat**
Panipat

The Second Party

Prof. S. P. Aggarwal
Principal
Ramanujan College
University of Delhi
Kalkaji, New Delhi

प्रोफेसर-प्राचार्य / Professor-Principal
रामानुजन कॉलेज / Ramanujan College
दिल्ली विश्वविद्यालय / University of Delhi
कालकाजी, नई दिल्ली-110019 / Kalkaji, New Delhi-110019

Date: 29ᵗʰ April, 2021

Place: Panipat

Place: New Delhi

3

MEMORANDUM OF UNDERSTANDING (MoU)

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And

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The First Party

Dr. Ajay Kumar Garg
Principal   **Principal**
I.B. (PG) College **I.B. (PG) College, Panipat**
Panipat

The Second Party

Prof. S. P. Aggarwal
Principal
Ramanujan College
University of Delhi
Kalkaji, New Delhi

प्रोफेसर–प्राचार्य / Professor-Principal
रामानुजन कॉलेज / Ramanujan College
दिल्ली विश्वविद्यालय / University of Delhi
कालकाजी, नई दिल्ली-110019 / Kalkaji, New Delhi-110019

Date: 29th April, 2021

Place: Panipat

Date:

Place: New Delhi

3

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IB4 299 21   DATED. 01 5 2021

To

The Principal
Ramanujan College
University of Delhi
Kalkaji,
New Delhi 110019

Sub: Memorandum of Understanding (MoU)

Sir,

Please find enclosed herewith two copies of Memorandum of Understanding (MoU) between I.B. (PG) College, Panipat and Teaching Learning Centre (TLC) for organizing Faculty Development Programme in the month of June 2021

Kindly acknowledge the same and send back one copy of MoU duly signed and stamped.

Thanks & Regards

Dr. Ajay Kumar Garg
Principal
Principal
I.B. (PG) College, Panipat

MEMORANDUM OF UNDERSTANDING (MoU)

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And

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The First Party

Dr. Ajay Kumar Garg
Principal   Principal
I.B. (PG) College I.B. (PG) College, Panipat
Panipat

The Second Party

Prof. S. P. Aggarwal
Principal
Ramanujan College
University of Delhi
Kalkaji, New Delhi

Date: 29th April, 2021

Place: Panipat

Date:

Place: New Delhi

3

Department of Industries & Commerce, Haryana

Form-III

"Certificate of Registration to be issued under Section 9(1) of the Haryana Registration and Regulation of Societies Act, 2012"

(See rule 5 and rule 6)

Certificate of Registration of Society

I hereby certify that a Society bearing the Registration Number and name as undermentioned has been registered this [03] day [Nov] month [2015] year under the Haryana Registration and Regulation of Societies Act, 2012 (Haryana Act No. 1 of 2012).

State Code		District Code			Year Of Registration				Registration Number				
H	R	0	0	7	2	0	1	5	0	0	8	4	4

Name Of the Society	Registered Office Address
BAJRANG OM KRIPA EDUCATION SOCIETY	156, VPO DADHOLA, TEH. BAPOLI, DISTT. PANIPAT

Issued under my hand at [Panipat] this [03] day of (month)[Nov] (Year)[2015] having Unique Identification Number - 2000103602

Issuing Authority
District Registrar,
Panipat
Date: 2015-11-09

SOME IMPORTANT PROVISIONS OF THE HRRS ACT 2012 TO BE FOLLOWED :

* One Flat one vote.
* Collegium Scheme to be approved from District Registrar if members strength is more than 300.
* Administrator if appointed will not enroll new members, incur capital expenditure and give employement in the society.
* Terms of Governing Body not to be more than 3 years.
* Member to be not less than 21 year age.
* Office bearers of society (Three to twenty one).
* General Body and other meeting should be conducted with quorum i.e 1st meeting - 40%, 2nd meeting - 25% and 3rd meeting - 15% (see entire Provisions)
* Submission of mandatory Annual Returns i.e. list of members, list of members of collegium, list of office bearers, Annual Report on working, Balance Sheet & Auditors Report, Copy of special resolution otherwise shall attract penalities & fines as per provisions of Act.
* In case of Joint Apartment owners, 1st owner will be eligible to contest the elections.
* Proxy voting not allowed.
* Condominium/ Association covered under Apartment Ownership Act 1983 is to be formed by owners only.
* Election observer may be appointed by District Registrar or on request of Society

BICA

Bajrang Institute of Computer & Accounting
RUN BY : Bajrang om Kripa Education Society (Regd)

No............................   Date...12/Jun/21

To,
The Principal
IB (PG) College
Panipat
Haryana- 132103
Date: 09-06-2021
Subject: Proposal for College Tie-up with BICA Computer Centre – Run By : Bajrang om kripa education society (Regd)
Respected Madam/Sir,
Thank you for receiving the proposal.

We have been running education institute in Panipat city for last six years. This institute is doing work to enhance the Computer knowledge in society. We want to give python programming coding course in your college for that student skills will improve and your college will get the name/fame. Thanking you,

Yours truly,
Mr. Ravinder Vats
Director
BICA COMPUTER CENTRE
Shop No. 3 Tau Devi Lal Complex Near Nagar Nigam Office, Railway Road Panipat
Ph. No. 9255888941, 01804018941

Programme Details:

Python Programing content, training and assessment for certification for All types students. This may also be offered to other disciplines as per mutual agreement.
Tentative duration: 45 hours
Price per candidate: INR Rs. 1440/- for IB college Panipat only. The actual fee for Python is 5500/-
For any clarifications, please call on the above signed.
Thanking you.
Agreed and Accepted

Syllabus for Python Programming

1. LANGUAGE FUNDAMENTALS

- Introduction
- Features of Python
- Limitations of Python
- Flavors of Python
- Python Versions
- Identifiers
- Reserved Words
- DATA TYPES
- Base Conversions
- Slicing of Strings
- TYPE CASTING
- Fundamental Data Types vs Immutability
- Escape Characters
- Constants

2. OPERATORS

- Arithmetic Operators
- Relational Operators OR Comparison Operators
- Equality Operators
- Logical Operators
- Assignment operators
- Ternary Operator OR Conditional Operator
- Special operators
- Operator Precedence
- Mathematical Functions (math Module)
- Command Line Arguments
- Output Statements

3. FLOW CONTROL

- Conditional Statements
- Iterative Statements
- Transfer Statements
- Loops with else Block
- del Statement
- Difference between del and None

4. STRING DATA TYPE

- What is String?
- How to define multi-line String Literals?
- How to Access Characters of a String?
- Behaviour of Slice Operator
- Slice Operator Case Study

- Mathematical Operators for String
- len() in-built Function
- Checking Membership
- Comparison of Strings
- Removing Spaces from the String
- Finding Substrings
- Counting substring in the given String
- Replacing a String with another String
- Splitting of Strings
- Joining of Strings
- Changing Case of a String
- Checking Starting and Ending Part of the String
- To Check Type of Characters Present in a String
- Formatting the Strings
- Important Programs regarding String Concept
- Formatting the Strings

5. LIST DATA STRUCTURE

- Creation of List Objects

- Accessing Elements of List
- List vs Mutability
- Traversing the Elements of List
- Important Functions of List
- Using Mathematical Operators for List Objects
- Comparing List Objects
- Membership Operators
- clear() Function

- Nested Lists
- Nested List as Matrix
- List Comprehensions

6. TUPLE DATA STRUCTURE

- Tuple Creation
- Accessing Elements of Tuple
- Tuple vs Immutability
- Mathematical Operators for Tuple
- Important Functions of Tuple
- Tuple Packing and Unpacking
- Tuple Comprehension
- Differences between List and Tuple

7. SET DATA STRUCTURE

- Creation of Set Objects
- Important Functions of Set
- Mathematical Operations on the Set
- Membership Operators: (in, not in)
- Set Comprehension

8. DICTIONARY DATA STRUCTURE

- How to Create Dictionary?
- How to Access Data from the Dictionary?
- How to Update Dictionaries?

- How to Delete Elements from Dictionary?

- Important Functions of Dictionary

- Dictionary Comprehension

9. FUNCTIONS

- Built in Functions

- User Defined Functions

- Parameters

- Return Statement

- Returning Multiple Values from a Function

- Types of Arguments

- Case Study

- Types of Variables

- global Keyword

- Recursive Functions

- Anonymous Functions

- Normal Function

- Lambda Function

- filter() Function

- ap() Function

- reduce() Function

- Everything is an Object

- Function Aliasing

- Nested Functions

10. MODULES

- Renaming a Module at the time of import (Module Aliasing)

- from ... import

- Various Possibilities of import

- Member Aliasing

- Reloading a Module

- Finding Members of Module by using dir() Function

- The Special Variable_ name__
- Working with math Module
- Working with random Module

11. Basics of OOPS

- Why OOPS?
- What Is Object-Oriented Programming in Python?
- Define a Class in Python
- Classes vs Instances
- Instantiate an Object in Python
- Class and Instance Attributes
- Instance Methods
- Pillars of OOPS
- What is Abstraction?
- What is Inheritance?
- What is Encapsulation?
- What is Polymorphism?
- What to explore more in python
- Developer fundamental

12. Python Project (Intro to web framework)

- Project 1: Password generator and checker
- Project 2: Web scraper using beautiful soup

IN WITNESS WHEREOF, the parties hereto have executed this MOU on
Dated................................

Name Ravinder vats   Name L. M. Miye
Signature   Signature
Date 12\6\21   Date

(Second Party)   (First Party)   Dr. Ajay Kumar Garg
BICA (Bajrang Institute of Computer & Accounting)   Nominee (Management/Society)   Principal

Witness :

I.B.(PG) COLLEGE, PANIPAT

G.T. Road, Panipat-132103, Haryana
Website: www.ibcollegepanipat.ac.in   Email: principalibcollege@gmail.com

Online One Month Certificate Course

On

Core Python

Organized by

Department of Computer Science

Last Date to Apply
14 June, 2021
STARTING FROM 10 June , 2021

Course Duration
30 Days
Class Duration
60 minutes daily

By : Mr. Ravi Kumar
SBT Professionals
Pvt. Ltd.

Two Projects will be
developed during
the course

Registration Links:
https://forms.gle/2vigRTwTG
MEFA3eW9

WhatsApp Group Links:
https://chat.whatsapp.com/KP
W0pdp7Y9cK9DEXKapamN

Dr. Ajay Kumar Garg
Principal cum Patron

Dr. Vikram Kumar
Convener

Dr. Ranju
Course-Coordinator

Organizing Committee

Prof.Ashwani Gupta
Prof.Vinay Bharti

Prof.Deepti
Prof.Neetu

Prof.Geetika
Prof.Ajmer

भारतीय गैर न्यायिक

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MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on 09/06/2021 between Governing Body, I.B.College, Panipat as the First party on the behalf of I.B. College, Panipat & BICA Computer Center (Panipat) as second party/service provider/Education Institute.

This document constitutes an agreement between **I.B. College, Panipat** and BICA Computer Center (Panipat) for **training**/educating/teaching/ **enhancing programming skills** among the students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1.　Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate/enhance knowledge and skills of students of the UG & PG Courses by imparting industry relevant programming skill and increasing their employability. Knowledge of programming language and more specifically **Python** increases the industry exposure and employability of students upon graduation by **Certification in Python**.

Specific activities will be provided under this MOU to the students of our college by ....BICA Computer Center Panipat.

2. Proposed Terms and Conditions:

2.1 Deliverables from BICA Computer Centre

1. Provide training on **Licensed Python**
2. Provide assessment and certification to the enrolled students.
3. Training will be provided through online mode as well as offline mode.
4. Verifiable Certificate to students who pass the assessment.
5. Online Mock assessments to students to evaluate their progress.

2.3 Deliverables from College:

1. College to make payment to empanelled partner before commencement of the course.
2. Necessary student details for the enrolled students.
3. Minimum of 30 students for certification.

2.4 Programme Details:

Python official content, training and assessment for certification for BCA and B.Sc.(Computer Science) students. This may also be offered to other disciplines as per mutual agreement.

2.5 Tentative duration: 45 hours

3 General Terms of MOU

3.1 Duration of MOU: This MOU shall be functional after signing and will have an initial duration of **two year (for sessions 2020-21 & 2021-22)**

3.2 Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

3.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of business or method of carrying on the business of the other without consent of both the parties.

3.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

3.5 Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

3.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement. No amount will be charged from the first party.

Payment will be made in following manner

40% of the total payment will be made on commencement of the classes.

30% payment will be made after 20 days of commencement of classes.

Rest 30% will be made after completion of course.

3.7 Certification of the program: The clarification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated..12\6\21......

Name..Raivinder vati   Name... L.N. Mylani   Name..............................

Signature...MATS   Signature................   Signature...............

Date:.12\6\21   Date:..........................   Date:............ 12/06/21

(Second Party)   (First Party)   Dr. Ajay Kumar Garg
                  Nominee (Management/Society)   Principal

Witness:

Online One Month Certificate Course

On

Core Python

Organized by

Department of Computer Science

Last Date to Apply
14 June, 2021
**STARTING FROM 10 June,
2021**

Course Duration
30 Days
Class Duration
60 minutes daily

By : Mr. Ravi Kumar
SBT Professionals
Pvt. Ltd.

Two Projects will be
developed during
the course

Registration Links:
https://forms.gle/2vigRTwTG
MEFA3eW9

WhatsApp Group Links:
https://chat.whatsapp.com/KP
WOpdp7Y9cK9DEXKapamN

Dr. Ajay Kumar Garg
Principal cum Patron

Dr. Vikram Kumar
Convener

Dr. Ranju
Course-Coordinator

Organizing Committee

Prof.Ashwani Gupta
Prof.Vinay Bharti

Prof.Deepti
Prof.Neetu

Prof.Geetika
Prof.Ajmer

I.B. (PG) COLLEGE, PANIPAT
REGISTERED STUDENTS FOR PYTHON COURSE

Sr. NO.	Receipt No	Name	Class	Roll No.
1	18903	RITIKA	B.COM	3161520008
2	18959	ANJU	BCA 1ST	120219011028
3	18967	PRIYANKA	BCA 1st	120219011027
4	18970	MANSI	B.Sc. 2nd	3161720003
5	18971	BHAWNA	B.Sc. 1ST	120219015049
6	18972	GOURAV	B.Sc. 2nd	3161710006
7	18973	LOKESH	B.Sc. 2nd	3161710009
8	18974	DIVYA	B.Sc. 2nd	3161720005
9	18975	AMIT	B.Sc. 2nd	3161710007
10	18976	PRACHI	B.Sc. 2nd	3161720008
11	18977	TANNU	B.Sc. 1ST	120219015028
12	18978	JAYA	B.Sc. 2nd	3161720009
13	18979	SAVIN	B.Sc. 2nd	3161710002
14	18980	HARSH SAINI	B.Sc. 2nd	3161710003
15	18981	ANJALI	BCA 1st yr	120219011008
16	18982	ASHISH	B.Sc. 2nd	3161710001
17	18983	GOURAV	BCA 1st yr	120219011043
18	18984	SURAJ	BCA 1st yr	120219011011
19	18985	DEEPAK	BCA 1st yr	120219011042
20	18986	ANSHU	BCA 1st yr	120219011025
21	18987	ANKUSH	BCA 1st yr	120219011017
22	18988	NIKITA	BCA 1st yr	120219011014
23	18989	GOURAV	B.Sc. 1st	120219015055
24	18990	BHARAT	B.Sc. 1st	120219015022
25	18991	SUMIT RUHAL	B.Sc 3rd yr	2280410015
26	18996	LAKSHI	BCA 2nd yr	3162220001
27	18997	BHARAT	B.Sc. 1st	120219015022
28	18998	AADITYA	BCA 3rd	2280910002
29	18999	NEHA	B.Sc. 2nd	3161720004
30	18087	VERSHA	BCA 3rd	2280920003
31	18088	SAZMA	BCA 3rd	2280920006
32	18089	RAVI NANDAL	BCA 2ND	3162210004
33	18091	NEETU	B.Sc. 2nd	3161720002
34	18093	SARTHAK	BCA 1ST YR	120219011029
35	18094	DEEPAK	BCA 2ND	3162210017
36	18095	ROHIT	BCA 1ST	120219011006
37	18096	SONU	B.SC. 2ND	3161720001
38	18097	ANJALI	BCA 1ST	120219011015
39	18098	ANKUSH	BCA 1ST	120219011017

REF. NO. IBC/261/2020   DATED 29/5/2020

P.1/-

MEMORANDUM OF UNDERSTANDING (MoU)

This Memorandum of Understanding is entered on 12/06/2021 between Gen, Sect. **Governing Body, I.B. (PG) College, Panipat** as the **First Party** on behalf of I.B. (PG) College, Panipat and **Kay Gee Enterprises, G.T. Road, Panipat** as the **Second Party**.

This document constitutes an agreement between **I.B. (PG) College, Panipat** and **Kay Gee Enterprises, G.T. Road, Panipat** for mutual collaboration in carrying out various training, industrial, skill enhancement and employment generation activities for the students of I.B. (PG) College, Panipat. Both parties agree to extend full co-ordination and co-operation to achieve the objectives desired by enacting this MoU.

Objectives of the MoU:

The objectives of this MoU include:

1. To willingly engage the deserving and needy students of the college in inculcating industrial knowledge and skills.

2. To promote the environmental consciousness among the students by arranging frequent visits to the Government approved recycling unit, being run by the second party.

3. To build managerial capacity of few selected students of the UG & PG courses of the college through industry exposure, which will enhance their employability. Both parties agree to design ways and means to complete the task with mutual consent.

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/261/2020

DATED 29/5/2020

P.2/-

A list of specific activities will be decided under mutual consent of both the parties and the students will be invited and selected as per mutual agreements.

Proposed Terms and Conditions:

a. Deliverables from I.B. (PG) College, Panipat (The FIRST Party)

1. To provide a list of beneficiary students, after due screening.

2. To provide all the required secretarial assistance and database of the students.

3. To provide a consent letter from the guardians, wherever it is desired.

4. To manage the issuance of certificates etc. to the students as per requirement in collaboration with the second party.

5. To manage any overhead expenses involved in the above listed responsibilities.

b. Deliverables from Kay Gee Enterprises, Panipat (The SECOND Party):

1. To provide the required industrial/managerial training to the selected beneficiaries.

2. To provide opportunities of visiting the industrial unit to any group of students as desired by the First Party, with a purpose of technical knowhow.

3. To make payments to those students (if any) who are engaged in any of the work in the establishment of the second party. The terms and emoluments will be mutually decided and conveyed.

4. To organize some induction/orientation programmes for the benefit of students, like talks from various successful industrialists. The venue for these programmes will be provided by the first party.

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO......IBC/261/2020   DATED...29/5/2020

P.3/-

General Terms of MoU

a. **Duration of the MoU:** The aforesaid MoU shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three years (for sessions 2020-21; 2021-2022, 2022-23)** and may be extended further after review of the outcomes.

b. **Co-ordination:** Both parties will designate appropriate persons as co-ordinators, for smooth liaison and to carry out the tasks required to fulfill the objectives of this agreement. No financial liability will be due to any of the parties for this appointment.

c. **Confidentiality:** No party will be involved in a breach of conduct and business ethics. Both parties agree that there shall be no violation in this regard, at any time, or under any circumstances after enforcement of this MoU. No information related to internal affairs of any party should be disclosed to any third party or to public in general through any means by any of the party.

d. **Termination of MoU:** The partnership/agreement covered by this MoU shall terminate on the completion of the agreed period, unless it is agreed to be extended further. If any of the party desires to end the agreement or is unable to perform the tasks to fulfill the objectives, the agreement may be terminated with a 45 days written notice from either side. However, in case of gross or serious violation of model code of ethics/business terms by any party, the other party

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : ibpgcollegepanipat.ac.in

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/261/2020   DATED. 29/5/2020

P.4/-

may take the liberty to end the agreement with immediate effect. The same has to be intimated in written.

e. Financial Liabilities: The second party/service provider will manage all the off campus expenses on the students/interns while they are involved in its industrial unit. No amount will be payable from the first party in this connection. No salary/perks will be admissible from the side of first party. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU on date..........................

Name.... L.N.Muge.   Name.... Gaganl

Signature.... feerr.   Signature... Gagan Kansal

Date:...........................   Date:...........................

(First Party)   (Second Party)

Dr. Ajay Kumar Garg

Principal

Witness:

Management/Society Nominee

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO....I.B.C./3386/2019   DATED....16-08-2019

MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on 16th AUGUST, 2019 between Governing Body, I.B. (PG) College, Panipat as the First party on the behalf of I.B. (PG) College, Panipat & ICSD TECH LAB, Insar Bazar, Panipat as second party/service provider/Education Institute.

This document constitutes an agreement between ICSD TECH LAB, PANIPAT and I.B. (PG) college, PNP for training /educating/teaching students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1. Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate students of the I.B. P(G) College, Panipat (Program/activity name)

Specific activities will be provided under this MOU to the students of our college by ICSD TECH LAB, PANIPAT

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/3386/2019   DATED 16/8/2019

(List of the activities /services that will be rendered by the service provider/second party)

......Training., Workshop., Webinar etc.

2. General Terms of MOU

2.1   Duration of MOU: This MOU shall be functional after signing and will have an initial duration of ......ONE YEAR............

2.2   Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

2.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of business or method of carrying on the business of the other without consent of both the parties.

2.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/3386/19   DATED 16/8/2019

2.5   Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

2.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement. No amount will be charged from the first party.

2.7 Certification of the program: The clarification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated..........................

Name. SACHIN TULI   Name...............................   ....

Signature Sachin   Signature.........................   Dr- AJAY Kumar Garg

Date:... 16-8-2019   Date:...............................   (PRINCIPAL
                                                                            16-8-2019.

(First Party)   (Second Party)   Principal
                                 Nominee (Management/Society)   Principal
                                                                           I.B. (PG) College, Panipat

Witness: 1. Ashwani (

            2.

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. I.BC/374/ 2020   DATED 28/8/2020

MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on 28ᵗʰ AUGUST, 2020 between Governing Body, I.B. (PG) College, Panipat as the First party on the behalf of I.B. (PG) College, Panipat & ICSD Tech Labs, Insar Bazar, Panipat as second party/service provider/Education Institute.

This document constitutes an agreement between ICSD Tech Labs, PANIPAT and I.B. (PG) College, Panipat for training /educating/teaching students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1. Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate students of the I.B (PG) college, Panipat (Program/activity name)

Specific activities will be provided under this MOU to the students of our college by ICSD Tech Lab, Panipat

Tel. : +91-180-2636700, 2638269
Fax : +91-180-2646783
E-mail : principalibcollege@gmail.com
Website : www.ibleducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO....I.B.C./374/2020   DATED..28/8/2020

(List of the activities /services that will be rendered by the service provider/second party)

...Training/workshop/webinars etc.

2. General Terms of MOU

2.1   Duration of MOU: This MOU shall be functional after signing and will have an initial duration of .....ONE YEAR............

2.2   Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

2.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of business or method of carrying on the business of the other without consent of both the parties.

2.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

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I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO....IBC/374/2020   DATED...28/8/2020

2.5   Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

2.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement. No amount will be charged from the first party.

2.7 Certification of the program: The clarification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated.........................

Name..SACHIN TULI   Name...........................   ....

Signature..Sachin...   Signature......................   Dr. Ajay kumar Garg
                                                                        Principal.
Date:....28/8/2020   Date:............................   ...28/8/2020

(First Party)   (Second Party)
                          Nominee (Management/Society)   Principal
                                                                I.B (PG) College, Panipat

Witness: 1- Ashwoni

              2.

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/570/ 2021   DATED 25/8/2021

MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on ....25 AUGUST, 2021.............. between Governing Body, I.B. (PG) College, Panipat as the First party on the behalf of I.B. (PG) College, Panipat & ICSD TECH LABS, Insar Bazar, Panipat... as second party/service provider/Education Institute.

This document constitutes an agreement between ICSD Tech Labs, Panipat and I.B. (PG) College, Panipat for training /educating/teaching students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1. Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate students of the I.B. (PG) College, Panipat (Program/activity name)

Specific activities will be provided under this MOU to the students of our college by... I.C.S.D. Tech Lab, Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/570/21   DATED 2/8/21

(List of the activities /services that will be rendered by the service provider/second party)

Training / workshop/ Webiner etc.

2. General Terms of MOU

2.1 Duration of MOU: This MOU shall be functional after signing and will have an initial duration of ONE YEAR

2.2 Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

2.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of business or method of carrying on the business of the other without consent of both the parties.

2.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

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Fax : +91-180-2646783
E-mail : principalibcollege@gmail.com
Website : www.ibleducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/570/21   DATED 25/8/21

2.5   Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

2.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement.   No amount will be charged from the first party.

2.7 Certification of the program: The clarification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated.........................

Name SACHIN TULI   Name.................................   ....

Signature Sachin.......:   Signature..............................   Dr. AJAY KUMAR GARG
                                                                              (Principal)
Date: 25/8/2021   Date:....................................   25/8/2021

(First Party)   Dr. AJAY KUMAR GARG

                                     (Second Party)   Principal
                                     Nominee (Management/Society)   Principal
                                                                              IB (PG) College, Panipat

Witness: 1. Ashwani
                2.

(12)

DYAL SINGH COLLEGE, KARNAL

No. DSC/99/
Dated: 24/01/2022

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MoU) is signed between the departments of Botany, Biotechnology & Zoology

Session 2021-22 & 2022-13

Name of the College Address	**Dyal Singh College Karnal Near Bus Stand, Karnal 132001 Haryana**	(First Party)

And

Name of the College Address	**I.B. (P.G.) College G.T. Road, Panipat 132001 Haryana**	(Second Party)

It is agreed to carry out the following activities jointly :

1. Research Collaborations.
2. Trainings/Workshops for staff members and for students.
3. Guest lectures for students under the faculty exchange programme.
4. Any other collaborative activity advised by the IQAC and various committees of the college.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

Principal
(Sign & Stamp)
I.B. (PG) College, Panipat

IQAC Incharge

Principal
(Sign. & Stamp)
Principal
Dyal Singh College
KARNAL

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO............................ DATED..24/01/22........

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the departments of **Botany & Zoology,** Bio-Technology.

Session (2021-22) & (2022-23)

Name of the College	I.B. (PG) College	
Address	G.T. Road, Panipat- 132103	(First Party)
	Haryana	

And

Name of the College	Dyal Singh College, Karnal	
Address	Dyal Singh Colony	(Second Party)
	Karnal - 132001	

It is agreed to carry out the following activities jointly:

1. Research collaborations.

2. Trainings/Workshops for staff members and for students.

3. Guest lectures for students under the faculty exchange programmes.

4. Any other collaborative activity advised by the IQAC and various committees
   of the college.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

Principal
(Signature and Stamp)
Principal
Dyal Singh College
KARNAL

HOD

Principal
(Signature and Stamp)
Principal
I.B. (PG) College, Panipat

(14)

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO...... IB452/2022   DATED... 17/01/222

Memorandum of Understanding

For Session (2021-22) & (2022-23)

This Memorandum of Understanding (MoU) is signed between the

Name of the College	I.B. (PG) College	
Address	G.T. Road, Panipat- 132103	(First Party)
	Haryana	

And

Name of the Club	President, Lions Club	
Address	Panipat	(Second Party)

It is agreed to carry out the social service activities jointly.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

President, Lions Club Panipat   HOD   Principal

(Signature and Stamp)   (Signature and Stamp)
(Sachin Shingla)   Principal
9812430030   I.B. (P.G.) College, Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/52/2022   DATED 17/01/2022

Memorandum of Understanding

For Session (2021-22) & (2022-23)

This Memorandum of Understanding (MoU) is signed between the

Name of the College	I.B. (PG) College	
Address	G.T. Road, Panipat- 132103	(First Party)
	Haryana	

And

Name of the Club	President, Lions Club	
Address	Panipat	(Second Party)

It is agreed to carry out the social service activities jointly.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

President, Lions Club Panipat   HOD   Principal

(Signature and Stamp)   (Signature and Stamp)
Sachin Shingle   Principal
98124 3080   I.B. (P.G.) College, Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/53/2022   DATED 17/01/2022

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the departments of **Training Textiles.**

Session (2021-22) & (2022-23)

Name of the College	I.B. (PG) College	
Address	G.T. Road, Panipat- 132103	(First Party)
	Haryana	

And

Name of the College	P.P. International	
Address	Plot -81, Sector 29, Huda	(Second Party)
	Panipat, Haryana - 132103	

It is agreed to carry out the following activities jointly:

1. Trainings/Workshops for staff members and for students.

2. Guest lectures for students.

3. Any other collaborative activity advised by the IQAC and various committees of the college.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

For P.P. INTERNATIONAL

PARTNER
Managing Director   HOD   Principal
P.P. International   (Signature and Stamp)
(Signature and Stamp)   Principal
                    I.B. (P.G.) College, Panipat

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO....IBC/54/2022

DATED....17/01/2022

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the departments of **Training of the students in the field of Textiles and Handicrafts.**

Session (2021-22) & (2022-23)

Name of the College	I.B. (PG) College	
Address	G.T. Road, Panipat- 132103	(First Party)
	Haryana	

And

Name of the College	Bharti Ugyog	
Address	Dadola Road, Panipat	(Second Party)
	Haryana – 132103	

It is agreed to carry out the following activities jointly:

1. Trainings/Workshops for staff members and for students.

2. Guest lectures for students.

3. Any other collaborative activity advised by the IQAC and various committees of the college.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

For BHARTI UDYOG

Managing Director PROP.
Bharati Udyog
(Signature and Stamp)

HOD

Principal
(Signature and Stamp)
Principal
I.B. (P.G.) College, Panipat

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (herein after referred to as MoU) dated 30th November, 2021.

BETWEEN

I.B. PG College, Panipat, Haryana 132103-which is officially represented by Dr. Ajay Kumar Garg and shall include his success or in office, legal representative, nominee and assignee as the "First Party".

AND

IIDE Education Pvt. Ltd.(Herein referred as IIDE), Represented by its Director, Karan Shah whose address is at 5/26, Aryan Mahal, C Road, Churchgate, Mumbai – 20, India and shall include its lawful representatives and permitted assignee as the "Second Party".

WHEREAS

a) I.B.PG College is an established institution for education in India.

b) IIDE, an interactive educational Institute for new-age subjects.

c) The Parties are desirous of entering into this MoU to declare their respective intentions and to establish a basis of cooperation and collaboration between the Parties upon the terms as contained herein.

COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF THIS MOU

1. The purpose is to establish a collaboration between parties under the terms mentioned in the various sections of the MOU.

2. This MOU shall come into force from the date of signing, or other earlier dates that are mutually agreed by the two parties.

3. Modifications of the terms and conditions of this MOU, including the modification of the Program, may only be made by prior written agreement between the parties

4. This MOU will be valid for the period of one year from the date of signing the MOU, which may be renewed, extended, based on mutual agreement.

This involvement of IIDE and the role of the college will be as per following:

1

AREAS OF COOPERATION

The Parties agree to collaborate efforts in the areas of:

a) The Second Party will provide certification courses on Face book & Instagram Ads to interested students at I.B. PG College to enhance their employability, Employment and entrepreneurship out comes.

b) The First Party shall entirely allow the Second Party to decide the content, pedagogy, assessment rubric and certification criteria, of its training modules, etc. as well as full discretion to admit, select and certify students within the Program.

c) The First Party has to help create awareness and marketing of the said program.

d) The First Party shall nominate a single point of contact to facilitate the Program functioning and coordinate with the Second Party.

e) The Second Party will provide Certification to students with college's approval on the basis that all students complete the entire course.

f) The First Party shall ensure full support and cooperation to the Second Party in all aspects to ensure effective program implementation.

DURATION AND TERMINATION

a) This MoU shall remain in effect till both parties feel comfortable and are gaining mutually.

b) Any party can exit the MoU with the consent of the other party and upon completion of the current program.

FINANCIAL ARRANGEMENTS

IIDE shall charge Rs. 1180/ per student as students' contribution from interested students for availing their program.

CONFIDENTIALITY

Each Party shall undertake to observe the secrecy of confidential information received from or supplied to the other Party during the period of implementation of this MoU or other agreements made pursuant to this MoU.

For purposes of this MoU, "confidential information" means any information whether prior to or hereinafter disclosed by a Party (the Disclosing Party) to the other Party (the Receiving Party) of this MoU involving technical, business, marketing, policy, know-how, planning, project management and other information, data and/or solutions in any form, including but not limited to any information

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which is designated in writing to be confidential or by its nature intended to be for the knowledge of the Receiving Party or if orally given, is given in the circumstances of confidence.

Both Parties agree that the provisions of this Clause shall continue to be binding between the Parties not withstanding the termination of this MoU.

REPORTING OBLIGATION

The Second Party shall submit to the First Party, reports and documents as may be specified and at such frequency as may be agreed upon between the two parties.

ARBITRATION

Both parties shall use all reasonable endeavor store solve or settle the disputes through mutual negotiation and discussions in connection with this MOU or the interpretation there of. Any and all disputes, controversies and conflicts ("Disputes") arising out of this Agreement between the parties or arising out of relating to or in connection with this Agreement or the performance or non-performance of the rights and obligations set forth here in or the breach, termination, invalidity, interpretation there of which cannot be settled or resolved amicably shall be referred for arbitration to a suitable committee constituted in joint consultation of both the parties. The Arbitral award shall be in writing and shall be final and binding on each party. None of the parties shall be entitled to commence or maintain any action in a court of law upon any Dispute arising out of or relating to or in connection with this MOU.

CONSEQUENCES OF BREACH

1. It shall be obligatory on part of either party to ensure timely Program implementation and facilitation as per the pre-approved plan as agreed upon by the MOU.

2. In the event of a breach of any term and conditions of this Agreement, either party shall have the right to terminate this Agreement with prior notice.

In witness of which, the parties here to have caused the MOU to be signed in their respective names as of the day and year have first written above.

SIGNATORIES OF THIS AGREEMENT

FOR AND ON BEHALF OF THE FIRST PARTY	**FOR AND ON BEHALF OF THE SECOND PARTY**

Dr. Ajay Kumar Garg
Principal
I.B. PG College

Date:
Place:

Karan Shah
Director
IIDE Education Pvt Ltd.

Date: 13th January 2022
Place: Mumbai

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I.B. (PG) COLLEGE, PANIPAT
G.T.ROAD, PANIPAT-132103

Memorandum of Understanding

This Memorandum of Understanding (MoU) is signed between the Departments of **Environment Studies and Computer Science.**

Session (2021-22) & (2022-23)

Name of the College   I.B. (PG) College

Address   G.T. Road, Panipat- 132103   (First Party)

Haryana

And

Name of the College   **Netra Institute of Geoinformatics Management and Technologies Foundation.**

Address   11-B, First Floor, DwarkaMor,

New Delhi – 110059   (Second Party)

It is agreed to carry out the following activities jointly:

1. Webinars/Trainings/Workshops for staff members and for students.
2. Guest lectures for students.
3. Any other collaborative activity advised by the IQAC and various committees of the college.

Both the parties will mutually provide all necessary infrastructure and human resource for the proposed activities.

Dr. Ajay Kumar Garg
Principal
(I.B.(PG) College ,Panipat)

D.P. Singh
Chief Promoting Officer
NIGMT Foundation

MEMORANDUM OF UNDERSTANDING (MOU)

Between

I.B. (PG) College,Panipat,Haryana

&

Rubicon Skill Development Pvt. Ltd.

For Training students under Rubicon's Connect with Work Program

This Memorandum of Understanding is made at Pune on 07 day of September 2021

BETWEEN

I.B. (PG) College,Panipat,Haryana,132103

here in after referred to as **"THE COLLEGE"** (Which term shall so far as the context admits be deemed to mean and include its successors and assignees) of the First Part,

AND

Rubicon Skill Development Private Limited a Company incorporated and registered under the Companies Act, 2013, having its Corporate office at 9th Floor, Tower 1, Fountainhead, Nagar Road, Vimannagar, Pune - 411014, Maharashtra, hereinafter referred to as "**Rubicon**" (which term shall so far as the context admits be deemed to mean and include its successors, administrators, executors and assignees) of the Second Part.

1. Introduction

THE COLLEGE has decided to partner with **RUBICON** for the conduct of **Connect with Work** Program (hereinafter referred to as "Training Program") at THE COLLEGE.

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2. THE COLLEGE Responsibilities:

2.1. Shall nominate one person with adequate accountability and responsibility to coordinate the Training Program. He / She would act as the single point of contact for the proposed Training Program.

2.2. Shall make available the infrastructure (including IT infrastructure, applications and connectivity) required to conduct the Training Program.

2.3. Shall provide all the support services and facilities to **RUBICON** during the conduct of the said Training Program. Adequate power backup through UPS and DG supplies during the training sessions

2.4. Shall coordinate with **RUBICON** and facilitate conduct of all the assessments including the assessment to be conducted by the external agency (if any) identified by **RUBICON**, as per schedule communicated by **RUBICON**.

2.5. Provide lodging, wherever available, as per the standards of **RUBICON** for faculty conducting the Training Programme for the total duration of the Training Program plus two days (one day prior and one day after closure).The lodging so planned to be provided should be with independent room (with attached toilet), regular water supply, clean, with access to boarding facilities, should have well lit approach and surroundings, have adequate safety & protection and peaceful environment.

2.6. Shall share the details of students in a prescribed format to ensure that there is no duplication of student data.

2.7. This is a multi-year program to create social impact. The college shall share few details to assess the impact of the program. For e.g. Placement details of trained students will be required to assess the impact of the program from one year to another year.

3. RUBICON Responsibilities:

3.1. Will provide necessary training as per Training Program requirements and curriculum for delivery as per Annexure I to this MOU

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3.2. Will provide suitable faculties for the training exclusive for classroom training/Virtual training

3.3. Will conduct assessment of its own and also arrange external assessment as required.

4. Other Terms & Conditions:

The following are other terms and conditions of engagement:

4.1. **Batch Size:** The batch size would need to be a min of 35 students and max of 50 students or as mutually agreed.

4.2. Each student would be made available for the Training Program for specified number of hours per day for the duration of the Training Program

4.3. **Pre-assessment & Selection:** RUBICON may carry out pre-assessment of the students who have applied for the course and shortlist the select candidates to undergo the Training Program. The final decision on selection of candidates eligible to take the Training Program shall be with RUBICON.

4.4. Training Program schedule:

4.4.1. Training Program scheduled commencement date is 14 September 2021

4.5. Commercials:

4.5.1. Training Fees: The training Fees is as follows,

Since this is a CSR funded Program there is no fee payable by THE COLLEGE for this Training Program

4.5.2. Payment Terms
Not Applicable

4.6. Certification:

Students who are successful in the assessment conducted by RUBICON shall be awarded a certificate post completion of the training program.

4.7. Term of engagement:

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This MoU is valid from the date the MOU is made for a period of 3 (Three) years, however both parties agree that based on mutual agreement, the terms may be extended. Both parties also agree that terms may be renegotiated.

4.8. Limitations and Warranties :

Both parties agree that it would be their endeavour to prevent any liability arising out of default or non-compliance of the MoU terms by the other party.

4.9. Termination:

4.9.1.   Both parties can terminate the MoU with a prior written thirty (30) day notice on default of terms of non-adherence to any condition or responsibilities by the other party as outlined in this MoU in case such default is not rectified within such 30 days.

4.9.2.   Each party shall be at liberty to terminate this MOU with a written notice period of 3 (three) months to the other party without any compensation and seeking legal redress.

4.9.3.   Both parties also agree that it would be their professional endeavour that despite any termination of the MOU, progress would continue, without any prejudice to the ongoing Training Program, which would be without any hindrance and would be progressed for completion.

5. General Terms:

5.1. Both the parties may receive information proprietary to other party (the Confidential Information) in the course of performance of their obligations under this MOU. Confidential Information is not meant to include any information which (a) is publicly available (b) is rightfully received by the parties from third parties without accompanying secrecy obligations; (c) is already in either party's possession and was lawfully received from sources other than the parties or (d) is independently developed by the parties. The two bodies understand and acknowledge that the Confidential Information is valuable and confidential and agrees that it will at all times be kept in trust to be disclosed only to such persons as have a "need to know" the same for the effective implementation of this MOU and that it will only be used by the parties for the benefit of others.

5.2. Both the parties understand and agree that all written or other tangible data and documentation developed or procured by the other party in performing its obligations

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under this MOU, whether in printed or electronic form, belongs to other party and that other party will have all rights, titles and interests therein.

5.3. Both parties shall not use the name and brand of other party in any advertisement or make any public announcement without the prior written approval of the other. However RUBICON will have the right to use the testimonials/stories/case studies of students/College/University who have been the part of the Training Program for promoting the Connect with Work Program.

6. Jurisdiction:

In the event of any litigation, the court of jurisdiction shall be Pune.

7. Indemnification

Both parties agree to indemnify each other and hold the other party harmless from and against any claim, loss, liability, or expense, including, but not limited to, damages, patent, and trademark infringement, costs and attorneys' fees, arising out of or in connection with any acts or omissions of their agents or employees, as related to the terms of this MoU.

Any claim, compensation, case initiated by any student against RUBICON/CSR DONOR in relation to the Training Program due to any acts or omissions of THE COLLEGE, RUBICON shall be defended and contested by THE COLLEGE at their sole expenses and cost keeping RUBICON/CSR DONOR indemnified from the same.

8. Limitation of Liability:

Except for the indemnification obligations, both parties agree that the liability would be limited to the amount of actual transactions between the two parties

9. Notices:

Any notices under this MOU will be sent by certified or registered mail, return receipt requested, to the respective address of Parties as contained in this MOU. Such notice will be effective upon its mailing as specified.

10. Intellectual Property Rights

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Doc ID: 334f3c72c2f9f074e0b429e5732162b41a50e

10.1. RUBICON explicitly warrants that it owns all the intellectual properties related to content in all formats, the technology framework and all other related objects and the THE COLLEGE has no rights to use the content and mode of delivery for any other purpose.

10.2. Each party hereby undertakes to inform the other party of any violation of Intellectual Property Rights or its unlawful use, under prevalent laws of India Further, each of the party herein, agrees to co-operate with the other to the extent possible in the process of investigating such cases of any violation of Intellectual Property Rights or its unlawful use and taking legal action against the said infringement.

10.3. Upon expiration of this MoU, or two years period of time from the date of completion of the courses, whichever is later, each party hereby agrees that it shall not make any claim on the Trade Name or the copyrights of the other, which belongs exclusively to the other party, nor shall either party use any trade name which is deceptively or confusingly similar to the trade name of the other.

11. Force Majeure:

11.1. Neither party to this MOU shall be liable for any failure or delay on its part in performing any of its obligations under this MOU, if such failure or delay shall be result of or arising out of Force Majeure conditions and, provided that the party claiming Force Majeure shall use its best efforts to avoid or remove such cause of non-performance and shall fulfil and continue performance hereunder with the utmost dispatch whenever and to the extent such cause or causes are removed.

11.2. Any extraordinary event, which cannot be controlled by the parties, shall for the purpose of this MOU be considered as a Force Majeure event. Such events include acts of God, acts or omissions of any Government or agency thereof, compliance with rules, regulations or order of any Government Authority. Provided however, if either party claims that existence of any of the aforesaid conditions is delaying or disabling the performance by said party of its obligations under this MOU, such party shall give immediate notice to the other party of the existence of such conditions

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Pravin Kumar   08 / 01 / 2022

whose existence are claimed to delay or disable the performance of obligations as aforesaid.

IN WITNESS WHEREOF, to show their assent, the duly authorized representative of the parties hereto have signed the MoU and set their seals as below:-

Party of the First Part   For   I.B. (PG) College,Panipat,Haryana

Stamp of the Party

Signature of Authorised
Signatory :
Name of Authorised Signatory

        13 / 09 / 2021   Dr. Ajay Kumar Garg

Designation :   Principal

Witness
Signature of Witness

        13 / 09 / 2021

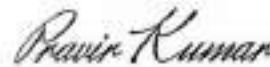Name of Witness   Dr. Arpana Garg

Party of the Second Part   **For Rubicon Skill Development Pvt. Ltd.**
Stamp of the Party:

Signature of Authorised
Signatory   :
Name of Authorised Signatory   **Pravir Kumar**

Designation   08 / 01 / 2022   **Chief Executive Officer**

Witness

Signature   of   Witness   *Dipika Patil*

_____

Name of the Witness   Dipika Patil

11 / 01 / 2022

13 / 09 / 2021   *Pravin Kumar*   08 / 01 / 2022

TITLE	MoU between Rubicon & I.B. (PG) College,Panipat,Haryana
FILE NAME	MOU_CWW_V2.doc
DOCUMENT ID	334f3c72c2f9f074e0b429e5732162b41a50eb26
AUDIT TRAIL DATE FORMAT	DD / MM / YYYY
STATUS	Completed

Document History

⟳ SENT	**11 / 09 / 2021** 07:39:16 UTC	Sent for signature to Dipika Vyas (dipikav@my-rubicon.com), Dr. Ajay Kumar Garg (principalibcollege@gmail.com), Dr. Arpana Garg (placementibcollege@gmail.com), Pravir Kumar (pravir@my-rubicon.com) and Dipika Patil (dipikap@my-rubicon.com) from dipikap@my-rubicon.com IP: 157.33.199.228
◉ VIEWED	**11 / 09 / 2021** 09:50:00 UTC	Viewed by Dipika Vyas (dipikav@my-rubicon.com) IP: 103.208.69.122
⤵ SIGNED	**11 / 09 / 2021** 09:56:03 UTC	Signed by Dipika Vyas (dipikav@my-rubicon.com) IP: 103.208.69.122
◉ VIEWED	**13 / 09 / 2021** 05:49:34 UTC	Viewed by Dr. Ajay Kumar Garg (principalibcollege@gmail.com) IP: 106.204.226.128
⤵ SIGNED	**13 / 09 / 2021** 06:37:21 UTC	Signed by Dr. Ajay Kumar Garg (principalibcollege@gmail.com) IP: 157.36.142.241

TITLE	MoU between Rubicon & I.B. (PG) College,Panipat,Haryana
FILE NAME	MOU_CWW_V2.doc
DOCUMENT ID	334f3c72c2f9f074e0b429e5732162b41a50eb26
AUDIT TRAIL DATE FORMAT	DD / MM / YYYY
STATUS	Completed

Document History

⊙ VIEWED	**13 / 09 / 2021** 06:38:42 UTC	Viewed by Dr. Arpana Garg (placementibcollege@gmail.com) IP: 106.204.232.128
⊬ SIGNED	**13 / 09 / 2021** 06:39:40 UTC	Signed by Dr. Arpana Garg (placementibcollege@gmail.com) IP: 106.204.232.128
⊙ VIEWED	**08 / 01 / 2022** 12:01:18 UTC	Viewed by Pravir Kumar (pravir@my-rubicon.com) IP: 223.236.158.255
⊬ SIGNED	**08 / 01 / 2022** 12:01:24 UTC	Signed by Pravir Kumar (pravir@my-rubicon.com) IP: 223.236.158.255
⊙ VIEWED	**11 / 01 / 2022** 06:15:00 UTC	Viewed by Dipika Patil (dipikap@my-rubicon.com) IP: 14.142.23.132
⊬ SIGNED	**11 / 01 / 2022** 06:15:26 UTC	Signed by Dipika Patil (dipikap@my-rubicon.com) IP: 14.142.23.132
⊘ COMPLETED	**11 / 01 / 2022** 06:15:26 UTC	The document has been completed.

Cake 'N' Bake

📱 98962-42937

BAKERY & CAFE SHOP
323/13, GEETA COLONY, PANIPAT

Ref. No. ....

Dated 01/03/20

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **01 /03 /2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Cake ' N ' Bake , Geeta Colony, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between I.B. (PG) College, Panipat and **Cake ' N ' Bake , Geeta Colony, Panipat,** for the purpose of outlining the terms and conditions regarding the Workshops & Internships to be done by Students of I.B.(PG) College with **Cake ' N ' Bake, Geeta Colony, Panipat** for carrying out various activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Cake ' N ' Bake, Geeta Colony, Panipat:

1. To provide workspace and training to the Students about the Baking & Culinary Methodology.
2. To arrange workshops for the Students regarding Cakes, Pastries & Cookies making procedure.
3. To assign work to the Students based on their skills and interests.
4. To provide resources and logistics required for the assigned work.
5. To ensure the safety and security of Students.

The Students of I B (PG) College, Panipat agrees to:
1. Abide by the policies and guidelines of **Cake ' N ' Bake, Geeta Colony, Panipat.**
2. Work in good faith and in the best interest of **Cake ' N ' Bake, Geeta Colony, Panipat.**
3. Maintain regular communication with **Cake ' N ' Bake, Geeta Colony, Panipat** and providefeedback on progress.
4. Abide by the safety protocols and guidelines provided by **Cake ' N ' Bake, Geeta Colony, Panipat.**
5. Will do the work Assigned to them and will not be paid for this work.
6. To manage any overhead expenses involved in above listed responsibilities.

Principal
I.B. (PG) College, Panipat

Prop.

Cake 'N' Bake

📱 98962-42937

BAKERY & CAFE SHOP
323/13, GEETA COLONY, PANIPAT

Ref. No. ....

Dated .01..b3.|2..

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all baking Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with any other 3rd party in relation to either the proposed work or anyother proposed work of a similar nature.
4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three Years (for sessions 2020-21; 2021-2022 & 2022-23)** and may be extended further after review of the outcomes.
5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate.........................

Name..........................

Signature......................

Date:..........................
(First Party)

Dr. Ajay Kumar Garg
Principal
Principal   I.B. (PG) College, Panipat

Witness:

Management/Society Nominee

Name..........................

Signature......................

Date:..........................
(Second Party)

For Cake N Bake
Rohitkum
Prop.

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : www.ibieducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. PBC/137/2020   DATED 24/02/2020

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **01 /03 /2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Cake ' N ' Bake , Geeta Colony, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between I.B. (PG) College, Panipat and Cake ' N ' Bake , Geeta Colony, Panipat, for the purpose of outlining the terms and conditions regarding the Workshops & Internships to be done by Students of I.B.(PG) College with Cake ' N ' Bake, Geeta Colony, Panipat for carrying out various activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Cake ' N ' Bake, Geeta Colony, Panipat:

1. To provide workspace and training to the Students about the Baking & Culinary Methodology.
2. To arrange workshops for the Students regarding Cakes, Pastries & Cookies making procedure.
3. To assign work to the Students based on their skills and interests.
4. To provide resources and logistics required for the assigned work.
5. To ensure the safety and security of Students.

The Students of I B (PG) College, Panipat agrees to:

1. Abide by the policies and guidelines of **Cake ' N ' Bake, Geeta Colony, Panipat.**
2. Work in good faith and in the best interest of **Cake ' N ' Bake, Geeta Colony, Panipat.**
3. Maintain regular communication with **Cake ' N ' Bake, Geeta Colony, Panipat** and providefeedback on progress.
4. Abide by the safety protocols and guidelines provided by **Cake ' N ' Bake, Geeta Colony, Panipat.**
5. Will do the work Assigned to them and will not be paid for this work.
6. To manage any overhead expenses involved in above listed responsibilities.

I.B. (PG) College, Panipat

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : www.ibleducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO....IBC|137|2020

DATED...24|02|2020

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all baking Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with any other 3rd party in relation to either the proposed work or anyother proposed work of a similar nature.
4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three Years (for sessions 2020-21; 2021-2022 & 2022-23)** and may be extended further after review of the outcomes.
5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate.........................

Name.............................

Signature.......................

Date:................................
(First Party)

Dr. Ajay Kumar Garg
Principal (G) College, Panipat

Witness:

Management/Society Nominee

Name...................................

Signature..............................

Date:......................................
(Second Party)

For Cake N Bake

Prop;

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : www.ibleducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO...........................

DATED..............................

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **10/02/2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between I.B. (PG) College, Panipat and Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat, for the purpose of outlining the terms and conditions regarding the Workshops & Internships to be done by Students of I.B.(PG) College with Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat for carrying out various activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat:

1. To provide workspace and training to the Students about the Cutting & Sewing Methodology.
2. To arrange workshops for the Students regarding Dress Designing, Sewing Machine Cutting & Sewing procedure.
3. To assign work to the Students based on their skills and interests.
4. To provide resources and logistics required for the assigned work.
5. To ensure the safety and security of Students.

The Students of I B (PG) College, Panipat agrees to:

1. Abide by the policies and guidelines of **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat.**
2. Work in good faith and in the best interest of **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat.**

Tel. : +91-180-2636700, 2638259
E-mail : principalibcollege@gmail.com
Website : www.ibleducation.com

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.........................

DATED...........................

3. Maintain regular communication with **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat** and providefeedback on progress.
4. Abide by the safety protocols and guidelines provided by **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat**.
5. Will do the work Assigned to them and will not be paid for this work.
6. To manage any overhead expenses involved in above listed responsibilities.

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all Stitching Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with any other 3rd party in relation to either the proposed work or anyother proposed work of a similar nature.
4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three Years (for sessions 2020-21; 2021-2022 & 2022-23)** and may be extended further after review of the outcomes.
5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate.......................

Name...Dr. Ajay Kumar Garg

Signature...

(First Party)

Dr. Ajay Kumar Garg
Principal

Witness:
Management/Society Nominee

Name...Mrs Poonam Arora

Signature...Poonam

(Second Party)

ifl

**INSTITUTE OF
FASHION
LEARNING**

📞 +91 925511431181

✉ instituteoffashionlearning@gmail.com

📍 61/10 Raj Colony, Near New Sabji Mandi, Panipat

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **10/02/2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between **I.B. (PG) College, Panipat** and **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat**, for the purpose of outlining the terms and conditions regarding the Workshops & Internships to be done by Students of I.B.(PG) College with **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat** for carrying out various activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat:

1. To provide workspace and training to the Students about the Cutting & Sewing Methodology.
2. To arrange workshops for the Students regarding Dress Designing, Sewing Machine Cutting & Sewing procedure.
3. To assign work to the Students based on their skills and interests.
4. To provide resources and logistics required for the assigned work.
5. To ensure the safety and security of Students.

The Students of I B (PG) College, Panipat agrees to:

1. Abide by the policies and guidelines of **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat**.
2. Work in good faith and in the best interest of **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat**.

3. Maintain regular communication with **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat** and providefeedback on progress.
4. Abide by the safety protocols and guidelines provided by **Institute of Fashion Learning (IFL), 61/10 Raj colony, Panipat**.
5. Will do the work Assigned to them and will not be paid for this work.
6. To manage any overhead expenses involved in above listed responsibilities.

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all *Stitching* Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with any other 3rd party in relation to either the proposed work or anyother proposed work of a similar nature.
4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three Years (for sessions 2020-21; 2021-2022 & 2022-23)** and may be extended further after review of the outcomes.
5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate...........................

Name....Dr. Ajay Kumar Garg

Signature............

(First Party)

Name.....Mrs Poonam Arora

Signature....Poonam

(Second Party)

Dr. Ajay Kumar Garg
Principal

Witness:
Management/Society Nominee

22

2022

सेवा   प्रेम   त्याग
स्थापना 1974   ओ३म्   (रजि. नं. 145)

जन सेवा दल, पानीपत

सिविल हस्पताल, पानीपत–132103

हर समय पीड़ितों की सेवा के लिए तत्पर

सिविल हस्पताल में

★ सुबह दोपहर चाय
★ रात्रि भोजन, दूध
★ दवाईयां 24 घंटे
★ बाल सेवा
★ विधवा सेवा
★ जल सेवा
★ सत्संग सेवा
★ लावारिस मृतको
   का दाह संस्कार व
★ हरिद्वार फूल प्रवाह
★ ब्लड सेवा के कैम्प
★ आंखों के कैम्प
   की फ्री सेवा
★ विधवा औरतों को
★ हर महीने का फ्री राशन
★ भूकम्प सेवा
★ एक्सीडेन्ट सेवा
★ एक्सीडेन्ट मरीजों के
   घर टेलिफोन से संदेश
★ बच्चों को स्कूल की
   वर्दी, किताबें जूते देना
★ विधवा औरतों की शादी
   में सामान की सेवा

क्रमांक...............   दिनांक.01/04/22...

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **01 /04 /2022** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as   the **First Party**) on behalf of I.B. (PG) College, Panipat and **Jan Seva Dal, G.T. Road, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:
This document constitutes an agreement between I.B. (PG) College, Panipat and Jan Seva Dal, G.T. Road, Panipat, for the purpose of outlining the terms and conditions regarding the social work to be done by Volunteers of NSS Unit of the college with Jan Seva Dal, G.T. Road, Panipat for carrying out various social services and activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Jan Seva Dal, Panipat agrees to:

1. To Provide orientation and training to the NSS Volunteers about theorganization's work and policies.
2. To Assign work to the volunteers based on their skills and interests.
3. To Provide resources and logistics required for the assigned work.
4. To Ensure the safety and security of NSS volunteers while working with JanSeva Dal.

फोन : 0180-2639344, 98130-66879, 90344-26012, 98128-92090, 94683-14637, 92556-65711, 94163-68750

Principal
I.B. (PG) College, Panipat   Chaman Lal

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त्याग

स्थापना 1974

ओउम्

(रजि. नं. **145**)

जन सेवा दल, पानीपत

सिविल हस्पताल, पानीपत-132103

हर समय पीड़ितों की सेवा के लिए तत्पर

सिविल हस्पताल में

★ सुबह दोपहर चाय

★ रात्रि भोजन, दूध

★ दवाईयां 24 घंटे

★ वात सेवा

★ विधवा सेवा

★ जल सेवा

★ सत्संग सेवा

★ लावारिस मृतकों
   का दाह संस्कार व

★ हरिद्वार फूल प्रवाह

★ ब्लड सेवा के कैम्प

★ आंखों के कैम्प
   की फ्री सेवा

★ विधवा औरतों को

★ हर महीने का फ्री राशन

★ भूकम्प सेवा

★ एक्सीडेन्ट सेवा

★ एक्सीडेन्ट मरीजों के
   घर टेलिफोन से संदेश

★ बच्चों को स्कूल की
   वर्दी, किताबें जूते देना

★ विधवा औरतों की शादी
   में सामान की सेवा

क्रमांक................   दिनांक................

The NSS Volunteers of I B (PG) College, Panipat agree to:
1. Abide by the policies and guidelines of Jan Seva Dal, Panipat.
2. Work in good faith and in the best interest of Jan Seva Dal, Panipat.
3. Maintain regular communication with Jan Seva Dal, Panipat and providefeedback on progress.
4. Abide by the safety protocols and guidelines provided by Jan Seva Dal,Panipat.
5. Will do the social work Assigned to them with Jan Seva volunteers and will not be paid for this work.
6. To Manage any overhead expenses involved in above listed responsibilities.

Scope of Work: The scope of work will include the activities that the NSS Volunteerswill carry out during their tenure with the Jan Seva Dal, Panipat and further will be agreed upon and defined by both the parties as demanded by circumstances.

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all Social
   Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with
   any other 3rd party in relation to either the proposed work or anyother proposed work
   of a similar nature.

फोन : 0180-2639344, 98130-66879, 90344-26012, 98128-92090, 94683-14637, 92556-65711, 94163-68750

Chomon Lal

Principal
I.B. (PG) College, Panipat

सेवा

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त्याग

(रजि. नं. 145)

जन सेवा दल, पानीपत

सिविल हस्पताल, पानीपत-132103

हर समय पीड़ितों की सेवा के लिए तत्पर

सिविल हस्पताल में

★ सुबह दोपहर चाय
★ रात्रि भोजन, दूध
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★ बाल सेवा
→ विधवा सेवा
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★ सत्संग सेवा
★ लावारिस मृतकों
   का दाह संस्कार व
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★ रक्त सेवा के कैम्प
★ आंखों के कैम्प
   की फ्री सेवा
★ विधवा औरतों को
★ हर महीने का फ्री राशन
★ भूकम्प सेवा
★ एक्सीडेन्ट सेवा
★ एक्सीडेन्ट मरीजों के
   घर टेलिफोन से संदेश
★ बच्चों को स्कूल की
   वर्दी, किताबें जूतें देना
★ विधवा औरतों की शादी
   में सामान की सेवा

क्रमांक................

दिनांक................

4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Two years (for sessions 2022-23; 2023-2024)** and may be extended further after review of the outcomes.

5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate........................

Name.........................

Signature.....................

Date:.........................
(First Party)

Dr. Ajay Kumar Garg
Principal (PG) College, Panipat

Witness:

Management/Society Nominee

Name Chaman Lal

Signature Chaman Lal

Date:.........................
(Second Party)

Chaman Lal

फोन : 0180-2639344, 98130-66879, 90344-26012, 98128-92090, 94683-14637, 92556-65711, 94163-68750

2020

सेवा   प्रेम   त्याग
स्थापना 1974   ओ३म्   **(रजि. नं. 145)**

जन सेवा दल, पानीपत

सिविल हस्पताल, पानीपत–132103

हर समय पीड़ितों की सेवा के लिए तत्पर

सिविल हस्पताल में

★ सुबह दोपहर चाय
★ रात्रि भोजन, दूध
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★ बाल सेवा
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★ सत्संग सेवा
★ लावारिस मृतकों
   का दाह संस्कार व
★ हरिद्वार फूल प्रवाह
★ ब्लड सेवा के कैम्प
★ आंखों के कैम्प
   की फ्री सेवा
★ विधवा औरतों को
★ हर महीने का फ्री राशन
★ भूकम्प सेवा
★ एक्सीडेन्ट सेवा
★ एक्सीडेन्ट मरीजों के
   घर टेलिफोन से संदेश
★ बच्चों को स्कूल की
   वर्दी, किताबें जूते देना
★ विधवा औरतों की शादी
   में सामान की सेवा

क्रमांक...............   दिनांक..01/03/20..

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **01 /03 /2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as   the **First Party**) on behalf of I.B. (PG) College, Panipat and **Jan Seva Dal, G.T. Road, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:
This document constitutes an agreement between **I.B. (PG) College, Panipat** and **Jan Seva Dal, G.T. Road, Panipat**, for the purpose of outlining the terms and conditions regarding the social work to be done by Volunteers of NSS Unit of the college with **Jan Seva Dal, G.T. Road, Panipat** for carrying out various social services and activities. Both parties agree to extend full co-ordination.
Roles and Responsibilities:
Jan Seva Dal, Panipat agrees to:

1. To Provide orientation and training to the NSS Volunteers about theorganization's work and policies.
2. To Assign work to the volunteers based on their skills and interests.
3. To Provide resources and logistics required for the assigned work.
4. To Ensure the safety and security of NSS volunteers while working with JanSeva Dal.

फोन : 0180-2639344, 98130-66879, 90344-26012, 98128-92090, 94683-14637, 92556-65711, 94163-68750

Principal
I.B. (PG) College, Panipat   Chaman Lal

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त्याग
(रजि. नं. **145**)

जन सेवा दल, पानीपत

सिविल हस्पताल, पानीपत–132103

हर समय पीड़ितों की सेवा के लिए तत्पर

सिविल हस्पताल में

★ सुबह दोपहर चाय
★ रात्रि भोजन, ड्रेस
★ दवाईयां 24 घंटे
★ चाय सेवा
★ विधवा सेवा
★ जल सेवा
★ सत्संग सेवा
★ लावारिस पत्नयों
का दाह संस्कार न
★ हरिद्वार फूल प्रवाह
★ ब्लड सेवा के कैम्प
★ आंखों के कैम्प
की फ्री सेवा
★ विधवा औरतों को
★ हर महीने का फ्री राशन
★ भूकम्प सेवा
★ एक्सीडेन्ट सेवा
★ एक्सीडेन्ट मरीजों के
घर टेलिफोन से संदेश
★ बच्चों को स्कूल की
वर्दी, किताबें जूते देना
★ विधवा औरतों की शादी
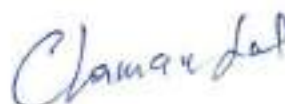में सामान की सेवा

क्रमांक..............

दिनांक...............

The NSS Volunteers of I B (PG) College, Panipat agree to:
1. Abide by the policies and guidelines of Jan Seva Dal, Panipat.
2. Work in good faith and in the best interest of Jan Seva Dal, Panipat.
3. Maintain regular communication with Jan Seva Dal, Panipat and providefeedback on progress.
4. Abide by the safety protocols and guidelines provided by Jan Seva Dal,Panipat.
5. Will do the social work Assigned to them with Jan Seva volunteers and will not be paid for this work.
6. To Manage any overhead expenses involved in above listed responsibilities.

Scope of Work: The scope of work will include the activities that the NSS Volunteerswill carry out during their tenure with the Jan Seva Dal, Panipat and further will be agreed upon and defined by both the parties as demanded by circumstances.

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all Social
   Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with
   any other 3rd party in relation to either the proposed work or anyother proposed work
   of a similar nature.

फोन : 0180-2639344, 98130-66879, 90344-26012, 98128-92090, 94683-14637, 92556-65711, 94163-68750

Principal
I.B. (PG) College, Panipat

Chaman lal

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स्थापना 1974

प्रेम
ओश्म

त्याग
(रजि. नं. 145)

जन सेवा दल, पानीपत

सिविल हस्पताल, पानीपत-132103

हर समय पीड़ितों की सेवा के लिए तत्पर

सिविल हस्पताल में

★ सुबह दोपहर चाय
★ रात्रि भोजन, दूध
★ दवाईयां 24 घंटे
★ बाल सेवा
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★ ज्ञान सेवा
★ सत्सग सेवा
★ लावारिस गूलखों
   का राह संस्कार व
★ हरिद्वार फूल प्रवाह
★ ब्लड सेवा के कैम्प
★ आंखों के कैम्प
   की फ्री सेवा
★ विधवा औरतों को
★ हर महीने का फ्री राशन
★ भूकम्प सेवा
★ एक्सीडेन्ट सेवा
★ एक्सीडेन्ट मरीजों के
   घर टेलिफोन से संदेश
★ बच्चों को स्कूल की
   वर्दी, किताबें जूते देना
★ विधवा औरतों की शादी
   में सामान की सेवा

क्रमांक.............   दिनांक................

4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Two years (for sessions 2020-21; 2021-2022)** and may be extended further after review of the outcomes.

5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate.........................

Name.............................   Name Chaman Lal

Signature.......................   Signature.................

Date:..........................   Date:.........................
(First Party)   (Second Party)

Principal
ABGC College, Panipat
P.B. Ajay Kumar Garg
Principal

Witness:

Management/Society Nominee

फोन : 0180-2639344, 98130-66879, 90344-26012, 98128-92090,
94683-14637, 92556-65711, 94163-68750

I. B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103 (HARYANA)

An ISO 9001:2015 & ISO 14001:2015 Certified Premier Co-Educational Institute

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.: IBC/ 1172/22   DATED: 16/3/2022

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **01 /04 /2022** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Jan Seva Dal, G.T. Road, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between **I.B. (PG) College, Panipat** and **Jan Seva Dal, G.T. Road, Panipat,** for the purpose of outlining the terms and conditions regarding the social work to be done by Volunteers of NSS Unit of the college with **Jan Seva Dal, G.T. Road, Panipat** for carrying out various social services and activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Jan Seva Dal, Panipat agrees to:

1. To Provide orientation and training to the NSS Volunteers about the organization's work and policies.
2. To Assign work to the volunteers based on their skills and interests.
3. To Provide resources and logistics required for the assigned work.
4. To Ensure the safety and security of NSS volunteers while working with JanSeva Dal.

The NSS Volunteers of I B (PG) College, Panipat agree to:
1. Abide by the policies and guidelines of Jan Seva Dal, Panipat.
2. Work in good faith and in the best interest of Jan Seva Dal, Panipat.
3. Maintain regular communication with Jan Seva Dal, Panipat and provide feedback on progress.
4. Abide by the safety protocols and guidelines provided by Jan Seva Dal, Panipat.
5. Will do the social work Assigned to them with Jan Seva volunteers and will not be paid for this work.
6. To Manage any overhead expenses involved in above listed responsibilities.

Principal
I.B. (PG) College, Panipat

IAS IAF
ACCREDITED
ISO 9001:2015 & ISO 14001:2015

I. B. (PG) COLLEGE, PANIPAT

G.T. ROAD, PANIPAT-132103 (HARYANA)

An ISO 9001:2015 & ISO 14001:2015 Certified Premier Co-Educational Institute

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.: IBC/ 11 72 22   DATED: 16 3 2022

Scope of Work: The scope of work will include the activities that the NSS Volunteers will carry out during their tenure with the Jan Seva Dal, Panipat and further will be agreed upon and defined by both the parties as demanded by circumstances.

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all Social Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with any other 3rd party in relation to either the proposed work or anyother proposed work of a similar nature.
4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Two years (for sessions 2022-23; 2023-2024)** and may be extended further after review of the outcomes.
5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate...........................

Name...........................   Name...Chaman Lal...

Signature.....................   Signature...Chaman Lal...

Date:..............................   Date:..................................
(First Party)   (Second Party)

Dr. Ajay Kumar Garg
Principal
I.B. (PG) College, Panipat

Witness:

Management/Society Nominee

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **20 /02 /2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Lions Club, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between **I.B. (PG) College, Panipat** and **Lions Club, Panipat**, for the purpose of outlining the terms and conditions regarding the social work to be done by Volunteers of NSS Unit of the college with **Lions Club, Panipat** for carrying out various social services and activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Lions Club, Panipat, agrees to:

1. To Provide orientation and training to the NSS Volunteers about the Club's Social work and policies.
2. To Assign work to the volunteers based on their skills and interests.
3. To Provide resources and logistics required for the assigned work.
4. To Ensure the safety and security of NSS volunteers while working with Lion's Club, Panipat.

The NSS Volunteers of I B (PG) College, Panipat agree to:

1. Abide by the policies and guidelines of **Lions Club, Panipat**.
2. Work in good faith and in the best interest of **Lions Club, Panipat**.
3. Maintain regular communication with **Lions Club, Panipat** and provide feedback on progress.
4. Abide by the safety protocols and guidelines provided by **Lions Club, Panipat**.

"Together We Serve"

Lion Nitin Jindal
President
H.No. 13, Sajjan Singh Bagh,
Model Town, Panipat
email : jindalin@gmail.com
(M) 98120-51537

Lion Dr. Ajay Garg
Secretary
2091, E Block,
Ansal Township, Panipat
email : 1965ajaygarg@gmail.com
(M) 9896252349

Lion Gagan Kansal
Treasurer
1523, HUDA,
Sector 12, Panipat
email : gagankansal2002@yahoo.co.in
(M) 9416010329

Lion Subhash Jain
IMM. Past President

Lion Rajesh Goel
1st Vice President

Lion Sachin Shingla
2nd Vice President

Lion Manoj Shingla
Joint Secretary

Lion Dolly Mittal
Joint Treasurer

Lion Sunila Jain
Lion Tamer

Lion Era Garg
Tail Twister

Board of Directors

Lion Naresh Singla
Lion Virender Shingla
Lion Ashok Goyal
Lion Chandan Vij
Lion Sudhir Jindal
Lion Ashwani Mittal
Lion Sanjay Singla
Lion Naveen Gupta
Lion Sanjay Gugnani
Lion Atul Mittal
Lion B.B. Sharma
Lion Sachin Jindal
Lion Amit Tayal
Lion K. K. Garg

5. Will do the social work viz. Old Woolen Cloths Distribution, Ration Distribution, Food Distribution, participation in Blood Donation Camps, Distribution of Shoes, Jackets & Socks to the Needy Students, Tree Plantation etc. and other works assigned to them.

6. To Manage any overhead expenses involved in above listed responsibilities.

7. The services rendered by NSS Volunteers will be voluntarily & without any Financial gain.

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all Social
   Activities.

2. This MoU does not bind any of the party to any legal obligation.

3. This MoU is no way restricts the ability of either party to enter into any agreement with
   any other 3rd party in relation to either the proposed work or any other proposed work
   of a similar nature.

4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three years (for sessions 2020-21;2021-22, 2022-2023)** and may be extended further after review of the outcomes.

5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

"Together We Serve"

IN WITNESS WHEREOF, the parties hereto have executed this MoU on date...........................

Name...............................

....

Signature..........................

....

Date:...................../.......

....

(First Party)

Dr. Ajay Kumar Garg
Principal

Witness:

Management/Society Nominee

Name..............................

Signature........................

Date:...............................

(Second Party)

"Together We Serve"

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO..........................   DATED............................

Memorandum of Understanding (MoU)

This Memorandum of Understanding (hereinafter referred to as the "Agreement") is made and entered into on **20 /02 /2020** between **Governing Body, I.B. (PG) College, Panipat** (hereinafter referred to as the **First Party**) on behalf of I.B. (PG) College, Panipat and **Lions Club, Panipat** (hereinafter referred to as the **Second Party**).

Purpose:

This document constitutes an agreement between **I.B. (PG) College, Panipat** and **Lions Club, Panipat**, for the purpose of outlining the terms and conditions regarding the social work to be done by Volunteers of NSS Unit of the college with Lions Club, Panipat for carrying out various social services and activities. Both parties agree to extend full co-ordination.

Roles and Responsibilities:
Lions Club, Panipat, agrees to:

1. To Provide orientation and training to the NSS Volunteers about the Club's Social work and policies.
2. To Assign work to the volunteers based on their skills and interests.
3. To Provide resources and logistics required for the assigned work.
4. To Ensure the safety and security of NSS volunteers while working with Lion's Club, Panipat.

The NSS Volunteers of I B (PG) College, Panipat agree to:

1. Abide by the policies and guidelines of **Lions Club, Panipat**.
2. Work in good faith and in the best interest of **Lions Club, Panipat**.
3. Maintain regular communication with **Lions Club, Panipat** and provide feedback on progress.
4. Abide by the safety protocols and guidelines provided by **Lions Club, Panipat**.
5. Will do the social work viz. Old Woolen Cloths Distribution, Ration Distribution, Food Distribution, participation in Blood Donation Camps, Distribution of Shoes, Jackets & Socks to the Needy Students, Tree Plantation etc. and other works assigned to them.
6. To Manage any overhead expenses involved in above listed responsibilities.
7. The services rendered by NSS Volunteers will be voluntarily & without any Financial gain.

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO........................... DATED.............................

Mutual Understanding:

1. The parties agree to work together and extend full Co-operation to carry out all Social Activities.
2. This MoU does not bind any of the party to any legal obligation.
3. This MoU is no way restricts the ability of either party to enter into any agreement with any other 3rd party in relation to either the proposed work or anyother proposed work of a similar nature.
4. **Duration of the MoU:** The aforesaid MoU shall be operational upon signing. It shall be functional w.e.f. the latest date of endorsement by both parties, with an initial duration of **Three years (for sessions 2020-21;2021-22, 2022-2023)** and may be extended further after review of the outcomes.
5. **Financial Liabilities:** The second party will manage all the off campus expenses on the students while they are involved with them in various activities. No amount will be payable from the first party in this connection. Neither first party will seek any share in the benefits generated through this collaboration.

IN WITNESS WHEREOF, the parties hereto have executed this MoU ondate........................

Name............................ Name................................

Signature....................... Signature..............................

Date:.............................. Date:................................
(First Party) (Second Party)

Dr. Ajay Kumar Garg
Principal

Witness:

Management/Society Nominee

Date: 21.09.2021
Memorandum of Understanding
Between
I.B. (PG) College, Panipat
And
MEDHA LEARNING FOUNDATION

MEMORANDUM OF UNDERSTANDING (MOU)

BETWEEN

I.B.(PG) COLLEGE, PANIPAT

AND

MEDHA LEARNING FOUNDATION

The MOU is made on the __21__ of __Sept·__ month in the year __2021__, at Panipat, between I.B.(PG) College, Panipat, (hereinafter referred as **"College"**) which is officially represented by the Principal, and include his/her successor in office, legal representative, nominee, and assignee as the **"First Party"**

AND

MEDHA LEARNING FOUNDATION (hereinafter referred as **"Medha"**), Lucknow, registered as a not-for profit Company under Section 8 (erstwhile Section 25) of the Companies Act, 2013, which expression shall include unless excluded by or repugnant to the context, mean the Executive Director, and include his/her successor in office, legal representative, nominee, and assignee as the **"Second Party."**

WHEREAS

The Second Party, in collaboration with the First Party, shall be implementing an array of Programme **(the "Programme")**, details of each Programme shall be mutually agreed upon separately from time to time. They shall be mentioned in the **"Programme Plan"** annexed at the end of the MOU.

1. COMMENCEMENT, COMPLETION, MODIFICATION, AND TERMINATION OF THIS MOU

1.1 The purpose is to establish collaboration between both the parties under the terms mentioned in various sections of the MOU.

1.2 This MOU shall come into force from the date of signing, or other earlier dates that is mutually agreed by the two parties.

1.3 Modification of the terms and condition of this MOU, including the modification of Programme may only be made by prior written agreement between the parties.

1.4 This MOU shall be valid for the period of one year from the date of signing this MoU, which might be renewed, extended, based on mutual agreement.

The involvement of Medha and the role of the College will be as per following:

1

Principal
I.B. (PG) College, Panipat

2. ROLE & OBLIGATION OF THE SECOND PARTY IN SUPPORT OF PROGRAMMES

2.1 The Programme shall be delivered to the students/alumni of the I.B.(PG) College, Panipat through either of the two models available at Medha – online/virtual delivery and offline/on-campus delivery.

2.2 Medha shall provide training bootcamp ("Employability skills"/ "Entrepreneurship skills"), industry & workplace exposure, internships, and available employment opportunities to interested students to enhance their employability, employment, and entrepreneurship outcomes.

2.3 The Programme shall run throughout the academic year and Medha shall offer training bootcamp (modules) to the students. Some of the illustrative modules are - Career Advancement Bootcamp (CAB), CAB Plus- Work from Home, Business Model Canvas Design Lab (BMC), Industry Guided Project (IGP), Youthscape, Learning journey- *Rubaru*, etc.

2.4 Medha shall try to register students at the College to form/run minimum one batch of 25 students per month, which is mandatory, failing which Medha shall suspend the Programme at the College.

2.5 Medha shall offer training bootcamp/s to the interested students covering the topics – Public Speaking, Group presentation, Teamwork, Resume Writing, leadership, Mock Interview, Goal setting, Workplace Etiquette, Group Discussion etc.

2.6 Medha will also be conducting student activities like counseling, workshops, seminars, exposure visits, learning journey, business plan competition and industry talk etc for the students.

2.7 Medha shall collect Rs. 500 (Rupees Five Hundred only) per Student per module as Student Contribution from interested students for availing the Programme. Contribution Collection and Registration will be done through online link (Pehel). This is a token commitment contribution to be collected from the students who are interested to avail the Programme.

2.8 Medha shall abide by all the terms and conditions mutually agreed upon with the college in the implementation of the Programme.

2.9 Medha shall furnish all relevant information, progress report and documents corresponding to the project, to the college as and when required by the latter.

3. ROLE & OBLIGATION OF THE FIRST PARTY IN SUPPORT OF PROGRAMMES

3.1 The First Party shall allow the Second Party to communicate the students about the Programme and the Collaboration using notices, e-posters & banners, link on its official website, in addition to jointly conducting awareness workshops, certification events, either virtually or on-campus.

Principal
I.B. (PG) College, Panipat

2

3.2 The First Party shall entirely allow the Second Party to decide the content, pedagogy, assessment rubric and certification criteria, of its training modules etc. as well as full discretion to admit, select and certify students within the Programme.

3.3 The College shall provide access to a suitable room / space located centrally on campus, which will be converted into a "Career Center," with access to electricity, wireless internet, student furniture and other basic amenities/facilities, as available at the college.

3.4 The College shall allow the personnel of Medha, on/off campus access to the "Career Center" as and when needed by the Second Party to deliver the Programme.

3.5 The First Party shall allow Medha to bring in, store, use and retain ownership of its own equipment, laptops, printer, projector, furniture, and training materials into the room provided, as per the requirement of the Center. The ownership of such equipment including the laptops brought by the Second Party shall always remain with the Second Party.

3.6 The First Party shall nominate a single point of contact to facilitate the Programme functioning and coordinate with the Second Party. The First Party will ensure "monthly meetings" with the head of the College to assess and monitor the progress of the Programme.

3.7 The First Party shall ensure full support and cooperation to the Second Party in all aspects to ensure effective program implementation.

4. REPORTING OBLIGATION

The **Second Party** shall submit to the **First Party**, reports and documents (including employment offer/confirmation letters) as may be specified and at such frequency as may be agreed upon between the two parties. The **Second Party** shall collect and maintain the record of students served and shall monitor and report their progress to the **First party**.

5. ARBITRATION

Both parties shall use all reasonable endeavors to resolve or settle the disputes through mutual negotiation and discussions in connection with this MOU or the interpretation thereof. Any and all disputes, controversies and conflicts ("Disputes") arising out of this Agreement between the parties or arising out of a relating to or in connection with this Agreement or the performance or non-performance of the rights and obligations set forth herein or the breach, termination, invalidity, interpretation thereof which cannot be settled or resolved amicably shall be referred for arbitration to a suitable committee constituted in joint consultation of both the parties. The Arbitral award shall be in writing and shall be final and binding on each party. None of the party shall be entitled to commence or maintain any action in the court of law upon any Dispute arising out of or relating to or in connection with this MOU.

Principal
I.B. (PG) College, Panipat

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6. CONSEQUENCE OF BREACH

    a. It shall be obligatory on part of either party to ensure timely Programme implementation and facilitation as per the pre-approved plan as agreed upon in the MOU.

    b. In the event of breach of any term and conditions of this agreement, either party shall have the right to terminate this agreement with prior notice.

In witness of which, the parties hereto have caused the MOU to be signed in their respective names as of the day and year first above written.

FOR AND ON BEHALF OF FIRST PARTY

FOR AND ON BEHALF OF the SECOND PARTY

THE PRINCIPAL
I.B.(PG) COLLEGE
PANIPAT, HARYANA
Principal
I.B (PG) College, Panipat

EXECUTIVE DIRECTOR
MEDHA LEARNING FOUNDATION, LUCKNOW
UTTAR PRADESH

4

Annexure I: Programme Plan

Training name	eCAB (Career Advancement Bootcamp)
Mode of Delivery	"Offline"/ "Online" (blended mode)
Program Duration	30 hours
Batch size	20-25 students
Course focus area	Professional communication, Resume Writing, Workplace/WFH Etiquette, Leadership, Teamwork, Group Discussion, Interview Preparation, Goal Setting
Coordinator (appointed by the College)	As appointed by the college
Eligibility	Any (year) student of UG/PG enrolled in the college. "Batches may be made based on the same stream/year students."
Trainers/Facilitators	In-house trainers/facilitators at Medha
Student Contribution	Rs 500 per student (collected online) from those who are interested to join this program.
Infrastructure requirement	Access to students for virtual training and a lecture hall or a classroom at the college for offline activities (as applicable). Access to "Career Centre."
Time Slot	1-2 hour per day per batch
Certification	75 percent attendance or above plus Internship

Principal
I.B. (PG) College, Panipat

5

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)
G.T. ROAD, PANIPAT-132103 (HARYANA)
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO.........................   DATED. 21|9|2021

प्रकाशनार्थ

पानीपत स्थित आई.बी. (पी. जी.) कॉलेज ने विद्यार्थियों के रोज़गार परककौशल विकास हेतु एक गैर-लाभ संस्थान मेधा के कोलेबोरेशन में कैरियर सेंटर की शुरुआत की। गौरतलब है कि 21सवीं सदी मे इंडस्ट्री की जरूरतों को मद्देनज़र रखते हुए विद्यार्थियों का कौशल विकास अत्यंत आवश्यक है| प्रतिस्पर्धा के इस दौर में पढ़ाई के साथ साथ रोज़गार कौशल का होना भी एक मूलभूत आवश्कता बन चुकी है। कॉलेज की ओर से यह पहल विद्यार्थियों को समान रोज़गार के अवसर प्रदान करेगा।

यह करियर सेंटर विद्यार्थियों को तीस घंटे का करियर एडवांसमेंट बूटकैंप ऑफर करेगी जो विद्यार्थियों को कम्युनिकेशन स्किल, लीडरशिप, टीम वर्क, फ्यूचर प्लैनिंग इत्यादि स्किल्स सिखाने के साथ ही उन्हें इंटरव्यू की तैयारी ओर रिज्यूम बनाने मे निपुण बनाएगा। इंटर्नशिप के माध्यम से विद्यार्थियों को जॉब रेडी बनाने के साथ साथ उन्हें रोज़गार के साथ भी जोड़ा जाएगा।

इस मौके पर प्राचार्य डॉ. अजय कुमार गर्ग जी ने कहा कि महाविद्यालय विद्यार्थियों के सर्वांगीण विकास के लिए निरंतर प्रयासरत रहा है | इसी कड़ी मे यह एक कदम उठाया गया है | इस अवसर पर कॉलेज की तरफ से प्लेसमेंट सेल कॉ-ओर्डिनेटर एवं एसोसिएट प्रोफ़ेसर डॉ अर्पणा गर्ग जी ने बताया कि मेधा द्वारा यह ट्रेनिंग विद्यार्थियों को वर्तमान समय के इंडस्ट्री की जरूरतों के हिसाब से तैयार करेगी और नयी शिक्षा नीति 2020 के अनुरूप उन्हे कम्युनिकेशन, कॉलेबोरन, क्रिटिकल थिंकिंग ओर क्रिएटिविटी जैसे महत्वपूर्ण रोजगार कौशलों को सीखने में मदद करेगी। इस अवसर पर प्रो अजय पाल, प्रो निशा गुप्ता, मेधा की तरफ से पीयूष गुप्ता और शिवानी चहल मौजूद रहे।

डॉ. अजय कुमार गर्ग
प्राचार्य

MEMORANDUM OF UNDERSTANDING

This MEMORANDUM OF UNDERSTANDING ("Agreement") is made on the 29th day of July 2022.

AMONGST

(I) **CodeQuotient Pvt. Ltd** company incorporated under the laws of India having its corporate office at F429, Phase 8B, Indusrial Area Sector 74, SAS Nagar, Punjab 160059, hereinafter referred to as "**CodeQuotient**".

(ii) I.B. (PG) College having its campus at G.T. Road Panipat, (hereinafter referred to as the "Partner")

(Individually a "Party" and collectively the "Parties").

WHEREAS

A. CodeQuotient is in the business of training & software development and offers training programs that help students gain vital technology skills needed for success in today's workforce.

B. The Partner is a UGC approved College affiliated to Kurukshetra University and has always endeavored to launch programs that will create employable manpower, which is of crucial importance to the country.

C. CodeQuotient shall collaborate with the college to enhance the quality of the education for students thereby enabling them to meet industry needs.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Parties hereto agree as follows:

1. This MOU is for collaboration between both parties, for mutual benefit, to enhance the quality of the educational experience of students of the Partner by offering online training and internships. Following are the activities under this program:

Activity #	Description
1	Access to CodeQuotient online coding platform/courses to all the students and teachers of the Partner.
2	Online/On-campus training.
3	Industrial Training (Summer/Winter) to the selected students.

4	Internships/Jobs to the selected students.

2. The Partner shall be responsible for providing the requisite infrastructure, network, internet access, accommodation/food/transport to the trainers and any other facility required for the on-campus training.

3. Training will be planned as per schedule mutually agreed upon by both the parties.

4. The Partner shall provide slots to CodeQuotient during campus placements for hiring the students trained by CodeQuotient. And selected students would not be allowed to appear in any further campus placement drive as per Institute norms.

5. Both the parties agree that CodeQuotient is not obliged on account of this MOU to recruit any fixed number of students from the Partner.

6. Both parties hereby agree to designate a representative from its side who will be the primary point of contact on behalf of that party.

7. Both parties shall take all reasonable steps to ensure the successful completion of the collaboration, and co-operate with each other in duly carrying out the obligation agreed upon.

8. Each of CodeQuotient and Partner may use the name and logo of the other Party in commercially reasonable marketing, advertising and/or publicity releases, and describe work completed under this Agreement in summary and general form, without revealing any of the other party's confidential information so long as the relationship between the Parties is accurately portrayed, without securing additional written approval of the other Party.

9. Each party shall ensure that they do not actively solicit the faculty of the other party who is involved in the implementation of this MOU during the period of such faculty's involvement with the program and for twelve (12) months thereafter.

10. Each party shall respect the other's Intellectual property (IP) and shall not use any trade name, trademark, symbol or designation belonging to the other, without prior written approval. No party shall hold out as an agent or representative of the other or create any liability for the other. The parties shall indemnify the other for the breach of this clause.

11. Both parties shall maintain confidentiality about any information, course material, plans, discussions, strategies or any material which shall be deemed to be confidential and marked accordingly. Any information, course material or the like in the public domain shall not be part of this commitment.

12. This MOU shall be valid for 3 years from the date of signing and each party shall be at full liberty to terminate the collaboration, with a notice period of 3 months.

13. The parties hereby agree that they are not bound exclusively by this MOU and are at liberty to enter into any separate agreements or arrangements with any third party without reference to the other party.

14. This MOU is an indication of good faith and intent on the part of both parties and does not create any legal obligations between them. In the event of any differences or disputes arising from the implementation of the provisions of this MOU, the parties shall as far as possible settle such differences or disputes in good faith by consultation or negotiation between the parties.

15. This MOU shall be governed by the laws of India and Hon'ble High Court of Punjab and Haryana at Chandigarh shall have exclusive jurisdiction.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first above written.

PARTNER	CODEQUOTIENT
SIGNED BY	SIGNED BY
Prof (Dr) Ajay Kumar	Dr Sukhvir Singh
Principal	Director Academics & Student Success
Principal	
I.B (PG) College, Panipat	for and on behalf of
for and on behalf of	CODEQUOTIENT PRIVATE LIMITED
IB (PG) COLLEGE PANIPAT	

	Indian-Non Judicial Stamp	
Non Judicial	Haryana Government	Date : 06/06/2022

Certificate No.	Q0F2022F372		Stamp Duty Paid : ₹ 101
GRN No.	91197439		Penalty : ₹ 0

Seller / First Party Detail

Name: Ravinder
H.No/Floor : 158   Sector/Ward : 0   LandMark : Dhindola
City/Village : Bapoli   District : Panipat   State : Haryana
Phone: 92******41

Buyer / Second Party Detail

Name : lb college institution
H.No/Floor : 0   Sector/Ward : 0   LandMark : Panipat
City/Village: Panipat   District : Panipat   State : Haryana
Phone : 92******41

Purpose : MOU

The authenticity of this document can be verified by scanning this QrCode Through smart phone or on the website https://egrashry.nic.in

MEMORANDUM OF UNDERSTANDING (MOU)

This Memorandum of Understanding entered on 06/06/2022 between Governing Body, I.B.College, Panipat as the First party on the behalf of I.B. College, Panipat & BICA Computer Centre Panipat as second party/service provider/Education Institute. The classes for the same were started on 26/05/2022.

This document constitutes an agreement between **I.B. College, Panipat** and BICA Computer Centre, Panipat for **training/educating/teaching/ enhancing** critical skills of Advance Excel & Power Point among the students of I.B. (PG) College, Panipat with different courses/activities/program offered by Second party.

1. Objective of the MOU:

The objective of this MOU is to express the willingness of both parties to engage in an effort to teach/educate/enhance knowledge and skills of students of the UG

& PG Courses by imparting industry relevant computer skill and increasing their employability. Knowledge of computer basics and more specifically **Advance Excel & Power Point** increases the industry exposure and employability of students upon graduation by **Certification in Advance Excel & Power Point**.

Specific activities will be provided under this MOU to the students of our college by ....BICA Computer Centre Panipat

2. Proposed Terms and Conditions:

2.1 Deliverables from BICA Computer Centre

1. Provide training.
2. Provide assessment and certification to the enrolled students.
3. Training will be provided through online mode as well as offline mode.
4. Verifiable Certificate to students who pass the assessment.
5. Online Mock assessments to students to evaluate their progress.

2.3 Deliverables from College:

1. College to make payment to empanelled partner before commencement of the course.
2. Necessary student details for the enrolled students.
3. Minimum of 30 students for certification.

2.4 Programme Details:

Excel & Power Point official content, training and assessment for certification for BCA and B.Sc.(Computer Science) students. This may also be offered to other disciplines as per mutual agreement.

2.5 Tentative duration: 30 hours

3 General Terms of MOU

3.1 Duration of MOU: This MOU shall be functional after signing and will have an initial duration of **three years (for sessions 2021-22, 2022-23, & 2023-24)**

3.2 Coordination: In order to carry out and fulfill the aims of this agreement, each party will appoint an appropriate person(s) to represent its organization and to coordinate the implementation of activities.

3.3 Confidentiality: Each party agrees that it shall not, at any time, after executing the activities of this MOU, disclosed any information in relation to these activities or the affairs of business or method of carrying on the business of the other without consent of both the parties.

3.4 Termination of MOU: The partnership/agreement covered by this MOU shall terminate on the completion of the agreed period. The agreement may also be terminated with a one month written notice from either side. In the event of non-compliance or breach by any one of the parties of the obligations binding upon it. The agreement with immediate effect may be terminated by the other party.

3.5 Extension of Agreement: The MOU may be extended provided the parties agree upon and provide the necessary resources.

3.6 Financial Burden: The second party/service provider will bear all the expenses incurred on the implements of this agreement. No amount will be charged from the first party.

Payment will be made in following manner

100% of the total payment will be made on commencement of the classes.

3.7 Certification of the program: The clarification of the program will be provided to the students by the second party only after completion of the program/education.

IN WITNESS WHEREOF, the parties hereto have executed this MOU on dated...06.06.2022

Name..Ravinder UAIS   Name.............................

Signature..R.VAIS..   Signature...........................

Date:06\06\2022   Date:.............................

(Second Party)   (First Party)   Dr. Ajay Kumar Garg
    Nominee (Management/Society)   Principal

Witness:

Department of Industries & Commerce, Haryana

Form-III

"Certificate of Registration to be issued under Section 9(1) of the Haryana Registration and Regulation of Societies Act, 2012"

(See rule 5 and rule 6)

Certificate of Registration of Society

I hereby certify that a Society bearing the Registration Number and name as undermentioned has been registered this [03] day [Nov] month [2015] year under the Haryana Registration and Regulation of Societies Act, 2012 (Haryana Act No. 1 of 2012).

State Code		District Code			Year Of Registration				Registration Number				
H	R	0	0	7	2	0	1	5	0	0	6	4	4

Name Of the Society	Registered Office Address
BAJRANG OM KRIPA EDUCATION SOCIETY	156, VPO DADHOLA, TEH. BAPOLI, DISTT. PANIPAT

Issued under my hand at [Panipat] this [03] day of (month)[Nov] (Year)[2015] having Unique Identification Number - 2000103602

Issuing Authority
District Registrar,
Panipat
Date: 2015-11-09

SOME IMPORTANT PROVISIONS OF THE HRRS ACT 2012 TO BE FOLLOWED :

* One Flat one vote.
* Collegium Scheme to be approved from District Registrar if members strength is more than 300.
* Administrator if appointed will not enroll new members, incur capital expenditure and give employement in the society.
* Terms of Governing Body not to be more than 3 years.
* Member to be not less than 21 year age.
* Office bearers of society (Three to twenty one).
* General Body and other meeting should be conducted with quorum i.e 1st meeting - 40%, 2nd meeting - 25% and 3rd meeting - 15% (see entire Provisions)
* Submission of mandatory Annual Returns i.e. list of members, list of members of collegium, list of office bearers, Annual Report on working, Balance Sheet & Auditors Report, Copy of special resolution otherwise shall attract penalities & fines as per provisions of Act.
* In case of Joint Apartment owners, 1st owner will be eligible to contest the elections.
* Proxy voting not allowed.
* Condominium/ Association covered under Apartment Ownership Act 1983 is to be formed by owners only.
* Election observer may be appointed by District Registrar or on request of Society

BICA

Bajrang Institute of Computer & Accounting

RUN BY : Bajrang om Kripa Education Society (Regd)

No............................

Date....................

To,
The Principal
IB (PG) College
r   t
Haryana- 132103
Date: 26-05-2022
Subject: Proposal for College Tie-up with BICA Computer Centre – Run By : Bajrang om kripa education society (Regd)
Respected Madam/Sir,
Thank you for receiving the proposal.

We have been running education institute in Panipat city for last six years. This institute is doing work to enhance the Computer knowledge in society. We want to give python programming coding course in your college for that student skills will improve and your college will get the name/fame. Thanking you,

Yours truly,
Mr. Ravinder Vats
Director
BICA COMPUTER CENTRE
Shop No. 3 Tau Devi Lal Complex Near Nagar Nigam Office, Railway Road Panipat
Ph. No. 9255888941, 01804018941

Program Details:

MS Excel and PowerPoint, training and assessment for certification for All types students. This may also be offered to other disciplines as per mutual agreement.
Tentative duration: 30 hours
Price per candidate: INR Rs. 600/- for IB college Panipat only. The actual fee for MS office and PowerPoint is 4500/-For any clarifications, please call on the above signed.
Thanking you.
Agreed and Accepted

Certificate Course in Bhav Sangeet

Code: CCBS
Duration: 40 Hours
Three Months – One Lecture per Day

Aims:
- To promote Indian Classical Music.
- To understand the culture of music.
- To spread the traditional culture of music among society.
- To focus on global recognition and participation in Indian Classical Music.

Objectives:
- To create interest in classical music .
- To enable students to appreciate classical music .
- To enable students to sing classical music with fair skills .

Module-I
1.1 Sangeet, Swara, Aaroh, Avaroh, Sam, Tali, Khali.
1.2 Knowledge of Shuddha and Vikrit Swaras.
1.3 Knowledge of Sawar- Mallika.
1.4 Sthai, Antara, Sanchari, Abhog, Vadi, Samvadi, Taal, Matra and Thaat.

Module-II
2.1 Five simple Alankars in each of the prescribed raga.
2.2 Raaga Prescribed: Bilawal, Alahiya Bilawal, Yaman and Bhupali.
2.3 One drut (fast) Khyal, One Lakshan Geet and two Swar Mallika in ragas.
2.4 Taals prescribed: Keharva and Teen Taal..

Module-III
3.1 Knowledge of the notation system.
3.2 Knowledge of the prescribed ragas.
3.3 Five simple Alankars in each of the prescribed raga..

Module-IV
4.1 Knowledge of Aaroh and Avaroh in Ekgun , Dugun and Chaugun layakari.
4.2 Two swar Mallika, One Lakshan Geet and Two Drut(Fast) Khyal.
4.3 Raaga Prescribed: Kafi, Khamaj and Bhairav.
4.4 Taals prescribed: Dadra, Teen and Jhap.

Course Outcomes: By the end of the course, the student will be able to:
CO1: Gain understanding of vocal dynamics
CO2: Understand nuances of Raga Sangeet
CO3: Have an enhanced perspective of raga interpretation.
CO4: Acquire a holistic perspective towards learning classical music

Assessment with Pen and Paper:
Possible assessment methods include: quizzes, tests, collected assignments, group activities and demonstration of skills and performance. Such assessments and related assignments will develop critical thinking techniques and reading, along with developing classical music skills.

Grading System will be adopted for Certification.

Marks	Grades	Grade Point
>90 and <=100	A1	10
>80 and <=90	A2	9
>70 and <=80	B1	8
>60 and <=70	B2	7
>50 and <=60	C1	6
>40 and <=50	C2	5

<u>Internet of Things (CCIOT)</u>

Objective

The objective of course is to learn the aspect Internet of Things with the help of Arduino.

Benefit

Functionality of Arduino it's various types, Sensors and their area of application which enables student to get knowledge of their use and role in Internet of Things

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus

Internet of Things

- Introduction of IOT
    - Understanding IOT fundamentals
    - IOT Architecture and protocols
    - Various Platforms for IOT
    - Real time Examples of IOT
    - Overview of IOT components and IOT Communication Technologies
    - Challenges in IOT

- Arduino Simulation Environment.
    - Arduino Uno Architecture
    - Setup the IDE, Writing Arduino Software
    - Arduino Libraries
    - Basics of Embedded C programming for Arduino
    - Interfacing LED, push button and buzzer with Arduino
    - Interfacing Arduino with LCD

- Arduino Displays
  - Working with Serial Monitor
  - Line graph via serial monitor
  - Interfacing a 8 bit LCD to Arduino
  - Fixed one line static message display.
  - Running message display.
  - Using the LCD Library of Arduino

- Arduino Sensors
  - Arduino – Humidity Sensor
  - Arduino – Temperature Sensor
  - Arduino – Water Detector / Sensor
  - Arduino – PIR Sensor
  - Arduino – Ultrasonic Sensor
  - Arduino – Connecting Switch (Magnetic relay switches)

- Arduino Secondary Integrations.
  - Types of Relay
  - Controlling Electrical appliances with electromagnetic relays
  - cctvWorking of a matrix keypad
  - Using the keypad library to interface with Arduino.
  - Interfacing Servo motors to Arduino
  - Interfacing a RF Module

Project

Student makes a project during training period.

Certification

Certificate in Programming using Internet of Things.

Study Material of IOT (CCIOT)

Introduction of IOT

IOT -
- Let us look closely at our mobile device which contains GPS Tracking, Mobile Gyroscope, Adaptive brightness, Voice detection, Face detection etc. These components have their own individual features, but what about if these all communicate with each other to provide a better environment? For example, the phone brightness is adjusted based on my GPS location or my direction.
- Connecting everyday things embedded with electronics, software, and sensors to the internet enables us to collect and exchange data without human interaction called the Internet of Things (IoT).
- The term "Things" in the Internet of Things refers to anything and everything in day to day life which is accessed or connected through the internet.
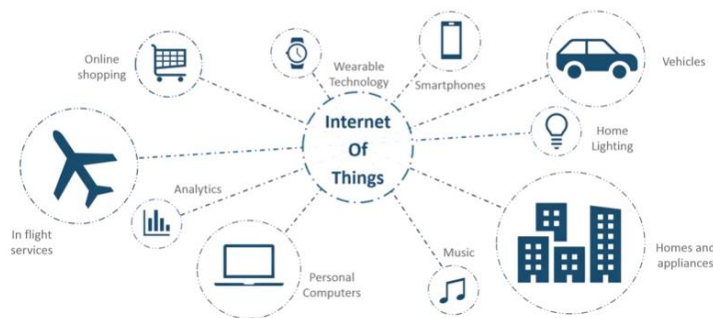
- IoT is an advanced automation and analytics system which deals with artificial intelligence, sensor, networking, electronic, cloud messaging etc. to deliver complete systems for the product or services. The system created by IoT has greater transparency, control, and performance.

- As we have a platform such as a cloud that contains all the data through which we connect all the things around us. For example, a house, where we can connect our home appliances such as air conditioner, light, etc. through each other and all these things are managed at the same platform. Since we have a platform, we can connect our car, track its fuel metre, speed level, and also track the location of the car.

Application of IOT:-
1. Wearables
- Wearable technology is the hallmark of IoT applications and one of the earliest industries to deploy IoT. We have fit bits, heart rate monitors and smartwatches these days.
- Guardian glucose monitoring device has been developed to help people with diabetes. It detects glucose levels in our body, uses a smal electrode called the glucose sensor under the skin, and relates it to a radiofrequency monitoring device.

2. Smart Home Applications
The smart home is probably the first thing when we talk about the IoT application. The example we see of AI home automation is employed by Mark Zuckerberg. Alan Pan's home automation system,

where a string of musical notes uses in-house functions.

3. Health care
IoT applications can transform reactive medical-based systems into active wellness-based systems. Resources that are used in current medical research lack important real-world information. It uses controlled environments, leftover data, and volunteers for clinical trials. The Internet of Things improves the device's power, precision and availability. IoT focuses on building systems rather than just tools. Here's how the IoT-enabled care device works.

4. Smart Cities
- Most of you have heard about the term smart city. Smart city uses technology to provide services. The smart city includes improving transportation and social services, promoting stability and giving voice to their citizens.
- The problems faced by Mumbai are very different from Delhi. Even global issues, such as clean drinking water, declining air quality, and increasing urban density, occur in varying intensity cities. Therefore, they affect every city.
- Governments and engineers use the Internet of Things to analyze the complex factors of town and each city. IoT applications help in the area of water management, waste control and emergencies
- Example of a smart city - Palo Alto.
- Palo Alto, San Francisco, is the first city to acquire the traffic approach. He realized that most cars roam around the same block on the streets in search of parking spots. It is the primary cause of traffic congestion in the city. Thus, the sensors were installed at all parking areas in the city. These sensors pass occupancy status to the cloud of each spot.
- Internet of Things Applications
- This solution involves the use of sensor arrays that collects data and uses it for many purposes.

5. Agriculture
- By the year 2050, the world's growing population is estimated to have reached about 10 billion. To feed such a large population, agriculture needs to marry technology and get the best results. There are many possibilities in this area. One of them is Smart Greenhouse.
- Farming techniques grow crops by environmental parameters. However, manual handling results in production losses, energy losses and labor costs, making it less effective
- The greenhouse makes it easy to monitor and enables to control the climate inside it.

Architecture of Internet of Things (IoT)
- Internet of Things (IoT) technology has a wide variety of applications and use of Internet of Things is growing so faster. Depending upon different application areas of Internet of Things, it works accordingly as per it has been designed/developed. But it has not a standard defined architecture of working which is strictly followed universally. The architecture of IoT depends upon its functionality and implementation in different sectors. Still, there is a basic process flow based on which IoT is built.
- So, from the above image it is clear that there is 4 layers are present that can be divided as follows: Sensing Layer, Network Layer, Data processing Layer, and Application Layer.

These are explained as following below.

1. **Sensing Layer –**Sensors, actuators, devices are present in this Sensing layer. These Sensors or Actuators accepts data(physical/environmental parameters), processes data and emits data over network.

2. **Network Layer –**Internet/Network gateways, Data Acquisition System (DAS) are present in this layer. DAS performs data aggregation and conversion function (Collecting data and aggregating data then converting analog data of sensors to digital data etc). Advanced gateways which mainly opens up connection between Sensor networks and Internet also performs many basic gateway functionalities like malware protection, and filtering also some times decision making based on inputted data and data management services, etc.

3. **Data processing Layer –**This is processing unit of IoT ecosystem. Here data is analyzed and pre-processed before sending it to data center from where data is accessed by software applications often termed as business applications where data is monitored and managed and further actions are also prepared. So here Edge IT or edge analytics comes into picture.

4. **Application Layer –**This is last layer of 4 stages of IoT architecture. Data centers or cloud is management stage of data where data is managed and is used by end-user applications like agriculture, health care, aerospace, farming, defense, etc.

Characteristics of the Internet of Things :
There are the following characteristics of IoT as follows. Let's discuss it one by one.

1. **Connectivity –** Connectivity is an important requirement of the IoT infrastructure. Things of IoT should be connected to the IoT infrastructure. Anyone, anywhere, anytime can connectivity should be guaranteed at all times Without connection, nothing makes sense.

2. **Intelligence and Identity –** The extraction of knowledge from the generated data is very important. For example, a sensor generates data, but that data will only be useful if it is interpreted properly. Each IoT device has a unique identity. This identification is helpful in tracking the equipment and at times for querying its status.

3. **Scalability –** The number of elements connected to the IoT zone is increasing day by day. Hence, an IoT setup should be capable of handling the massive expansion. The data generated as an outcome is enormous, and it should be handled appropriately.

4. **Dynamic and Self-Adapting (Complexity) –**IoT devices should dynamically adapt themselves to the changing contexts and scenarios. Assume a camera meant for the surveillance. It should be adaptable to work in different conditions and different light situations (morning, afternoon, night).

5. **Architecture –** IoT architecture cannot be homogeneous in nature. It should be hybrid, supporting different manufacturers ' products to function in the IoT network. IoT is not owned by anyone engineering branch. IoT is a reality when multiple domains come together.

6. **Safety –** There is a danger of the sensitive personal details of the users getting compromised when all his/her devices are connected to the internet. This can cause a loss to the user. Hence, data security is the major challenge. Besides, the equipment involved is huge. IoT networks may also be at the risk. Therefore, equipment safety is also critical.

Physical Design of IoT
- Physical Design- of IoT refers to IoT Devices and IoT Protocols. Things are Node device which have unique identities and can perform remote sensing, actuating and monitoring

capabilities. IoT Protocols helps Communication established between things and cloud based server over the Internet.

● Basically Things refers to IoT Devices which have unique identities and can perform remote sensing, actuating and monitoring capabilities. Things are is main part of IoT Application. IoT Devices can be various type, Sensing Devices, Smart Watches, Smart Electronics appliances, Wearable Sensors, Automobiles, and industrial machines. These devices generate data in some forms or the other which when processed by data analytics systems leads to useful information to guide further actions locally or remotely.

Logical Design of IoT

Logical design of IoT system refers to an abstract representation of the entities & processes without going into the low-level specifies of the implementation. For understanding Logical Design of IoT, we describes given below terms.

● IoT Functional Blocks
● IoT Communication Models
● IoT Communication APIs
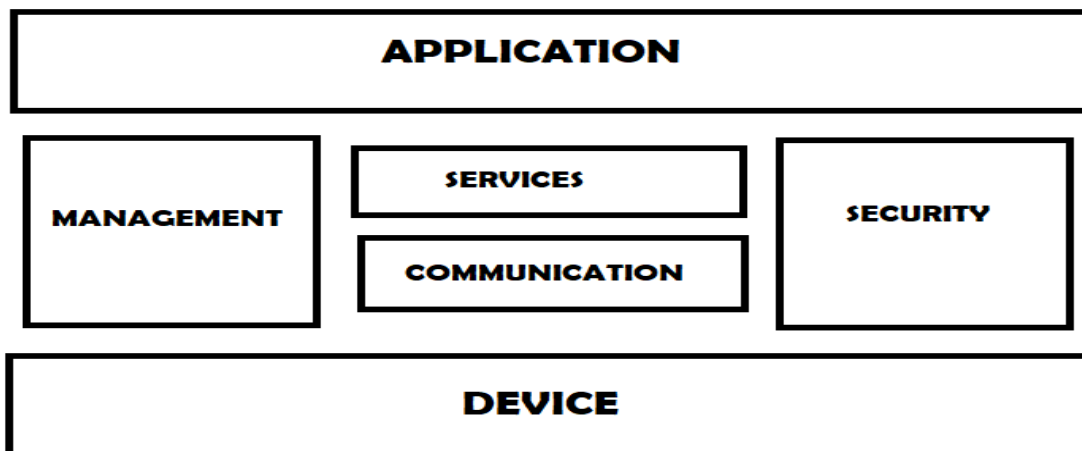
IoT Communication Models

Request-Response Model

Request-response model is a communication model in which the client sends requests to the server and the server responds to the requests. When the server receives a request, it decides how to respond, fetches the data, retrieves resource representation, prepares the

response, and then sends the response to the client. Request-response is a stateless communication model and each request-response pair is independent of others..

Example: A client (browser) submits an HTTP request to the server; then the server returns a response to the client. The response contains status information about the request and may also contain the requested content.

Request-Response Communication Model
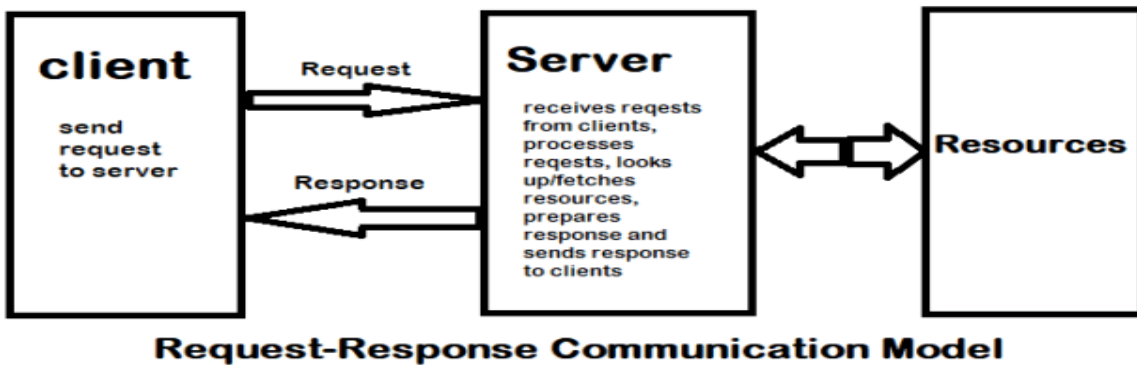
Publish-Subscribe Model

Publish-Subscribe is a communication model that involves publishers, brokers and consumers. Publishers are the source of data. Publishers send the data to the topics which are managed by the broker. Publishers are not aware of the consumers. Consumers subscribe to the topics which are managed by the broker. When the broker receives data for a topic from the publisher, it sends the data to all the subscribed consumers.
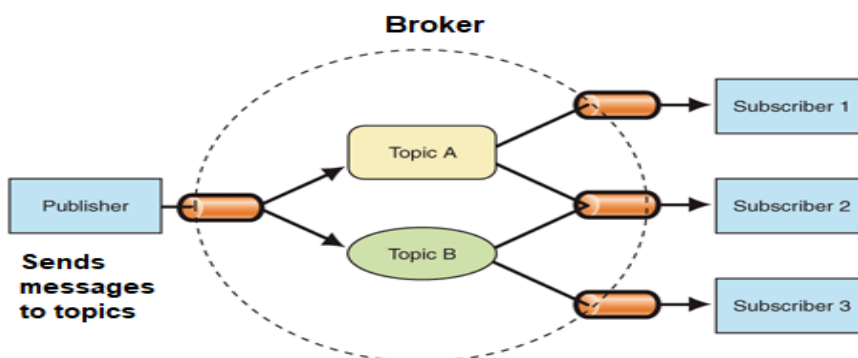
Push-Pull Model

Push-Pull is a communication model in which the data producers push the data to queues

and the consumers Pull the data from the Queues. Producers do not need to be aware of the consumers. Queues help in decoupling the messaging between the Producers and Consumers. Queues also act as a buffer which helps in situations when there is a mismatch between the rate at which the producers push data and the rate rate at which the consumer pull data.

PUSH PULL MODEL
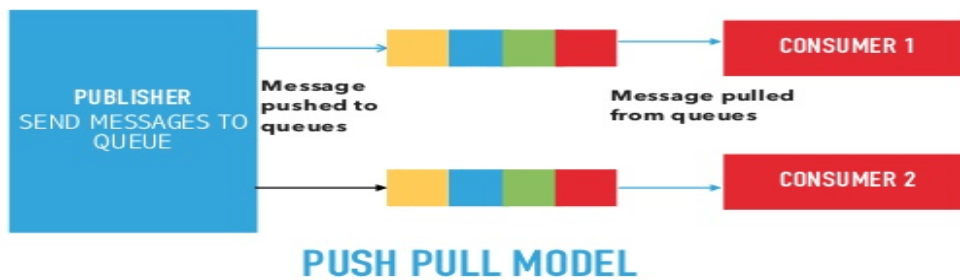
Exclusive Pair Model

Exclusive Pair is a bidirectional, fully duplex communication model that uses a persistent connection between the client and server. Connection is setup it remains open until the client sends a request to close the connection. Client and server can send messages to each other after connection setup. Exclusive pair is stateful communication model and the server is aware of all the open connections.

EXCLUSIVE PAIR COMMUNICATION MODEL
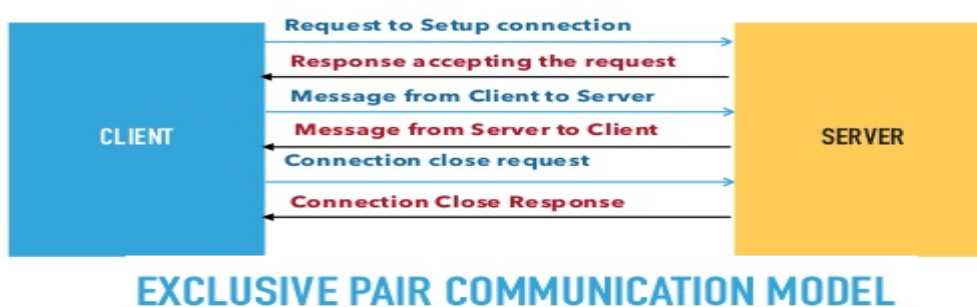
IoT Communication APIs

Generally we used Two APIs For IoT Communication. These IoT Communication APIs are:

- REST-based Communication APIs

- WebSocket-based Communication APIs

REST-based Communication APIs

Representational state transfer (REST) is a set of architectural principles by which you can design Web services the Web APIs that focus on systems's resources and how resource states are addressed and transferred. REST APIs that follow the request response communication model, the rest architectural constraint apply to the components, connector and data elements, within a distributed hypermedia system. The rest architectural constraint are as follows:

Stateless – Each request from client to server must contain all the information necessary to understand the request, and cannot take advantage of any stored context on the server. The session state is kept entirely on the client.

Cache-able – Cache constraints requires that the data within a response to a request be implicitly or explicitly leveled as cache-able or non cache-able. If a response is cache-able, then a client cache is given the right to reuse that repsonse data for later, equivalent requests. caching can partially or completely eliminate some instructions and improve efficiency and scalability.

Uniform interface – uniform interface constraints requires that the method of communication between client and server must be uniform. Resources are identified in the requests (by URIsin web based systems) and are themselves is separate from the representations of the resources data returned to the client. When a client holds a representation of resources it has all the information required to update or delete the resource you (provided the client has required permissions). Each message includes enough information to describe how to process the message.

Code on demand – Servers can provide executable code or scripts for clients to execute in their context. this constraint is the only one that is optional.

Basics of C Program Using Arduino

Understanding basics of arduino

Arduino Download

The Arduino software (IDE) is open-source software. We are required to write the code and upload the code to the board to perform some task.

The Arduino IDE software can be used with any type of Arduino boards. The software is available for various operating system such as, Windows, Linux, and Mac OS X.

The steps to download the Arduino software are listed below:

1. Go to the official website of Arduino (https://www.arduino.cc/) > Click on SOFTWARE < click on DOWNLOADS, as shown below:

Or

Open the URL https://www.arduino.cc/en/Main/Software

2. A page will appear, as shown below:
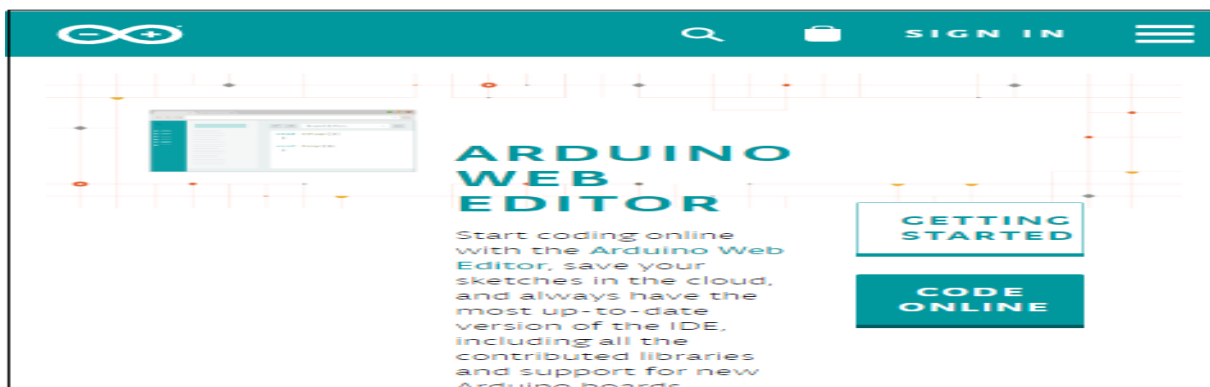
3. Scroll the screen a little, as shown below:

4. Click on the 'Windows Installer' as we are operating with the Windows. We can select the Linux or Mac OS X, accordingly.

5. A contribution window will appear. We can contribute according to our choice and click on the 'CONTRIBUTE &DOWNLOAD' option. Otherwise, click on the 'JUST DOWNLOAD' option, as shown below:
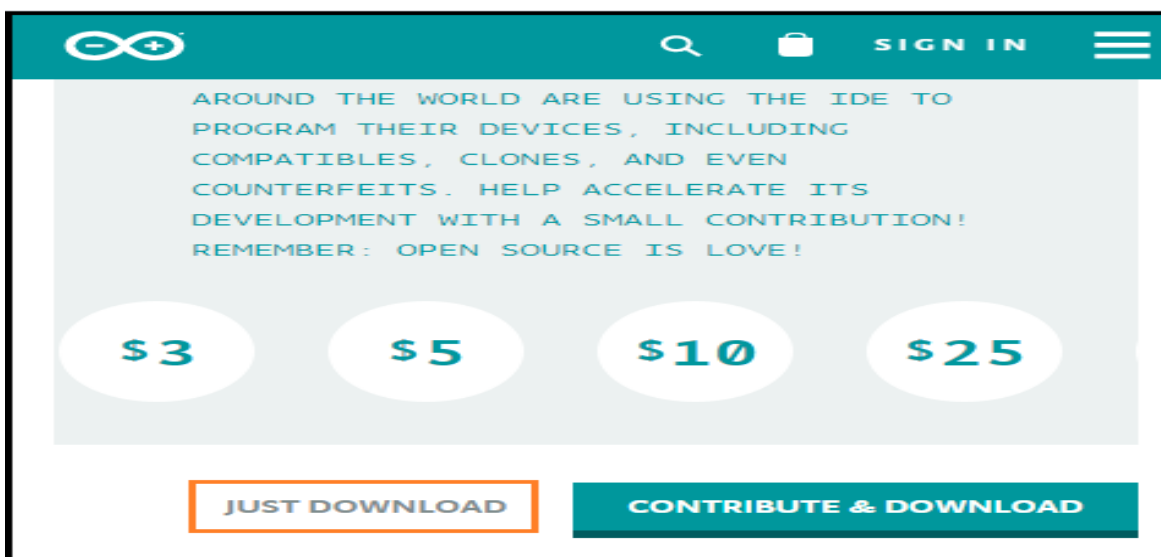
6. The downloading process will start. The downloading file will look like the below image:
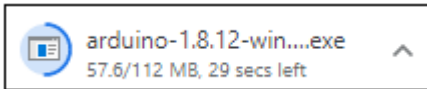
7. Wait for few seconds for the downloading process to complete.

8. Open the downloaded file.

9. Grant permission to the Arduino Software on your computer.

10. Accept the license by clicking on 'I Agree' button, as shown below:
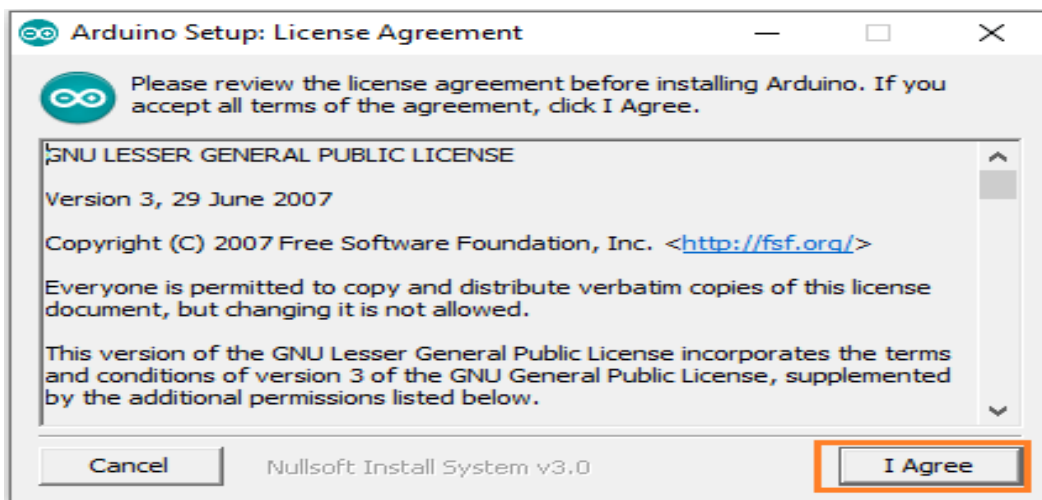
11. Click on the 'Next' button. It is shown below:
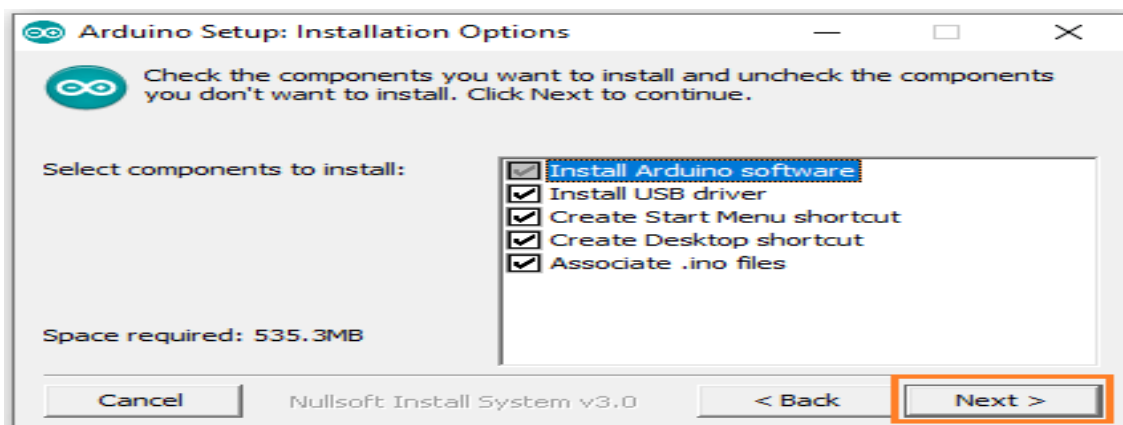
12. The window specifying the location of the installed folder will appear.

Click on the 'Install' button. It is shown below:
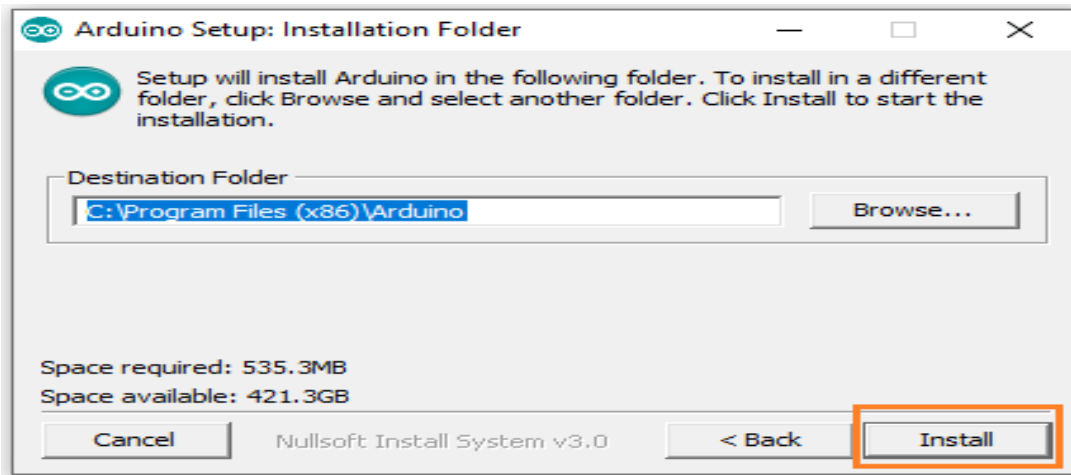
If you want to change the location, click on the 'Browse' button.

13. The installing process of Arduino will start, as shown below:
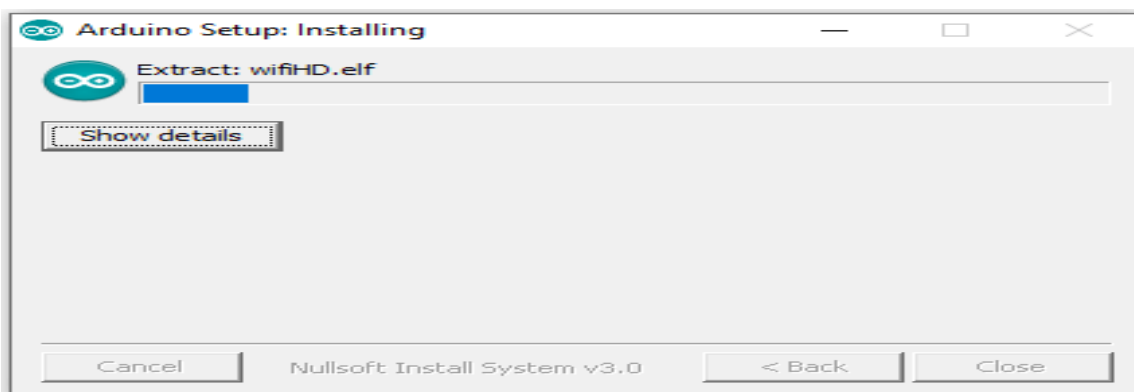
Wait for the installation process to complete.

14. Now, we have to accept the security for the installation. We are required to accept the security Installation three times.

Click on the 'Install' button. The image is shown below:
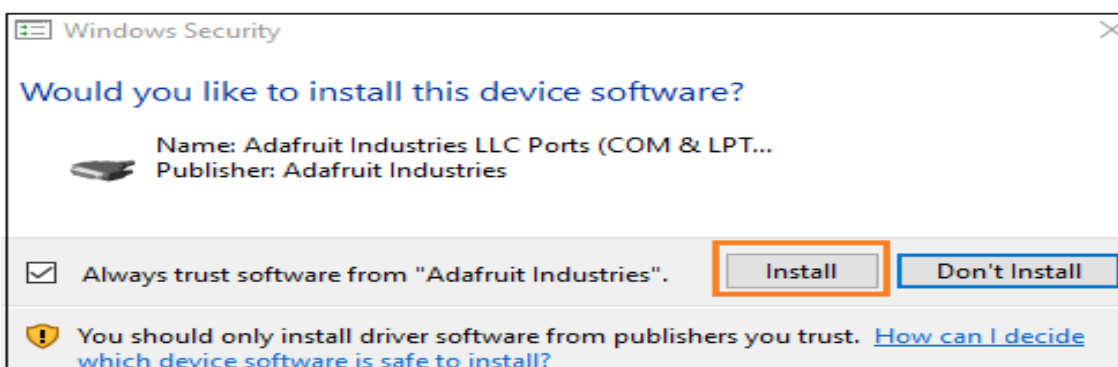
15. Again, click on the 'Install' button. It is shown below:

16. Again, click on the 'Install' button. It is shown below:
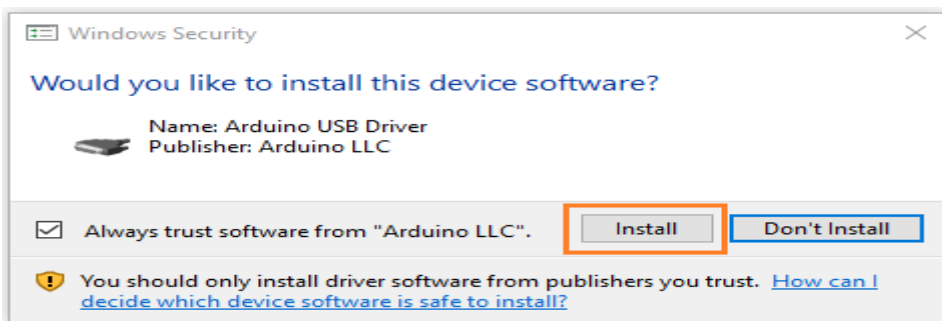
17. The installation process is now completed. The window will now appear as:
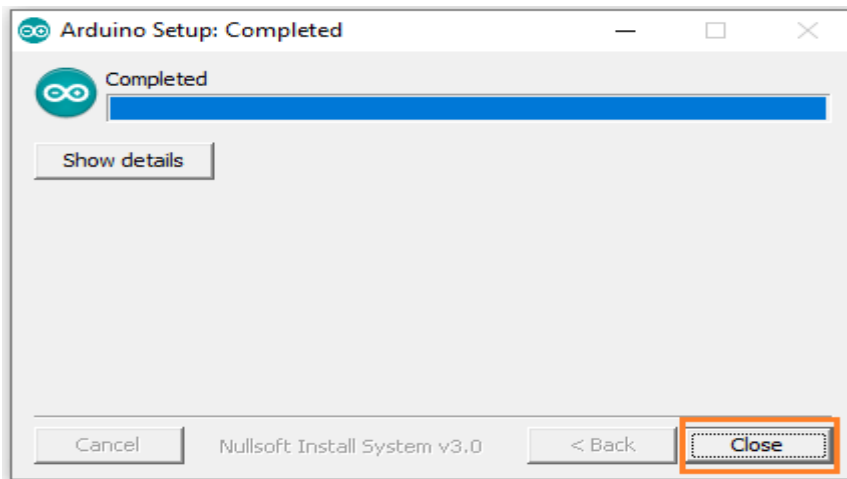
18. Click on the 'Close' button at the bottom.

The Arduino IDE software will appear on your desktop, as shown below:

19. Now, open the Arduino software.

20. The Arduino IDE environment is written in the programming language named as Java. So, we need to allow access to the Java Platform.

As soon we open the Arduino software, a license window will appear, as shown below:
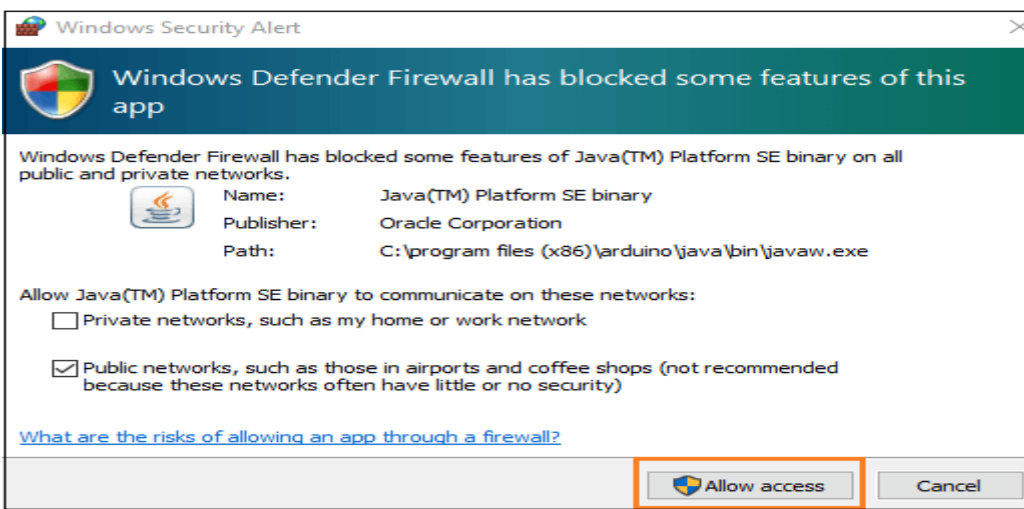
Accept the license by clicking on the 'Allow access' button.

1. TheArduino window will appear as:
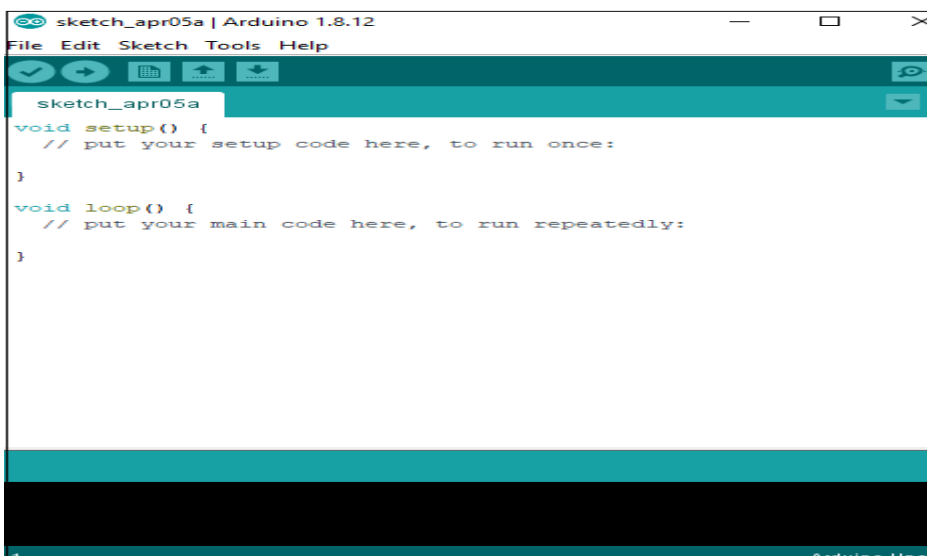
2.

Visibility of the connected Hardware port

We can view the port of the attached hardware Arduino IDE to our computer.

The steps are listed below:

1. Go to the File Manager and right-click on the This PC option, as shown below:
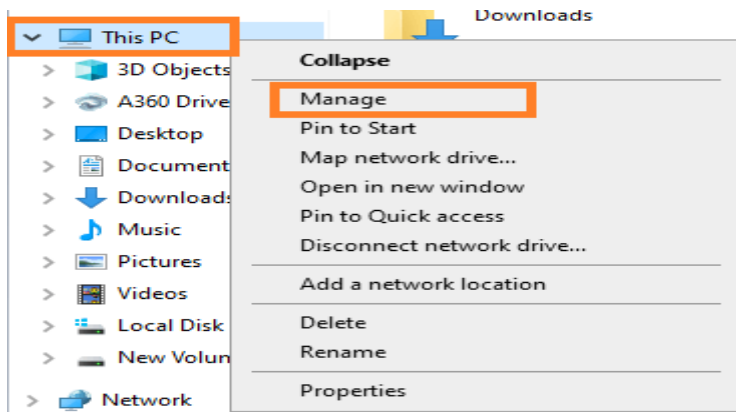
2. Click on the Manage

3. First, we need to connect the Arduino board to our computer.

4. A window will appear, as shown below:
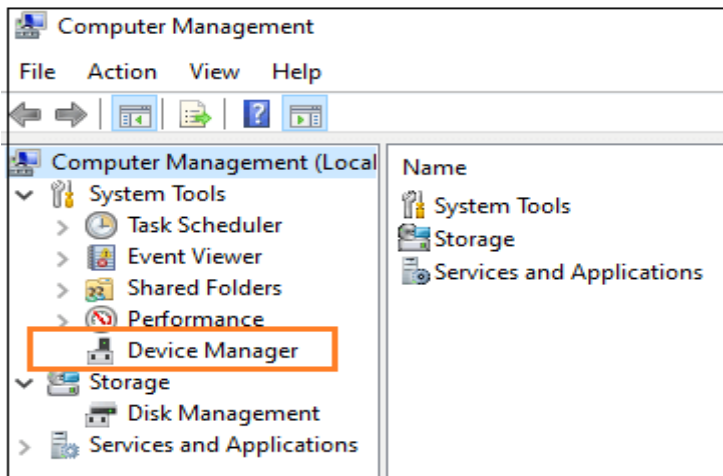
5. Click on the Device Manager

6. Under the PORT option, we can see the ports of the connected hardware.

Arduino IDE

The Arduino IDE is an open-source software, which is used to write and upload code to the Arduino boards. The IDE application is suitable for different operating systems such as **Windows, Mac OS**

X, and Linux. It supports the programming languages C and C++. Here, IDE stands for **Integrated Development Environment**.
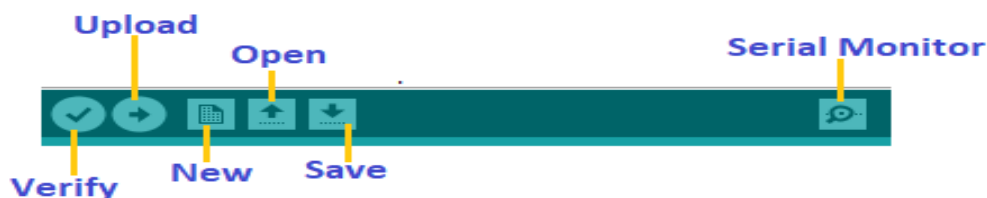
The Arduino IDE will appear as:
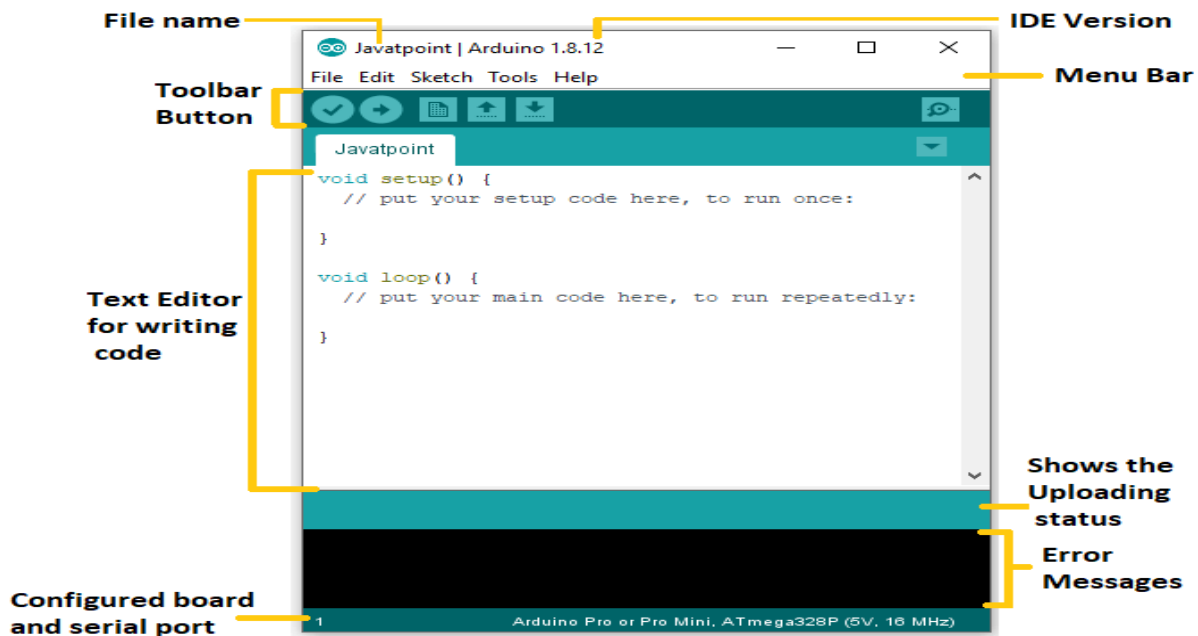
Let's discuss each section of the Arduino IDE display in detail.

Toolbar Button

The icons displayed on the toolbar are **New, Open, Save, Upload,** and **Verify**.

It is shown below:

Upload

The Upload button compiles and runs our code written on the screen. It further uploads the code to the connected board. Before uploading the sketch, we need to make sure that the correct board

and ports are selected.

If the uploading is failed, it will display the message in the error window.

We do not require any additional hardware to upload our sketch using the Arduino Bootloader. A **Bootloader** is defined as a small program, which is loaded in the microcontroller present on the board. The LED will blink on PIN 13.

Open

The Open button is used to open the already created file. The selected file will be opened in the current window.

Save

The save button is used to save the current sketch or code.

Verify

The Verify button is used to check the compilation error of the sketch or the written code.

Serial Monitor

The serial monitor button is present on the right corner of the toolbar. It opens the serial monitor.
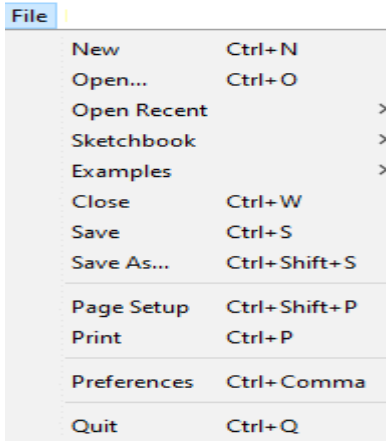
It is shown below:

When we connect the serial monitor, the board will reset on the operating system Windows, Linux, and Mac OS X. If we want to process the control characters in our sketch, we need to use an external terminal program. The terminal program should be connected to the COM port, which will be assigned when we connect the board to the computer.

Menu Bar

- **File**

When we click on the File button on the Menu bar, a drop-down list will appear. It is shown below:

File	
New	Ctrl+N
Open...	Ctrl+O
Open Recent	>
Sketchbook	>
Examples	>
Close	Ctrl+W
Save	Ctrl+S
Save As...	Ctrl+Shift+S
Page Setup	Ctrl+Shift+P
Print	Ctrl+P
Preferences	Ctrl+Comma
Quit	Ctrl+Q

Let's discuss each option in detail.

New

The New button opens the new window. It does not remove the sketch which is already present.

Sketchbook

It stores the current sketches created in the Arduino IDE software. It opens the selected sketch or code in a new editor at an instance.

Examples

It shows the different examples of small projects for a better understanding of the IDE and the board. The IDE provides examples of self-practice.

Page Setup

It allows setting the page margins, orientation, and size for printing. The '**Page Setup**' window will appear as:
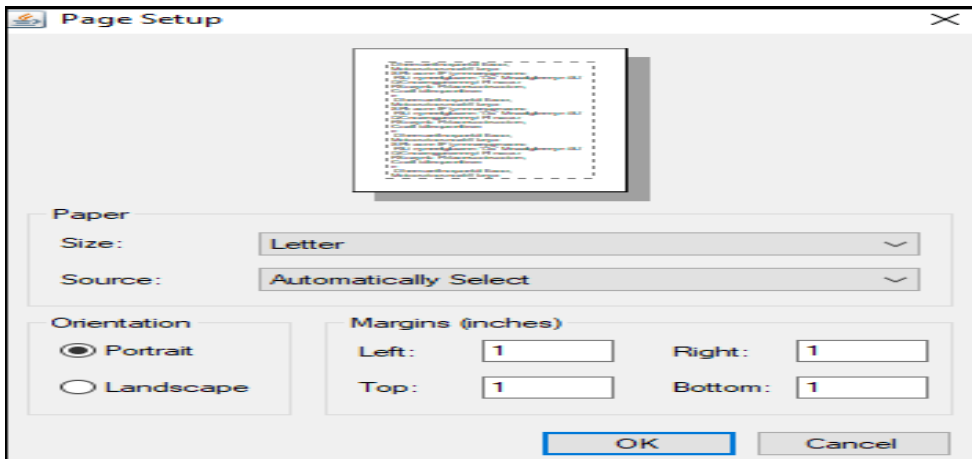
- **Edit**

When we click on the Edit button on the Menu bar, a drop-down list appears. It is shown below:

Let's discuss each option in detail.

Undo

The Undo button is used to reverse the last modification done to the sketch while editing.

Redo

The Redo button is used to repeat the last modification done to the sketch while editing.

Copy as HTML

The 'Copy for Forum' button is used to copy the selected text as HTML to the clipboard. It is desirable for embedding in web pages.

Paste

The Paste button is used to paste the selected text of the clipboard to the specified position of the cursor.
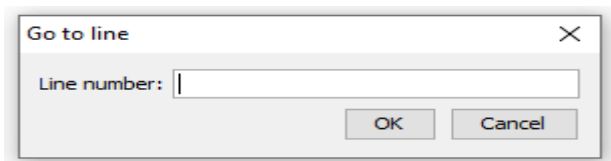
Select All

It selects all the text of the sketch.

Go to line...

It moves the cursor to the specified line number.

The window will appear as:

Comment/Decomment

The Comment/ Decomment button is used to put or remove the comment mark (*//*) at the beginning of the specified line.
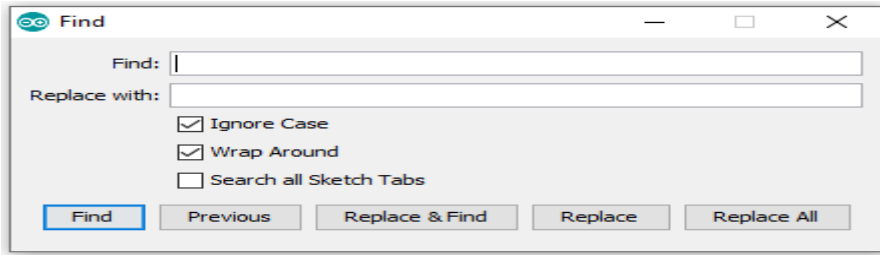
Decrease Font Size

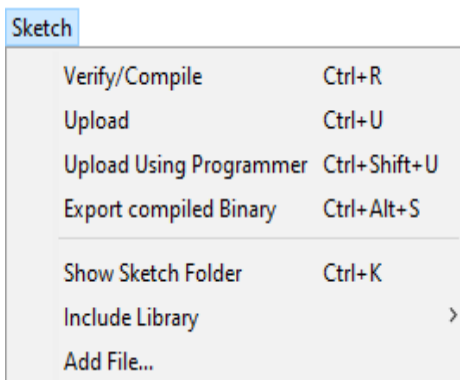It decreases the font size of the written text.

Find...

It is used to find the specified text. We can also replace the text. It highlights the text in the sketch.

The window will appear as:

- **Sketch**

When we click on the Sketch button on the Menu bar, a drop-down list appears. It is shown below:

Let's discuss each option in detail.

Verify/Compile

It will check for the errors in the code while compiling. The memory in the console area is also reported by the IDE.

Upload

The Upload button is used to configure the code to the specified board through the port.

Upload Using Programmer

It is used to override the Bootloader that is present on the board. We can utilize the full capacity of the Flash memory using the '**Upload Using Programmer**' option. To implement this, we need to restore the Bootloader using the **Tools**-> **Burn Bootloader** option to upload it to the USB serial port.

Include Library

Include Library includes various Arduino libraries. The libraries are inserted into our code at the beginning of the code starting with the #. We can also import the libraries from .zip file.

Add File...

The Add File... button is used to add the created file in a new tab on the existing file.
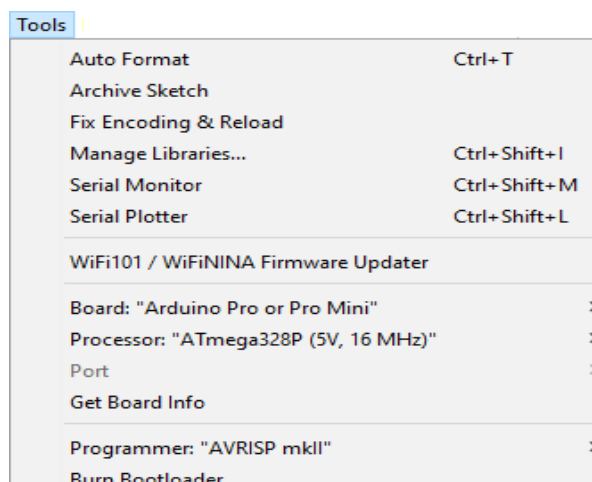
For example, let's add '**Blink**' file to the '**Javatpoint**' file. The tab will now appear as:
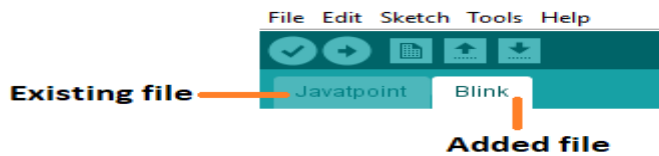
We can also delete the corresponding file from the tab by clicking on the **small triangle** -> **Delete** option.

Tools

When we click on the Tools button on the Menu bar, a drop-down list appears. It is shown below:

Let's discuss each option in detail.

Auto Format

The Auto Format button is used to format the written code. For example, lining the open and closed curly brackets in the code.

Archive Sketch

The copy of the current sketch or code is archived in the .zip format. The directory of the archived is same as the sketch.

Fix Encoding and Reload

This button is used to fix the inconsistency between the operating system char maps and editor char map encoding.

Manage Libraries...

It shows the updated list of all the installed libraries. We can also use this option to install a new library into the Arduino IDE.

Serial Monitor

It allows the exchange of data with the connected board on the port.

Serial Plotter

The Serial Plotter button is used to display the serial data in a plot. It comes preinstalled in the Arduino IDE.

Variables ,Datatype ,loops,control statement,function

Arduino Data Types

The data types are used to identify the types of data and the associated functions for handling the data. It is used for declaring functions and variables, which determines the bit pattern and the storage space.

The data types that we will use in the Arduino are listed below:

- void Data Type

- int Data Type

- Char Data Type

- Float Data Type

- Double Data Type

- Unsigned int Data Type

- short Data Type

- long Data Type

- Unsigned long Data Type

- byte data type

- word data type

void Data Type

The void data type specifies the empty set of values and only used to declare the functions. It is used as the return type for the functions that do not return any value.

Let's understand with an example in Arduino.

Consider the below code.

```
1. int a = 3;
2. void setup( )
3. {
4.  . //
5. }
6. void loop ( )
7. {
8.  .
9.  .
10.}
```

Int Data Type

The integer data types are the whole numbers like 5, -6, 10, -123, etc. They do not have any fractional part. The integer data types are represented by **int**. It is considered as the primary data type to store the numbers.

The size of int is 2 bytes (16 bits).

Minimal range: -32768 to 32767 or - (2^ 15) to ((2 ^ 15) - 1)

In the ATmega and Arduino UNO boards, the int data types store the value of 2 bytes.

On the boards like Arduino Zero and MKR1000 (SAMD boards), and Arduino Due, the int data type stores the value of 4 bytes or 32 bits. The Minimal range in such case would be - (2^ 31) to ((2 ^ 31) - 1) or -2,147,483,648 to 2,147,483,647.

The negative numbers are stored in the form of 2's complement, where the sign bit or the highest bit is flagged as the negative number.

The syntax is used as:

1. **int** var = val;

where,

var= variable

value = the value assigned to the variable

For example,

1. **int** a;
2. **int** b = 3;

Any variable or identifier becomes an integer variable and can hold only integer values.

Let's understand with an example in Arduino.

Consider the below code.

1. **int** Sum = 0;

2. **void** setup( )
3. {
4. Serial.begin(9600);
5. }
6. **void** loop ( )
7. {
8. Sum++; // on every loop, it adds 1 to the Sum int
9. Serial.println (Sum); // it prints the current state of the Sum variable
10. delay(1500); // delay of 1.5 seconds
11. }

Char Data Type

The char datatype can store any number of character set. An identifier declared as the char becomes a character variable. The literals are written inside a single quote.

The char type is often said to be an integer type. It is because, symbols, letters, etc., are represented in memory by associated number codes and that are only integers.

The size of character data type is **minimum of 8 bits**. We can use the byte data type for an unsigned char data type of 8 bits or 1 byte.

For example, character ' A ' has the ASCII value of 65.

If we specify, ' A ' + 2, it will have the ASCII value of 67.

The syntax is:

1. **char** var = val;

where,

var= variable

val = The value assigned to the variable.

Let's understand with an example.

Consider the below code.

1. **char** myvariable = ' B ';
2. **char** myvariable = 66 ; // both the value are equivalent

The ASCII table is shown below:

ASCII TABLE

Decimal	Hex	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	32	20	[SPACE]	64	40	@	96	60	`
1	1	33	21	!	65	41	A	97	61	a
2	2	34	22	"	66	42	B	98	62	b
3	3	35	23	#	67	43	C	99	63	c
4	4	36	24	$	68	44	D	100	64	d
5	5	37	25	%	69	45	E	101	65	e
6	6	38	26	&	70	46	F	102	66	f
7	7	39	27	'	71	47	G	103	67	g
8	8	40	28	(	72	48	H	104	68	h
9	9	41	29	)	73	49	I	105	69	i
10	A	42	2A	*	74	4A	J	106	6A	j
11	B	43	2B	+	75	4B	K	107	6B	k
12	C	44	2C	,	76	4C	L	108	6C	l
13	D	45	2D	-	77	4D	M	109	6D	m
14	E	46	2E	.	78	4E	N	110	6E	n
15	F	47	2F	/	79	4F	O	111	6F	o
16	10	48	30	0	80	50	P	112	70	p
17	11	49	31	1	81	51	Q	113	71	q
18	12	50	32	2	82	52	R	114	72	r
19	13	51	33	3	83	53	S	115	73	s
20	14	52	34	4	84	54	T	116	74	t
21	15	53	35	5	85	55	U	117	75	u
22	16	54	36	6	86	56	V	118	76	v
23	17	55	37	7	87	57	W	119	77	w
24	18	56	38	8	88	58	X	120	78	x
25	19	57	39	9	89	59	Y	121	79	y
26	1A	58	3A	:	90	5A	Z	122	7A	z
27	1B	59	3B	;	91	5B	[	123	7B	{
28	1C	60	3C	<	92	5C	\	124	7C		
29	1D	61	3D	=	93	5D	]	125	7D	}
30	1E	62	3E	>	94	5E	^	126	7E	~
31	1F	63	3F	?	95	5F	_	127	7F	[DEL]

Float Data Type

A number having the fractional part and a decimal part is considered as a floating-point number. For example, 4.567 is a floating-point number. The number 13 is an integer, while 13.0 is a floating-point number. Due to their greater resolution, fractional numbers are used to approximate the contiguous and analog values.

Floating point numbers can also be written in the exponent form. The numbers can be as large as 3.4028235E+38 and as small as -3.4028235E+38. The size of float data types is 4 bytes or 32 bits.

The syntax is:

1. **float** var = val;

where,

var = variable

val = The value assigned to the variable

Let's understand with an example.

Consider the below code.

```
1.  int a ;
2.  int b ;
3.  float c ;
4.  void setup ( )
5.  {
6.  Serial.begin (9600);
7.  }
8.  void loop ( )
9.  {
10. a = 3 ;
11. b = a/2 ;  // b is an integer. It cannot hold fractions. The output will be 1.
12. c = (float) a / 2.0 ;  // c now contains 1.5.
13. // Here, we have to use 2.0 instead of 2.
14. }
```

Note: We need to add a decimal point to a number. Otherwise, it will be considered as an integer. For example, 14.0 is considered as a float number, while 14 is an integer.

The floating-point numbers can also be converted to integers. For example,

```
1.  float a = 3.6 ;
2.  int b = a + 0.6 ; // output = 4
```

Double Data Type

The double data type is also used for handling the decimal or floating-point numbers. It occupies twice as much memory as float. It stores floating point numbers with larger precision and range. It

stands for double precision floating point numbers.

It occupies 4 bytes in ATmega and UNO boards, while 8 bytes on Arduino Due.

The syntax is:

1. **double** var = val;

where,

var= variable

val = The value assigned to the variable

Unsigned int Data Type

The unsigned int stores the value upto 2 bytes or 16 bits. It stores only positive values. The range of unsigned int data type is from 0 to 65,535 or 0 to $((2 \wedge 16) - 1)$.

Arduino Due stores the unsigned data value of 4 bytes or 32-bits.

The difference between Unsigned and signed data type is the sign bit. The int type in Arduino is the signed int. In a 16-bit number, 15 bits are interpreted with the 2's complement, while the high bit is interpreted as the positive or negative number. If the high bit is '1', it is considered as a negative number.

The syntax is:

1. unsigned **int** var = val;

where,

var= variable

val = The value assigned to the variable

For example,

1. unsigned **int** pinofLED = 8;

short Data Type

The short is an integer data type that stores two bytes or 16-bit of data.

The range of short data types is from -32768 to 32767 or - (2^ 15) to ((2 ^ 15) - 1). The ARM and ATmega based Arduino's usually stores the data value of 2 bytes.

The syntax is:

1. **short** var = val;

where,

var= variable

val = the value assigned to the variable

For example,

1. **short** pinofLED = 8 ;

long Data Type

The long data types are considered as the extended size variables, which store 4 bytes (32 -bits). The size ranges from -2,147,483,648 to 2,147,483,647.

While using integer numbers, at least one of the numbers should be followed by L, which forces the number to be a long data type.

The syntax is:

1. **long** var = val;

where,

var= variable

val = The value assigned to the variable

For example,

1. **long** speed = 186000L;

Unsigned long Data Type

The unsigned long data types are also considered as the extended size variables, which store 4 bytes (32 -bits). It does not store negative numbers like other unsigned data types, which makes their size ranges from 0 to 4,294,967,295 or (2^32 - 1).

The syntax is:

1. unsigned **long** var = val;

where,

var= variable

val = The value assigned to the variable

For example

1. unsigned **long** currenTtime;

byte

1 byte = 8 bits.

It is considered as an unsigned number, which stores values from 0 to 255.

The syntax is:

1. **byte** var = val;

where,

var= variable

value = the value assigned to the variable

For example,

1. **byte** c = 20;

word

It is considered as an unsigned number of 16 bits or 2 bytes, which stores values from 0 to 65535.

The syntax is:

1. word var = val;

where,

var= variable

val = The value assigned to the variable
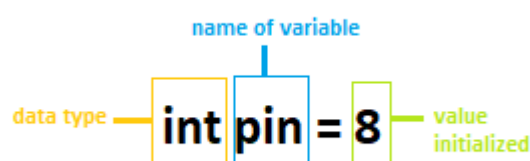
For example,

1. word c = 2000;

Arduino Variables

The variables are defined as the place to store the data and values. It consists of a name, value, and type.

The variables can belong to any data type such as int, float, char, etc. Consider the url - Arduino data types for detailed information.

Consider the below example:

1. **int** pin = 8;

Here, the **int** data type is used to create a variable named **pin** that stores the value **8**. It also means that value 8 is initialized to the variable **pin**.

We can modify the name of the variable according to our choice. For example,

The above example can also be written as:

1. **int** LEDpin = 8;

Here, the variable name is **LEDpin**.

We can refer the declared variable further in our program or code.

For example,

1. pinMode(LEDpin, OUTPUT);

Here, the value stored (8) in the declared variable (LEDpin) will be passed to the pinMode() function.

If we have not declared the variable, the value can also be directly passed to the function.

For example:

1. pinMode(8, OUTPUT);

Advantages of Variables

The advantages of the variables are listed below:

- We can use a variable many times in a program.
- The variables can represent integers, strings, characters, etc.
- It increases the flexibility of the program.
- We can easily modify the variables. For example, if we want to change the value of variable LEDpin from 8 to 13, we need to change the only point in the code.
- We can specify any name for a variable. For example, greenpin, bluePIN, REDpin, etc.

How can we change the value of a variable in Arduino?

The value of a variable can be changed using the assignment operator (equal = sign). But we need to declare a variable before assigning the value.

If we directly specify the value as:

1. pin = 7;

We will get an error that pin has not declared.

We can easily change the variables by copying its value to another variable.

For example,

1. **int** LEDpin = 7;
2. **int** pin1 = LEDpin;
3. LEDpin = 13;

The LEDpin now contains the value 13 instead of 7. But, value of pin1 is still 7.

Let's understand with an example.

Consider the below code.

1. **void** setup()
2. {
3.   Serial.begin(9600);
4. **int** pinLED = 7;
5.   Serial.println(pinLED); // value 7 will be printed
6. **int** pin1 = pinLED;
7. pinLED = 13;
8.   Serial.println(pinLED); // value is now changed
9.   // now, value 13 will be printed
10. }
11. **void** loop()
12. {

```
13.}
```
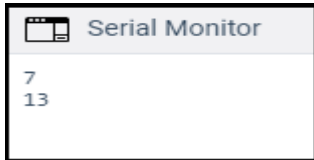
Output:

We can notice in the output that the value of **LEDpin** is changed from 7 to 13. Similarly, we can change the values of variables.

Variables Scope

It means that in how many ways the variables can be declared.

The variables can be declared in two ways in Arduino, which are listed below:

- Local variables
- Global variables

Local Variables

The local variables are declared within the function. The variables have scope only within the function. These variables can be used only by the statements that lie within that function.

For example,

```
1. void setup()
2. {
3. Serial.begin(9600);
4. }
5. void loop()
6. {
7. int x = 3;
8. int b = 4;
9. int sum = 0;
```

```
10. sum = x + b;
11. Serial.println(sum);
12. }
```

Global Variables

The global variables can be accessed anywhere in the program. The global variable is declared outside the setup() and loop() function.

For example,

Consider the below code.

```
1.  int LEDpin = 8;
2.  void setup()
3.  {
4.  pinMode(LEDpin, OUTPUT);
5.  }
6.  void loop()
7.  {
8.  digitalWrite(LEDpin, HIGH);
9.  }
```

We can notice that the LEDpin is used both in the loop() and setup() functions.

The value is used in both functions, so, changing the value in one function will reflect in the other. For example,

```
1.  int LEDpin = 8;
2.  void setup()
3.  {
4.  LEDpin = 13;
5.  pinMode(LEDpin, OUTPUT);
6.  }
7.  void loop()
8.  {
```

```
9.  digitalWrite(LEDpin, HIGH);
10. }
```

Arduino for Loop

The statements inside the curly brackets under for loop are executed repeatedly according to the specified condition. An increment counter in the for loop is used to increment or decrement the loop repetitions.

The for statement is commonly used for repetitive task or operation or to operate on the group of data/pins in combination with arrays.

The syntax is:

```
1.  for (initialization; condition; increment)
2.  {
3.  \\ statements
4.  }
```

where,

- **initialization**: It is defined as the initialization of the variable.
- **condition**: The condition is tested on every execution. If the condition is **true**, it will execute the given task. The loop ends only when the condition becomes **false**.
- **increment**: It includes the increment operator, such as i + +, i - - , i + 1, etc. It is incremented each time until the condition remains true.

For example,

```
1.  for ( i = 0 ; i < 5 ; i + +)
```

The above statement will execute the loop for five times. The values of i will be from 0 to 4.

If the statement is:

1. **for** (i = 0 ; i < = 5 ; i + +)

The above statement will execute the loop six times. The values of i will be from 0 to 5.

Note: If we do not want to execute the for loop again and again. Then, we can insert the for loop in the void setup( ) function.

Example 1:

To print a message 'Arduino' 15 times.

To print a message 15 times or more is quite complicated using Serial.println ( ), as the code will become too lengthy.

To overcome this, programmers prefer to use for loop to execute a task multiple times, while using a single statement.

Let's consider the below code.

1. **int** i;
2. **void** setup ( )
3. {
4.   Serial.begin(9600);
5.   **for** (i = 0 ; i < 15 ; i ++)
6.   {
7.   Serial.println("Arduino");
8.   }
9. }
10. **void** loop ( ) {
11. }

Output:

Example 2:

To use a multiplication increment

The multiplication increment in the for loop will generate a logarithmic progression.

Consider the below code:

```
1.  int x;
2.  void setup ( )
3.  {
4.    Serial.begin(9600);
5.    for (x = 2; x < 100; x = x * 2)
6.    {
7.    Serial.println(x);
8.    }
9.  }
10. void loop ( ) {
11. }
```

Output:

```
2
4
8
16
32
64
```

We can also declare the int data type directly in the for loop.

For example,

1. **for** (**int** x = 2; x < 100; x = x * 2)

Example 3: To fade an LED

Here, fade and LED means that LED will faint slowly.

Consider the below code:

```
1.  const int pinPWM = 11; // here, we have initialized the PWM pin.
2.  void setup ( )
3.  {
4.    Serial.begin(9600);
5.  }
6.  void loop ( )
7.  {
8.    int x = 1;
9.    for (int i = 0; i > -1; i = i + x)
10. {
11.   analogWrite(pinPWM, i);
12.   if (i == 255)
13. {
14.     x = -1;  // It will switch the direction at peak
15.   }
16.   delay(10); // It is delay time of 10 milliseconds
17.   // the lesser the time, the more fading effect can be seen clearly
18. }
```

```
19. }
```

For the connection, we will connect the positive terminal of the LED in series with the resistor to PIN 11 (PWM pin), and the negative terminal of the LED to GND.

Note: The for loops in C++ programming language is much more flexible than other types of programming languages.
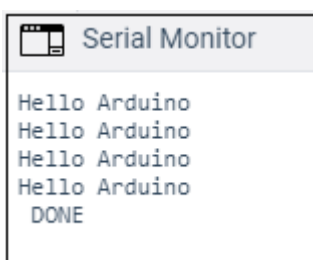
Example 4:

Consider the below code:

```
1.  void setup ( )
2.  {
3.    int i;
4.    Serial.begin(9600);
5.    for (i = 0; i < 4; i = i + 1)
6.    {
7.      Serial.println( "Hello Arduino" );
8.    }
9.    Serial.println( " DONE");
10. }
11. void loop ( )
12. {
13. }
```

The above code will print 'Hello Arduino' four times. After that the condition becomes false, control comes out of the loop, and 'DONE' is printed.

Output:

```
Serial Monitor

Hello Arduino
Hello Arduino
Hello Arduino
Hello Arduino
 DONE
```

Arduino while loop

The while loop() is the conditional loop that continues to execute the code inside the parentheses until the specified condition becomes false.

The while loop will never exit until the tested condition is changed or made to stop. The common use of a while loop in Arduino includes **sensor testing, calibration (calibrating the input of sensor), variable increment, etc.**

The syntax is:

1. **while** (condition)
2. {
3. // code or set of statements
4. }

where,

condition: It specifies the boolean expression, which determines the condition to be true or false.

For example,

1. variable = 0;
2. **while** (variable < 100) {
3. // performs the specified task 100 times repeatedly
4. variable++ ; // increments after every execution
5. }

The above code inside the curly braces in while loop will execute continuously and repeatedly as long as the variable is less than 100.

Flowchart

The flowchart is shown below:

Initialization

False

Condition

True

Condition within
while loop

End of loop
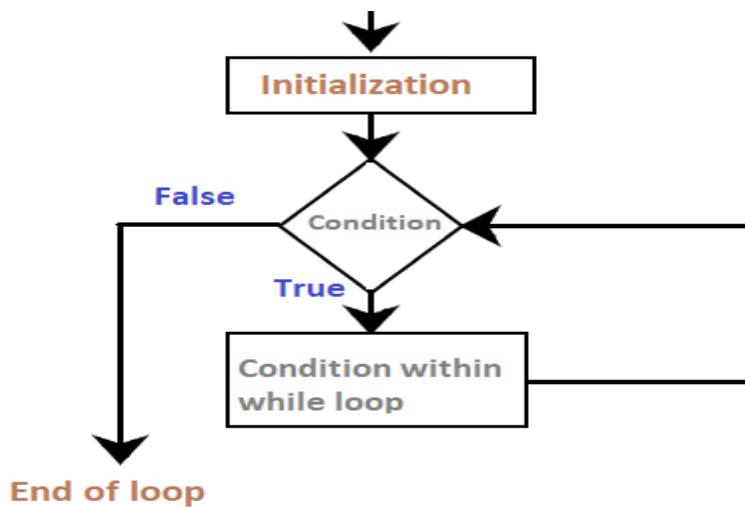
Code Example

In order to change the flow of the program, we need to change the specified condition inside the parentheses of while loop. The process is much like the if statement.

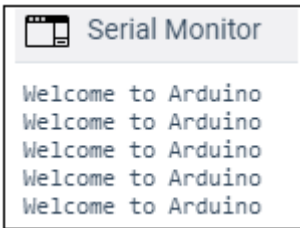Let's understand the concept of while loop with two examples.

Example 1:

Consider the below code:

```
1.  int a = 0;
2.  void setup()
3.  {
4.    Serial.begin(9600);
5.    while( a < 5)
6.    {
7.    Serial.println("Welcome to Arduino");
8.    a = a + 1;
9.    }
10. }
11.  void loop()
12. {
13. }
```

Output:

The message inside the loop will be printed five times, as shown below:

Let's look at the code.

Explanation: At first, we have defined the variable **a** as 0, and initialized the serial monitor as usual (means Serial.begin()). The loop first checks the condition specified within the parentheses. At first, a =0. The condition is true (0 < 5). The code inside the curly braces will execute, and the message is printed.

Now, the value of **a** is incremented (added 1 to a), and the loop executes again.

Similarly, five times the condition remains true. When a =5, the condition becomes false, and the loop exits and drops. The code outside the loop is executed.
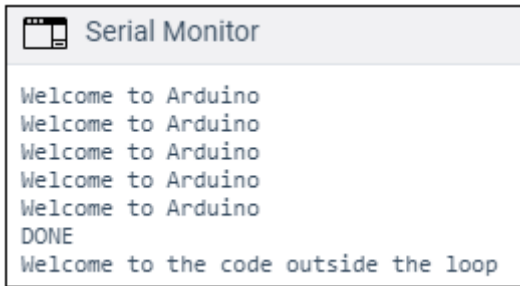
Let's consider another example.

Example 2:

The code is similar to the above example. We will only add some statements outside the loop.

Consider the below code:

1. **int** a = 0;
2. **void** setup()
3. {
4.   Serial.begin(9600);
5. **while**(a < 5)
6. {
7.   Serial.println("Welcome to Arduino");
8.   a = a + 1;
9. }
10. Serial.println("DONE");
11. Serial.println("Welcome to the code outside the loop");
12. }
13. **void** loop()
14. {
15. }

Output:

We can notice that as soon as the condition in the loop becomes false, the message specified outside the loop is printed.

do...while

The working of the do-while loop is similar to the while loop. The condition inside the do-while will execute at least once. It is because the condition is tested at the end of the loop instead of the beginning.

The syntax is:

1. **do**
2. {
3. // code or set of statements
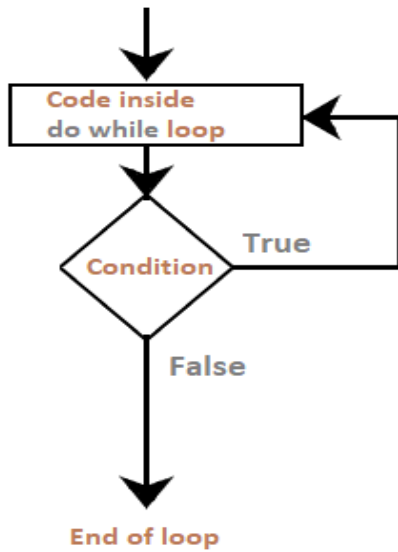4. } **while** (condition);

where,

condition: It specifies the boolean expression, which determines the condition to be true or false.

For example,

1. **int** b = 0;
2. **do** {
3.   delay(100);   // wait for stabilization of the sensors
4.   b = readSensors(); // It checks the sensors
5. } **while** (x < 100); // specified condition

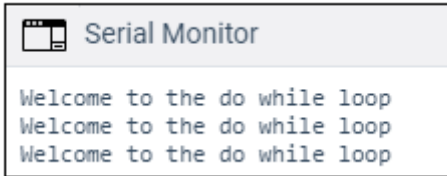## Flowchart

The flowchart is shown below:

Code Example

Let's understand the concept of the do-while loop with an example.

Example 1:

Consider the below code:

1. **int** a = 0;
2. **void** setup()
3. {
4.   Serial.begin(9600);
5. **do**
6. {
7.   Serial.println("Welcome to the do while loop");
8.   a = a + 1;
9. } **while**(a < 3);
10. }
11. **void** loop()
12. {
13. }

Output:

Arduino If statement

The if ( ) statement is the conditional statement, which is the basis for all types of programming languages.

If the condition in the code is true, the corresponding task or function is performed accordingly. It returns one value if the condition in a program is true. It further returns another value if the condition is false.

It means that if ( ) statement checks for the condition and then executes a statement or a set of statements.

Let's understand the concept with the help of a flow chart.
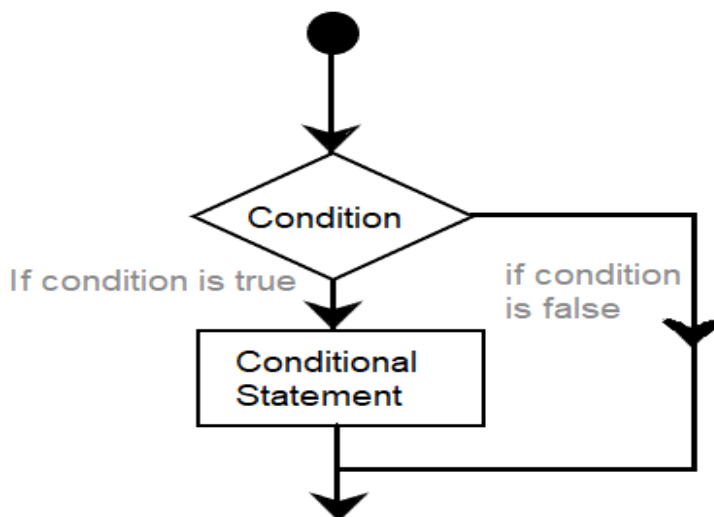
It clearly explains the process of execution of a statement. If the condition is False, it comes out of the if ( ) statement. If the condition is true, the function is performed.

The if ( ) statement is written as:

1. **if (condition)**
2. **{**
3. **// include statements**
4. **// if the condition is true**
5. **// then performs the function or task specified inside the curly braces**
6. **}**

Here,

condition = It includes the boolean expressions, that can be true or false.

We can also use one or more operators inside the parentheses.

The comparison operators that can be used as a condition inside the parentheses are listed below:

- a ! = b (a not equal to b)

- a < b (a less than b)

- a > b (a greater than b)

- a = = b (a equal to b)

- a < = b (a less than or equal to b)

- a > = b (a greater than or equal to b)

where,

a and b are the variables.

Code Examples

Let's understand with the help of two coding examples.

Example 1:

Consider the below code.

```
1.  int a = 6; // initiaization of values to variables a and b
2.  int b = 4;
3.  void setup()
4.  {
5.  Serial.begin(9600);
6.  }
7.  void loop()
8.  {
9.    if (a > b )
10. {
11.   Serial.println( " a is greater than b ");
12. }
13. if (b > a )
14. {
15.   Serial.println( " b is greater than a ");
16. }
```

17. **}**

Output: a is greater than b

The code shows the initialization of values to the two variables a and b. In this example, the first condition is True. Hence the corresponding information is printed.

Example 2:

Consider the below code.

1. **const int LED1 = 2;**
2. **const int LED2 = 13;**
3. **int x = 80 ;**
4. **void setup ( )**
5. **{**
6. **Serial.begin(9600);**
7. **pinMode (LED1, OUTPUT);**
8. **pinMode (LED2, OUTPUT);**
9. **}**
10. **void loop ( )**
11. **{**
12. **if (x > 100)**
13. **{**
14. **digitalWrite(LED1, HIGH);**
15. **delay (500);**
16. **}**
17. **if (x < 100)**
18. **{**
19. **digitalWrite(LED2, HIGH);**
20. **delay (500);**
21. **}**
22. **}**

The example is of two LEDs.

In the above example, we have initialized the value of x. Since the value of x is less than 100, the second condition is true. Hence, LED2 will light up.

If the value of x is greater than 100, LED1 will light.

Arduino Functions

The functions allow a programmer to divide a specific code into various sections, and each section performs a particular task. The functions are created to perform a task multiple times in a program.

The function is a type of procedure that returns the area of code from which it is called.

For example, to repeat a task multiple times in code, we can use the same set of statements every time the task is performed.

Advantages of using Functions

Let's discuss some advantages of using functions in programming, which are listed below:

- **It increases the readability of the code.**

- **It conceives and organizes the program.**

- **It reduces the chances of errors.**

- **It makes the program compact and small.**

- **It avoids the repetition of the set of statements or codes.**

- **It allows us to divide a complex code or program into a simpler one.**

- **The modification becomes easier with the help of functions in a program.**

The **Arduino** has two common functions setup() and loop(), which are called automatically in the background. The code to be executed is written inside the curly braces within these functions.

void setup() - It includes the initial part of the code, which is executed only once. It is called as the preparation block.

void loop() - It includes the statements, which are executed repeatedly. It is called the execution block.

But sometimes, we need to write our own functions.

Let's start writing the functions.

Function Declaration

The method to declare a function is listed below:

- **Function return type**

We need a return type for a function. For example, we can store the return value of a function in a variable.

We can use any data type as a return type, such as float, char, etc.

- **Function name**

It consists of a name specified to the function. It represents the real body of the function.

- **Function parameter**

It includes the parameters passed to the function. The parameters are defined as the special variables, which are used to pass data to a function.
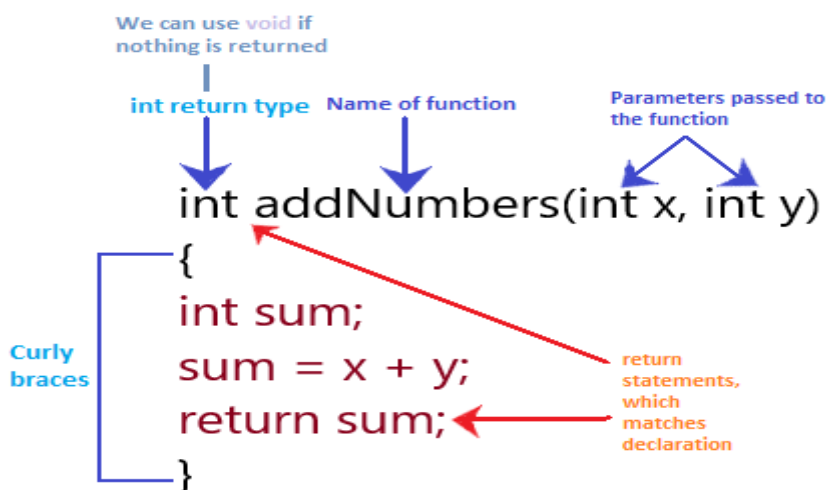
The function must be followed by parentheses ( ) and the semicolon ;

The actual data passed to the function is termed as an argument.

Let's understand with some examples.

Example 1:

Consider the below image:

Example 2: Here, we will add two numbers.

Consider the below code:

1. **void** setup()
2. {
3.   Serial.begin(9600);
4. }
5. **void** loop() {
6.   **int** a = 5; // initialization of values to the variables a and b

```
7.   int b = 4;
8.   int c;
9.   c = myAddfunction(a, b); // c will now contains the value 9
10.  Serial.println(c); // to print the resulted value
11.  delay(1000); // time delay of 1 second or 1000 milliseconds
12.}
13.int myAddfunction(int i, int j)
14.{
15.  int sum;
16.  sum = i + j;
17.  return sum;
18.}
```

Similarly, we can perform arithmetic operations using the above concept.

Example 3:

Here, we will create a function that determines if a number is even or odd.

Consider the below code.

```
1.   int a= 0;
2.   int b;
3.   void setup()
4.   {
5.     Serial.begin(9600);
6.   }
7.   void loop()
8.   {
9.   b = Evenfunction(a); // we can store the function return value in variable b
10.  Serial.print(a);
11.  Serial.print(" : "); // to separate even or odd text
12.  if (b==1)
13.  {
14.    Serial.println( " Number is even");
15.  }
16.    else
```
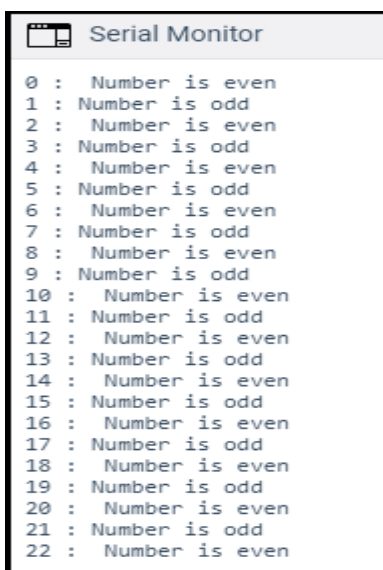
```arduino
17.  {
18.     Serial.println("Number is odd");
19.  }
20.
21.     a++; // the function will increment and will again run
22.             delay(1000);
23. }
24.
25. int Evenfunction(int d)
26.             {
27.             if (d% 2==0)
28.             {
29.               return 1;
30.             }
31.             else
32.             {
33.               return 0;
34.             }
35.             }
```

Output:

The output is shown below:


```
Serial Monitor

0  :   Number is even
1  :  Number is odd
2  :   Number is even
3  :  Number is odd
4  :   Number is even
5  :  Number is odd
6  :   Number is even
7  :  Number is odd
8  :   Number is even
9  :  Number is odd
10 :   Number is even
11 :  Number is odd
12 :   Number is even
13 :  Number is odd
14 :   Number is even
15 :  Number is odd
16 :   Number is even
17 :  Number is odd
18 :   Number is even
19 :  Number is odd
20 :   Number is even
21 :  Number is odd
22 :   Number is even
```

Practical of Using of Arduino
Arduino - Blinking LED

LEDs are small, powerful lights that are used in many different applications. To start, we will work on blinking an LED, the Hello World of microcontrollers. It is as simple as turning a light on and off. Establishing this important baseline will give you a solid foundation as we work towards experiments that are more complex.
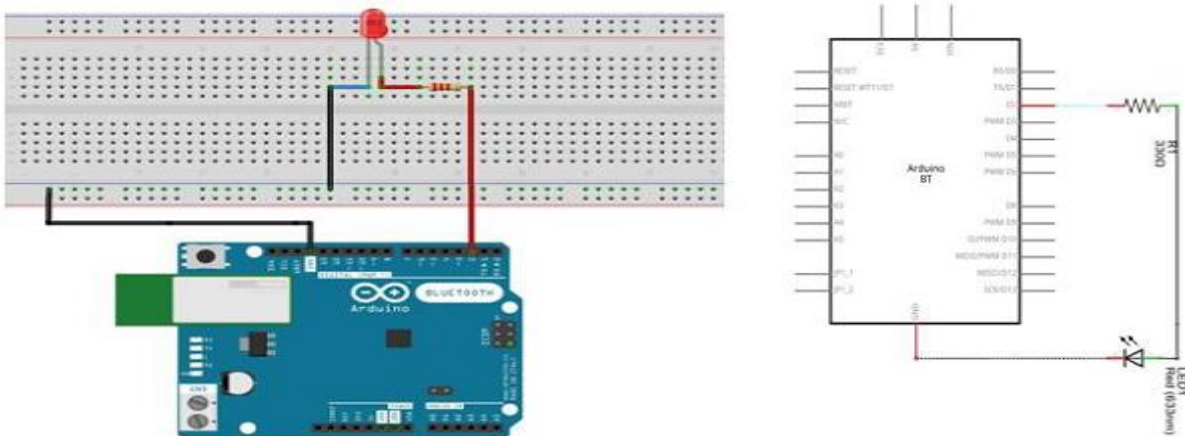
Components Required

You will need the following components −

- 1 x Breadboard
- 1 x Arduino Uno R3
- 1 x LED
- 1 × 330Ω Resistor
- 2 x Jumper

Procedure

Follow the circuit diagram and hook up the components on the breadboard as shown in the image given below.

Note − To find out the polarity of an LED, look at it closely. The shorter of the two legs, towards the flat edge of the bulb indicates the negative terminal.
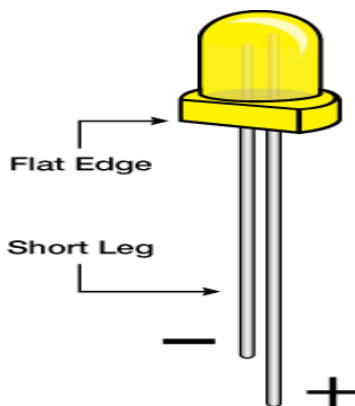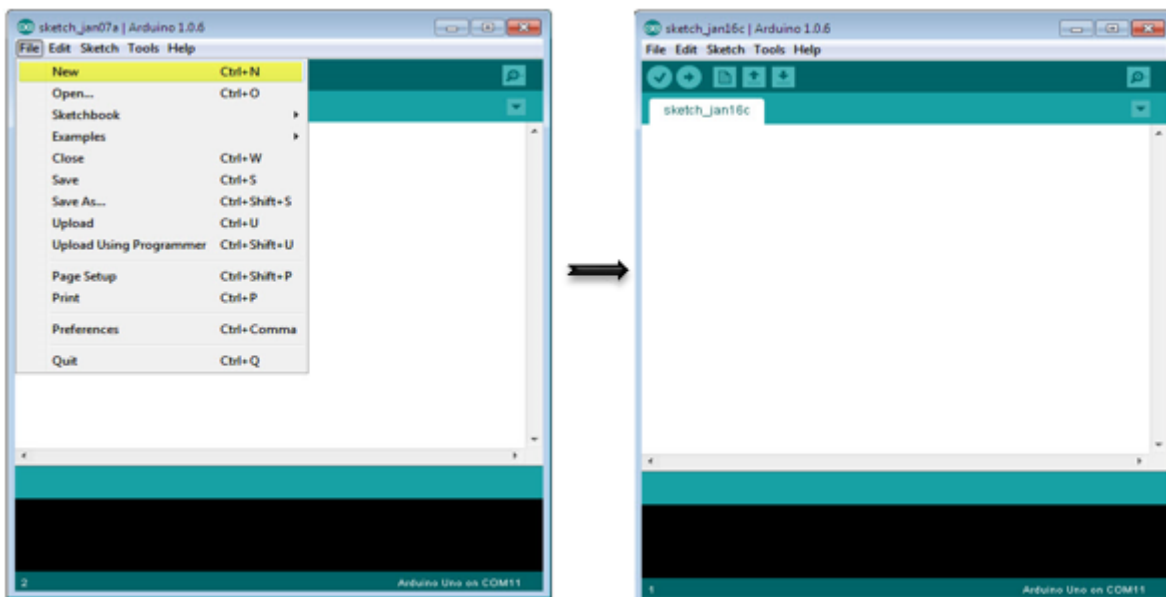
Components like resistors need to have their terminals bent into 90° angles in order to fit the breadboard sockets properly. You can also cut the terminals shorter.
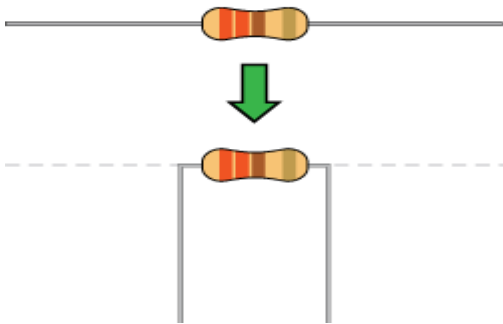
Sketch

Open the Arduino IDE software on your computer. Coding in the Arduino language will control your circuit. Open the new sketch File by clicking New.

Arduino Code

```
/*
  Blink
  Turns on an LED on for one second, then off for one second, repeatedly.
*/

// the setup function runs once when you press reset or power the board

void setup() {  // initialize digital pin 13 as an output.
  pinMode(2, OUTPUT);
}

// the loop function runs over and over again forever

void loop() {
  digitalWrite(2, HIGH); // turn the LED on (HIGH is the voltage level)
  delay(1000); // wait for a second
  digitalWrite(2, LOW); // turn the LED off by making the voltage LOW
  delay(1000); // wait for a second
}
```

Code to Note

pinMode(2, OUTPUT) − Before you can use one of Arduino's pins, you need to tell Arduino Uno R3 whether it is an INPUT or OUTPUT. We use a built-in "function" called pinMode() to do this.

digitalWrite(2, HIGH) − When you are using a pin as an OUTPUT, you can command it to be HIGH (output 5 volts), or LOW (output 0 volts).

Result

You should see your LED turn on and off. If the required output is not seen, make sure you have assembled the circuit correctly, and verified and uploaded the code to your board.

Arduino circuit with an LED and a button

To build the circuit you will need those components:

- Arduino board (any board, if you don't have Uno you can easily adapt by finding corresponding pins).
- Breadboard.
- LED – any color.
- Push button.
- 220 Ohm resistor for the LED. If you don't have this specific value, any resistor from 330 to 1k Ohm will do.
- 10k Ohm resistor for the push button. If you don't have, you can go until 20k-50k Ohm.
- A bunch of male to male wires (including if possible black, red, and other colors).

Here's the circuit you have to make.
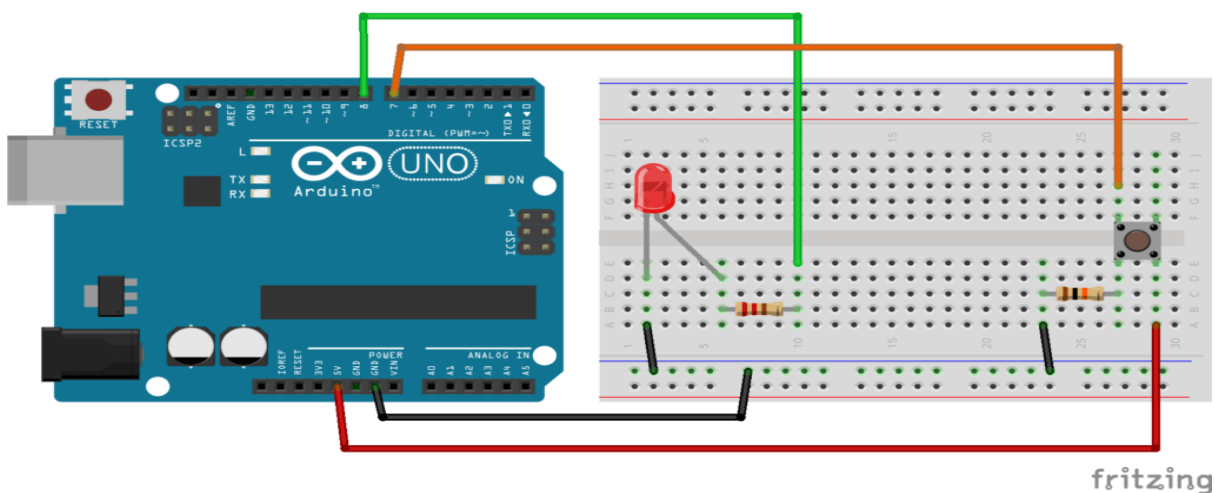
Step by step instructions to build the circuit (more info about Arduino pins here):

- First, make sure to power off your Arduino – remove any USB cable.
- Plug a black wire between the blue line of the breadboard and a ground (GND) pin on the Arduino board.
- Plug the LED. You can notice that the LED has a leg shorter than the other. Plug this shorter leg to the ground (blue line here) of the circuit.
- Connect the longer leg of the LED to a digital pin (here pin no 8, you can change it). Add a 220 Ohm resistor in between to limit the current going through the LED.
- Add the push button to the breadboard, like in the picture.
- Connect one leg of the button to the ground, and put a 10k Ohm resistor in between. This resistor will act as a "pull down" resistor, which means that the default button's state will be LOW.
- Add a red wire between another leg of the button and VCC (5V).
- Finally, connect a leg of the button (same side as the pull down resistor) to a digital pin (here 7).

Turn on the LED when button is pressed, turn it off otherwise

What we want to achieve is simple: when the button is not pressed, the LED is off. And when we press the button the LED should be on.

The code

```
#define LED_PIN 8

#define BUTTON_PIN 5

void setup() {

  pinMode(LED_PIN, OUTPUT);

  pinMode(BUTTON_PIN, INPUT);

}

void loop() {

  if (digitalRead(BUTTON_PIN) == HIGH) {

    digitalWrite(LED_PIN, HIGH);

  }
```

```
  else {

    digitalWrite(LED_PIN, LOW);

  }

}
```

Night Light automatic turn ON and OFF using Arduino, Relay and LDR

we are going to make an automatic light ON and OFF during night and day respectively using LDR sensor that gets activated or it's resistance gets reduced when light falls on it. We have also connected a manual switch ON and OFF for the bulb whenever we are out of home for weekends.

Let's get started,

Components Required:

1. Arduino UNO X 1
2. LDR light sensor X 1
3. 5V RelayModule X 1
4. Resistor (100k) X 1
5. AC Bulb (25 or 100) Watt X 1

Circuit Design:(Note: First upload the program to the Arduino IDE then only do the below given wirings in order to avoid short circuit from previously uploaded code in the Arduino.)

www.roboticsinsighto.com
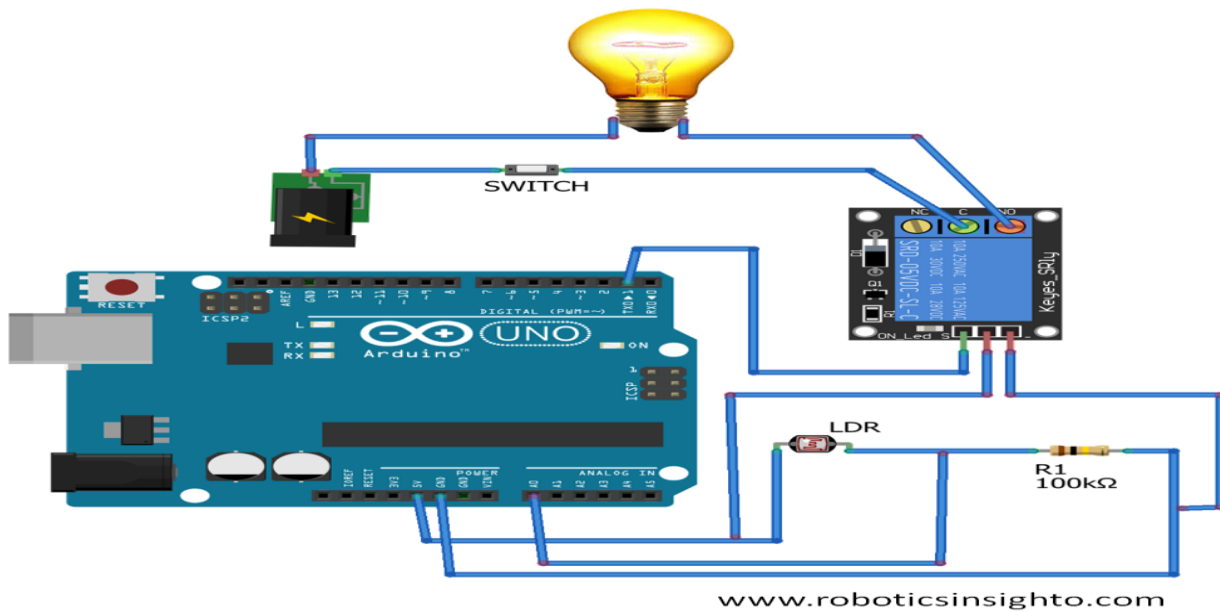
About LDR (Light Dependent Resistor) Sensor:

It is the sensor with resistance as it's main property. When light falls upon it then it's resistance decreases and allows electric current to flow through it. And when it is dark then it offers high resistance to the circuit and blocks current to flow through it.

Let's see it graphically,
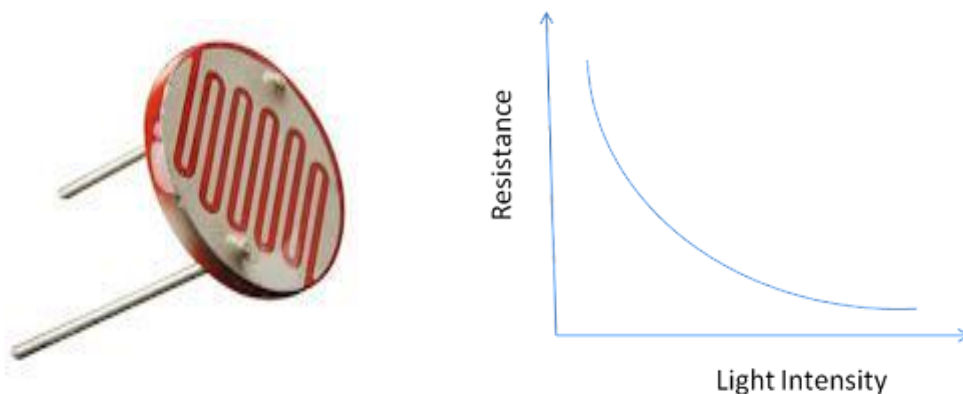
In the above diagram, as light intensity increases, resistance decreases and when light intensity decreases then resistance of LDR increases.

Arduino senses the value from LDR in the range 0 to 1023. When the LDR value is less than 900 or

1000 then we call it as day condition and the bulb remains off. When the value is greater than 900 or 1000 then we check for night condition and turn on the bulb.

(Note: About relay and other module we have already discussed in other tutorials that you can see in the same website.)

Coding:

```
int ldr=A0;  // taking input from LDR in pin A0 i.e anolog pin

int led=1;   // declaring output pin for bulb

int ldrStatus;

void setup()

{

pinMode(ldr,INPUT);

pinMode(led,OUTPUT);

pinMode(led,LOW);

}

void loop()

{

 ldrStatus=analogRead(ldr);

 if (ldrStatus<=1000)      // checks if it is day then led remains OFF

 {

 digitalWrite(led,LOW);

 }
```

```
 else

 {

 digitalWrite(led,HIGH);    // during night led becomes ON

 }

}
```

In this way you can make your own automated light system using Arduino, Relay, and LDR sensor. Also by removing relay and placing the 5 volt bulb to the digital pin 1 with 0.5 K or 220 omh resistor, you can directly make your DC 5 volt bulb operate from Arduino as shown in below given figure with your mini project done.**(Upload the same code)**
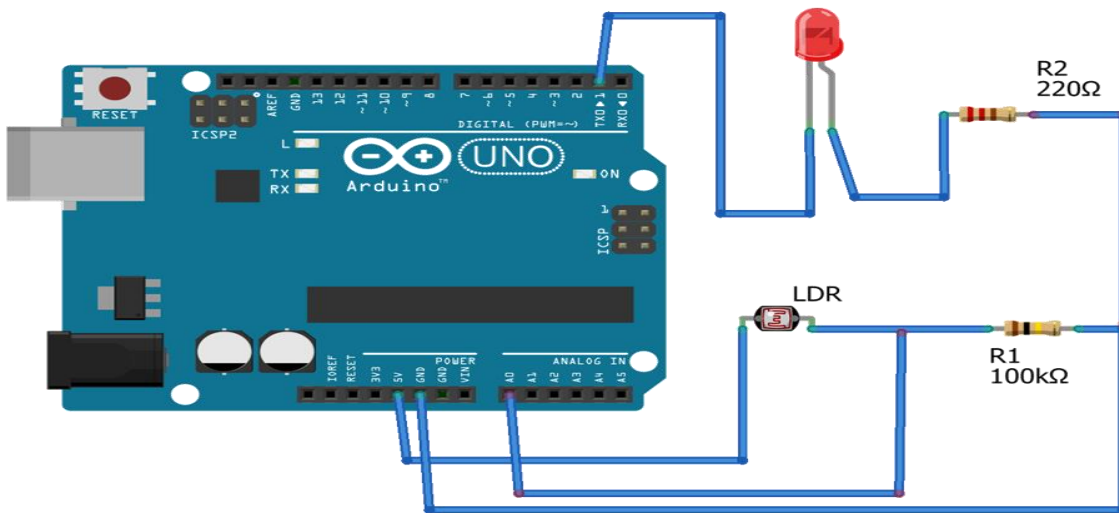
Arduino temperature sensor

The temperature sensor in Arduino converts the surrounding temperature to voltage. It further converts the voltage to Celcius, Celcius to Fahrenheit, and prints the Fahrenheit temperature on the LCD screen.

We will use a temperature sensor (TMP 36) of low voltage. Such sensors are also stable while dealing with large capacitive loads. It is also suitable for automotive applications.

The temperature sensors TMP 35, TMP 36, and TMP 37 are the sensors with the same features.

The operating voltage of the TMP 36 sensor ranges from 2.7V to 5.5V.

The sensor will look like the image shown below:

It has three terminals, which are listed below:

- **Pin 1: DC voltage**

Here, we will connect the DC voltage pin to 5V on the Arduino UNO board.

- **Pin 2: Analog voltage output**

We will consider the Analog voltage output pin as the output.

- **Pin 3: GND**

We will connect the GND pin to Ground on the Arduino UNO board.

Let's start the project.

Hardware Required

The components required for the project are listed below:

- 1 x TMP 36 sensor (Temperature sensor)
- 1 x LCD display
- Arduino UNO R3 board (We can take any Arduino board).
- Jump wires

Principle

We will connect the LCD Display and TMP 36 temperature sensor with the Arduino UNO R3 board. The sensor detects the surrounding temperature and converts it into volts, to Celsius to Fahrenheit, and displays Fahrenheit temperature on the LCD screen.

We need to open the URL: Arduino LCD display for details about LCD display.

Connection

The steps to set up the connection are listed below:

- Connect the RS pin of LCD to pin 13 of the Arduino board.

- Connect the Enable pin of LCD to pin 12 of the Arduino board.

- Connect the D4 pin of LCD to pin 6 of the Arduino board.

- Connect the D5 pin of LCD to pin 4 of the Arduino board.

- Connect the D6 pin of LCD to pin 3 of the Arduino board.

- Connect the D7 pin of LCD to pin 2 of the Arduino board.

- Connect the Vo pin of LCD to pin 8 of the Arduino board.

- Connect the middle terminal to a sensor to A0(analog pin).

- Connect one end of the sensor to GND and another end to 5V.

- Connect one end of a resistor to the A and K of the LCD and another end to 5V.

Sketch

Consider the below code:

```
1. #include <LiquidCrystal.h>
2. // initialize the library with the pins on the Arduino board
3. LiquidCrystal lcd(13, 12, 6, 4, 3, 2);
4. const int temperature = A0; //A0 is the analog pin
5. const int D = 8; // Vo of LCD is connected to pin 8 of the Arduino
6. void setup()
7. {
8.   lcd.begin(16, 2);
9.   Serial.begin(9600);
10.  pinMode(D, OUTPUT);
11. }
12. void loop()
13. {
14.  digitalWrite(D,LOW);
15.  int Temp = analogRead(temperature);
16.  float volts = (Temp / 965.0) * 5;
17.  float celcius = (volts - 0.5) * 100;
18.  float fahrenheit = (celcius * 9 / 5 + 32);
```

19. Serial.println(fahrenheit);

20. lcd.setCursor(5, 0);

21. lcd.print(fahrenheit);

22. delay(2000);

23. // time delay of 2000 microseconds or 2 seconds

24. }

We will show the connection using the Simulator because the connections become clearer and more precise.

We can make the same connection using the hardware devices.
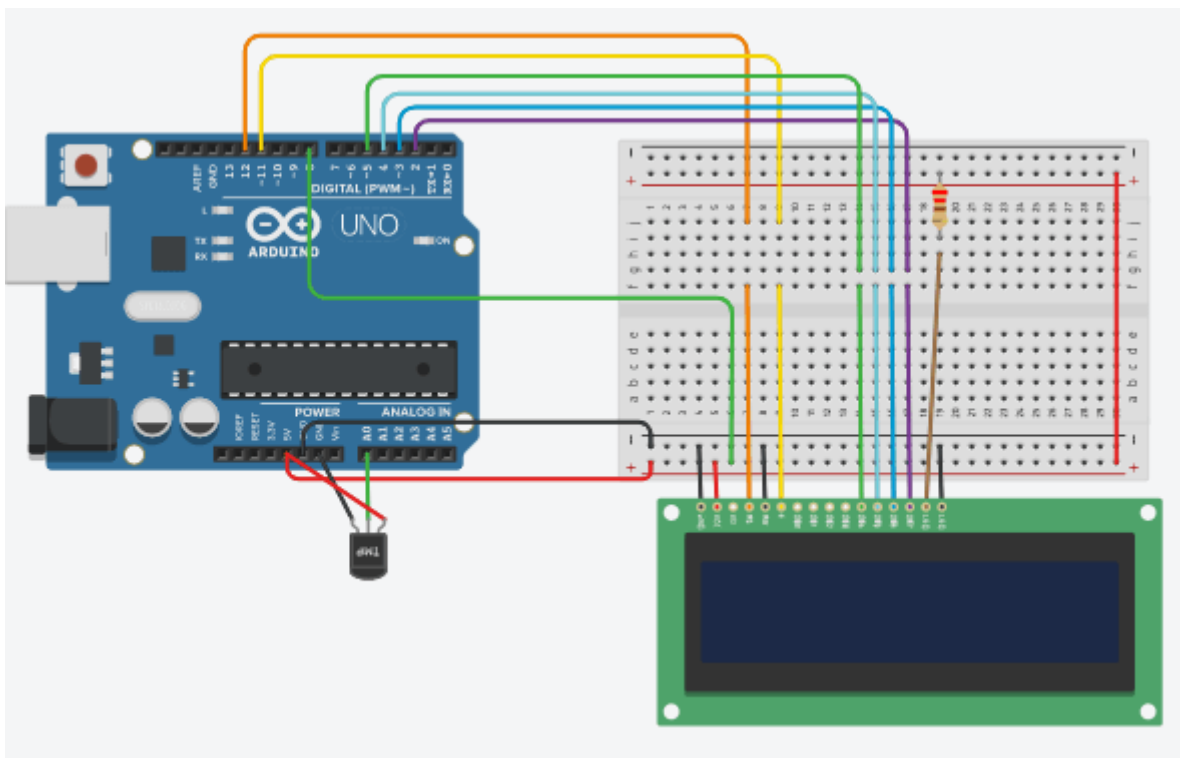
Output

The output is now visible on the LCD screen.

For better understanding, let's consider the output on the Serial Monitor.

84.69
84.69
84.69
84.69

Arduino LCD Display

The LCD (**Liquid Crystal Display**) is a type of display that uses the liquid crystals for its operation.

Here, we will accept the serial input from the computer and upload the sketch to the Arduino. The characters will be displayed on the LCD.

The library that allows us to control the LCD display is called **Liquid Crystal Library**, which is discussed below:

The library is declared as:

1. #include <LiquidCrystal.h>

The library is based on a compatible chipset called **Hitachi HD44780**. It is found on most of the LCDs that are based on text. It works with either an 8-bit mode or 4-bit mode. Here, the bit mode signifies the data lines in addition to the enable, rs, and rw control lines (optional).

LCD Structure

The LCD display has a 16-pin interface.

The structure of the LCD is shown below:
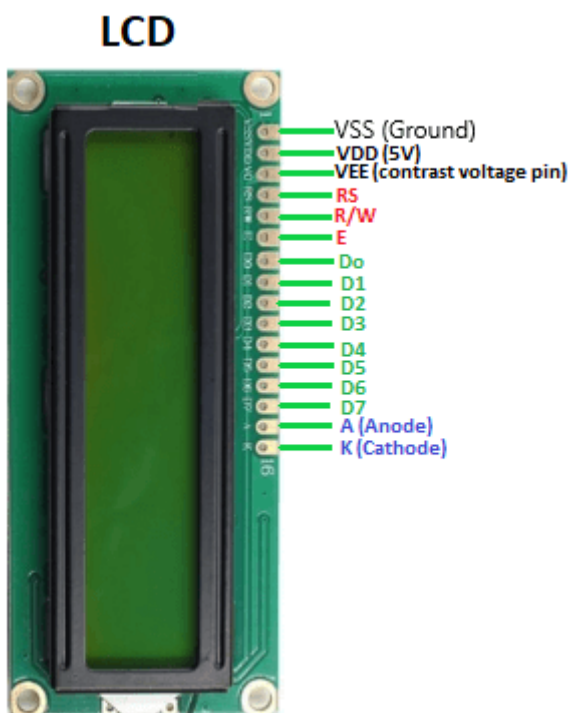
The Liquid Crystal Display has a parallel interface. It means that the microcontroller operates several pins at once to control the LCD display.

The 16-pins present on the LCD display are discussed below:

- **RS**

The **Register Select (RS)** pin controls the memory of the LCD in which we write the data. We can select either the **data register** or the **instruction register**. The LCD looks for the upcoming instruction, which is present in the instruction register.

- **R/W**

The Read/Write pin selects the reading or writing mode.

- **E**

The **Enable** (E) mode is used to enable the writing to the registers. It sends the data to the data pins when the mode is HIGH.

- **D0 to D7**

These are eight data pins numbered as D0, D1, D3, D3, D4, D5, D6, and D7. We can set the state of the data pin either HIGH or LOW.

Pin 1 of the LCD is the **Ground** pin, and pin 2 is the **Vcc** or the voltage source pin.

The pin 3 of the LCD is the **VEE** or the **contrast pin**. For example, we can connect the potentiometer's output to the VEE and can adjust the contrast of the LCD.

The A and K pins are also called as **Backlight pins** (Bklt+ and Bklt-).

Principle of LCD

The process includes putting the data (to be displayed on the LCD screen) into the data registers. The instructions in the Register Select are kept in the instruction register. The liquid crystal library has simplified process to display the characters on the LCD.

The LCDs can be controlled in 4-bit or 8-bit modes, which requires 7 and 11 Input/Output pins from the particular Arduino board.

Let's discuss a project to display the text on the LCD.

Hardware Required

The components required for the project are listed below:

- LCD Screen (Hitachi HD44780 compatible driver display)
- 1 x 220 Ohm Resistor
- 1 x 10K Ohm Resistor
- Arduino UNO board or Genuino board

- Jump wires

- Pin header required to solder the LCD display pins

- breadboard

Structure of the project

The structure of the project is shown below:

Procedure

The connection is explained below:

We need to first connect the data pins of LCD to the digital pins.

- Connect the RS pin of LCD to pin 13 of the Arduino board.

- Connect the Enable pin of LCD to pin 12 of the Arduino board.

- Connect the D4 pin of LCD to pin 6 of the Arduino board.

- Connect the D5 pin of LCD to pin 4 of the Arduino board.

- Connect the D6 pin of LCD to pin 3 of the Arduino board.

- Connect D7 pin of LCD to pin 2 of the Arduino board.

- Connect the middle terminal of the potentiometer to the VEE (contrast pin).

- Connect the two ends of the potentiometer to the Ground and 5V.

- Connect one end of a resistor to the A and K of the LCD and another end to 5V.

Sketch

The code to display the specified message on the LCD display is given below:

```
1.  // here, we will include the liquid crystal library:
2.  #include <LiquidCrystal.h>
3.  // initialize the library with the pins on the Arduino board
4.  LiquidCrystal lcd(13, 12, 6, 4, 3, 2);
5.  void setup() {
6.    // Here, 16 and 2 are the columns and rows of the LCD
7.    lcd.begin(16, 2);
8.    // It prints the message on the LCD.
9.    lcd.print("hello Arduino");
10.   // We can modify the message as per our choice.
11. }
12. void loop() {
13.   // It sets the cursor to column 0, line 1
14.   // Since counting begins with 0, line 1 is the second row
15.   lcd.setCursor(0, 1);
16.   // print the number of seconds
17.   lcd.print(millis() / 1000);
18.   // Here, millis() is the return type of the timer in milliseconds
19. }
```
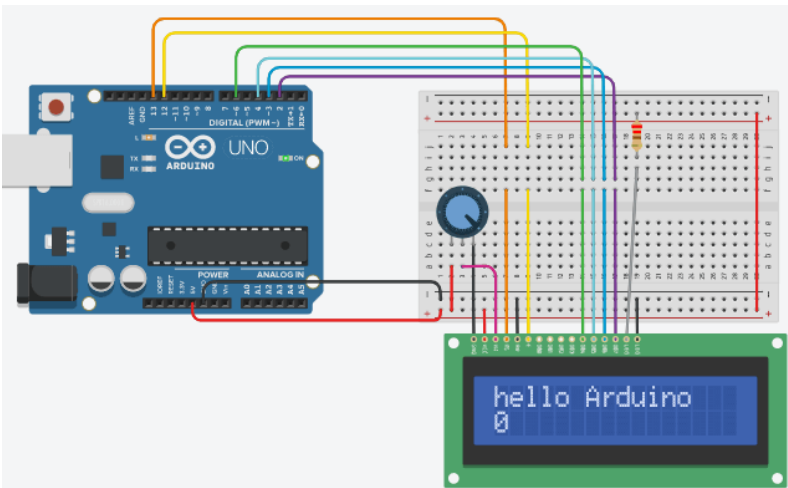
Connection Diagram

We will show the connection using the Simulator so that the connections become clearer and more precise.

We can make the same connection using the hardware devices.
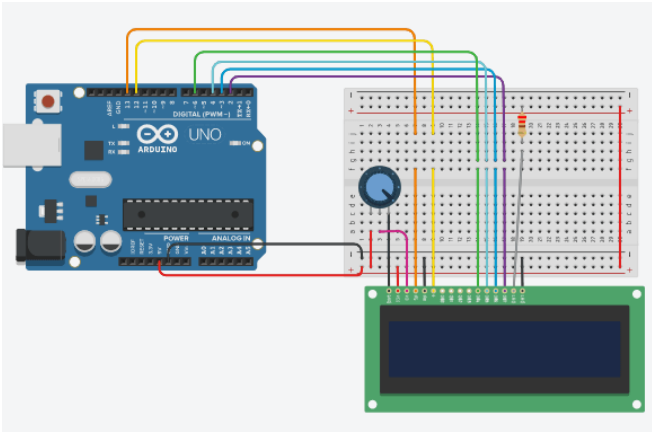
Output

The message 'Hello Arduino' will be printed on the LCD display, as shown below:

Desktop Publishing (CCDP)

Objective

The objective of course is to enable the students to get overview of the Desktop Publishing

Benefit

Core concepts of Photoshop and Corel Draw fundamental elements of Graphic Designing which enables student to get basics of Desktop Publishing

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus

Desktop Publishing

- Introduction Variations in Photoshop Publication
    - Illustrator
    - Photoshop
    - Light Room
    - Premier Pro

- Photoshop
    - About Photoshop, Photoshop Features
    - Key Board practice
    - Editing Photo in camera raw
    - Creating Web Galleries, PDF converts
    - Creating Web Galleries, PDF converts

- Tools
    - Rectangular Marquee Tool & Elliptical marquee tool & single

rowmarquee tool ,single column marquee tool
- o Move tool, magic wand tool, quick selection tool, lasso tool, polygonallasso tool, magnetic lasso tool
- o Crop tool, slice tool, slice select tool, eyedropper tool, colour samplertool, ruler tool, note tool, count tool
- o Spot healing brush tool, healing brush tool, patch tool, red eye tool,brush tool, pencil tool, colour replacement tool, mixer brush tool
- o Clone stamp tool, pattern tool, history brush tool, art history tool
- Colour & Tools
  - o About colour information, Colour Modes
  - o Working with layers & layer styles.
  - o Create Droplet & Conditional Mode Change, Fit Image, Picture Package.
  - o Use the Merge To HDR command to combine multiple images & ExportLayers To Files
  - o Auto Blend Layers, Auto Align layers, RGB or grayscale images
  - o Layer Mask, Vector Mask Merge Layers, Flatten all layers Matting

- Corel Draw

  - o Getting Started with CorelDraw
  - o Visiting Card
  - o Understanding the Colour Palette
  - o Sticker
  - o Letterhead with Logo
  - o Working with the Objects
  - o Wedding Card
    - o Flex Banner

- Understanding other controls (Layers and Tables)
  - o Flyer with Coupon
  - o Brochure
  - o Product Box Package
  - o Book Cover
  - o Newspaper advertising
  - o Magazine Inner page

Project
   Student makes a project during training period.

Certification

   Certificate in Desktop Publishing.

Desktop Publishing Study Material (CCDP)

Desktop Publishing (DTP) is the creation of electronic forms of information such as documents, presentations, brochures, books, or even website content using computer programs. DTP has evolved to be an important component of creating and disseminating information as it allows an amalgamation of various tasks that are generally performed independently at printing presses such as layouts, typesetting, graphic design, etc.

Evolution of DTP Software

Earlier, DTP was specifically meant to cater to printed matter but modern DTP allows for even more forms of electronic content. A modern DTP software can be your word processor, graphic design tool and publishing tool, all rolled into one package. With the explosive growth of smartphones and mobile PCs, the way people consume information has changed dramatically over the last decade. Modern DTP software enables content output that caters dynamically to all screen sizes, without the need to republish the same for each device or form factor.

Types of DTP Content

The content created by DTP software can be broadly classified into two categories −

- Electronic Pages
- Virtual Pages

Electronic pages commonly refer to websites, manuals, eBooks, digital archives, presentations, etc. which are normally not printed but are shared digitally. This tutorial is an example of an electronic page which can be opened in a browser.

Virtual pages on the other hand are electronic pages created in the DTP software which are eventually published as printed pages. Virtual pages allow the author to visualize exactly how the printed page will look and can help in easy editing. The process is called **WYSIWYG** which stands for, **'What You See Is What You Get'**. This means all the changes and formatting that are made will be exactly replicated in print.

Coral – Draw

This is a special Program created by the Coral Company. The program
was invented in 1989 by the Coral Company, Which has been used by large
and small graphics companies. There are various versions like Corel Draw 2,
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, Coral Draw X3, X6, X7, X8 and all other versions whose
table diagram can be below Viewed, release date is
also given.
Most of the tasks in this program are done through tools. It has a variety of tools.
1. Pick Tool - Through this tool all types of text and objects created on the page are
selected and move after selecting the object.
2. Shape Tool (F10) uses the shape tool to make any type of design created on the
page into another shape. After converting the shape or text to a curved one, you can
use the options like delete ad and curve by right
clicking the mouse.

3. Knife Tool- Uses it to cut any graphics in any form.

4. Eraser Tool (X)- Uses it to erase the graphic and convert to curved text on the page.

5. Smudge Tool- Any graphic and text is used to spread with the help of a brush.

6. Roughen Tool- It is used to give any object a thorny or toothed design.

7. Free Transform Tool It is used to transform any shape into another angle.

8. Virtual Segment Delete Through this, we use to remove any graphic from the page during selection.

9. Zoom Tool (Z) We use this to enlarge the page. After taking this tool, the part on which the draw will take place will zoom. You can also zoom in and zoom out by clicking it. If you click the left mouse button, it will zoom out. If you click the right button, it will zoom out.

10. Hand Tool (H) It is used to move (Resettlement) the page as well as zoom in and out. Double clicking the left button of the mouse zooms in (big) and the right button is double click to zoom out (small).

11. Free Hand tool (F5) Through this tool you can draw any type of line design in any angle.

12. Bezier Tool With this tool, you can design any type of line in different ways such as burning lamp, tree leaves and other shapes.

13. Artistic Media Tool (I) By this tool Coral is used to draw the default shape and design in draw, in this you can use different types of Brush like preset, sprayers, such as calligraphy, and other graphic etc.

14. Pen Tool With this tool, you can create any type of design in any angle and make any shape with your mouse.

15. Polyline Tool The polyline tool is also used like a pen tool and you can also use it like a free hand tool, both of which are given in the same tool.

16. Interactive Connector Tool Through this tool, 2 objects created on the page are used to connect them together.

17. Dimension Tool Use it to measure any graphic created on the page. In this, we can measure the object of any angle.

18. Smart Drawing Tool (S) Through this you can draw any type of line by drawing smooth line and straight line.

19. Rectangle Tool (F6) Rectangle tool is used to draw objects. Pressing the Ctrl button and drawing will make your object the same size from all four sides, to create exactly the right rectangle.

20. 3 Point Rectangle Tool It is also used to draw a rectangular object (Rectangle) but first a straight line is drawn in it, after which your rectangle will be ready when the mouse is moved in the other direction.

21. Ellipse Tool (F7) It is used to draw circular shapes, with this you can make shapes like circles and ovals. Exactly (precisely) To draw Ellipse, pressing the Ctrl button and drawing will keep your object equal in size from all four sides.

22. Graph Paper (D) Graphs are used to place one or more tables on a page.

23. Polygon Tool (Y) By this, you can create polygons with different types of arms, if needed to reduce or increase the arm, you can set the number of point polygons in the property bar.

24. Spiral Tool (A) Used to draw the curved LINE through it.

25. Basics Shape With the help of the basic shape, the rectangular triangle and all other shapes are used to draw. To change the shape style, you can draw by changing the shape by going to the Perfect shape option in the Properties bar.

26. Arrow Shapes Use the arrow shape to draw an object like arrow. To change the arrow style, you can change the shape and draw by going to the Perfect shape option in the Properties bar.

27. Flowchart Shapes With the help of flowchart, cylinders are used to draw shapes like triangles etc. To change the style, you can draw by changing the shape by going to the Perfect shape option in the Properties bar.

28. Star Shapes Stars like shapes are used to draw. To change the style, you can draw by changing the shape by going to the Perfect shape option in the Properties bar.

29. Callout Shapes With the help of its tool, it is used by any person to show things, it is used more in cartoons. You can also write information related to this shape. To change the style, you can draw by changing the shape by going to the Perfect shape option in the Properties bar.

30. Text Tool (F8) Use it to write any kind of text, after taking this tool you can write text even by drawing but after drawing you have to convert to artistic text whose shortcut key is (Ctrl + F8). If you do not want to convert, after taking these tools, click anywhere on the page and start writing direct. Your text will already be converted. Font style or related settings will be found in the properties bar.

31. Interactive Blend Tool Through this tool, two objects on the page are used to blend together. You will find related settings in the Properties bar.

32. Interactive Contour Tool Through this option you use any type of circle and square to give a framing effect. You will find related settings in the Properties bar.

33. Interactive Distortion Tool Use any selected object to create an opposite design or shape. You will find related settings in the Properties bar.

34. Interactive Drop Shadow Used to apply shadow to any selected object or text. You will find related settings in the Properties bar.

35. Interactive Envelope Tool Used to extend and maintain any created shape or object in different types of angles. It works just like a Shape tool. If you select the shape on which you have used this tool and take the shape tool, you will still get the envelope tool.

36. Interactive Extrude Tool Use any object or text to make 3D, you will find related settings in the Properties bar.

37. Interactive Transparency Tool Used to make any color object transparent. You will find related settings in the Properties bar.

38. Eye Drop Tool With the help of this tool, we use to pick the color of some other object. This can be filled in other objects with the help of paint bucket.

39. Paint Bucket With the help of the Eye Drop Tool, one or more objects use the captured color to fill in another object.

40. Outline Tool (F12) The outer lines of any object are used to thin or thicken and fill color, as well as setting the corner and line caps.

41. Fill Tool (F11) With this help, the selected text or object is used to fill the solid color.

42. Fountain Color With the help of this tool, we use double color for any text or object. Going into custom, you can fill many colors simultaneously in any

object. If you want a pre-made color, you can select any color by going to the Presets option and you can also change the color as per your choice.

43. Interactive Fill Tool Through this tool, any type of color can be filled in any object, including fountain color, texture, uniform etc. Just like you get when you open the fill tool, you will find it in the file type in the properties bar.

44. Interactive Mesh Fill Tool It is also used for coloring but in this the color is filled with the help of grids. To increase the grid reduction, we will customize the grid size in the Properties bar. In this, after applying the grid, you can click anywhere on the object to fill any color, which will be like a fountain, the only difference is that it has a grid and it is simple.

Using Menu Bar

Description of File Menu Option

1. New This option is used to get a new blank page.

2. New From Template Through this, we use to take the default template design which is already given to us in the Corel draw by Corel company.

3. Open This option is used to open a CDR file previously saved to a hard disk.

4. Close This option is used to close Active current page of Corel Draw.

5. Close All This option is used to close all open pages.

6. Save this option is used to save CorelDraw file in the computer Hard disk.

7. Save As Through this, we save the already saved document in a different name and can also be saved in any other format.

8. Revert Through this, after taking the file which we have already created, there is some mistake while editing, then use it again to make it like new.

9. Acquire Image With the help of a camera or scanner, ACQUIRE IMAGE is used to insert any type of image in Corel Draw.

10. Import Use some kind of image and some other file to fetch in CorelDraw.

11. Export In this option you can export your graphic into any other format.

12. Export for Office This option is used to export your graphics into png format and send it to MS office.

13. Send to The files created through this option are used for any other Drive, Mail, Zipped file and fax.

14. Prepare for service Bureau This option is mostly used when sending a design created in Corel Draw from one server to another. It is used by people whose work is mostly to design and send online designs. In this, when you save the file, then you can save the pdf in addition to cdr and also which font you have used, this information is also saved. You can also save the font if needed.

15. Publish to the Web Used to publish any design in HTML or Flash file on internet.

16. Publish to the PDF It uses any type of graphics to create a PDF file.

Description of Edit Menu

1. Undo uses this to do a step backwards.
2. Redo uses it to do a step forward, it only goes ahead when undo is high.
3. Repeat can repeat a task using it. You can also use Ctrl+R.
4. Cut is used to cut (transfer) any selected graphics or text.
5. Copy uses this to copy the selected text or a graphic.
6. Paste is used to paste cut or copied objects or text.
7.Paste Special paste properly or properly when objects or text copied from another software are pasted under Paste Special.
8. Delete is used to erase any selected text or guides.
9. Symbol uses any graphics on the page as symbols to be kept in a hard disk forever.
10. Duplicate use to copy any object
11. Copy Properties From Within any object created through it, the filtered color and the outline color are used to fill the same color on the other object.
12. Over Print Out It is mostly used to print outlines of any type of object accurately.
13. Over Print Fill It is used to properly print the color filled in any object.
14. Select All uses to select any text, object, guides, nudge through it.
15. Find and Replace use it to search for a graphic or text after converting.
16. Insert Barcode is used for inserting any type of barcode through it.
17. Insert New Object is used to draw files from any other software in Corel Draw and after creation.
18. Object When a PDF file is imported into Corel Draw then it shows the option. This option contains a link that will open from your PDF Acrobat or through software that will be installed in your computer.
19. Links
20. Properties use to bring Docker through it which is related to the feel, outline, and link.

Description of View Menu
Note: In this menu all options are used to show and hide.
1. Simple Wire frame/ Wire Frame Used to display the outline of a graph drawn on any pixel.
2. Draft/ Normal/ Enhanced Used to display any graph created on a pixel in actual form.
3. Full Screen Preview (F9) Through this, all graphics created on the page are used to view in full screen mode.
4. Preview Selected Only Through this, we use only to view the selected object in full screen mode.
5. Page Sorter View Used to display all inserted pages in the same window.
6. Rulers It is used to hide and show the ruler.
7. Grid It is used to hide and show the grid.
8. Guideline It is used to hide and show the guideline.
9. Show In this, you will find options related to the page in which settings related to the border, bleed, printable area, etc. of the page will be found.
10. Enable Rollover Used to turn on rollover.
11. Snap to Grid/Snap to Guidelines/Snap to Object/Dynamic Guides It is used to turn all these options on and off. Its function is used to see its angle

point while drawing any object. It only appears when an object or line is drawn.

12. Grid and Ruler Setup/Guidelines Setup/Snap to Objects Setup/Dynamic Guides Setup All these are used to change the settings.

Description of Layout Menu

1. Insert Page It uses to insert more than one page.
2. Delete Page Use to delete a page that has been inserted.
3. Rename Page By this, we use to rename a page and write the name of the page.
4. Go To Page Let's use it to go to a page. It is mostly used to visit a single page when there are more pages.
5. Switch Page Orientation Using it, you can make the page Portrait or landscape.
6. Page Setup Using this option we can edit page sizes.
7. Page Background Through this, they are used to give solid color and the effect of an image on any page like a Background.

Description Of Arrange Menu

1. Transformation The position size of any object can give the effect of angle and all other things, that is, it can set its rotation according to itself.
2. Clear Transformation Use to eradicate the effect applied with the help of transformation.
3. Align and Distribute Used to set any object from another object to the left right center and other distributes.
If after selecting any two objects, what will work on pressing the button according to the image below is written in the left side.

Note- If you want to use for an object, then first select the object you want to Align, then select the second object with the Shift button between which to Align, then use the shortcut keys.
4. Order With the help of this option, you can set your selected object up and down and can be read in detail below-
1. To Front Used to top the selected object from all the objects at once.
2. To Back Used to lower the selected object from all the objects at once.
3. Forward One The selected object is used to top all the objects one by one.
4. Back One Used to lower the selected object from all the objects one by one.
5. In Front of Use the selected object to move above any other object. As soon as you select this option, your cursor will become an arrow and your object will be above the object you click that arrow.
6. Behind It is also like the In front of mentioned above but it is used to rear an object.
7. Reverse Reverse means that like you have drawn 5 objects which have been drawn first, it will be at the bottom as soon as you select everyone and reverse it will just reverse.
5. Combine Used to combine one or more objects in parallel.
6. Break Apart Used to un-combine a combined object.
7. Lock Object Used to lock any object, it keeps that object in its place.
8. Unlock Used to unlock a locked object. You can also unlock it by pressing the right button of the mouse and clicking on the unlock option.
9. Convert To Curve After using rectangular, circle and all other objects to convert them

to curve, it is used to create different design with shape tool.
10. Convert Outline to object After breaking the outline of any object, use the outline to use it as an object.
11. Close Path To make a drawn line a complete line, we use a closed path.

So that the two ends of the line join together. Or you can also say that after drawing a single line, you can use it as an object.

Description of Effect Menu
1. Adjust jpg, jpeg, png, bmp and others use various types of effects on image files like contrast, enhanced, Tone Curve Colors balance Hue saturation
2. Transform In this also, color effects on any Png and JPG files are used to color the opposite.
□ DeInterlace (lets you remove lines from scanned or interlaced images) Sometimes while scanning an image, the effect starts coming like a lining, using the same line to remove it with the help of it, although more or less it becomes a mild mesh.
You can set it according to the odd and even line.
□ Invert Use it to opposite the color of your image, you can also call it negative.
□ Posterize lets you reduce the number of tonal values in an image. Posterize removes gradations and creates larger areas of flat color.
3. Correction Used to reduce scratches and dust on any Bmp, Jpg, Png file.
4. Artistic Media Artistic media is used to set the brush, as soon as you take a shape, the artistic brush will immediately turn into Artistic and you will see the last used brush at the top as soon as you open it.
5. Blend Use of it has been told in the tool box itself, however, if you open from here, a docker will open in which you can blend according to the number of steps.
6. Contour Its use has also been mentioned in the tool box, on opening it, the docker will open in which after selecting To Center, Inside, Outside, you write to keep the offset in inches, and other steps in it, the layer you need It is written as it is. If you want to use it without this docker, after selecting it from your tool box, after going to the property bar and setting a point, the object on which you drag it will come with a Framing Effect.
7. Envelope Like Blend, Contour mentioned above, it will also open in this, after selecting any object you have to use it like a Shape tool, but if you are using Docker. Then you will get the option of Add New and Add Preset in which you can create your own shape with the help of Add New and using the pre-made shape with the help of Add Preset. Which the company keeps adding to it at the time of software development.

8. Extrude It has been told to you in the tool box that if you want to use from here, on opening, a docker will open in which after selecting the object or text, you can click on the edit button and apply the vanishing point by applying the 3D effect. And you can also see its preview. After applying all the effects, the effect is applied to the text or object.

9. Lens It is used as a layer that shows the trailing object or text in effect while any trailing object makes a difference. As soon as Frozen is clicked, it is copied and added to the layer above it. Which you can re-group and add your effect or any color. In this, you will get a lot of effects, whose name is- Brighten, Color Add, Color Limit Custom Color Map, Fish Eye, Heat Map, Invert, Magnify, Tinted Gray Scale, Transparency, Wire Frame.

10. Add Perspective It is used on converted artistic text. By applying it on any shape, it feels like it is stuck. While using it, you will see four nudges in which you use to apply it according to the shape.

11. Power Clip Inside It is used to place text or photos inside any shape. You can also drag it with the right button of the mouse, in this you will get the power clip inside which is used for most images. If you want to use any change in the image after applying it to reduce the size, then right-click on it, after editing the content, adjust the image and right-click again and click on Finish Editing. Or click on the power clipped image with Ctrl After editing, click on any empty part of the page with Ctrl.

12. Add Rollover With this help, we use to add hyperlinks to any object. Which you have to use while staying in the coral draw. After applying it, you have to right click and click on Jump to Hyperlink in Browser, which will open the hyperlink you have added to the Internet Explorer.

13. Clear Effect Used to remove the effect applied.

14. Copy Effect/Clone Effect With the help of these two, we use the effect to copy. It is used by taking a simple shape and if you select the shape with the effect applied and go to this option, then it will look like a head. Just like you have taken two objects and have written some text for both, give a Perspective effect on one while nothing on the other. Now you can click on the simple text and select that text by clicking on the perspective from the copy effect from the effect menu. If you click on the effect, as soon as you click, your simple text will also be changed to the same effect as before.

Description of Text Menu

1. Format Text It is mostly used to create selected text or paragraphs in style and model.

2. Edit Text Use to edit certain letters or text in any text or paragraph written.

3. Insert Character Use any type of outline word or a symbol to insert.

4. Fit Text To Path It uses the object to place the converted text on any object on the object's outline, or drag and hold the text on the object with the right button of the mouse and then release the mouse, an option opens. In which you can apply text by selecting Fit Text to Path.

5. Fit Text to Frame Any paragraphs that are not converted to artistic are used to fit their text frame, which automatically sets the font size.

6. Align To Baseline Any paragraph, word is used below the shape tool to set it in a line.

7. Straighten Text If any paragraph, word is slanted with the shape tool, then use it to straighten it.

8. Writing tool With the help of its option, you use any paragraph to write it accurately and set the spelling as a whole.

9. Encode With the help of this option, you can use it to change the encoding of the typed text, but keep in mind that when you use this option, then you will select another font then there is little chance of changing the font style.

10. Change Case Through this option, you can change the case of written

text in which Sentence case, lowercase, UPPERCASE, Title Case, tOGGLE cASE.
11. Web text Compatible When you select this option, you can change the text style in HTML to Publish to the Web document.
12. Convert To Artistic Text Through this, the text written in the text frame is used to convert it into artistic text which you can then resize according to your own.
13. Text Statistics Through this option, you can see how many words have been written in your entire page, which font has been written from it, you can also see the artistic text in it.
14. Show Non-Printing Character Selecting any text and clicking on this option will show you the character that will not print, such as space and inter (change paragraph).
15. Link\ Unlink Use to convert and break one or more text boxes into a single box, or drag the text to another text box by pressing and dragging it with the right button of the mouse, then releasing the mouse will open an option in which You can keep the text according to yourself.

Description of Tools Menu
1. Options / Customization Use these two to change the settings, commands, etc. in the software. And through this you can also assign your command to run from shortcut key.
2. Color Management Through this colors are managed and color can be selected according to the quality. RGB, HSB, CMYK are the main ones.
3. Save Settings As Default It is used to change the changed settings in the software as before.
☐ Note Save Settings as default followed by 7 options which are Object Manager, Object Data Manager, View Manager, Link Manager, Undo Docker, Internet Bookmarks Manager, Color Style. All these are used to bring Docker. And after bringing Docker you can control the tools and settings.

4. Palette Editor Through this, you use to change the color in Corel Draw and with this you can set the preset as well.
5. Graphic and Text Styles It is used for text style. In this, you have to apply the settings after selecting the text. Similarly, we can apply any object.
6. Scrapbook Through this, you use to insert any clipart and insert any clipart through the Internet.
7. Create Inside it you will find 3 options Arrow, Character, Pattern, all three are used separately. Arrow uses any shape drawn on the page through it to create an arrow. You have to use it in an arrow option in a straight line or smooth line. Character also has the same function as Arrow but it will only apply to the font you have created.
8. Run Script It is used for script code that is related to binary systems.
9. Visual Basic Visual Basic This is a small VBS software that is very useful, you also get it in MS Office. It is used in the Developer menu to record the current work, as soon as you start the record this VBA program. It will run and is recording the command you are doing, after all the work is done you have to stop by clicking the stop button again. If you want to run and then you have to go to play and select your recorded macro and press the run button, as soon as you press the button your graphic will be created by taking a small load.

Note VBA is like a command which has a different code. The macro you record is recorded as a code as you can see in the image below.

Description of Window Menu
1. New Window It is used to use an existing page in two windows. By doing this, nothing is deleted from the page but both remain the same.
2. Cascade/Tile horizontally/Tile Vertically These three are used to view one or more pages, in which you will get to see different previews of all three.
3. Arrange Icons
4. Color Palettes It is used to add or replace a color box.
5. Dockers Use to fetch and remove any Docker.
6. Toolbars Use any tool to fetch and hide. For this, you can also use this option by right clicking on the menu bar or status bar.
7. Close Use to close the currently opened page.
8. Close All It is used to close all the open pages in Corel Draw.
9. Refresh Window It is used to refresh the Corel Draw.

Photoshop

Introduction to Photoshop

Interface

Photoshop is unlike other common software interfaces which emulate virtual typewriters or graphing paper. Photoshop creates an artist's virtual studio/darkroom. When you open the program you see a toolbox on the left with tools you will use to manipulate your images, and on the right, a white square which is your "canvas" or work area. The gray area surrounding the canvas is not part of your image, but only defines its edges.

To change the canvas dimensions, go to Image > Canvas size. You can type in any dimensions you like, but remember that the area of the image is directly proportional to the file size.
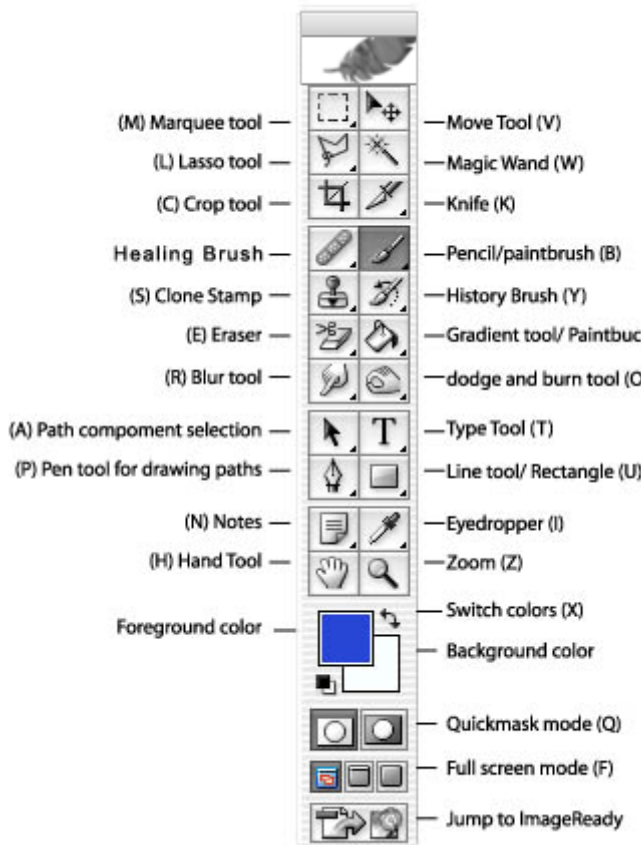
Basic Tools

(You can use the letter next to each tool to switch between tools quickly)

Marquee Tool : The images in Photoshop are stored pixel by pixel, with a code indicating the color of each. The image is just a big mosaic of dots. Therefore, before you can do anything in Photoshop, you first need to indicate which pixels you want to change. The selection tool is one way of doing this. Click on this tool to select it, then click and drag on your image to make a dotted selection box. Hold shift while you drag if you want a perfect square or circle. Any pixels within the box will be affected when you make your next move. If you click and hold on this tool with your mouse button down, you will see that there is also an oval selection shape, and a crop tool .

Crop Tool: . To crop your image, draw a box with the crop tool. Adjust the selection with the selection points, and then hit return to crop.

Lasso Tool : The lasso tool lets you select freeform shapes, rather than just rectangles and ovals.

Magic Wand: ▨ Yet another way to select pixels is with the magic wand. When you click on an area of the image with this tool, all pixels that are the same color as the pixel you clicked will be selected. Double click on the tool to set the level of tolerance you would like (i.e. how similar in color the pixels must be to your original pixel color. A higher tolerance means a broader color range).

The Move Tool: ▶⊕ This is a very important tool, because up until now all you have been able to do is select pixels, and not actually move them. The move tool not only allows you to move areas you have selected, but also to move entire layers without first making a selection. If you hold the **option** (or **alt**) key while clicking and dragging with the move tool, you can copy the selection.
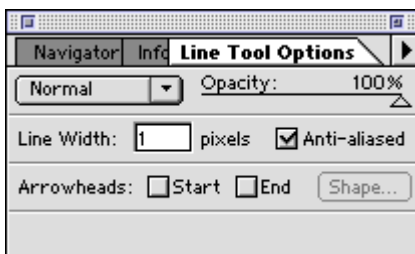
Airbrush ✐ Paintbrush ✐ and Pencil tools ✐ can be used to draw with the foreground color on whichever layer is selected. To change the foreground color, double-click on it in the toolbox. You will then see a palette of colors from which to choose. Select one and click OK. To change the brush size, go to Window > Show Brushes.

Eraser Tool: ⊘ Erases anything on the selected layer. You can change the eraser size by going to Window > Show Brushes.

Line Tool: ╲ Can be used to draw straight lines. Click on the tool to select it, then click with the tool on the canvas area and drag to draw a line. When you release the mouse button, the line will end. You can change the thickness of the line or add arrowheads to it by double clicking on the tool to see this dialog box:

| Navigator | Info | **Line Tool Options** | ▶ |

| Normal ▾ | Opacity: | 100% |

Line Width: 1 pixels ☑ Anti-aliased

Arrowheads: ☐ Start ☐ End [Shape...]

Text tool: **T** **Click on this tool to select it, then click in the Canvas area. You will be given a dialog box in which to type your text, and choose its attributes. Each new block of text goes on its own layer, so you can move it around with the Move Tool. Once you have placed the text, however, it is no longer editable. To correct mistakes, you must delete the old version (by deleting its layer) and replace it.**

Eyedropper: ✐ **Click with this tool on any color in the canvas to make that color the foreground color. (You can then paint or type with it).**

Magnifier: ⚲ **Click with this tool on a part of your image you want to see closer, or drag with it to define the area you want to expand to the size of the window. Hold down the** Option **or** Alt **key to make it a "reducer" instead and zoom back out.**

Grabber: **Click with this and drag to move the entire page for better viewing.**

Options Bar

The Options bar appears at the top of the screen and is context sensitive, changing as you change tools. The tool in use is shown in the left corner, and options relating to the tool appear to the right of that.

For example, in the snapshot above, the move tool is selected.

Auto Select Layer when checked means that the move tool will switch layers automatically depending where you click on the canvas. This makes it feel almost like a vector program when you are selecting objects. The layer palette still shows you what is on each layer and you can use it to select objects as well.

Show Bounding Box makes it easy to rotate or transform an object when you click on it. When the cursor is held over the corners of the bounding box, it turns into a curved arrow. Click and drag to rotate.

Layers   Back to top

Photoshop works on a system of layers, which are like sheets of transparency. When you place objects on a layer, they become part of the layer, just as if you had drawn on a transparency with a marker. If two objects are on the same layer and you want to move them closer to each other, you need to cut them out with the lasso or marquee tool and physically move them together. If they are on different transparent layers, however, all you have to do is move the layers with the move tool until the objects are closer to each other.
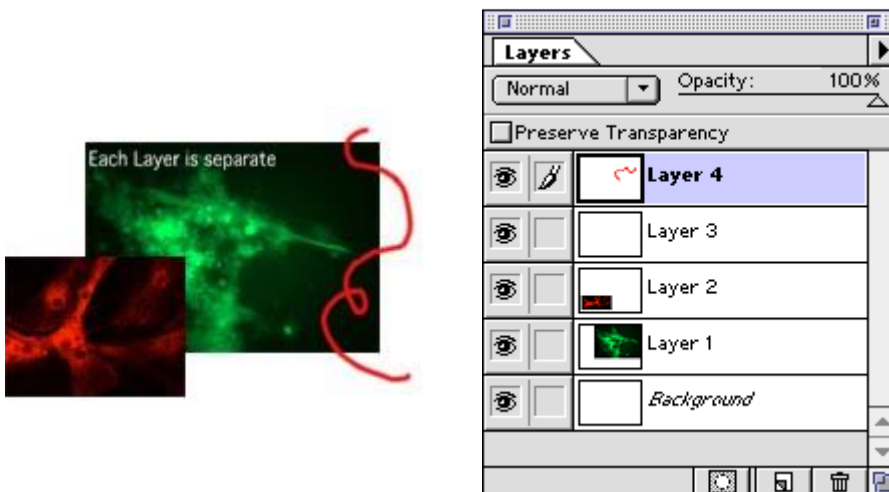
In a file with overlapping elements, putting them on different layers allows me to move them around without having to select them first.

To see all the layers in your document, go to **Window > Show Layers.** Here are the layers for the image on the left. The eye icon on the left indicates that the layer is visible. Click on the eye to make a layer invisible. Select a layer and then click the trash icon at the bottom to delete a layer. Click and drag on layers to change their stacking order.

Resolution / Dimensions of Image / Size of File

Pixels per Inch
Photoshop files are made up of tiny squares of color called pixels. Using large pixels will make a grainy image, and using tiny pixels to make the same image will be much smoother. However, the smaller the pixels, the more of them there are in the file, and the larger the file size will be. If the file size is large, it opens slower, takes longer to save, and takes up more room on a disk. The key in choosing a resolution is finding the balance between image quality and file size.

For example, if I want to re-tile my bathroom floor to make a smiley face, I can either use large tiles or small tiles. On the left I use 10 tiles on each side for a total of 100 tiles. On the right I use 25 tiles on each side, for a total of 625 tiles.
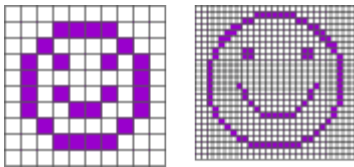
If each of these images measures an inch on each side and each tile is a pixel, the image on the left would have a resolution of 10 pixels per inch, or 10 ppi. The image on the right would be 25 ppi. Notice how a small increase in resolution corresponds to a much larger increase in file size, because the increase is exponential.

You can begin to see why images of different resolutions sometimes change size when combined in one file, or when brought into other programs. For instance, what if I wanted to draw the image on the right in tiles the size of the image on the left? I would have a much larger image in the end. This is what happens when you bring an image with a high resolution into a file which has a lower resolution. There can only be one resolution per file, so the pixels of the image coming in are resized to the size of the existing pixels in the file.

Image Size Dialog Box

JPEG images from the Internet have a low resolution of 72 dpi. However there is no reason that your JPEG images have to have such a low resolution. Image files generated by digital cameras often begin with a low resolution but very large dimensions. You can use that to your advantage by trading area for resolution. To change the resolution or the size of your image, go to File > Image Size. It will look something like this.
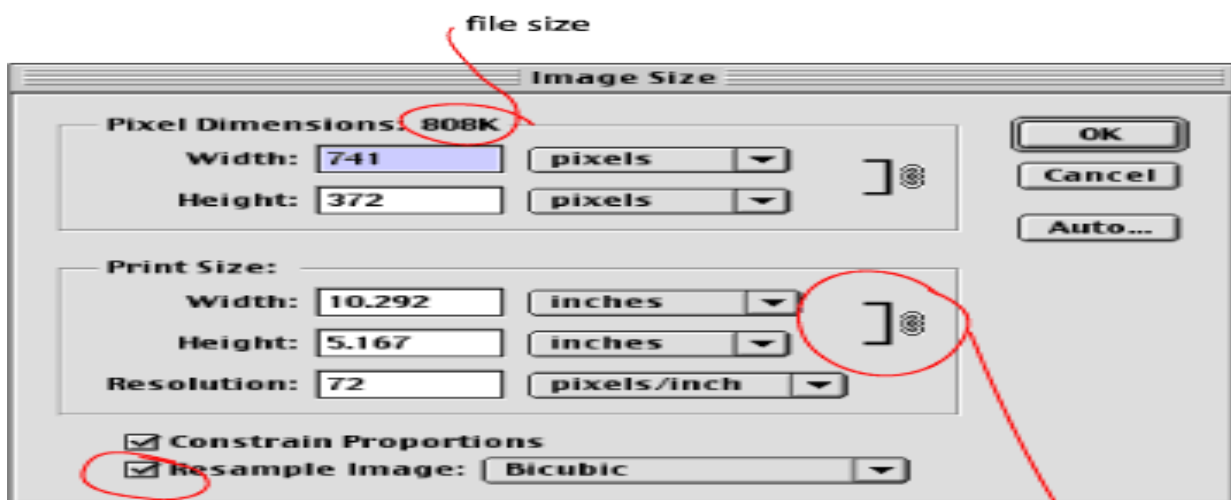
At the bottom of the window there is a box marked "Resample Image". This box determines whether or not area can be exchanged for resolution. When it is checked, resolution remains independent of the image dimensions. If you change the dimensions or the resolution, you will see the file size change accordingly.

To exchange area for resolution, uncheck the Resample Image box:
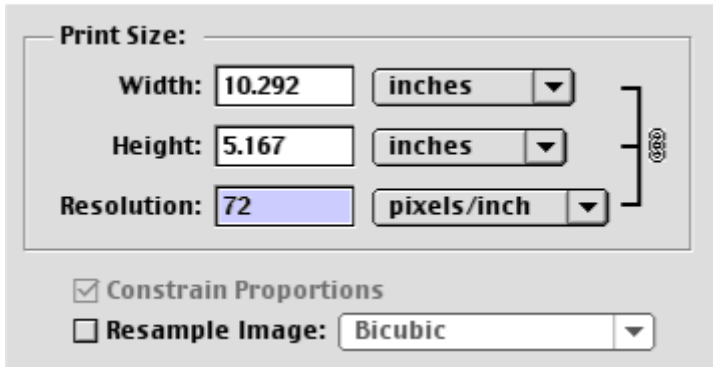
You can see that the linking symbol on the right now encompasses width, height and resolution. Perhaps you don't need a 10 inch wide image. If you make the width smaller, look what happens to the resolution:
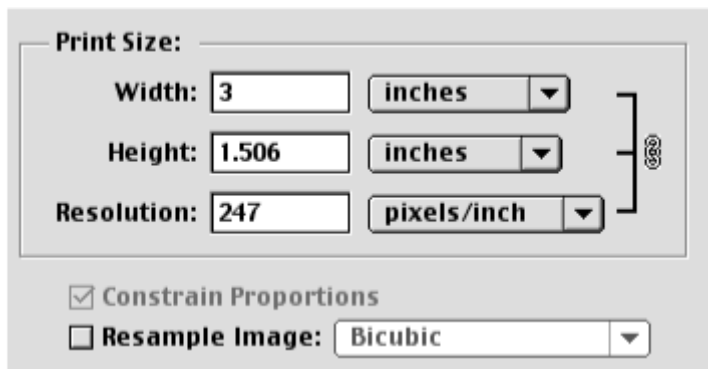
What is happening is simply that the pixels in your image have been decreased in size. The total number of pixels and therefore the file size remains the same. If you had used the resample option, pixels would have been added or removed from the image and the file size would have increased or decreased.

What resolution is best?: 300 is optimal, between 200 and 300 is okay, but below 200 the image will begin to show pixelation.

When to resample: When you have two images of different resolutions that you want to combine in Photoshop and you don't want either of them to change in dimension, you will have to resample one of them to bring them to the same resolution before combining them. This is because a single file can have only one resolution. When you bring in an image from a file with pixels of a different size, Photoshop will enlarge or shrink the pixels to match those in the file into which the image is going. Bringing an image with a resolution of 300 ppi into a file with 72 ppi will make the first image appear much larger when it arrives in the new file. Why? It is the same as if I decided to make my detailed smiley face in the larger tiles instead of the small ones. I would need a much bigger bathroom!
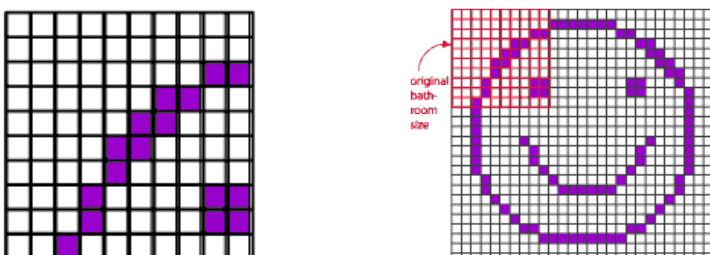
| Tiling my detailed face in larger tiles | This is why I really need to change the tile size first! |

Also, if you have an extremely high resolution that you don't need, you can resample down to 300 to save disk space.

Tonal Adjustment

Sometimes a scan or even a digital photo won't look like what you saw under the microscope. There are some easy ways to adjust the color in an image. As long as the adjustment is made to the entire image, and not to selected parts, it should be OK ethically, although you should use your own judgment.

Levels

Sometimes an image will seem faded or washed-out. Using the Levels adjustment can increase the contrast in the image. Go to **Image > Adjust > Levels.** You will see this dialog box with a histogram showing the tonal values in the image. Here the curve is shifted to the right, which corresponds to what we can see--the image is too light.
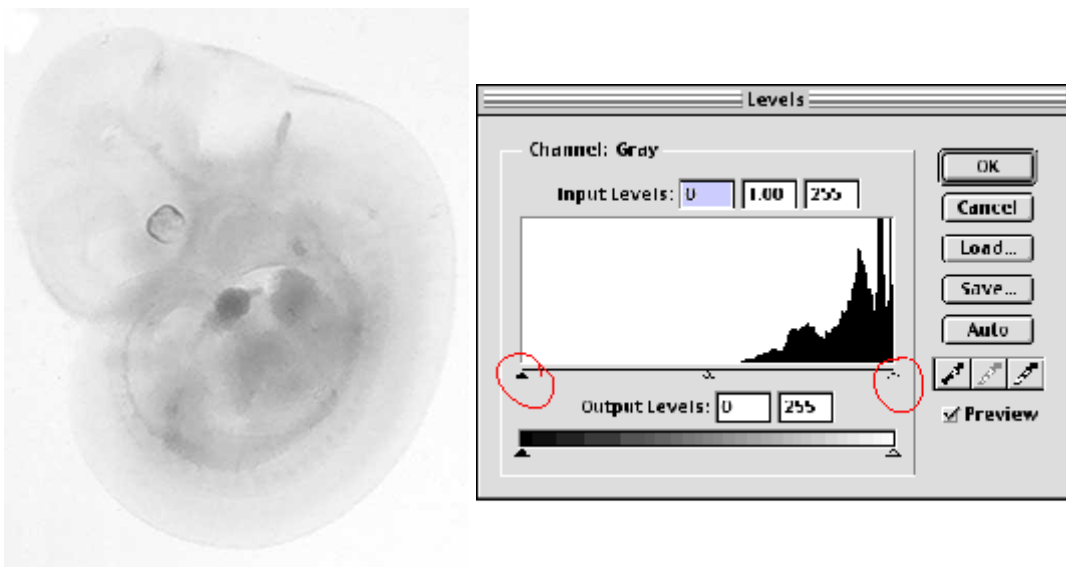
By moving the circled sliders toward the bell-shaped part of the curve, we can reset the value of the darkest and lightest pixels in the image. Moving the black arrow to the right will darken the darkest values in the image, and moving the white slider to the left will lighten the lightest values in the image.
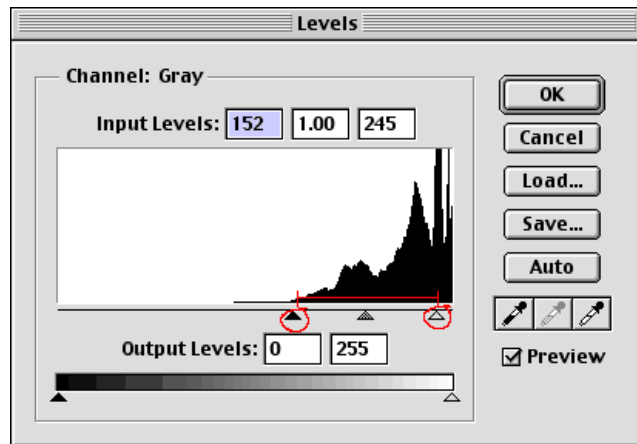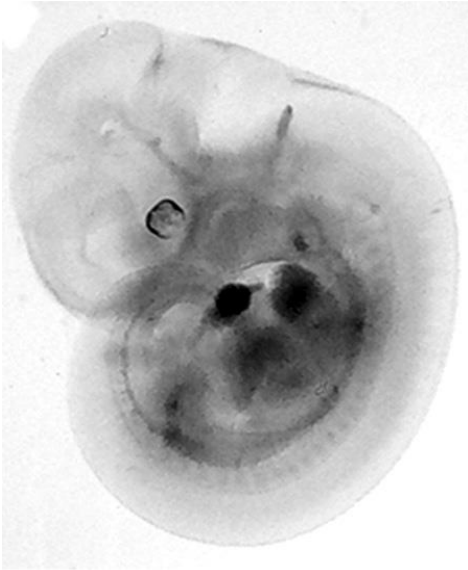
Watching how the changes affect the image, let's gradually move the sliders inward to the edges of the curve.

When we click OK, Photoshop will reset the curve, with our placed arrows as endpoints:

(Going back into Levels, we can see our new tonal values curve)
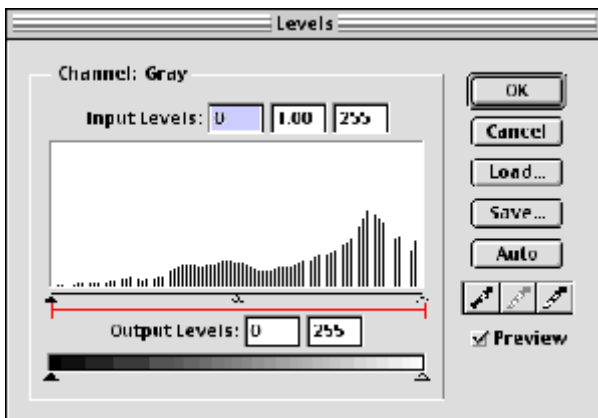
As you can see, what the levels adjustment did was take a segment of the tonal range and reassign the values from black to white. In the readjusted levels dialog box, you can see spaces indicating values that no longer exist. This is the difficulty in making image adjustments. When you over-adjust, you begin to leave gaps in the tonal range, and this will eventually cause a posterized look (too much black & white and not enough middle gray tones). The only way to avoid this is to capture a large range of tonal values when scanning or taking a picture, and to use only subtle adjustments to the images.

Using Levels on color images:
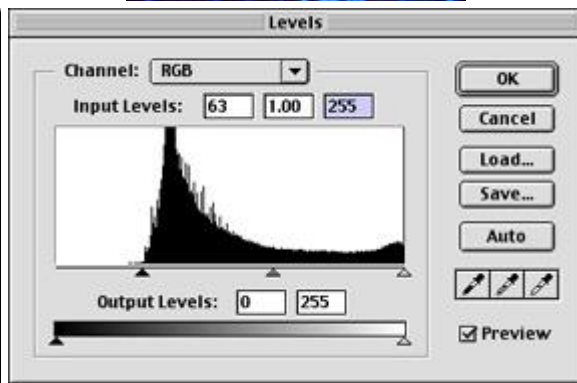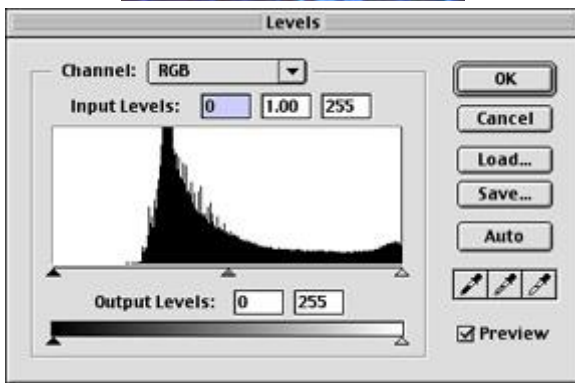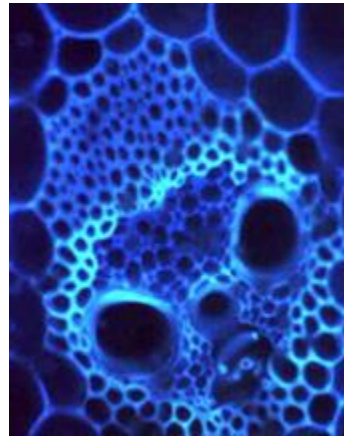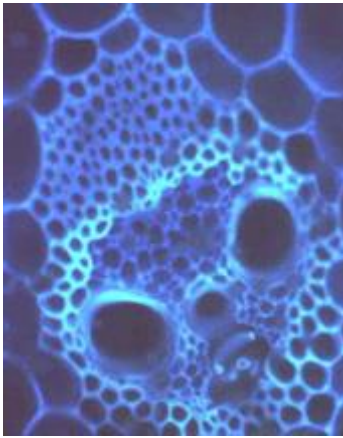
In this image the background wasn't quite black.

Moving the dark slider to the right deepened the darks.
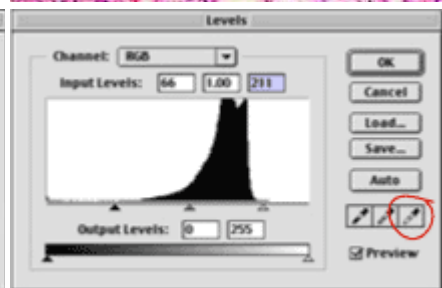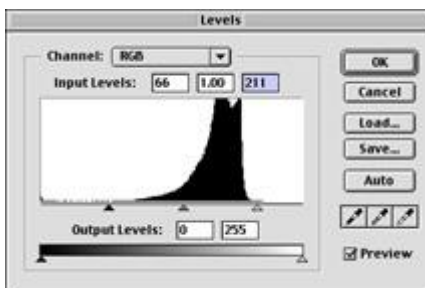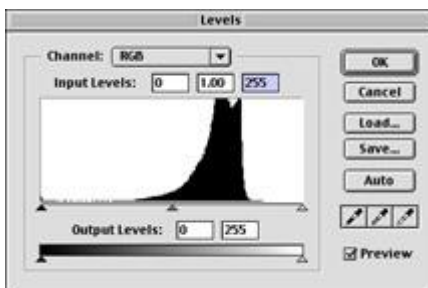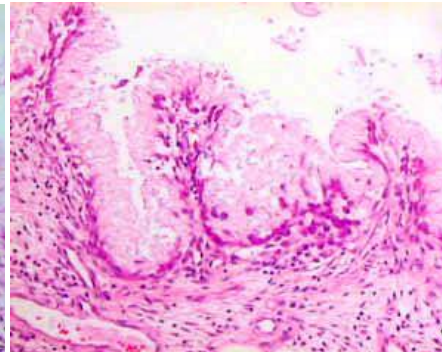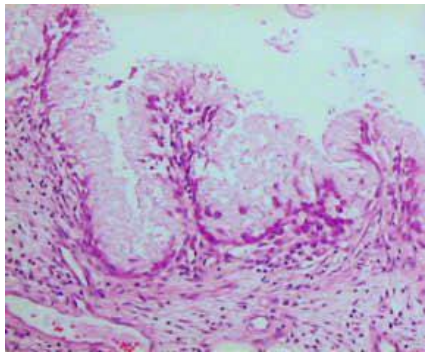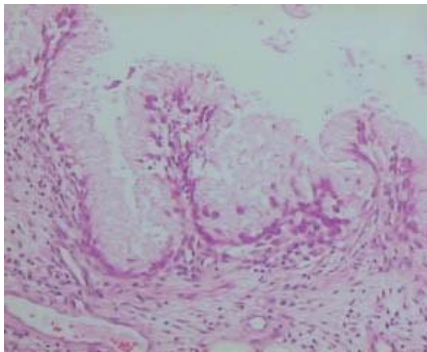
Values are lacking at both ends of the curve.

Move sliders inward

Click with highlight dropper in the lightest part of the image to correct color imbalance.

CCTV Installation (CCCCTVI)

Objective

This program will enable the students to get overview of CCTV camera installation and configuration

Benefit

After doing this course, you can install new cameras and do the installation and configuration of the old camera.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus

- Tools and Equipment
- Introducing CCTV
- Understand the fundamental element that make up CCTV system.
- Different types of cameras.
- SMPS power supply.
- Connectors and Cables
- Rj45 connector making.
- Dc connector making.
- BNC connector making.
- Power male connector.
- Basics of Networking
- Coaxial cable.
- Color code splicing security camera wiring.
- POE switch.
- Cat5/cat6 connector making.
- Configuration junction box.
- UPS installation.
- CCTV camera installation and configuration.
- Planning for CCTV Camera Installation
- NVR installation and configuration.
- DVR installation and configuration.
- Ip camera installation and configuration.

o Checking the Camera Function

Project

  Student makes a project during training period.

  Certification

    Certificate in CCTV installation.

CCTV Study Material (CCCCTVI)

Tools and Equipment

Tools You Need for CCTV Installation
Ladder.

Power drill.

Drill bits – including masonry bits.

Electric heavy-duty screwdriver.

Small screwdrivers.

Pencil and pen.

Hammer.

BNC crimp tool

.

Introducing CCTV
TV system in which signals are not publicly distributed but are monitored, primarily for surveillance and security purposes.

to capture live video footage
dome, bullet, C-mount, PTZ pan tilt, Day/night, Infrared, IP, Wireless, and HD.

Understand the fundamental element that make up CCTV system.
cameras, lenses, data distribution, power, and lighting

a TV system in which signals are not publicly distributed but are monitored, primarily for surveillance and security purposes

Different types of cameras
digital SLR (or DSLR), point-and-shoot, bridge cameras, and camera phones

Types of Cameras for Photography
Compact Digital/Point and Shoot Cameras.
Bridge Cameras.

Action Cameras.

360 Cameras.

Film Cameras.

Smartphone Cameras.

Rugged Cameras.

Digital Cinema Cameras.

SMPS power supply

transfers power from a source — usually an AC outlet — to a DC device
an SMPS initially converts the ac source voltage into a dc voltage through a rectifier and an input filter

Connectors and Cables
 Connectors are used where wire lines need to be attached or disconnected

The following sections discuss the types of cables used in networks and other related topics.

Unshielded Twisted Pair (UTP) Cable.

Shielded Twisted Pair (STP) Cable.

Coaxial Cable.

Fiber Optic Cable.

Cable Installation Guides.

Wireless LANs.

Unshielded Twisted Pair (UTP) Cable.

Rj45 connector making.

This is the perfect assortment of tools for someone learning to make their own network cables.

Step 1 – Spool out your length of cable. ...

Step 2 – Strip off the outer jacket. ...

Step 3 – Separate your wire pairs. ...

Step 4 – Arrange wires according to diagram. ...

Step 5 – Cut the wires. ...

Step 6 – Insert wires into connector.

RJ45 cables have 8 color-coded wires, and the plugs have 8 pins and conductors. Eight wires are used as 4 pairs, each representing positive and negative polarity

Dc connector making

How do DC connectors work?
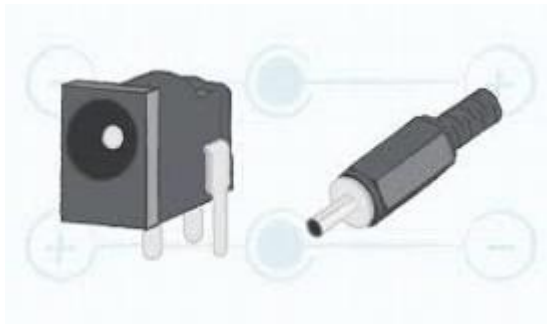
The standard dc barrel plug or jack has two conductors, one each for power and ground.

It uses an outer conductor with slots and some plastic dielectric on each gender

The BNC connector features two bayonet lugs on the female connector; mating is fully achieved with a quarter turn of the coupling nut

What is at power connector?
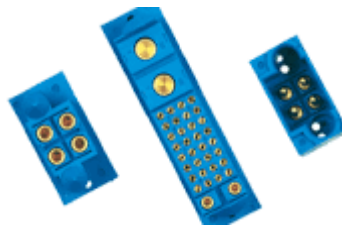
Power connectors act as the vital link between a device and its source of power. In consumer electronics, power connectors are what you plug into the wall receptacle.

Basics of Networking
connect nodes like computers, routers, and switches using cables, fiber optics, or wireless signals.
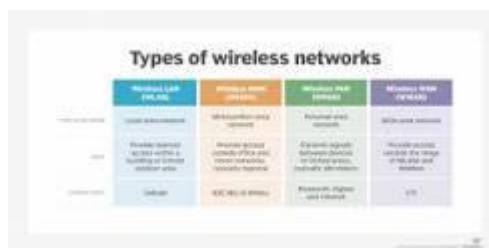
There are four types of wireless networks --

Five key elements of effective network security.
Identity. Accurate and positive identification of network users, hosts, applications, services, and resources is a must. ...
Perimeter security. ...
Data privacy. ...
Security monitoring. ...
Policy management.

Private and public IP addresses

What is an IP address (Internet Protocol address)? An Internet Protocol (IP) address is

a unique numerical identifier for every device or network that connects to the internet.

Coaxial cable.
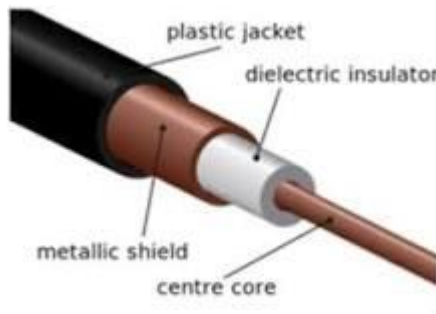
There are two main types of coaxial cables –

ones with an impedance of 75 Ohm (Ω) and ones with an impedance of 50 Ohm.

Color code splicing security camera wiring. ☐

Connect red to red and black to black,

The Easiest Method for Splicing Security Camera Wires
Simply

find a compatible coupler and either insert or screw the ends of the cables into the coupler.

POE switch
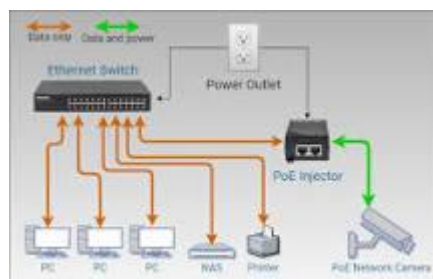
A PoE switch

allows compatible devices to work in places where power outlets or network connections don't exist.

some devices you connect to a PoE+ switch may use up to 30 watts per port, some may also not use that much.

power-over-ethernet
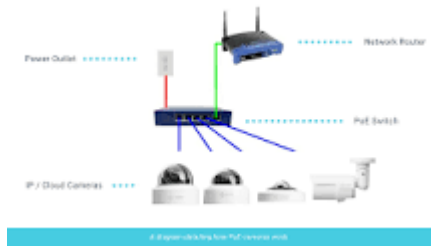
Cat5/cat6 connector making·

it is possible to mix and match Cat5e and Cat6 if necessary

HOW TO MAKE A Cat6 PATCH ETHERNET CABLE
1. This procedure generally applies to Cat 6 RJ45 connectors. ...
2. Cut the cable to the length needed. ...
3. Strip back the cable jacket approximately 1 inch. ...
4. Use the 568-B wiring scheme on both ends for a standard patch cable.
5. Bring all of the wires together as closely as possible.

.
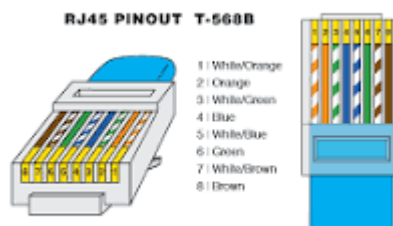
Configuration junction box.

an enclosure housing electrical connections.

An electrical junction box (also known as a "jbox") is

A junction box i
an electrical box used to house splices

It ensures that the job is done right the first time.
Metal and Plastic Junction Boxes. Most boxes are manufactured using either metal or plastic materials. ...
Octagon and Round Junction Boxes. ...
Ceiling Fan-Rated Electrical Box. ...
4-Inch Square Box. ...
Junction Box. ...
Junction Box Covers. ...
Box Extenders. ...
Outdoor Junction Boxes.

UPS installation

The three major types of UPS system configurations are online double conversion, li
nstallation Procedure
1. Remove the Empty Classic Battery Cabinet from the Pallet.
2. Position the Empty Classic Battery Cabinet.
3. Mechanical installation. Follow one of the procedures: ...
4. Connect the Signal Cables.
5. Connect the Power Cables from the UPS.
6. Install and Connect the Batteries.
7. Final Installation.

CCTV camera installation and configuration
Once the cameras have been installed and connected then:
1. Unpack the DVR or NVR from the box.
2. Remove the cover of the DVR by removing screws.
3. Connect the power and data cable from DVR/NVR to hard disk.
4. Close and secure the DVR case.
5. Connect the DVR to a power socket and then turn on the DVR.

How to Install CCTV Cameras
1. Mark the spot where you'll attach the bracket for mounting. ...
2. Attach and secure the camera. ...
3. Install the DVR (Digital Video Recorder)in a secure spot. ...
4. Plan the cable pathways from the cameras to the DVR. ...
5. Connect the network cable to the internet router. ...
6. Connect each camera to the DVR or NVR.

What are the Components of CCTV Camera
• VISOR:
• IRIS:
• OPTICS:
• BOX CAMERA:
• ANTI-VANDAL PROTECTION:
• POWER SUPPLY:
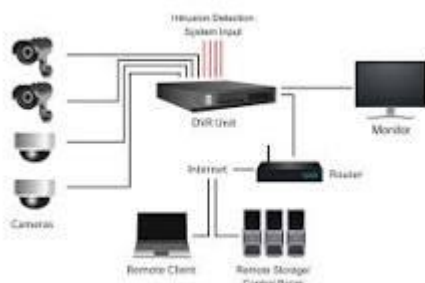
What are the 4 types of CCTV cameras?

Different Types of CCTV

- Dome Camera.
- Bullet Camera.
- C-mount Camera.
- Day/Night Camera.
- PTZ Camera.

Planning for CCTV Camera Installation

Carrying out a location survey

1. The level of risk in and around the site. ...
2. The contents of the property or area where you'll be installing your CCTV cameras. ...
3. The layout and structure of the building. ...
4. The levels of supervision you expect to deploy to support the CCTV camera system.

Know about each type in detail below.

- Dome CCTV.
- Bullet CCTV.
- C-Mount CCTV.
- PTZ Pan-tilt CCTV.
- Day/Night CCTV.
- Infrared CCTV.
- IP CCTV.
- Wireless CCTV.

Types of CCTV Cameras

What are the first thing to remember during installing CCTV?

Installing CCTV? Things you need to do first

- Step one: Think about how you'll respect people's privacy and uphold their rights. ...
- Step two: Consider if you need to use audio. ...
- Step three: Create a document which explains your decision. ...
- Step four: Update your policies. ...
- Step five: Pay attention to how your CCTV is set-up.

10 Common CCTV Problems and How to Fix Them

- Verify camera power and connection. ...
- Discover and ping camera. ...
- Know username / password. ...
- Check ARP tables. ...
- Confirm no IP conflict. ...
- Upgrade firmware. ...
- Reboot camera. ...
- Check cabling.

What are the Components of CCTV Camera

- VISOR:
- IRIS:
- OPTICS:
- BOX CAMERA:
- ANTI-VANDAL PROTECTION:
- POWER SUPPLY:

NVR installation and configuration

How to configure DVR and NVR?

Step 1 of 1: Add the DVR to the Timeline

1. Tap New Camera under Admin (top right), Cameras.
2. Select the DVR/NVR tab.
3. Give this DVR/NVR a name.
4. Enter the correct IP of the DVR/NVR, you can find it in the DVR/NVR's network configuration.
5. Select the correct vendor and required number of cameras.

How do I enable Poe in NVR?

Instructions for Connecting A POE Switch to a POE NVR
1. Step 1: Get a POE Switch. The first thing you want to do is to get a POE switch. ...
2. Step 2: Connect your IP Cameras to the POE Switch. ...
3. Step 3: Plug Your POE Switch into the Router. ...
4. Step 4: Now Power on the POE Switch. ...
5. Step 5: Add the Cameras to Your NVR

How do I open ports in NVR?
Virtual Servers
1. Make sure the NVR is connected to your router.
2. Login the NVR web management, change the HTTP port number to 8081. Change the RTSP port to 5554.
3. Access to the router's LAN IP address "192.168. 1.1". ...
4. Once logged into your router, follow the tips below. ...
5. The same as HTTP, add a new rule of RTSP.

DVR installation and configuration.
DVR Viewer Setup
1. Assign your DVR an IP Address.
2. Connect to your DVR on your LAN - Local Area Network.
3. Setting up Port Forwarding on your Router.
4. Setting up a Static DHCP IP address for your DVR.
5. Remote Internet Setup.
6. Creating and Configuring a Dymamic DNS Account.
7. Setting up Dynamic DNS on your Router.

A 4 Channel DVR System or a digital video recorder (DVR) works with analog cameras to receive video feed which it then records onto a hard drive.

A digital video recorder (DVR) is an electronic device that records video in a digital format to a disk drive, USB flash drive, SD memory card, SSD or other local or networked mass storage device.

Ip camera installation and configuration

ow to configure IP camera step by step?

1. Use a Command Prompt with the Ipconfig command. The easiest way to find out the IP address scheme of a network is by using the Command Prompt program. ...

2. Change the network settings on the PC to a 192.168. ...

3. Login to the camera and configure it for the main network scheme. ...

4. Change the computer network settings back to default

Here is how to proceed:

1. Take an Ethernet cable to connect the LAN port on the external PoE switch and the router. Then connect the router with the non-PoE NVR.

2. Use Ethernet cables to connect all IP cameras to the PoE switch RJ45 ports. ...

3. Use an HDMI cable or VGA cable to connect the monitor and the NVR.
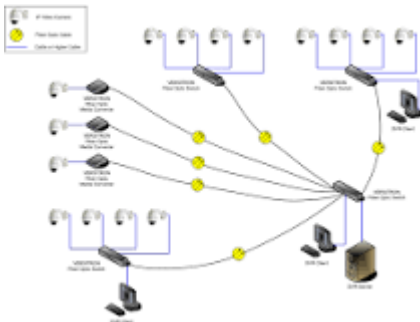
What is required for IP cameras?

The IP camera requires a PoE (Power over Ethernet) network connection. Installation requires running the network cables, adding switches, and adjusting the cameras to view the areas you want to see. Run the network cable through the walls and ceilings to all the locations where you

would like to install the IP cameras.
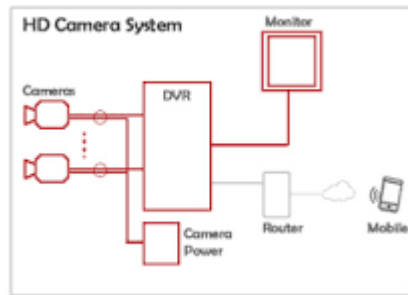
IP cameras have the advantage over HD Over Coax systems in terms of cabling and resolutions; however, a

What is the price of 12 MP IP camera?

12MP Hikvision CCTV Camera at Rs 11500 | Hikvision CCTV Camera in Faridabad | ID: 22369415588.

Checking the Camera Function

How to Test My Webcam (Online)
1. Open your web browser.
2. Type webcammictest.com into your browser's address bar.
3. Click the Check My Webcam button on the website's landing page.
4. When the pop-up permission box appears, click Allow.

How to test your microphone
1. Ensure that your microphone is connected to your computer.
2. Open the Start menu and select settings.
3. In the settings menu, select System and then choose Sound.
4. In the Sound settings, go to Input and check your connected microphones and select the microphone that you want to test.

How can I check my CCTV camera on my laptop?
How to View Recorded CCTV Camera Footage Saved in an FTP Server and Cloud
1. Step 1: Log into your FTP server or Cloud account at the Cloud service website.
2. Step 2: Choose the device and the date on which you want to watch the CCTV footage.

3. Step 3: Click a specific video clip to see the CCTV security camera footage.

Web Designing (CCWD)

Objective

The objective of course is to learn the fundamental Website Development which areessential to design a Website.

Benefit

Core concepts to design, implement and test website using the fundamental elements of Website Designing which enables student to get knowledge of webdevelopment

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus

Fundamentals of Object Website Development.

- Data Representation
    - o Introduction to Web Technologies
    - o Careers in Web Technologies and Job Roles
    - o How the Website Works?
    - o Client and Server Scripting Languages
    - o Domains and Hosting
    - o Responsive Web Designing
    - o Types of Websites (Static and Dynamic Websites)
    - o Web Standards and W3C recommendations

- HTML 4.01 and XHTML 1.1
    - o What is Mark-up Language
    - o Basic Structure of HTML o Difference Between HTML and XHTML
    - o Head Section and Elements of Head Section, Meta Tags, CSS Tags, Script Tag, Table Tag, Div Tag, Header Tags Paragraph, Span, Pre Tags, Anchor Links and Named Anchors, Image Tag, Object Tag, Iframe

Tag, Forms Form Tag, Attributes of Form POST and GET Method Fieldset and Legend Text input, Text area Checkbox and Radio Button Dropdown, List and Opt group File Upload and Hidden Fields Submit, Image, Normal, Reset Button Creating a Live Website Form HTML Validators

☐ **Java Script**

- o Introduction to Client Side Scripting
- o Introduction to Java Script
- o JavaScript Types
- o Variables in JS
- o Operators in JS
- o Conditions Statements
- o Java Script Loops
- O JS Popup Boxes

☐ **CSS**

- o Introduction to Cascading Style Sheets
- o Types of CSS
- o CSS Selectors
- o Universal Selector
- o ID Selector
- o Tag Selector
- o Class Selector
- o Sub Selector
- o Child Combinatory Selector
- o Adjacent Sibling Selector
- o Attribute Selector
- o Group selector
- o First-line and First-letter selector
- o Before and After Selector
- o CSS Properties
- o Type Properties
- o Background Properties
- o Block Properties
- o Box Properties

- o List Properties
- o Border Properties
- o Positioning Properties
- o Real-time Implementation
- o Conversion of Table to CSS Layout
- o CSS Menu Design (Horizontal, Vertical)
- o Form Designing

Project

Student makes a project during training period.

Certification

Certificate in Web Site Designing.

WEB DESIGNING Study Material (CCWD)

- HTML stands for Hypertext Markup Language, and it is the most widely used Language towrite Web Pages.

- Hypertext refers to the way in which Web pages (HTML documents) are linked together.

- Thus the link available on a webpage is called *Hypertext*.

- HTML documents are also called **web pages**.

- Now, HTML is being widely used to format web pages with the help of different tags available inHTML.

☐ **HTML Document Structure:**

- A typical HTML document will have following structure: Document declaration tag

```
HTML>
     <HEAD>
            DOCUMENT HEADER RELATED
     TAGS
     </HEAD>
   <BODY>
            DOCUMENT BODY RELATED TAGS
   </BODY>
HTML>
```

☐ **HTML Tags:**

- HTML markup tags are usually called HTML tags.

- These tags are keywords (tag name) surrounded by angle braces like **<Tag Name>**.

- The first pair of tags is the start tag and the second tag is the end tag.

- End tag contains a forward slash before the tag name.

- Start tag and end tag are also called opening tags and closing tags.

- Except few tags, most of the tags have their corresponding closing tags.

- For example **<html>** has its closing tag **</html>** and **<body>** tag has its closing tag **</body>** tag.

Tags	Description
<HTML>	This tag encloses the complete HTML document and mainly comprises of document header which is represented by **<HEAD>...</HEAD>** anddocument body which is represented by **<BODY>...</BODY>** tags.

<HEAD>	This tag represents the document's header which can keep other HTML tags like <TITLE>, <LINK> etc.
<TITLE>	The **<TITLE>** tag is used inside the <head> tag to mention the document title.
<BODY>	This tag represents the document's body which keeps other HTML tags like <H1>, , <P> etc.

☐ **HTML Basic Tags:**

Tag Name	Description	Syntax
Heading	Different sizes for your headings	**<H1>, <H2>, <H3>, <H4>, <H5>, and <H6>**.
Paragraph	Way to structure your text into different paragraphs.	**<P> ……. </P>**
Line Break	It starts from the next line.	** **
Horizontal Lines	Used to visually break up sections of a document.	**<HR>**

☐ **HTML Text Formatting Tags:**

Tag	Description	Tag	Description
<B>	Defines bold text	<I>	Defines italic text
<EM>	Defines emphasized text	<U>	Underline
<STRONG>	Defines strong text	<SMALL>	Defines small text
<SUB>	Defines subscripted text	<SUP>	Defines superscripted text
<INS>	Defines inserted text	<DEL>	Defines deleted text

☐ **HTML Images:**

- Images are very important to beautify as well as to depict many complex concepts in simple wayon your web page.
- This will take you through simple steps to use images in your web pages.

☐ **Insert Image:**

- You can insert any image in your web page by using **<img>** tag.
- Following is the simple syntax to use this tag.

<div align="center">****</div>

☐ HTML Hyper Links:

- A webpage can contain various links that take you directly to other pages and even specific partsof a given page. These links are known as hyperlinks.

- Hyperlinks allow visitors to navigate between Web sites by clicking on words, phrases, andimages. Thus you can create hyperlinks using text or images available on a webpage.

<div align="center">**<A href="filename.html" title="Next page"> Next page</A>**</div>

- **Anchor element** allows you to link various WebPages or different sections on the same page. Thesyntax of Anchor element is given below:

<div align="center">**<A>.........</A>**</div>

- The various attributes of the Anchor element are HREF, NAME, TITLE, TARGET and ALT
  - **Href:** The href (**h**yperlink **ref**erence) attribute specifies the location of the file or resourcethat you want to provide a link to.
  - **Name:** The name attribute specifies a location within the current or the existing document.
  - **Title**: The title attribute specifies a title for the file which you are providing a link.
  - **Target**: The target attribute specifies a position in the webpage where the browser displaysa file.
  - **Alt**: The alt attribute specifies the alternative text which is displayed when an image usedas a hyperlink is not displayed.

☐ HTML Lists:

- HTML offers web authors three ways for specifying lists of information.

- All lists must contain one or more list elements.

- Lists may contain:
  1. **<UL>** - An unordered list. This will list items using plain bullets.
  2. **<OL>** - An ordered list. This will use different schemes of numbers to list your items.
  3. **<DL>** - A definition list. This arranges your items in the same way as they are arranged in adictionary.

☐ HTML Tables:

- The HTML tables allow web authors to arrange data like text, images, links, other tables, etc.into rows and columns of cells.

- Basic TABLE tags:

- **<TABLE> ....</TABLE>**

- o This tag defines a table in HTML. If the BORDER attribute is present, your browserdisplays the table with a border.

- **<CAPTION>… ..</CAPTION>**
  - o This tag defines the caption for the title of the table.

- **<TR>…........</TR>**
  - o This tag specifies a table row within a table.

- **<TH>…........</TH>**
  - o This tag specifies a table header cell. By default the text in this cell is bold and centerd.

- **<TD>…........</TD>**
  - o This tag specifies a table data cell. By default the text in this cell is aligned left andcentered vertically.

- Example:

```
<HTML>
<HEAD>
<TITLE> TABLE ELEMENTS </TITLE>
</HEAD>
<BODY>
<TABLE BORDER="1">
  <CAPTION> THIS IS THE TABLE CAPTION </CAPTION>
  <TR>
          <TH>REGNO</TH>
          <TH>NAME</TH>
          <TH>MARKS</TH>
    </TR>
    <TR>
          <TD>101</TD>
          <TD>AKASH</TD>
          <TD>535</TD>
  </TR>
   <TR>
          <TD>102</TD>
          <TD>KARTHIK</TD>
          <TD>578</TD>
  </TR>
</TABLE>
    </BODY>
    </HTML>
```

THIS IS THE TABLE
CAPTION

REGNO	NAME	MARKS
101	AKASH	535
102	KARTHIK	578

♦ **Some of the attributes associated with various tags are:**

Attribute	Description	Syntax
BORDER	Draws a border around the table of certain pixels wide	<TABLE BORDER="4">
BGCOLOR	Specifies the background colour of the entire Table	<TABLE BGCOLOR="IVORY">
ALGIN (LEFT, CENTER, RIGHT)	Identifies the horizontal alignment of a table	<TABLE ALIGN="LEFT"> <TABLE ALIGN="CENTER"> <TABLE ALIGN="RIGHT">
VALGIN (TOP, MIDDLE, BOTTOM)	Identifies the vertical alignment of a table	<TABLE VALIGN="TOP"> <TABLE VALIGN="MIDDLE"> <TABLE VALIGN="BOTTOM">
CELLSPACING	Specifies the space in pixels between cells	<TABLE CELLSPACING="4">
CELLPADDING	Specifies the space in pixels between cell border and cell data	<TABLE CELLPADDING="4">
COLSPAN	Allows a number of columns to be combined in a cell	<TD COLSPAN="2">
ROWSPAN	Allows a number of rows to be combined in a cell	<TD ROWSPAN="2">

☐ **FORMS:**

- A form is a web page which allows the user to enter information; it also allows the user to interact with the contents of the form.

- To insert a form we use the <FORM> </FORM> tags.

- The rest of the form elements such as text boxes, check boxes, and pull down menus and so on must be inserted between the form tags.

- The form container works as follows:

<FORM METHOD="how to send" ACTION="URL of script">

…..form data…..

</FORM>

- The <FORM> tag takes two attribute:
  - **METHOD**: This attribute accepts GET or POST as its value. POST is by far the more popular, as it allows for a greater amount of data to be sent. GET is a little easier for web programmer to deal with, and is best with single response, like a single textbox.
  - **ACTION**: It simply accepts the URL for the script that will process the data from your form.

☐ **Difference between GET and POST Methods of Form:**

- The POST method is used to send sensitive information's such as password, credit card number etc. The GET method appends data along with the URL. It is less secure than POST method.

☐ **<FORM> Elements:**

- Form elements have properties such as Text boxes, Password boxes, Check boxes, Radio buttons,Submit, Reset etc.

- The properties are specified in the TYPE attribute of the HTML element **<INPUT> </INPUT>**

- <INPUT> Element's Properties

Element	Description
TYPE =	This value indicates the type of INPUT entry filed which can include text, password and so on.
NAME =	It represents a variable name passed to CGI application.
VALUE =	The data associated with the variable name to be passed to the CGI application.
CHECKED =	This value indicates the Button/box is checked by default.
SIZE =	This value indicates the number of characters in the text field.
MAXLENGTH =	This value indicates the maximum number of characters that can be accepted.

☐ **INPUT TYPES:**

1. **TEXT BOXES:**
   - These boxes are used to provide input fields for text, phone, numbers, and dates and so on.
   - Example: **<INPUT TYPE="TEXT" NAME = " studentname" SIZE="30">**

2. **PASSWORD:**
   - These boxes are used to allow the entry of passwords.
   - Example: **<INPUT TYPE="PASSWORD" NAME="Secret">**

3. **CHECKBOX:**
   - These boxes are used to allow the user to select more than one option.
   - Example: **<INPUT TYPE="CHECKBOX">**

4. **RADIO Button:**
   - The Radio button allows user to select only one option among a list of options.
   - Example: **<INPUT TYPE="RADIO">**

5. **File Upload:**

- o You can use a file upload to allow users to upload files to your web server.
  - o Example: **<INPUT TYPE="FILE" NAME="fileupload>**
6. **SUBMIT:**
   - o This is the element that causes the browser to send the names and values of the otherelements to the CGI application specified by the CATION attribute of the FORM element.
   - o Example: **<INPUT TYPE=" SUBMIT" VALUE="Submit the Form">**
7. **RESET:**
   - o It allows the user to clear all the input in the form.
   - o Example: **<INPUT TYPE=" RESET" VALUE="Reset the Form">**

- ☐ **Other Elements used in FORMS:**

- **Text Area**: This element is enclosed by the tags <TEXTAREA> </TEXTAREA> it is an elementthat allows for free form text entry.

  Example: **<TEXTAREA NAME="Remarks ROWS="3" COLS="50">**
                  Please give your opinion here.
                  </TEXTAREA>

- **<SELECT> tag:** The <SELECT> tag is used to create a drop-down list. The <OPTION> taginside the <SELECT> tag defines the available options in the list.

- ☐ **FRAMES:**

- HTML Frames are used to divide your browser window into multiple sections where each sectioncan load a separate HTML document.

- A collection of frames in the browser window is known as Frameset.

- ☐ **Creating Frames:**

- To use frames on a page we use **<FRAMESET>** tag instead of <BODY> tag.

- The <FRAMESET> tag defines how to divide the window into frames.

- The row attribute of <FRAMESET> tag defines horizontal frames.

- The cols attribute of <FRAMESET> tag defines vertical frames.

- Each Frame is indicated by **<FRAME>** tag.

- **Example:**

```
<HTML>
<HEAD>
<TITLE> HTML FRAMES </TITLE>
</HEAD>
```

```
            <FRAMESET ROWS= "10%, 80%, 10%">
        <FRAME name= "top" src="/html top_frame.htm" />
    <FRAME name= "main" src="/html main_frame.htm" />
        <FRAME name= "bottom" src="/html bottom_frame.htm" />
                <NOFRAMES>
                <BODY>
        </NOFRMAES>
        </FRAMESET>
                </HTML>
```

✓ Advantages of HTML:

- HTML document browser interfaces are easy to build.
- It is easy to learn.
- There are some specialized structures in HTML.

✓ Disadvantages of HTML:

- It is a weak presentation tool.
- Weak markup tool.
- It is very instable.

➤ XML:

- XML stands for **eXtensible Markup Language.**
- XML is a markup language for documents containing structured information.
- Structured information contains both content (words, pictures etc.) and some indication of what role content plays.
- XML is a text-based markup language that is fast becoming the standard for data interchange on the web.

➤ Difference between HTML and XML:

HTML	XML
• Hypertext Markup Language	• eXtensible Markup Language
• HTML is used to display data and to focus on formatting of data.	• XML is used to describe data and focus on what data is.
• HTML tags are predefined	• XML tags are not predefined (Create our own tag)
• HTML tags are not case sensitive	• XML tags are case sensitive

• HTML is not extensible	• XML is extensible

➢ DHTML:

- DHTML stands for **Dynamic Hyper Text Markup Language**.
- DHTML refers to Web content that changes each time it is viewed.
- For example, the same URL could result in a different page depending on any number ofparameters, such as:
    - o geographic location of the user
    - o Time of day
    - o Previous pages viewed by the user
    - o Profile of the reader
- Dynamic HTML is collective term for a combination of HTML tags and options that can makeweb pages more animated and interactive than previous versions of HTML.

➢ Web Hosting:

- Web Hosting means of hosting web-server application on a computer system through whichelectronic content on internet is readily available to any web-browser client.
- Various types of web hosting services are:
    - o Free Hosting
    - o Virtual or shared Hosting
    - o Dedicated Hosting
    - o Co-location Hosting

✓ Free Hosting:

- This type of hosting is available with many prominent sited that offer to host some web pagesfor no cost.

✓ Virtual or shared Hosting:

- This type of hosting is where one's own web site domain (ex: www.yourname.com) is hosted onthe web server of hosting company along with the other web sites.

✓ Dedicated Hosting:

- In this type of hosting, the company wishing to go online rents an entire web server fromhosting company. This is suitable for large, high traffic sites.

✓ **Co-location Hosting:**

➢ In this type of hosting, the company owing the site instead of web hosting company. Suitablefor those who need the ability to make changes?

➢ **Web Scripting :**

- ***The process of creating and embedding scripts in a web page is known as web-scripting.***
- **Script**:
  - ○ ***A Script is a list of commands embedded in a web page***.
  - ○ Scripts are interpreted and executed by a certain program or scripting –engine.

- **Types of Scripts:**
  1. **Client Side Script**:
     - ○ Client side scripting enables interaction within a web page.
     - ○ The client-side scripts are downloaded at the client-end and then interpreted andexecuted by the browser.
     - ○ Some popular client-side scripting languages are VBScript, JavaScript, ActionScript.
  2. **Server-Side Scripts**:
     - ○ Server-side scripting enables the completion or carrying out a task at the server-end andthen sending the result to the client –end.
     - ○ Some popular server-side Scripting Languages are PHP, Perl, ASP(Active ServerPages), JSP(Java Server Pages) etc.

Digital Marketing(CCDMW1)

Objective

The objective of course is to enable the students to get overview of the DigitalMarketing methods and tools

Benefit

Core concepts of SEO, SMM, Google Ads and Facebook Ads fundamental elementsof Digital Marketing which enables student to get basics of Digital Marketing

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus Digital

Marketing

- Introduction of Digital Marketing
    - Marketing Process
    - Traditional Marketing Vs Digital Marketing

- SEO
    - Overview of SEO
    - Keyword Research & Types of Keywords
    - On Page SEO
    - Off Page SEO
    - Back Link Building
    - Advantage and Disadvantages of OOP

- Google Ads
    - Introduction to SEM, Google Ads Account Setup & Search Campaign
    - Display Campaigns
    - Conversion Tracking Setup
    - Shopping Campaigns

- FB & Instagram ADs
    - Introduction & Understanding Boost Post
    - Setting Up Ads Manager/Business
    - FB Pixel Setup
    - Campaign
    - Typing and Executing Programs

- E-Mail Marketing
    - Introduction to E-Mail Marketing
    - Types of E-Mails & Audience
    - E-Mail List Building
    - Strategy for a successful E- Mail Campaign

Project
Student makes a project during training period.

Certification

Certificate in Digital Marketing.

Digital Marketing Study Material (CCDWW1)

Introduction to Digital Marketing, Traditional Vs Digital Marketing, Technology behind Digital Marketing, Characteristics of Digital Marketing, Digital Marketing Strategy, Understanding Digital Consumer.

Introduction to Digital Marketing:

Today's time of Internet has opened the gateway of tremendous digital marketing opportunities for businesses. By utilizing different channels of digital marketing, businesses cannot just share their product and services online; additionally they can gain clients for their business, entice them and can convert them to boost their business profits. The speed and straightforwardness with which the digital media transmits data and support a business is astonishing.

The world is super-connected nowadays and all things considered, marketing and advertising are no more the same as they once were. This is particularly valid because of the ascent of online networking, which has changed how organizations speak with potential and existing customers. Essentially, it is an aggregate term, which is utilized where advertising and marketing meet web innovation and different types of online media platforms.

Traditional Marketing Vs Digital Marketing:

The debate continues as to whether digital marketing is overpowering and surpassing traditional marketing or not. Many think that for the most part, digital marketing has taken over and traditional marking barely exists, if at all. Recent occurrences such as the magazine giant, Newsweek switching to totally digital publications cause ripples throughout the marketing arena. Over the last year or so traditional marketing had fallen nearly 160% while in the same time frame expenses for digital marketing increased over 14%.

Traditional Marketing:

The traditional way of marketing lets businesses market their products or administrations onprint media, radio and TV commercials, bill boards, business cards, and in numerous other comparable ways where Internet or web-based social networking sites were not utilized for promoting.

- However, traditional promoting approaches had constrained client reachability and extent of driving clients' purchasing conduct. In addition, traditional marketing methods were not quantifiable too.

- There are many facets of traditional marketing and examples might include tangible items such as business cards, print ads in newspapers or magazines. It can also include posters,

commercials on TV and radio, billboards and brochures. Traditional marketing is anything except digital means to brand your product or logo.

- Another overlooked means of traditional marketing is when people find a particular business through a referral or a network and eventually you build a rapport with them.
- Because of its longevity, people are accustomed to traditional marketing. Finding ads in magazines and newspapers, or reading billboards are still familiar activities and people still do them all the time.
- Most of the time, traditional marketing is reaching only a local audience even though it is not limited to one.
- There are some aspects where traditional marketing wins over the online advertising battle, which include Target Local Audience, Materials are for keeps, More personal and Simpler process.
- One of the primary disadvantages of traditional marketing is that the results are not easily measured, and in many cases cannot be measured at all.
- In most cases, traditional marketing is also more costly than digital marketing. And perhaps the biggest disadvantage today is that traditional marketing is static which means there is no way to interact with the audience. It's more

like you are throwing information in front of people and hoping that they decide to take action.

Digital Marketing:

Digital Marketing can be understood as a well-targeted, conversion-oriented, quantifiable, and interactive marketing of products or services by utilizing digital innovation to achieve the customers, and transform them into clients in a sustainable fashion. The whole concept and functionalities of Digital Marketing are more competent, effective, result-oriented and measurable, which make it very different from traditional marketing.

- Digital or online marketing is the marketing mode of the global village. It is only obvious that the era of the internet will have its influence in every realm of life.
- The world of digital marketing continues to evolve and as long as technology continue to advance, digital marketing will as well.
- Examples of digital marketing include things like websites, social media mentions, YouTube videos, and banner ads. Specifically, digital marketing is similar to traditional advertising, but using digital devices.
- However, digital marketing is considered a form of inbound marketing and its goal is for people to

find you. Businesses put content (or ads) out for individuals to find.

- People may conduct an organic online search, a paid search, find your business on a social network or by reading content that has been published online such as a blog or anarticle. The more they see you or your content, the more familiar they will become withyour brand and they will eventually develop a trust and a rapport with you through this online presence.
- One benefit to using digital marketing is that the results are much easier to measure; and another is that a digital campaign can reach an infinite audience. It is also possible to tailor a digital campaign to reach a local audience but it can also be used on the web andreach the entire globe when appropriate.
- Digital marketing is also a very interactive means of reaching an audience since it makesuse of social outlets. There can be plenty of direct contact between the audience and the business which means that the business can get some very valuable consumer feedback.
- Benefits of Digital Marketing over Traditional Marketing include reduced cost, real timeresult, brand Development, non-intrusive, higher exposure, higher engagement, Quicker publicity, Non interruptive, Good For All Stages Of Fields, Easy analytics and Strategy Refinement.
- One of the disadvantages to using digital media marketing strategies is that it can takesome time to realize measurable success.

Differences between Traditional Marketing & Digital Marketing:

Traditional Marketing	Digital Marketing
1. Communication is unidirectional in traditional marketing, which means, an organization communicates about its services with its audiences.	1. Communication is bidirectional in Digital Marketing as businesses can communicate with customers and customers can ask queries or make suggestions to businesses as well.
2. Medium of communication in traditional marketing is generally phone calls, emails, and letters.	2. Medium of communication is more powerful and involves social media websites, chats, apps and Email.
3. Campaign in Traditional marketing takes more time as designing, preparing, and launching are involved.	3. Digital marketing campaigns can be developed quite rapidly and with digital tools, channelizing Digital Marketing campaigns is easier.
4. It is best for reaching local audience.	4. It is very effective for reaching global audiences.
5. It is almost impossible to measure the effectiveness of a traditional marketing campaign.	5. Digital Marketing lets you measure the effectiveness of a digital marketing campaign through analytics.

Characteristics of Digital Marketing:

We are living in the digital age today. Outdated marketing won't help you get profits you desire for. Digital Marketing is a necessity today of almost every business. There is no way around it. The way you dedicated a lot of your time and effort to making your product, similarly it is important to invest in a complete digital strategy to launch and show your product or services to your targeted audience and continually improve your brand presence online.

Make sure that you evaluate all your options so you get aware of your digital marketing platforms and whether or not you're really boosting the potential of your marketing campaign. When done correctly,

this can help you stand out from the crowd and get succeed.

Digital Marketing is a great way of increasing brand awareness, customer engagement and long-term loyalty and generating a short-term boost in sales, despite the fact that every digital marketing campaign is different in their own ways, the reality is that many of them are built on common basics and a few key elements. Successful Digital Marketing Campaign requires a lot of time following through analytics and data to find insights. But, as we have analyzed which characteristics successful campaigns share to help you.

1. Get a Quality Company Website:

What was a novelty a mere decade ago is a critical requirement today. A business website is a pseudo B2B portal, allowing businesses and customers from around the world to connect with you. A business website is similar to your Company brochure, available 24×7, and projects you as a professional outfit.

2. Social Media Presence:

The biggest achievement of this digital era has been the ease with which people have learnt to communicate- Social Media websites like Facebook, Twitter, Google+, Pinterest, YouTube etc. are the latest methods to communicate across wide demographics of age, taste and culture. By actively promoting your company on these social media, you are getting the world to talk about you.

3. Blogging and Forums:

Here is a powerful axiom- 'Content is King'. Produce powerful, genuine and compelling content as part of your Company blog. Be a regular on relevant forums and discussion panels. Learn the art of connecting your business themes into the content that you produce. In time, your content will stand up to be the biggest promoter of your brand.

4. List your business on the three biggest listing services:

Register your business on 'Google Places'- this allows your business to feature on Google searches and be listed on Google Maps. Other business databases that you must be part of include 'Yahoo! Local' and Microsoft's 'Bing'. Joining these services is free; setting up an account takes very limited time and the far reach of these services translates to free promotion for your business.

5. Email Marketing:

In recent times, bulk emailing isn't a very favored promotional concept. However, if done well, and with good intentions, email marketing could be a powerful tool in your Company's online promotional arsenal. Personalized emails speak directly to the target audience, helps you get an immediate response and can aid in the opening of a line of communication with your prospective customer base. It's free and fast promotion- with an impactful feedback.

6. A Dedicated Digital Marketing Expert:

If you aren't sure about pulling off a good promotional job individually, maybe it's a good idea to hire an innovative, enthusiastic Digital Marketing Consultant to handle your Company's online promotional strategy. This action will allow you to be on top of your promotional ideas while employing a professional to implement concepts that drive towards your expected results.

Technology behind Digital Marketing:

Developments in technology and the evolution of marketing are inextricably intertwined. Technology has underpinned major milestones in the history of marketing since its inception. The process tends to go something like this:

- New technology emerges and is initially the preserve of technologists and early adopters.
- The technology gains a firmer foothold in the market and starts to become more popular, putting it on the marketing radar.

- Innovative marketers jump in to explore ways they can harness the power of this emerging technology to connect with their target audience.
- The technology migrates to the mainstream and is adopted into standard marketing practice.

The printing press, radio, television and now the internet are all examples of major breakthroughs in technology that ultimately altered the relationships between marketers and consumers for ever, and did so on a global scale.

But, of course, marketing isn't about technology; it's about people: technology is only interesting, from a marketing perspective, when it connects people with other people more effectively. There are plenty of examples of technology through the ages having a significant impact on various markets – technology that may seem obscure, even irrelevant today. The mainstream adoption of digital technology – the internet, the software applications that run on it, and the devices that allow people to connect both to the network and to each other whenever, wherever and however they want to – promises to dwarf all that has come before it.

The first global communications network: 'the highway of thought'

To understand the explosive growth of the internet we need to look back at how early communications technology evolved into the global network of interconnected computers that today we call the internet. The story of electronic communication begins with the wired telegraph – a network that grew explosively to cover the globe, connected people across vast distances in a way that seemed almost magical, and changed the world for ever.

Early Networks:

The internet story really starts in 1957, with the USSR's launch of the Sputnik satellite. It signalled that the United States was falling behind the Soviet Union in the technology stakes, prompting the US government to invest heavily in science and technology. In 1958, the US Department of Defense set up the Advanced Research Projects Agency (ARPA), a specialist agency established with a specific remit: to make sure the United States stayed ahead of its Cold War nemesis in the accelerating technology race.

You've got mail E-mail, which is still often described as the internet's 'killer application', began life in the early 1960s as a facility that allowed users of mainframe computers to send simple text-based messages to another user's mailbox on the same computer. But it wasn't until the advent of ARPANET that anyone considered sending electronic mail from one user to another across a network.

In 1971 Ray Tomlinson, an engineer working on ARPANET, wrote the first program capable of sending mail from a user on one host computer to another user's mailbox on another host computer. As an identifier to distinguish network mail from local mail Tomlinson decided to append the host name of the user's computer to the user login name. To separate the two names he chose the @ symbol.

E-mail, one of the Internet's most widely used applications, and one of the most critical for internet marketers, began life as a programmer's afterthought. The ARPANET was a solution looking for a problem.

From ARPANET to Internet :

The term 'internet' was first used in 1974 by US computer scientist Vinton Cerf (commonly referred to as the 'father of the internet', and now a senior executive and internet evangelist with Google). Cerf was working with Robert Khan at DARPA on a way to standardize the way different host computers communicated both across the growing ARPANET and between the ARPANET and other emerging computer networks. The Transmission Control Program (TCP) network protocol they defined evolved to become the Transmission Control Program/Internet Protocol (TCP/IP) protocol suite that's still used to pass packets of information backwards and forwards across the internet to this day.

In 1983 the ARPANET started using the TCP/IP protocol – a move that many consider to signal the true 'birth' of the internet as we know it. That year, too, the system of domain names (.com, .net, etc) was invented. By 1984 the number of 'nodes' on the still fledgling network passed 1,000 and began climbing rapidly. By 1989 there were more than 100,000 hosts connected to the internet, and the growth continued.

It was in 1989 that Tim Berners-Lee, a British developer working at the European Organization for Nuclear Research (CERN) in Geneva, proposed a system of information cross-referencing, access and retrieval across the rapidly growing internet based on 'hypertext' links. The concept of a hypertext information architecture was nothing new, and was already being used in individual programs running on individual computers around the world. The idea of linking documents stored on different computers across the rapidly growing internet, though, was

nothing short of revolutionary. The building blocks for the world wide web were already in place
– but it was Tim Berners-Lee's vision that brought them together.

The first web page on the internet was built at CERN, and went online on 6 August 1991. It contained information about the new world wide web, how to get a web browser and how to set up a web server. Over time it also became the first ever web directory, as Berners-Lee maintained a list of links to other websites on the page as they appeared.

The World Wide Web – A New Frontier

Up to this point, the internet had been the realm of technologists and scientists at research institutions. But the advent of the web changed the landscape, making online information accessible to a much broader audience. What happened next was explosive. Between 1991 and 1997 the web grew at an astonishing 850 per cent per annum, eclipsing all expectations. With more websites and more people joining the online party every day, it was only a matter of time before innovative tech-savvy marketers started to notice the web's potential as an avenue for the marketing message.

In August 1995 there were 18,957 websites online; by August 1996 there were 342,081 ('Fifteen Years of the Web', Internet timeline, www.bbc.co.uk). It was an era that saw the birth of some of today's most well-known online brands: sites like Amazon, Yahoo!, eBay and, in September 1998, Google Inc.

Boom, Boom. . . Bang!

For a time it seemed as though the halcyon days of the late 1990s would continue forever and that the dot.com bubble was impervious to bursting. Fuelled by speculative investment and high- profile high-tech IPOs, the Nasdaq Composite stock index continued to rocket upwards. Each new dot.com success fuelled the fervour for technology stocks, blowing the bubble up a little more. On 10 March 2000 the Nasdaq index hit an intraday high of 5,132.52 before settling to an all-time closing high of 5,046 points.

Enough Technology – let's talk about people

One of the key things to remember is this: digital marketing isn't actually about technology at all; it's all about people. In that sense it's similar to traditional marketing: it's about people (marketers) connecting with other people (consumers) to build relationships and ultimately drive sales.

Technology merely affords you, the marketer, new and exciting platforms that allow you to connect with people in increasingly diverse and relevant ways. Digital marketing is not about understanding the underlying technology, but rather about understanding people, how they're using that technology, and how you can leverage that to engage with them more effectively. Yes, you have to learn to use the tools at your disposal – but understanding people is the real key to unlocking the potential of digital marketing.

A huge and growing market

Although internet companies suffered bruised finances and a tarnished public image in the wake of the dot.com crash, the internet itself never stopped growing, in terms both of the number of websites online and, crucially from a marketing perspective, of the number of people with internet access.

In March 2000, when the dot.com bubble burst, there were an estimated 304 million people in the world with internet access. By March 2003 that figure had doubled to 608 million, and in December 2005 the global online population passed 1 billion. As of December 2007 the figure sat at around 1.3 billion people. That's 20 per cent of the world's population – and climbing (Internet World Stats, www.internetworldstats.com). As global and local online populations have spiralled upwards, so too have the levels of broadband penetration, which

means that not only are there more people online but they're also online more often, for much longer periods of time and can do much more with that time.

All of this means the market penetration of digital channels is growing rapidly. As the potential

audience grows, so too does the allure of digital marketing. Marketers around the world are sitting up and taking notice, and big name brands are starting to take the internet and other digital marketing channels seriously: loosening the purse strings and redistributing their advertising spend.

Web 2.0 is not a revolution in technology; it's an evolution in the way people are using technology. It's about harnessing the distributed collaborative potential of the internet to connect and communicate with other like-minded people wherever they are: creating communities, and sharing knowledge, thoughts, ideas and dreams. If you've ever shared photos on Flickr, read and commented on a blog, looked for friends on Facebook or MySpace, watched a video clip on YouTube, tried to find your house on Google Maps, video-called friends or family abroad using Skype or looked up an article on Wikipedia, then you've used Web 2.0 technologies.

Analysts at Jupiter Research identified **seven key ways** in which the increasingly widespread adoption of **technology is influencing consumer behavior**:

- **Inter-connectivity:** Networked digital technology is enabling consumers to connect with each other more readily, be it through e-mail, instant messaging (IM), mobile messaging, or web-based social networking platforms such as Facebook, MySpace and LinkedIn – or more likely a combination of all of these platforms. Consumers are interacting with like-minded people around the world, paying scant regard to trifling concerns like time zones or geography. Peer-to-peer interaction is reinforcing social networks and building new virtual communities.

- **Technology is leveling the information playing field:** With digital technology content can be created, published, accessed and consumed quickly and easily. As a result the scope of news, opinion and information available to consumers is broader and deeper than ever. Consumers can conduct their own unbiased research, comparing and contrasting products and services before they buy. Knowledge is power, and digital technology is shifting the balance of power in favour of the consumer.

- **Relevance filtering is increasing:** With such a glut of information available to them, digital consumers are, through necessity, learning to filter out items relevant to them and to ignore anything they perceive as irrelevant. Increasingly digital consumers look to have their information aggregated, categorized and delivered (whether through e- mail or RSS feeds). They use personalization features to block out irrelevant content and increasingly employ software solutions to exclude unsolicited commercial messages.

- **Niche aggregation is growing:** The abundance and diversity of online content allow consumers to participate in and indulge their specialist interests and hobbies. Aggregations of like-minded individuals congregate online; the homogeneous mass consumer population is fragmenting into ever-smaller niche groups, with increasingly individual requirements.

- **Micropublishing of personal content is blossoming:** Digital media's interactive and interconnected nature allows consumers to express themselves online. Publishing your own content costs little more than a bit of time and imagination, whether through discussion forums, message boards, feedback forms, voting platforms, personal photo galleries, or blogs. Users are posting their opinions online for all to see and are consulting the opinion of their online peers before making purchasing decisions. How often do you check an online review before booking a table at an unknown restaurant or a weekend break at a hotel, or even buying a new car?

- **Rise of the 'prosumer':** Online consumers are getting increasingly involved in the creation of the products and services they purchase, shifting the balance of power from producer to consumer. They're letting producers know what they want in no uncertain terms: the level of interaction between producer and consumer is unprecedented. Individuals are more involved in specifying, creating and customizing products to suit their requirements, and are able to shape and mould the experiences and communications they receive from producers. Traditional mass-production and mass- marketing concepts are rapidly becoming a thing of the past.

- **On demand; any time, any place, anywhere:** As digital technology becomes more ubiquitous in people's lives, the corresponding acceleration of business processes means that consumers can satisfy their needs more quickly, more easily and with fewer barriers. In the digital economy, trifling concerns like time,

geography, location and physical store space are becoming irrelevant. It's a world of almost instant gratification,and the more consumers get of it the more they want it – now, now, now!

Digital Marketing Strategy:

Why you need a digital marketing strategy?

The simple answer: because without one you'll miss opportunities and lose business. Formulating a digital marketing strategy will help you to make informed decisions about your venture into the digital marketing arena and ensure that your efforts are focused on the elements of digital marketing that are most relevant to your business. It's a crucial first step towards understanding how the constantly evolving digital marketplace relates to you and how it affects the relationship between your business or brand and your customers and prospects.

- It doesn't matter what business you're in; it's a fairly safe bet that an increasing number of your target market rely on digital technology every day to research, evaluate and purchase the products and services they consume.
- Without a coherent strategy of engagement and retention through digital channels your business is at best missing a golden opportunity and at worst could be left behind, watching your competitors pull away across an ever-widening digital divide.
- Unlike conventional forms of mass media marketing, the internet is unique in its capacity to both broaden the scope of your marketing reach and narrow its focus at the same time.
- Using digital channels you can transcend traditional constraints like geography and time zones to connect with a much wider audience. At the same time, digital technology allows you to hone your marketing message with laser-like precision to target very specific niche segments within that wider market. Implemented effectively, it can be an incredibly powerful combination.
- It's often stated that the internet puts consumers in control as never before. But it's also important to remember that the internet also delivers an unprecedented suite of tools, techniques and tactics that allow marketers to reach out and engage with those same consumers. The marketing landscape has never been more challenging, dynamic and diverse.
- And therein lies the crux of our need for a cohesive digital marketing strategy. If you're going to harness the power of digital marketing to drive your online business to dizzying new heights, you need a thorough understanding of your market, how your customers are using digital technology, and how your business can best utilize that same technology to build enduring and mutually rewarding relationships with them.
- As digital channels continue to broaden the scope available to us as marketers, so theyadd to the potential complexity of any digital marketing campaign. Having a clearly defined strategy will help to keep you focused, ensure that your marketing activities are always aligned with your business goals and, crucially, ensure that you're targeting the right people.

Defining your Digital Marketing Strategy:

Once you've decided that you do, in fact, need to pursue some form of digital marketing, the next step is actually to sit down and define your strategy. Unfortunately there is no 'one size fits all' strategic panacea here. We don't have a magic recipe to ensure your digital marketing success, and neither does anybody else. Basically every business needs to 'bake' its own unique strategy based on its own particular set of circumstances. While the available ingredients are the same, the resulting strategies can be radically different.

If you sell apples to local grocers by the truckload, your strategy will bear little resemblance to that of a company selling downloadable e-books and reports on financial trading, which will in turn be very different to the strategy adopted by a sports clothing manufacturer who wants to cut out the retailer and sell directly to consumers over the web. Different products, different markets, different needs – different solutions. What it ultimately boils down to is this: the best people to define your digital marketing strategy, curiously enough, are the people who best know your business.

Laying strong digital foundations:

The good news is that you've almost certainly already started the process of defining your digital marketing strategy. Probably been thinking about digital marketing in the context of your business, about what your competitors are doing online and why, about how your customers and prospects are integrating digital technology into their lives, and about how you can best exploit these new and exciting digital channels to foster longer, more productive relationships with them. These are the components that will form the foundation of your digital marketing strategy:

- **Know your business**: Is your business ready to embrace digital marketing?
  Are your products or services suited to online promotion? Do you have the right technology, skills and infrastructure in place? How will digital marketing fit into your existing business processes, do those processes need to change, and are you and your staff ready to accommodate those changes?

- **Know the competition**: Who are your main competitors in the digital marketplace? Are they the same as your offline competitors? What are they doing right (emulate them), what are they doing wrong (learn from them), what aren't they doing at all (is there an opportunity there for you?) and how can you differentiate your online offering from theirs? Remember, competition in the digital world can come from just around the corner or from right around the globe. The same technologies that allow you to reach out to a broader geographical market also allow others to reach into your local market. When you venture online you're entering a global game, so don't limit your analysis to local competition.

- **Know your customers:** Who are your customers and what do they want from you? Are you going to be servicing the same customer base online, or are you fishing for business from a completely new demographic? How do the customers you're targeting use digital technology, and how can you harness that knowledge to engage in a productive and ongoing relationship with them?

- **Know what you want to achieve**: If you don't know where you're going, there's a pretty fair chance you'll never get there. What do you want to get out of digital marketing? Setting clear, measurable and achievable goals is a key part of your digital marketing strategy. Are you looking to generate online sales, create a source of targeted sales leads, improve your brand awareness among online communities, all of the above or perhaps something completely different? Your goals are the yardsticks against which you can measure the progress of your digital marketing campaigns.

- **Know how you're doing**: The beauty of digital marketing is that, compared to many forms of advertising, results are so much more measurable. You can track everything that happens online and compare your progress against predefined goals and key performance indicators (KPIs). How is your digital campaign progressing? Are certain digital channels delivering more traffic than others? Why is that? What about conversion rates? How much of that increased traffic results in tangible value to your business? Measure, tweak, refine, re-measure. Digital marketing is an ongoing and iterative process.

The process of formally defining your digital marketing strategy forces you to sit down and analyze the market in which you're operating with a critical eye, and to really think about the different components of your business and how digital marketing can help you to achieve your business goals. Don't get down in the technical details – remember, digital marketing is about people communicating with other people; the technology is just the bit in the middle that helps it to happen. Your strategy should provide you with a high-level framework – a bird's-eye view of the digital marketing landscape with your business centre stage; the details will come later.

Understanding Digital Consumers:

There is a notion that pervades marketing circles today, a notion of mysterious ethereal creatures who exist in a hyper-connected, multifaceted cyber-world of their own. They are an enigma: they speak a different language, communicate in ways we don't understand, and they're turning the world of marketing on its head. These are the ephemeral, wraithlike 'digital consumers', who slip effortlessly through the marketer's grasp. Digital consumers are different, we're told – but are they really?

The first thing to realize about digital consumers is that there's basically no such thing. The customers and prospects you encounter online are the very same people who walk into your store every day, call you on the telephone, or order something from your mail-order catalogue. There's nothing dark, sinister or mysterious about them. They're people – like everybody else. 'There is no great mystery about how [digital consumers] think and what they want', maintains interactive marketing expert.

These consumers are doing exactly what people have been doing for thousands of years – communicating with each other. The fact that technology is enabling them to communicate with each other faster, over distance, over mobiles and in 3D worlds is being perceived as something dangerous, unique and extraordinary, something that needs to be controlled and pinned down. People talk to each other – they always have.

Making the Web their own

Consumers, whatever their 'flavour', don't care about the way marketers define what they do. Concepts like above the line, through the line, below the line, digital, traditional, experiential, linear, analogue, mobile, direct, indirect or any other 'box' we care to slip our marketing endeavours into are completely meaningless to them.

All consumers care about is the experience – how the marketing available to them can enhance the experience and help them to make more informed decisions. People are the single most important element in any form of marketing. That's just as true in the digital space as it is in any other sphere of the discipline. As a marketer you need to understand people and their behaviour – and here's where the notion of the digital consumer does carry some weight, because consumer behaviour is changing, and it's changing because of the pervasive, evocative and enabling nature of digital technology.

Digital marketing allows us to build uniquely tailored ongoing relationships with individual customers. Marketing in the digital age has been transformed into a process of dialogue, as much about listening as it is about telling.

I don't know you and you don't know me

Perceived anonymity is another online trait that can have a profound effect on consumer behaviour. It liberates consumers from the social shackles that bind them in the real world; online they are free to do and say as they please with scant regard for the social propriety that holds sway in 'real life'. In a bricks-and-mortar store shoppers will wait patiently for service, and will often endure a less-than-flawless shopping experience to get what they want. Online they won't; they demand instant gratification and a flawless customer experience. You have to deliver, first time, every time. If you fail to engage, retain and fulfill their expectations on demand, they're gone, vanishing into the ether of cyberspace as quickly as they came, the only trace a fleeting, solitary record left on your web server's log file.

Key traits of the Online Consumer

Well, there's something about the immediacy and anonymity of the digital experience that has a similar effect on people. It's always risky to generalize and make assumptions about people – especially in a field as dynamic and fast moving as this one. The only real way to know your market intimately is to conduct original research within your particular target group. That said, a lot of research work has been done (and continues to be done) on the behavioural traits of online consumers, and a broad consensus has emerged around the key characteristics that epitomize digital consumers:

Digital consumers are increasingly comfortable with the medium: Many online consumers have been

using the internet for several years at this stage – and, while the user demographic is still skewed in favour of younger people, even older users are becoming increasingly web savvy. As people become more comfortable with the medium they use it more efficiently and effectively, which means they don't hang around for long: your content needs to deliver what they want, and it needs to deliver quickly.

They want it all, and they want it now: In the digital world, where everything happens at a million miles per hour, consumers have grown accustomed to getting their information on demand from multiple sources simultaneously. Their time is a precious commodity, so they want information in a format that they can scan for relevance before investing time in examining the detail. Designers and marketers need to accommodate this desire for 'scannability' and instant gratification when constructing their online offering.

They're in control: The web is no passive medium. Users are in control – in the Web 2.0 world more than ever before. Fail to grasp that simple fact and your target audience won't just fail to engage with you, but they will actively disengage. We need to tailor our marketing to be user-centric, elective or permission based, and offer a real value proposition to the consumer to garner positive results.

They're fickle: The transparency and immediacy of the internet don't eradicate the concept of brand or vendor loyalty, but they do erode it. Building trust in a brand is still a crucial element of digital marketing, but today's consumers have the power to compare and contrast competing brands literally at their fingertips. How does your value proposition stack up against the competition around the country and across the globe? Your brand identity may be valuable, but if your *overall* value proposition doesn't stack up you'll lose out.

They're vocal: Online consumers talk to each other – a lot. Through peer reviews, blogs, social networks, online forums and communities they're telling each other about their positive online experiences – and the negative ones. From a marketing perspective this is something of a double-edged sword – harness the positive aspects and you have incredible viral potential to propagate your message; get it wrong, and you could just as easily be on the receiving end of an uncomfortable online backlash.

Using influencers to help spread the word

There is one particular category of users online that warrants a special mention when it comes to defining your digital marketing strategy. Dubbed 'influencers', these early adopters are the online opinion leaders. Through blogs, podcasts, forums and social networks they harness the power of the web to extol the virtues of products and brands that they like, and equally to denigrate those they find unsatisfactory.

Why are influencers important to you as a marketer? Because they have the virtual ear of the online masses. People read and listen to what they have to say; they value their opinion and trust their judgment. These online influencers have already won the pivotal battle for the hearts

and minds of online consumers. Engage positively with them, and you essentially recruit a team of powerful online advocates who can have a potentially massive impact on a much wider group of consumers.

This is the online equivalent of 'word-of-mouth' marketing, on steroids. Of course, give them a negative experience and, well, you can guess the rest. But how exactly will you recognize these online influencers? A December 2006 report by DoubleClick ('Influencing the Influencers: how online advertising and media impact word of mouth') defined influencers as people who 'strongly agreed' to three or more of the following statements:

- They consider themselves expert in certain areas (such as their work, hobbies or interests).
- People often ask their advice about purchases in areas where they are knowledgeable.
- When they encounter a new product they like they tend to recommend it to friends.
- They have a large social circle and often refer people to one another based on their interests.
- They are active online, using blogs, social networking sites, e-mail, discussion groups, online community boards, etc to connect with their peers.

Identifying the influencers within your market sector, analyzing their behavior and tailoring part of your digital campaign to target this small but influential group can result in disproportionate knock-on benefits. Don't neglect your core market, of course – but certainly consider targeting influencers as part of your overall

digital marketing strategy.

<u>Unit – II</u>
Online Advertising

Introduction, Objective, Where to Advertise, Online Ad Format, Search Engine Ad, NetworkAdvertising, Affiliate Programs, Landing Pages.

Introduction:

Simply put, online advertising is advertising on the Internet. Online advertising encompasses advertisements on search engine results pages, advertisements placed in e-mails, and other ways in which advertisers use the Internet.

- Whether online or off, the main objective of advertising is to increase sales. Advertising also aims to increase brand awareness. Advertising is based on the simple economics of supply and demand. Advertisers aim to stimulate a consumer need and then satisfy that need.
- One of the greatest benefits of online display advertising is that the messages are not restricted by geography or time.
- Online advertisements are also much more interactive than offline advertising. While both online and offline advertising can be disruptive, interactive online advertising can be designed to be perceived as less so.
- Online display advertising began as simple hyperlinked images shown on a Web site and has since progressed to include video, sound, and many other modern technologies. Today, messages and interactions can be contained within the advertising display without ever taking consumers to a landing page.
- Although the Internet provides new scope for creative approaches to advertising, we see its true advantage when we realize how trackable, and therefore measurable, Internet advertising is. Or, to take it from Eric Schmidt, CEO of Google, "The Internet will transform advertising because of its trackability, not its beauty."

History:

Online advertising rapidly followed the developing Internet. And, as consumers are increasingly spending more time online, and hours spent on the Internet start to eclipse hours spent watching television, the medium becomes increasingly important to any advertiser.

According to Wikipedia, the first clickable banner advertisement was sold to a law firmin 1993 by Global Network Navigator. HotWired, an early Web magazine, was the first to sell advertising space in large quantities to a number of advertisers. One of the very first advertisers was AT&T (a U.S. telecom company), which went online in October 1994.

Figure 3.1 An Early Banner Ad for AT&T

This was part of a campaign that AT&T was running to promote the Internet to consumers, andincluded television and outdoor advertising. Believe it or not, but this was cutting edge back in

1994! As Web technology has developed, so has the technology that is used to create and serve advertising online.

Definition of Online Advertising:

Online advertising is a marketing strategy that involves the use of the Internet as a medium to obtain website traffic and target and deliver marketing messages to the right customers. Online advertising is geared toward defining markets through unique and useful applications.

Since the early 1990s there has been an exponential increase in the growth of online advertising, which has evolved into a standard for small and large organizations. Online advertising is also known as Internet advertising.

A major advantage of online advertising is the quick promotion of product information without geographical boundary limits. A major challenge is the evolving field of interactive advertising, which poses new challenges for online advertisers.

Online advertisements are purchased through one of the following common vehicles:

- **Cost per Thousand (CPM):** Advertisers pay when their messages are exposed to specific audiences.
- **Cost per Click (CPC):** Advertisers pay every time a user clicks on their ads.
- **Cost per Action (CPA):** Advertisers only pay when a specific action (generally a purchase) is performed.

Examples of online advertising include banner ads, search engine results pages, social networking ads, email spam, online classified ads, pop-ups, contextual ads and spyware.

Objectives of Advertising:

Understand when best to use online advertising. Advertising, whether online or offline, has a number of objectives:

1. **Building Brand Awareness:** Making people aware of a brand or product is an important long-term goal for any marketer. Once customers know about the brand, the marketer has taken the first step toward gaining the customer's trust and patronage. The better known a brand is, the more business they can do. And the ultimate goal is to do more business and sell more of the product. Online, creative advertising or banner advertising is largely visual, making it an ideal channel for promoting brand collateral.

2. **Creating Consumer Demand** Consumers can't want what they don't know about. Advertising needs to convince consumers about what they should want and why they should want it. Modern online advertising provides a great way to communicate the USPs (unique selling points) of a product, thereby helping stimulate demand.

3. **Satisfying Consumer Demand:** Once the consumer is aware of and desires a product, they need to find out how to satisfy that desire. If brand building has been effective, they will know that a particular brand exists. At this point, it is important for the marketer to show the consumer how their particular brand or product will best meet that need.

4. **Driving Response and Sales**: All forms of online marketing need to drive traffic and sales in the long term. However, the immediacy of online advertising also drives traffic and sales in the short and medium terms. Unlike traditional media advertising, online advertising can turn the potential customer into an actual customer right there and then. What's more, it is possible to measure accurately how effectively the online advertising campaign does this.

5. **The Key Differentiator**: Online advertising is able to drive instant sales and conversions. Unlike offline advertising mediums, the consumer can go from advertisement to merchant in one easy click. Because of the connected nature of the Internet, online activities are highly trackable and measurable, which makes it possible to target advertisements and to accurately track and gauge the effectiveness of the advertising. Each display advertisement can be tracked for success.

6. **Introducing a New Product to the Market:** Online advertising is an important strategy when a

new product or brand is launched, however this should often be after the launch of an online public relations campaign which includes press releases, blogs, news sites and other tactics to gain wide media coverage. Advertising before the launch of an online PR is not advisable because it loses its newsworthiness and media outlets are unlikely to accept it. Some online channels to use to announce your new product are display ads on networks like the Google Display Network (GDN), Search advertising, organic search, email marketing and others.

7. **Explain how a Product Works:** Advertising can help to explain the uses of a product and in what setting it is to be used. It's often easier with video advertising which can include animation, motion, text, graphics and many other elements. It is also effective at showing the product in use and even talking heads are great for explaining how it works.

8. **Reduce Buyer Fear:** Video advertising is also helpful here after a purchase to reduce fear that the customer has bought the wrong product and to explain how they can use it. Buyer remorse is a major problem especially for high-ticket items that require a high financial outlay, so it's important to allay their fears and convince them that they have made the right purchase.

9. **Build Company Image:** Many online channels are effective at building a company's image but social media is one of the best and using advertising tools on sites like Facebook you can reach out to new, existing and non-existent customers. This is about raising brand awareness and reinforcing the company's image at all touchpoints with the target market. Social media is helpful because the company can interact with followers and build a relationship outside of its own portals.

10. **Build Brand Preference:** There are many brands in the online space that are vying for customers' attention and it's important to highlight brand attributes and values and create a competitive advantage for your brand. Using advertising vehicles like PPC advertising, display advertising, social media paid advertising and others, your brand can promote its unique online value proposition and increase click through rate, conversions and brand recall.

11. **Inform Market of an Offer:** If you have a sales promotion and want to inform the market through online advertising, you can use text and display ads on search and display platforms. So you can include a money-off offer, a coupon or voucher, category discount and many others and these are effective at boosting CTRs for ads and also conversions.

12. **Encourage Switching to Your Brand:** Comparative advertising is common online especially on PPC platforms like Google Adwords. So, you can bid on competitor brand names and then display ads that highlight your unique offers and how your products have a competitive advantage. Of course many competitors will be doing the same so it's important that you bid on your own brand names too.

13. **Maintain Top Of Mind Awareness:** Remarketing is an online advertising vehicle that works well for a wide range of brands and companies that want to raise brand awareness, increase sales or leads, increase brand recall and be top of mind. Google Adwords, Analytics and Facebook provide remarketing features and resources to target people that are aware of your brand and then bring them back to your website and purchase from your business.

14. **Remind Buyer of the Product or Brand:** This marketing objective is similar to top of mind awareness and using remarketing and pay per click advertising; it is possible to effectively remind target customers of your products or brands. The benefit is that it is affordable and you only pay for clicks to your website, unlike traditional advertising vehicles were you pay even if there is no customer interaction or response.

Where to Advertise?

Advertising can be expensive – and way out of your budget if you're just starting out as a freelancer or small business. But with some clever thought, there are a few ways you can promote your enterprise for free in your local area.

Different ways to advertise your business:

Here are 10 simple ideas for promoting your freelance services or small business for free in your local area (and beyond).

1) Make sure your website adds value

Whether you're targeting local or global customers, your website should clearly explain what you do, be easy to find and navigate, and be attractive. An article in E- consultancy suggests that you should look at the following things when building or rebuilding your website:

- How goal-focused it is.
- The quality of your content.
- How easy your website is to use by its intended target audiences.
- How well it projects and communicates your brand identity.
- How search engine optimized (SEO) it is.
- Social media channel usage and integration.
- Mobile internet users.

2) Make blogging a high priority

It's important to add a blog to your website because it increases your chances of being noticed, and helps with your SEO as you can use your keywords and phrases in your blog posts. Websites get crawled quite regularly so it's always important to have new, quality content.

Writing a regular blog also gives your audience an opportunity to interact with you by placing their comments about your posts. Remember to add social sharing buttons to your blog posts so readers can easily share them, and more people can discover you and your business.

3) Distribute a press release once a month

It's important to keep in touch with your local newspaper and submit press releases which have the potential opportunity to get you in print for free. These could be about anything from taking on new staff to winning a new client – it doesn't have to be big news, just something to let local businesses know you are there.

If you build relationships with editors and journalists this will help ensure that your press release is read and hopefully published. As will our quick, 30-second guide to writing a powerful press release!

4) Use email marketing software to help increase sales

This method is fast, effective, immediate and easy to design. You can also track and understand exactly how your email marketing software is growing your business and see how individual customers respond so you can increase sales over time.

To get full value from your email marketing, ensure that you update and grow your database regularly, and try to get people to opt-in by signing up on your website. There are many self-service email platforms available (such as MailChimp), or you may decide to get help from a specialist agency.

5) Start using videos to market your business

YouTube is the world's second largest search engine, so it makes sense to create a YouTube Channel and leverage proven video marketing tactics, like 'how-to' style video content and response videos, to improve search visibility and potentially drive leads.

One idea is to make individual video interviews on local news-makers in your niche using Skype. Once you've recorded the video, to maximize its benefit:

- Post it on YouTube.
- Embed the YouTube code on your website.
- Transcribe the video with a cheap tool.
- Post the transcribed content on your blog for search engines to find.

6) Or you could host an online seminar and share it on your website and via social media networks – a perfect opportunity to gain exposure.

List your business on popular local directories

Getting clients and customers to find out where you are is crucial, and one of the best ways local businesses can be found online is by adding their company to top online business directories.

There are a number of popular online directories, including Google, Bing, Yahoo, LinkedIn, Yelp, Yellowbook and Foursquare. Make sure you place your details on all of them, because if you are only posting on these top few, then you will be missing an opportunity to be found by customers and clients who are after your services. You can find a more comprehensive list of free directories on HubSpot.

7) Be active on social media

It's important to know who your target audience is, as this is one of the most popular ways to get noticed.

You can promote any news, events and interact with your audience as well as post your blog content through the most common media channels, including Facebook, Google+ LinkedIn and Twitter.

8) Verify your listing on Google+ Local

Previously known as Google Places, Google+ Local is a way of verifying on Google maps where your business physically is.

This can be verified by anyone at the business. Google will send a pin number through to your exact business address, and as long as someone enters this pin number onto your listing it means you are verified and can receive the benefits.

These include more chances to appear within Google local searchers, the opportunity to connect your Google+ profile to your Google+ Local listing, and the opportunity to gain reviews from your

customers that will then show up as star ratings in your search results.

The best bit about this is that it's completely free.

9) Attend local networking events and build connections

The best way to meet new local contacts (and potential customers) is to get out there and start networking. Make a point of attending events and meet-ups focused on your business topic, and participate in conversations by asking questions or volunteer to speak at a live blog conference.

You can search local events by region and town or city on Find Networking Events. You can also look for networking events specifically for women, as well as workshops, seminars and business shows.

10) Guest post on someone else's site

Writing a blog for someone else's site is a great way to gain more exposure for your business, and get a reputation as an expert – especially if they're well known in your local area.

Guest posting gives you an excellent opportunity to make new contacts with bloggers and hopefully attract some loyal readers. These readers could well evolve into customers, so guest posting is going to be beneficial towards your increase in revenue. Just make sure you stay within the Google guidelines for guest posting.

Other relevant directories that could increase exposure for your business include:

- **Bing Places for Business:** Only Google outpaces this free Microsoft product in visits, and you can add multiple business locations, photos, videos, and more during your fast, free, and easy registration.

- **Yahoo Local Listing:** Ranking third next to Google and Bing, Yahoo's service draws millions of searches daily.

- **Yelp** is one of the best online
sources for candid consumer reviews. Bonus: It allows you to send public or private messages (including deals) to customers and review business trends using the Yelp reporting tool. The most reviewed categories on Yelp include shopping, restaurants, and home services respectively.

- **MerchantCircle** is a free network targeted toward small businesses seeking to connect with local customers and other small businesses in their areas.

- **Yellow Pages:** This well-organized online version of the antiquated classic generates millions of daily searches. It offers advertising, lead generation, and detailed ad performance data.

- **White Pages:** This lists some 30 million companies, offering sponsored ad opportunities and a premium text message service for clients.

- **Superpages.com:** This free, easy-to-navigate service includes helpful options, including weather and lottery listings, as well as fast access to popular categories, search tips, and a Facebook sign-in option.

- **Yellowbook** allows for easily searchable business listings that include your business information, a link to your website, product descriptions, a map feature, and options for display and video ads.

- **YellowBot** provides basic contact and location info about your business similar to the Yellow Pages, with customer reviews and options that include premium listings, searchable tags, and fast sign-in via Windows Live, Google, Facebook, Yahoo, or Twitter.

- **Manta** calls itself one of the largest online resources dedicated to small business. "The Manta directory boasts millions of unique visitors every month who search our comprehensive database for individual businesses, industry segments, and geographic- specific listings," it reports. "[We] deliver helpful news and advice, promotion opportunities, and tools for small businesses.

- **Citysearch:** This free site specializes in listings for restaurants, bars, spas, hotels, restaurants, and other businesses across the U.S., optimizing them via a partner network that includes Expedia, Urbanspoon and MerchantCircle.

- **MapQuest:** This blast-from-the-past web-mapping service owned by Verizon gets searchers to your physical location quickly and easily via detailed maps.

- **Local.com:** This free directory gives searchers detailed info about events, deals, and info relevant to a given city. Its database includes more than 16 million business listings covering every zip code in the U.S., it reports. Paid ad options allow for coupons and other features.

- **Foursquare:** This combination business directory and social networking site allows users to check in via map and comment about your business, with or without the Foursquare mobile app.

- **DexKnows:** This business listing site monitors your reviews and ratings and provides data into how customers engage with your profile, giving insights to online and offline advertising opportunities. The DexKnows mobile app is available for Android and Apple and allows users to make single-tap searches, write reviews, mark favorites, and find fuel stations based on GPS locations.

- **The Business Journals:** This local option, available in most major U.S. cities, generates 8

million monthly searchers and offers four levels of listings. Its searchers rack up an average income of more than $97,000, and 84 percent shop online.

☐ **Angie's List:** This respected site is known for its objective consumer reviews in more than 720 categories. More than 3 million members turn to Angie's List to research, hire, rate, and review local service providers.

☐ **Hotfrog:** This free, detailed online directory can help get your website listed in Google search results. Options include coupons for your customers. The site attracts 1.6 million active users monthly across 38 different countries.

☐ **Kudzu:** This free database reports that it helps some 20 million homeowners a year make decisions regarding their renovations. Options include a dedicated account manager who can work to boost your website in search results. Profiles can include marketing descriptions, photographs of work performed, videos, coupons, professional affiliations, credentials, and user-generated reviews and ratings.

☐ **Trip Advisor** offers a flat subscription rate for any business related to the hospitality or entertainment industries in 48 markets worldwide. Calling itself the world's largest travel site, it reaches 390 million average monthly unique visitors and so far has logged some 435 million reviews and opinions covering 6.8 million accommodations, restaurants, and attractions.

Affiliate Marketing:

Affiliate Marketing is a web-based marketing practice in which a business rewards one or more affiliates for each visitor or customer brought about by the affiliate's marketing efforts.

Affiliate marketing is also the name of the industry where a number of different types of companies and individuals are performing this form of internet marketing, including affiliate networks, affiliate management companies and in-house affiliate managers, specialized 3rd party vendors, and various types of affiliates/publishers who promote the products and services of their partners.

Affiliate marketing overlaps with other internet marketing methods to some degree, because affiliates often use regular advertising methods. Those methods include organic search engine optimization, paid search engine marketing, email marketing and in some sense display advertising. On the other hand, affiliates sometimes use less orthodox techniques like publishing reviews of products or services offered by a partner.

In simplistic terms, therefore, affiliate marketing is the practice of driving traffic from one site to another in return for reward.

Right now, affiliate marketing is very much the staple diet of adult, gaming and retail sites across the web, but it is rapidly extending its reach into other vertical markets like mobile phones and finance, which are, incidentally, the highest-spending categories in global online marketing.

The affiliate marketing eco-system

Affiliate marketing is still treated by many as a bit of a dark art within the overall marketing mix. Many brands are wary of the potential for misrepresentation and seek reassurances on a range of issues, including security, fraud and brand bidding.

'Brand bidding' is the term used to describe the practice of affiliates buying keywords on PPC programmes relating directly to brands or trademarks, with the sole objective of driving traffic towards the brand site and generating income for the affiliate. Many marketers want to maintain control over their own brand names, believing that this is, in essence, their traffic to begin with and that affiliates or other partners should stay away from these particular keywords and focus on more 'long-tail' keyword phrases to drive traffic. In other words, some marketers don't want to find themselves competing with affiliate partners in the SERPs.

Others are more enthusiastic about affiliate marketing and regard it as an integral part of their overall online marketing operations. On the plus side, affiliate marketing offers you a ready-made sales

force operating on a reward or commission-only basis – in an age when marketers continuously seek ways to offset risk this surely has to be worth investigating, right?

On the negative side there are plenty of challenges surrounding measurement, and a lack of clear communication channels between affiliates and brands. For example, say a customer clicks on a special offer on an affiliate site, only to discover on arriving at the brand site that the offer has already expired – that's bad news for the affiliate and for the brand, because both lose revenue potential, but more seriously they also alienate a customer, perhaps for good (and, remember, online consumers are highly accomplished when it comes to letting their peers know about bad online experiences).

Today things are starting to hot up on the affiliate front. Early in 2008 Time Warner's AOL acquired affiliate network buy.at, and in the travel sector Expedia-owned TripAdvisor acquired Holidays Watchdog, deals that demonstrate how seriously investors are treating the whole affiliate business model. But who are these people?

Meet your affiliates:

The most basic affiliates are individuals (or companies run by individuals) or larger organizations who leverage their web properties to suck traffic from around the web and then push that traffic out to brand sites in return for commission. A click on an affiliate site can pay handsomely for high-value transactions. One web hosting company, for example, pays its affiliates up to $600 for new business. More traditional affiliates, such as poker rooms and casinos, pay up to $400 for a new account and a decent share of all revenue earned too. So there's plenty of incentive.

Affiliates may be considered by some as the bottom feeders in the affiliate ecosystem, but they are a vital component in achieving any sort of scale through investment in the affiliate marketing channel. You should look after your affiliates as well as you'd look after your own sales force. Equally, the age-old adage 'Be wary of strangers bearing gifts' applies, and you should make sure you have controls and measures in place to monitor your affiliates: there is no point in signing up 100 affiliates who are unchecked, unmotivated and unproductive. Moving up a notch, you have what are known as super-affiliates. These would typically include price comparison sites like moneysupermarket.com and pricerunner.com as well as loyalty sites like the Irish-owned pigsback.com (the term 'on the pig's back' is derived from an old Gaelic expression that essentially means someone is 'on to something good').

Super-affiliates do pretty much the same thing as affiliates, but on a much larger scale. Companies like E-conversions, for example, operate as super-affiliates for major brands such as Dell, British Gas and SKY in the UK market.

One example we encountered at the 2008 Internet World show in London was the US-owned Affiliate Response Network; their proposition is very straightforward. Once you are set up as a client and they conduct some initial testing on search terms (to find out what keywords pull relevant, targeted traffic) they connect your brand to a high-performing online network of affiliates focused on getting results. They will work closely with you to assess the optimal channels to pull targeted traffic: this could be e-mail, search, display, emerging media and so on. Typical models of business they support include cost per lead, cost per sale, etc. The network also provides clients with real-time tracking and reporting systems, an essential ingredient in understanding the power of affiliate marketing and also in allowing marketers to get a more accurate picture of which digital marketing elements really work for them.

So who lives in this ecosystem? Consumers, clients, affiliates, super-affiliates, affiliate networks and not forgetting, of course, Google and the search engines (which sounds suspiciously like a dodgy 1970s rock band). Depending on your view of the world, Google with its distributed AdSense pay-per-click model is the biggest affiliate marketing player of them all. Then again, in the words of the great Jerry Reitman, former head of direct marketing worldwide for Leo Burnett's, 'at the end of the day. . . it's all advertising'.Online Ad Format:

The text ads that appear alongside Google search results are just one type of ad format you can create with AdWords. You can also promote your products and services with video ads, image ads, app or digital content ads, and more.

Each ad format has its own benefits, whether it's the ease and affordability of running a text ad, or the colorful storytelling that comes with video. You can run multiple kinds of ads from the same AdWords account and, in some cases, from the same campaign.

Ad formats available in an AdWords account

Format	Description	Main benefits
Text	Words only. * Boston's Best Bonsais - Spring Sale Going on Now Adwww.example.com Florist And Indoor Plant Nursery. Two Locations. Spruce Up Your DeskToday!	Maintain ads quickly and easily. Reach customers when they searchon Google. Use Ad extensions to provide additional details and contact information that can make your text ads more relevant to customers.
Responsive	Responsive ads automatically adjust theirsize, appearance, and format to fit available ad spaces. They can transform into text or image ads.	In a matter of minutes, create ads that fit just about any ad space available. Plus, responsive ads canshow as native ads, which boost your impact by blending into publisher's websites.
Image	Static or interactive graphics. Animatedads in .gif and Flash format can be used.	Showcase your product or servicein a visual way. Reach customerson websites that partner with Google.

App promotion ads	Drive app downloads and engagement with app promotion ads.	Send your customers to download your app from an app store, or include a deep link directly into your app. Note: Ads will appear only on devices compatible with your content.
Video	Video ads that show online. Run standalone video ads or insert them in streaming video content. 	Deliver a rich and engaging experience to customers. Reach customers on websites that partner with Google.
Product Shopping ads	Shopping ads show users a photo of your product, a title, price, store name, and more details about your product.	Show an ad featuring your product to people shopping online for that product or related products.
Showcase Shopping ads	An image and description that expands when clicked to show several related products and information about the store.	Show a Shopping ad to people who are researching where to buy rather than looking to buy a specific product. Showcase Shopping ads are available in Australia, Canada, Germany, France, Ireland, India,

		New Zealand, Singapore, South Africa, the UK, and the US. You may create Showcase Shopping adsusing the [new AdWords experience](#) and the [AdWords API](#).If you want to advertise individual products, check out **[Product Shopping ads](#)**
Call-only ads	Call:(555)555-555 [Ad] www.example.com Description Line 1 Description Line 2	Drive phone calls to your business with ads that include your phone number. People can click on these ads and then call your business directly. These ads will only appear on devices that can make phone calls, and any field in these ads can be hidden to fit on smaller screens.

Search Engine Ad:

Search engine advertising (SEA) is a branch of online marketing and, together with SEO, a discipline of search engine marketing. In SEA, advertisements in the form of a text or images are posted on search engines such as Google or Bing. The advertisements then appear prominently in the SERP (Search Engine Results Pages). The posting of advertisements within the framework of SEA belongs to the main source of income for search engine providers.

SEM vs. SEA vs. SEO

The terms SEO, SEA, and SEM are mainly used less selectively. The following description willtry to compare and contrast these marketing terminologies.

SEM

- Search engine marketing, abbreviated: SEM
- Combination of SEA and SEO, branch of online marketing

SEA

- Search engine advertising, abbreviated: SEA
- Posting of ads in the form of a text or images on search results pages or other websites
- Ad booking in the SERPs based on bids on keywords for which the ads are placed
- Good ranking can be achieved through optimization of text ads and offers
- Clear control of advertisement measures with calculable success
- Means to increase traffic or improve the brand
- Can be part of a temporary marketing campaign
- Many possibilities for targeting or retargeting
- It can be part of remarketing
- Acknowledged as advertising

- Search engine optimization, abbreviated: SEO
- Includes measures to optimize websites for crawling and indexing by search enginesusing on-page and off-page optimization.
- Good rankings can be achieved through optimization of the website onpage and off-pagefactors
- No decisive guarantee that optimization measures will lead to better positions for certain keywords
- Branding is more of a secondary part of an SEO strategy
- SEO is often long-term
- Targeting can only be done through tests, evaluations, and estimations that lead to the adaptation of the content or seeding
- Rather "invisible" for the user

Objectives of SEA:

Search engine advertising is usually a part of a marketing or branding strategy. One of the primary objectives of SEA is to increase the click-through rate since the number of clicks on a website can quickly be increased through the posting of advertisement space. In addition, the Conversion Rate is particularly important for the SEA, as it ultimately determines how high the advertising costs are, and thus the ROAS.

At the same time, search engine advertising can also be used to generate advertising pressure through page impressions from display campaigns. For the most part, advertisements are used bycustomers in the e-commerce industry since SEA is aimed at persuading the user to buy. Thus, one of the main objectives is to increase conversions in the form of sales.

However, newsletter subscriptions, downloads, or reviews, and leads, can be manipulated through search engine optimization. The scope of the SEA measures is thereby always dependent on the amount of invested advertising budget as well as the actual search volume of research keywords.

Google AdWords:

Google Adwords is a product of Alphabet Inc. that offers marketers a wide range of advertisement opportunities in the SEA field. The principle of placing ads through AdWords is based on auctioning. Advertisers bid on specific keywords or they pay for clicks and impressionson display advertisements. Factors, such as the quality of the landing page, quality of the ad text, as well as relevance of the keywords and positive history of the AdWords account, play a crucial role in the final placement of text ads or banners. Banners or text ads posted through Google AdWords are always regarded as advertising. The following forms of advertising are possible using Google AdWords:

- Classic text ads: An advertiser selects keywords with which his/her text ads will be displayed on a prominent position in the SERP. This entails creating the so-called campaigns that, in turn, consist of ad groups. Every ad group is categorized into advertisements based on the selected keywords. If a user searches for one of these keywords, the corresponding AdWords advertisement is displayed.
- Product listing ads: With the so-called Shopping Ads (former Product Listing Ads), GoogleAdWords offers the possibility to place product ads that are directly created from a product

file generated by the customer. The modulation is done by specifying the Structured Data in the data feed.

- Display ads: These are ads in the form of images or text that are placed on platforms belonging to the Google advertisement network. Registration for this network can be done through the Google AdSense platform.

Google AdWords offers the possibility to combine different forms of advertisement of SEA. Simultaneous placement of PLA, text ads, and display ads is, therefore, possible. The AdWords platform is one of the most used SEA tools in the world.

- Video ads: Advertisers in the Google AdWords program can also place ads on YouTube. Text or

video ads are available for this purpose.

- Gmail-Ads: If you use Google AdWords, you can also book ads in Gmail accounts. Payment is made via CPM or Cost-per-Click.
- With the AdWords Express program, Google offers small companies the possibility to use SEA without having to create their own campaigns. The thereby required files are automatically generated by Google. The advertiser only provides his/her advertising budget.

Bing / Yahoo ads:

Together with Yahoo, Bing also offers its own SEA platform. Bing / Yahoo ads]] function in a similar way to Google AdWords. However, due to Google's market dominance, Google AdWords is the platform that is mostly used for SEA in Germany and Europe. Nevertheless, a comprehensive SEM strategy should also include possibilities to advertise on Bing and Yahoo. This applies, for example, to the USA, where Bing has a significantly larger market share than inGermany.

Other SEA platforms:

Besides the major search engine providers, almost all larger search engines offer their own advertising programs. SEA, through specialized search engines, can also be advantageous depending on the targeting. As an alternative to purchasing ads from Google AdWords, for example, Amazon product ads can also be placed on the Amazon platform.

For example, if a website also wants to be successful in Russia, SEA for Yandex, etc. should alsobe taken into consideration. If an online shop wants to advertise vehicle parts to specific target groups, it also has the option to place its ads on different car comparison portals.

Posting models:

In SEA, posting ads is done based on different provisions:

- CPC (cost per click): Here, the advertiser specifies how much he/she is willing to pay per click.
- CPA (cost per acquisition): The advertiser specifies how much he/she is willing to pay per conversion achieved through the advertising measures.
- CPM (cost per thousand): The advertiser specifies how much he/she is willing to pay per 1,000 impressions of his/her advertisements.
- Cost per call: Here, certain advertisement portals offer the possibility to specify how much an advertiser is willing to pay per visit, Google AdWords, for example.
- Cost per lead: Depending on the web portal, costs for leads such as subscribing to a newsletter ordownloading a PDF can also be agreed upon.

Impacts of SEA on SEO:

Although search engine advertising is not considered to be SEO, SEA can possibly have an impact on the ranking of a website. Therefore, this makes SEA sort of an indirect SEO measure. If an online shop raises its advertising impact through SEA and thereby improves its scope and visibility, direct type-ins of the shop's name as a brand are for example deemed to follow. Thus, the brand is strengthened and, among other things, the domain trust of a website is as well. Ever since the Vince Update, the brand plays a greater role in the SERP. For example, a website can increase its awareness with the help of SEA and, if a campaign is successful, can thus generate more traffic via the organic search, because the brand is known to many users and they decide in the SERPs for the more well-known URL, although it may even rank worse.

Through SEA, Google, or any other search engine, new information on the visits to a website is received. Since the click rate and bounce rate are also considered in the evaluation of a website, successful SEA measures also lead to an improvement of the quality of a website. Another direct consequence of SEA measures is that a website or web shop can become more famous and thereby result in "offline" access

through word of mouth.

What is an Advertising Network?

An advertising network, or ad network, connects businesses that want to run advertisements with websites that wish to host them. The principle attribute of an ad network is the gathering of ad space and matching it with the advertiser's needs.

The term ad network is media neutral, but is often used to imply "online ad network" since the marketplace of aggregated publisher ad space and advertisers is increasingly found on the Internet. The crucial difference between traditional and online ad networks is that online ones deliver advertisements to the public through an ad server. Delivering ads through one central hub allows the business owner to use various methods of targeting, tracking and reporting that don't exist with traditional media alternatives.

How do they work?

Ad networks work with publishers all over the Web, helping anyone who has unsold inventory, or ad space, and wishes to monetize their offerings. The networks then aggregate this inventory, package it and sell it to advertisers.

Advertising networks provide a way for media buyers to coordinate ad campaigns across dozens, hundreds, or even thousands of sites in an efficient manner. The campaigns often involve running ads over a category (run-of-category) or an entire network (run-of-network). Site- specific buys are not a major emphasis when dealing with advertising networks.

Ad networks vary in size and focus. Large ad networks may require premium brands and millions of impressions per month. Small as networks may accept unbranded sites with thousands of impressions per month.

One of the key issues for publishers is **Exclusive vs. Non-exclusive representation**.

- the space themselves.
- Advertisers also like the ease of use. With minimal effort, they can **Exclusive** representation generally brings a higher percentage of revenue sharing, but sometimes results in a smaller percentage of ad inventory being sold.
- In **non-exclusive** arrangements, publishers may use secondary advertising options to fill the space left unsold by the primary ad network.

Pros and Cons:

- The benefits of using ad networks are numerous for both content providers and advertisers. Content providers find them an easy and reliable way to sell inventory, although the revenue is typically less than what they could earn selling purchase a campaign that targets a specific group of consumers on websites throughout the world. Ad networks are also known for flexible payment models and cost efficiencies.
- The downside to advertisers is limited control over ad placements. The possibility exists that ads could appear next to inappropriate content.
- Many advertisers have also complained that their own campaign analytics often do not match up with the metrics provided by the networks. Despite these downfalls, many businesses find ad networks to be an affordable and efficient way of reaching consumers.

Pricing Structure:

Ad networks offer many different pricing models to suit the needs of different businesses.

- **CPM - cost-per-mille** (Latin for "thousand") is the simplest of ad delivery options. Advertisers pay

a price for every 1,000 impressions delivered. An ad served on someone's browser is an impression. Whether or not the user clicks on the ad has no bearing on the price.

☐ **CPC - cost-per-click** is a performance-based model. Impressions served do not factor in cost. Instead, advertisers pay for every click they get on an ad campaign. This method of pricing often depends upon advertisers bidding on the maximum amount they will pay for a single click, a model that's become very popular on Google AdSense and Adwords. The downside of CPC is the uncertainty of how often the ad will be served, however, the low risk and focus on performance still make it an attractive option to most marketers.

☐ **CPA - cost-per-acquisition**, or **cost-per-action**, takes the performance-based model even further by guaranteeing advertisers will only pay for a specific action or conversion by the user. This ad delivery metric is often a key performance indicator for marketers when evaluating return on investment (ROI).

Ad targeting capabilities

Targeting capabilities for advertisers have increased dramatically over the years due to massive quantities of consumer data that have become available to the marketing community. Targeting capabilities may include:

- Age
- Gender
- Income
- Geography
- Behavior - displays relevant ads to users based on content they've clicked on while visiting several sites.

How Ad network work with Advertisers and Publishers:

An ad network is essentially a middleman; it connects advertisers to websites that host advertisements. The network seeks out unsold advertising space from publishers, and then sells that space to advertisers searching for ad space with particular content.

1. You make your ad spaces available
You make your website ad spaces available by pasting ad code on your site, and choose where you want the ads to appear.

2. The highest paying ads appear on your site
Advertisers bid to show in your ad spaces in a real-time auction. The highest paying ad will show on your site.

3. You get paid
We handle the process of billing all advertisers and networks for the ads on your site, to make sure you receive your payments.

Ad networks are beneficial for all three parties involved; the advertiser pays a certain amount each time their ad is clicked by a potential customer (or a set amount for every 1,000 impressions), while the network and publisher each take a percentage. For example, if an advertiser pays $1 per click, every time the ad is clicked, the publisher might get 70 cents and the network 30 cents.

There are **three** types of ad networks, each based on how they work with advertisers and publishers. These

include:

1. **Blind networks** offer low prices, but advertisers generally have no control over whereads are placed.
2. **Vertical networks** tend to have higher quality traffic with advertising across general categories like automotive.
3. **Targeted networks** are the most expensive for advertisers, and focus on specifictargeting like behavior or website context.

Perhaps the most well-known ad network is Google AdSense, but there are many others out there, including advertising.com, casalemedia.com, tribalfusion.com, and valueclick.com.

How Do Ad Networks Help Content Publishers:

Ad networks offer content publishers an easy and convenient way to make money by selling space on a personal blog or other website. They link advertisers and publishers that perhaps would never connect otherwise – and offer a safe place for both publishers and advertisers to buyand sell.

Generally it costs a blogger or publisher nothing to partner with a network and implement a revenue stream. The network does all the work, from finding advertisers, setting up campaigns,targeting and collecting money. The network taking on those parts of the partnership leaves the publisher with time to create quality and relevant content, which is necessary to bring in revenue.

Google Display Network (GDN):

Google has a vast network of websites advertisers can display ads on, from the New York Times down to the smallest blogs on the Web. They offer several options businesses can use to target audiences. They may even combine two or more targeting methods in the same campaign.

- **Contextual Targeting** - Google delivers advertisements to users based on the content they consume. The content aggregator - Google, in this case - assigns labels to specific websites and matches it with keywords associated with a specific ad. GDN can also serve an ad that contextually fits websites where a user has previously been. For instance, a user might visit an outdoor sporting goods website and then click away to look at political news site. Contextual targeting could be used to show an ad for family-sized camping tents to that user on the political site.
- **Placement Targeting** - marketers can choose which websites or webpages the ad serves on.
- **Remarketing** - users who visit a website are then shown advertisements for that website as they browse other areas of the display network. Remarketing can be a highly effective tactic to market to people who may have abandoned their shopping carts on your website.
- **Interest Categories** - Marketers can target people based on interests they reveal in the Web content they visit.
- **Topic Targeting** - Similar to interest categories, topic targeting allows marketers to pick a specific topic and Google will display the ads on quality sites related to that subject.
- **Geographic and Language** - Marketers can distribute their ads within a specified region or postal code and define the native language of the audience.
- **Demographic Targeting** - Ads are distributed to an audience based on age and gender.

The growth of advertising networks, and the wealth of user data that has come with it, presents tremendous opportunities for marketers who want to expand their reach with consumers. Whether your goals are to build awareness or generate conversions, an advertising network can help you find your audience and get results.

Landing Pages:

What is a Landing Page?

In the purest sense, a landing page is any web page that a visitor can arrive at or "land" on. However, when discussing landing pages within the realm of marketing and advertising, it's more common to refer to a landing page as being **a standalone web page distinct from your main website** that has been designed for a single focusedobjective. This means that your landing page should have no global navigation to tie it to your primary website. The main reason for this is to limit the options available to your visitors, helping to **guide them toward your intended conversion goal**.

Landing pages are specialized, optimized web pages that visitors aretaken to upon clicking an ad. Landing pages can feature specific products featured in the advertisements themselves, or they may include prompts for users toprovide the advertiser with more information, such as web forms. Landing pages can be usedto convince prospects to complete an action, such as making a purchase, or function as another step in a longer "funnel," such as requesting additional information or downloading a piece of content for lead generation purposes.

A landing page can be commonly defined as the page beyond the click in a digital marketingcampaign context. Landing page optimization is a central issue for:

- ☐ Display Campaigns
- ☐ Pay per Click (PPC) ads
- ☐ Affiliate marketing programs
- ☐ Email marketing campaigns
- ☐ Some offline campaigns - with QR Codes for instance.

Types of Landing Pages:

There are 2 basic types of landing page, Click Through and Lead Generation (also referred to asLead Gen or Lead Capture pages).

1. Click Through Landing Pages

Click through landing pages (as the name implies) have the goal of persuading the visitor to click through to another page. Typically used in ecommerce funnels, they can be used to describe a product or offer in sufficient detail so as to "warm up" a visitor to the point where they are closer to making a purchasing decision.

All too often, inbound advertising traffic is directed at shopping cart or registration pages. This leads to poor conversions as the ad doesn't provide sufficient information for someoneto make an informed decision.

This is where the click through page comes in. As a result, the destination page from a click through page is typically the shopping cart or registration page – now with a much higher chance of conversion having passed through the details of the landing page.

2. Lead Generation Landing Pages

Lead generation landing pages are used to capture user data, such as a name and email address. The sole purpose of the page is to collect information that will allow you to marketto and connect with the prospect at a subsequent time. As such, a lead capture page will contain a form along with a description of what you'll get in return for submitting your personal data.

There are many uses for lead gen landing pages, some example uses and the items given tothe user are listed below:
- Ebook or whitepaper
- Webinar registration
- Consultation for professional services
- Discount coupon/voucher
- Contest entry
- Free trial

- A physical gift (via direct mail)
- Notification of a future product launch

Some websites may have hundreds or thousands of automated landing pages created specifically for digital campaigns.

Landing pages are key factors of campaign effectiveness and ROI, and are still sometimes insufficiently taken into account. Many failed digital campaigns are due to poor landing pages. Landing page design and optimization rules differs according to industries, product categories, traffic sources and campaign goals. Some landing page design services may offer several hundreds of landing page templates.

There are many kinds of landing pages:

- Product landing pages
- Lead gen landing pages
- Facebook landing pages
- Dynamic landing pages
- Automated landing pages
- Personalized landing page
- Mobile landing pages
- Responsive landing pages
- Co-branded landing pages
- Co-branded affiliate landing pages
- B2B landing page

The Importance of Landing Pages in Your Digital Marketing Campaigns:

When it comes to turning traffic into conversions, landing pages can be the most important aspect of a digital campaign. Remember, landing pages are independent pages dedicated for specific traffic (Email marketing, Pay Per Click, Direct, etc) and are designed to drive conversions. For the purposes of this post we are focusing on the relationship between landing pages and PPC campaigns, however, the best practices outlined can be applied to all traffic sources.

There are many different benefits that come from having optimized and targeted landing pages in any campaign, to understand these benefits it's important to understand Pay-Per-Click campaigns and how landing pages work within those campaigns.

The PPC process can essentially be broken down into two main parts:

- Generating traffic through the setup of the campaign
- Converting that traffic at the highest rate possible

When setting up your PPC campaign, the focus is on structuring the ad groups in a way that will produce a high quality score for your identified keywords. Quality Score is Google's grading system for Adwords performance strength and is determined by three things:

- Ad relevance
- Expected click-through rate
- Landing page experience

This quality score is very important in determining where an ad is placed and how much the click will

cost. Following the keyword and ad copy, converting traffic becomes a responsibility of the landing page experience. It is vital that the landing page follows this same pattern of keyword and ad copy to continually communicate the same response to what the initial inquiry was seeking.

Being able to create very specific, targeted ad groups is the power of PPC efforts. Therefore, differentiating the landing page message based on each target is vital to conversions. To help with this, here are some 'best practices' for creating landing pages for your PPC account and overall paid marketing efforts:

- **Be Campaign Specific**: We all know companies generally offer a lot of different products/services. However, most PPC searches are based on users looking for something specific. It is much more effective to provide the specific information they are searching for rather than a generic message with conflicting offerings.

- **Make Them Easy to Modify**: PPC campaigns are constantly being optimized and modified, that's one of their greatest aspects. Your landing pages need to have the same flexibility in order to incorporate A/B testing ideas and overall optimization strategies.

- **Focus on Conversions**: Your website's homepage is typically found organically or through referral traffic and does a great job educating someone on the company, products, etc. PPC traffic is psychologically different than Organic traffic and needs to be treated differently. The window of opportunity to convert PPC traffic is much smaller than that of the Organic visitor. Being able to have relevant calls-to-action and information based on the visitor's intent streamlines their steps to conversion rather than possibly losing them as they browse the website searching for the answers on their own.

- **Keep it Simple**: Determine the most essential information needed and leave the rest out. The easier it is for the customer to complete the desired action, the higher the conversion rate will be.

- **Be Benefit Driven**: Once the user has reached your landing page you know they are already interested in your product or service, the goal now is to give them an offer they can't refuse through promotions or discounts.

- **Stay Focused**: Include specific search terms from the ad group the brought the user to the site. Including these keywords not only adds a level of trust for your potential customer but also adds value to the landing page experience, which directly improves the Quality Score in AdWords. Once you have determined what your marketing goals are, as well as the point of conversion for each goal, you can create a landing page based on the points above to round out your overall PPC structure. Be sure to keep your messaging tightly themed with each corresponding ad group and as you continually monitor and optimize both your ad groups and landing pages you will find which combinations work best to improve your overall performance rates.

By segmenting your potential website customers into their interest areas, you can ensure the first thing they see when they land on your website is highly relevant information which gives you the best chance of turning them into a customer.

Email Marketing

Introduction, Types of Email, Email Marketing Campaign Process, Email Marketing Tools, Advantages and Disadvantages, Opt-in Email Advertising, Email tracking.

What is Email Marketing?

Email marketing is using e-mail as a means of promoting your products or services. This can be direct one to one e-mails but typically it relates to sending e-mails to a group of people that have subscribed to a mailing list.

Email marketing is a digital marketing channel that engages prospects at various stages of the funnel, engaging and maintaining their interest. Because of its versatile nature, email is a vital tool for online retailers who want to stay top of mind with consumers. Email marketing is a good and cheaper alternative

to sending direct mail (via the post).

For example some people may subscribe to receive a regular newsletter from you. In general theterm "Email marketing" is used to refer to:

> ➢ Sending promotional e-mails in order to acquire new customers or convincing current customers to purchase something immediately.
> ➢ Sending emails specifically designed to enhance relationships with current or previous customers, to encourage customer loyalty and repeat business.
> ➢ Adding advertisements to others companies' e-mails (on a partnership basis) to gain exposure within a new market.

How online businesses use e-mail to engage customers:

Email is utilized throughout the sales funnel and is a key revenue driver for many onlineretailers. Common emails include:

- ☐ **Newsletters**: Engage users with information about the industry, company news, and
- ☐ **Promotions**: Often sent to existing customers, promotional emails alert users to new products and sales.
- ☐ **Abandoned Cart Notifications**: Indecision, nontransparent shipping charges, and avariety of other reasons cause customers to leave a cart before purchase. These notifications remind them and can boost conversion by 15% or more.

Measuring the Success of Email Marketing:

The following metrics are used to judge the overall success of email marketing:

- ☐ **List Growth Rate:** This measures how many addresses are being added to the company'slist of contacts. More contacts is *not* necessarily better - a small list of leads who arelikely to buy is better than a large list that doesn't care.
- ☐ **Bounce Rate**: A 'bounce' is an email that was never successfully delivered. This indicates a problem such as the account no longer being in use, and businesses need to trim these addresses on a regular basis.
- ☐ **Click-Through-Rate**: This calculates how many people are clicking one or more links inthe email (typically taking them to a product page or special offer), and is one of the major signs of interest in an online store.
- ☐ **Conversion Rate**: An extension of the previous metric, the Conversion Rate calculates how many people are *finishing* what they've been prompted to do. The most common criteria for this is purchasing a product or service, but it is possible to use other criteria, such as filling out a form to provide more information about themselves.
- ☐ **Revenue Per Message**: This metric calculates how much profit, on average, a company made throughout its campaign. The calculation is a simple division of total revenue by the number of marketing emails sent.

Checklist for an Effective Marketing Email:

Individual needs for e-commerce businesses vary, but the following elements of marketingemails have been proven to improve the overall conversion rate.

- ☐ **One Topic:** Emails with multiple marketing messages are seen as "busy." Restricting them to one topic focuses the reader on the actual message and tends to result in measurably higher revenue per message.
- ☐ **Attractive Design:** Simple designs that complement the message without distractingfrom it are best. Remember that many emails will be opened on mobile devices and many accounts have disabled images.
- ☐ **A Clear Call To Action:** Readers should never be wondering what to do next, especiallywhen

you want them to purchase something.

- ☐ **The Result of Experience:** Every campaign should teach something new about customer behavior and what elements (designs, offers, etc.) they are responsive to. Use this experience to improve the messages on a regular basis.

Types of Email:

1. Promotional Email:

seasonal promotion, this email from Banana Republic Factory injects a little personality into their CTA language, encouraging readers to "hop to a store Promotional email is to promote a product or service, usually to entice customers to makea purchase. Every Business almost would enjoy this benefit. Promotional emails are shortand sweet. You might want to create a special graphic to complement your email copy; otherwise, it's not a time consuming process.

Tips for creating a Promotional Email:

- ☐ **Make the offer clear.** Your customers may not take the time to read your email, but if you have a clear offer that's front-and-center, they won't be able to ignore it. In the promotional email below, there's no question what the deal is.

- ☐ **Create a sense of urgency.** Give customers a reason to act quickly, rather than let the email sit in their inbox. In the example above, the dates of the promotion are apparent. Use active language as well. To tie in with a."

- ☐ words, the retailer sums up the deal. **Keep it short.** Promotional emails don't require a lot of explanation. State the deal, then tell customers how to redeem it before it expires. No need for a lot of flowery words. Take a look at the example below. In less than 45

2. New inventory email

Its Purpose is to let your customers know about new items. It falls under the promotional email umbrella. You're updating customers, but also hoping for a sale. Any business can tell customers about a new item in stock. Fashion and retail businesses may get the most bang for their buck. Time is spent taking a good picture of the new product, but these don't require a lot of text.

Tips for creating a new inventory email:

- ☐ **Send the email out as soon as the item arrives.** As soon as you have the inventory in stock, create the email and hit send. This shows you're on top of new trends and want your customers to have the latest, greatest items available.

- ☐ **Take a killer picture.** You don't have to get artsy, but you do need to showcase your new item. In fact, these types of emails are more about the photo than text. Take the email below, for example. It's all about the picture. With just a few words, Nike gets its point across.

- ☐ **Convey the point in your subject line.** You know subject lines can determine whether or not your customer opens your email, and this email is no different. Be sure to tell your customers that you've got something new and fun for them to check out.

3. Newsletter email

Newsletter email purpose is to inform customers about company news, improve brand awareness and build a relationship with your core audience. Almost Business would benefit with this type of email. It takes a bit of time to create a solid newsletter, but it's a valuable marketing tool.

Tips for creating a newsletter email:

☐ **A newsletter doesn't mean long format.** Break the copy in your newsletter into short, digestible and actionable sections of content, copy, images and calls to action.

☐ **Create an easy-on-the-eyes design.** Think of your newsletter like a mini- newspaper. You want clear lines and divisions between your content. You want a simple layout with basic fonts. Don't go crazy with the color scheme, either:

4. **Include your contact information in the newsletter.** You always want your contact information in an easy-to-find area on the newsletter. The purpose of your newsletter isn't necessarily to sell, but if your customers are inspired to reach out to you because of the newsletter, you want them to be able to find you. You could put social media contact buttons in the header or footer of your message; you could go the more traditional route, and include your phone number and email address; or you could do both.

Welcome email

Its purpose is to welcome new email subscribers to the family and establish a good relationship. Creating the email doesn't take long, but you need to know when a new customer signs up.

Tips for creating a welcome email:

☐ **Write in a conversational tone**. A welcome email is like a virtual handshake that accepts a new member into your group. It should be inviting and warm. Show the personal side of your business. Take a look at the email below. It specifically welcomes new subscribers into a community, and the tone is friendly and casual, but still professional.

☐ **Consider offering a reward.** In celebration of a new customer, you could offer a discount or some sort of perk. You could offer 10 percent off the next purchase like Society6 did in the example above, or offer another perk like free shipping.

☐ **Remind new users about the benefits**. Thank your new customers for signing up and reinforce their decision to join. Tell readers what they'll get out of this new partnership. The email below does exactly that.

5. Product advice email

The purpose of this mail is to offer your customers advice on how to get the most from your business or product. At the same time, to establish your authority in the industry. This kind of email has more information, so your time will go toward writing and proofreading.

Tips for creating a product advice email:

☐ **Create valuable content -** The key to this kind of email is to offer tips that your customers want to read. Help solve problems they may have or obstacles they may need to overcome. Or, offer tips to help your customers use and maintain your product or service. If you sell cameras, send an email that teaches customers how touse certain features. Whatever your business is, create an email that gives your customers a helping hand.

☐ **Proofread -** No matter what email you send, you should proofread it several times. Read it from the bottom up so your brain isn't reading words that aren't there. Then,have someone else read it. Take it through an error-check process before sending. Nothing cuts your credibility like misspellings and grammatical errors.

☐ **Focus on customer service -** Emails that offer product tips should also showcase your commitment to customer service. Emails like this tell customers, "We're here for you." Follow through with that message by adding contact information to the email. The email below, for example, offers tips to wear a certain piece of clothing, but you'll also notice

there is a "contact us" option in the top right corner.

6. Educational email

Educational Email provide customers with industry knowledge that's connected to your business or product. It helps build relationships and trust between your business and your customers. It takes time to brainstorm ideas and to create a sharp email.

Tips for creating an educational email:

☐ **Offer relevant content -** When you send an educational email, you're trying to build a relationship with your customers. The best way to do that is to teach them something. However, you want to teach them something that has a connection to your business. For instance, Monster.com, the job search site, sends its customers information about life in the workplace. An example is below.

☐ **Consider offering bite-sized information -** Take a cue from the Monster.com email above and write bite-sized pieces of information in the article; let your customers decide if they want to read more. The "Read more" link takes your customer to your blog for the full article. It's a great way to engage with customers via email and boost blog traffic.

☐ **Add a mini-promotion -** You can add a promotional element to this kind of email, but it shouldn't be the main attraction. For example, Lumosity, the brain game site, offers an educational article as the main feature, but notice a promotion on the right side for a family membership. It's subtle and simple.

7. Reorder email

Reorder Email is To remind customers that it's time to reorder a certain product. Any business that sells products or services needed on a regular basis would benefit. Examples include products like printer cartridges, contacts, pet medications and vitamins. Basic text and images are needed.

Tips for creating a reorder email:

☐ **Clear call to action -** The purpose of a reorder email is to encourage your customers to replenish your product or perhaps renew a subscription for a service. You want to make the buying process as simple as possible. To do so, create a simple, easy-to-find button that says, "Reorder now." For instance, in the example below, customers can reorder pet medication from Pet Wellbeing.

☐ **Remind customers of the value -** In the email, tell your customers why reordering is a good idea. Maybe it's to keep vital pet medications on hand, or to avoid the hassle of running out of toner at the office. You could also offer a discount to those who reorder within a certain time frame.

☐ **Mention past purchases -** If you want, you can mention in the email what your customer purchased in the past, so they can reorder the same thing. The pet supply store below does this for its customers. It's a nice addition to the email, but you can send it without this information.

8. Testimonial Email:

Its Purpose is to reinforce how valuable your business or product is through customer feedback. Every business **would** benefit with this mail and It takes a bit of time to collect testimonials. You may need to be persistent to get customers to give them to you.

ips for creating a testimonial email:

☐ **Create a sleek design -** Email design elements are important with testimonial emails. You

want something that's eye-catching and easy to read. Take a look at the example below. This retailer put together four quotes from happy customers and highlighted the product, too. It's a win-win. Both the accolades and the products are showcased well in this simple design.

- **Include an image -** If you sell tangible items like clothing, using pictures of shirts and dresses makes sense. But that doesn't work for every business. Take a medical clinic, for example, or a sanitation company. What image do you use in these cases? If you need a powerful image, ask the customer who gave the testimonial for a picture. Take a look at the example below. The customer's picture is what makes the email work.

- **Offer more information -** A testimonial is great, but you should offer your customers a next step. For example, in the email above, customers can read more testimonials by clicking on the text. You could offer a link for others to leave feedback, or a link to other uplifting company news.

9. Survey email

Survey Email is to collect helpful information you can use to improve the customer experience. Any business looking to better itself can use this email. We have to spend time creating the survey and writing an email with a link to the survey.

Tips to create a survey email:

- **Explain what's in it for them -** If you want a customer to take the time to fill out a survey, you need to give them a reason. In the example below from CVS, participants are entered to win a cash prize.

- **Address the purpose of the survey -** Besides an incentive to fill out the survey, you should tell your customers why you want the information. Whether you're trying to improve your business or conducting product research, let your customers know the purpose of the survey.

- **Make the survey easy to access -** There should be an obvious, clickable link to the survey. Take a look at the example below. Notice the link to the survey is a clear, easy-to-spot button at the bottom of the email.

Email Marketing Campaign Process:

Planning your Email Marketing Campaign Before you get started actually creating your email campaign and designing the layout of your email, you first need to think about the purpose of the campaign and what you are trying to achieve. The types of things we need to include:

- **What am I trying to achieve?** — This is where you think about the purpose and goals of your email marketing campaign. You may have a long term goal, whereby you want to

communicate with your customers on a regular basis to keep them informed of the latest offers, new services you have added to the hotel, and so on.

- **Who do I want to target?** — identify who you want to send the email to. Your existing customers, such as, families or couples who have stayed with you before. You may even want to split up all your e-mail subscribers to groups and tailor communication based on the group.

- **How will I get people to subscribe to my mailing list?** — By law you have to get specific permission from people to send them a marketing email. This is sometimes referred to as an "opt-in" and there are many ways you can get people to subscribe (or opt-in) to your mailing list. For example, you could have a sign-up form on your home page so that people can subscribe to your newsletter.

- **How frequently will I send these emails?** — How frequently you send out your emails will

depend on their type and purpose. For example, you may send out special offer and promotional emails as and when they are available, whereas you may send out a newsletter once a month. But try and keep the number of promotional communication's to a minimum (1-2 a month) as too many emails could potentially annoy and alienate your subscribers causing them to unsubscribe.

- **Calls to action** — This is what you want to get the reader to do once they have read your email. When designing your email you need to lay out exactly what you want therecipients of your email to do, and design it to make that path clear and easy to follow. For example, don't distract with too many links or offers, and make not only the call to action clear but also what recipients can expect when they click through. This can be as simple as "Click here for a 20% discount on your next weekend trip". For more information on calls to action, see the section in the guide "Getting the Most from your Website" which is part of this series of guides.

E-mail Marketing has evolved, moving from simple one-way messages and auto-responders (now referred to as e-mail 1.0) to a much more sophisticated way of communicating with your customers referred to as e-mail 2.0. It's an advancement in technology, entrepreneurs now have the ability to tailor the messages they send based on their customers' interests, preferences and purchase history - and targeted e-mails yield greater results.

With all the capabilities now available in e-mail marketing systems, there are a few basic things we need to know about e-mail marketing to build deeper relationships with your customers to increase revenues, grow your business and get ahead of your competition.

Here are seven steps to creating and launching a successful **E-Mail Marketing 2.0 Campaign**.

1. Choose the Right E-mail Marketing Software System

CRM systems can range from simple database models to more complex systems that include sales force management, shopping carts, affiliate programs and e-mail behavior campaigns. Infusionsoft offers complete CRM capabilities, which include not only database and campaign management but also offer information on interest, preference and purchase behaviors so that you can tailor your message and campaigns. Other systems, such as Mail Chimp , Constant Contact and AWeber offer more basic e-mail database and campaign management services. Decide what capabilities you want and use a checklist to compare systems. Most e-mail programs have training and free support to guide you through thelearning process.

2. Build a List

Even if you only have 10 e-mail addresses, you need to start somewhere. Add those to yourdatabase. Once you have your list started, make sure that you launch a campaign to keep in touch and in front of your contacts without overwhelming their inbox. I suggest two e-mailsper month maximum. It's not about e-mail quantity; it's about quality.

3. Set up Contact Information Capture Forms

It's easy to add forms to your website or blog to allow visitors to give you their contactinformation, such as e-mail address, name and phone number.

4. Decide What You Want to Accomplish

Before you launch your first campaign, you need to decide what it is that you want to accomplish. Do you want to deepen the quality of relationships, take your list through thesales cycle, educate them? Why are you sending your e-mails? Set clear goals before yousend your first e-mail, and build your messages and campaign around those goals.

5. Set up Auto-respond E-mails

Set up at least six e-mails that will automatically release on the dates and times you choose tosend out to your list. Keep them short, simple and to the point. Do not make them "sales pitchy"; use auto-respond e-mails to educate and build relationships, and the rest will follow. Make sure that each auto-respond e-mail has several links for more information; this is how you will gauge their interest and determine how to keep marketing to them.

6. Add Triggers to E-mails

Here's an example of a trigger: Your client clicks on a link in one of the e-mails you sent her about your product or service. As soon as she clicks on that link, it automatically triggers the release of a message sending her information about a similar product or service based on the original link. Triggers are used to send clients into a new sales cycle based on topic.

7. Monitor Results

Once per month, look at reporting (metrics) to see which e-mails are more effective and have a higher rate of opening as well as click-through. Use the lessons learned to build your next campaign. It's important to know how your list is responding to the e-mails that you send. If you aren't getting a good click-through response, the problem is either the quality of your message or the topic. Test a few e-mails with your top customers to see what they respond to and what they don't respond to (one common test is to send the same message with several different subject lines to see what your list favors). Offer recipients a discount on services for their time.

Not only has e-mail technology and software evolved, but the way people use it to communicate has changed how entrepreneurs and small-business owners market and grow their businesses. E- mail 2.0 marketing is an effective way to increase relationships, response rates and conversions through smart, targeted communication.

Advantages of Email Marketing:

Email marketing can be used for many different purposes.

☐ **Promotion —** you can use emails to promote a special offer, or a new product or service to a list of existing or potential customers. The main aim of a promotional email is to get the reader to take some type of action, such as, book a room, buy a gift card, or reserve a table. If your readers have specifically subscribed to your mailing list to receive special offers and promotions then that's fine, but if they have subscribed to a list to be kept up- to-date on news and events then if you are constantly bombarding them with promotional emails you stand the risk of alienating them and forcing them to unsubscribe.

☐ **Retention** — these are emails aimed at building a relationship between you and your readers. These generally take the form of newsletters where you are providing your readers with information and stories that they may find interesting. A newsletter can of course also include promotional messages or advertisements but these should not be their main aim. Your customers can forget about you very quickly so keeping in contact with them on a regular basis is a good way to keep them aware of you and your business.

☐ **Communication** — these types of emails are generally short emails designed to communicate some important information to your readers. For example, invitation to an event in your hotel, a traveller tip for your area, details of a news article about your hotel. Email marketing allows you to reach millions of customers with a click of a button. Like any marketing medium, it has its advantages and disadvantages. Use it correctly, and you'll make more money, but use it incorrectly and you could lose your business. Weigh these pros and cons before you start an email campaign.

☐ **Other Benefits of Using Email marketing** - There are many good reasons to use e-mail marketing because even with the growth of social media, e-mail marketing can still be very effective

   ▪ **Cost** — Communicating via email has many of the advantages of traditional direct mail but with much lower costs.

   ▪ **Speed** — if you need to, you can get a message out to your entire list very fast.

   ▪ **Easy to create** — with the many email tools out here, such as, MailChimp and Constant Contact, it has become extremely easy to send out professional looking emails and track their performance through reports. Most of these tools provide standard templates and layouts for all different types of emails, such as newsletters, invitations, special offers and

many more.

- **Personalized** — the more information you collect, the more messages can be tailored and personalized.
- **Tracking** — you can track how well your email campaign is doing, such as, how many emails were opened, what links did they click, and so on. With this information you can then adjust your next campaign and improve performance.

Disadvantages of Email Marketing:

Businesses use email marketing as an affordable and often effective advertising tool. However, before employing this technique we should make yourself aware of the disadvantages and misconceptions that exist. For example, though many people believe email marketing is free, starting any marketing campaign from scratch (even an electronic one) will cost your company money. Several factors can hinder your effectiveness, and, in some cases, email marketing can even work against your business.

- **Spam -** People's in-boxes get inundated with email, both solicited and unsolicited. To cut down on the amount of unwanted emails, many servers have filters in place to lessen the number of spam emails a person receives. ("Spam" is a common term for bulk distributed emails.) People can further adjust their email filters to their own tastes. Our email marketing could well land in a spam folder and never get viewed. In some cases, you could find yourself or your business in serious legal trouble. The CAN-SPAM Act sets forth strict guidelines that companies must meet in order to use email marketing. Violations of the act can cost up to $16,000, and numerous people may be charged. Even when you take pains to ensure your email marketing conforms to the rules, you may still be accused and have to prove your campaigns are legitimate.

- **Engagement -** Email marketing requires constant tweaking to keep your subscribers engaged. A person will often sign up to receive email solely as part of a promotion. For example, if a user provides his email address, he may receive a discount on a product. A user might also unintentionally sign up, such as if subscribing was the default choice on a web page. In such cases, your email marketing may be perceived as a nuisance. Even in the case that someone deliberately signed up to receive your marketing emails, like an industry newsletter, you still must work to maintain a level of engagement to keep your reader from unsubscribing.

- **Appearance -** You may have worked to create your email marketing to look exactly the way you envisioned. Unfortunately, due to the varying servers and computer settings, your design may not come through the way you hoped, which can diminish the impact of your message. Text may be moved from one line to the next on a person's screen. The email setting on another person's computer may only allow text, blocking images from coming through. If the main focus of your marketing was a logo, it could be lost. If you want to avoid a misconstrued or possibly messy appearance, you'll need to make sure the code used translates to the most basic processing systems. This may entail consulting with a technical specialist or marketing firm.

- **Costs -** Sending a quick email to someone may not cost you much more than Internet access, but the costs of launching an email marketing campaign add up. Even basic self- managed monthly plans with fewer than 10,000 subscribers can cost $70, according to one marketing software firm. Hiring a company to design and manage an email marketing campaign includes templates and consultations and can get pricey. A start-up

  package can cost several thousand dollars initially plus a thousand or more per month for continuing management.

Opt-in Email Advertising:

Opt-in email is defined as an email that a brand sends after a consumer willingly provides his or her email

address. Brands can collect email addresses in myriad ways, but usually they use forms on their websites as well as incentives, such as free downloads.

Think of it as a way to authenticate your email list. Instead of sending emails blindly to people who might not have any interest in your online courses, you're spending time only on people who already know who you are and who want to hear from you.

Opt-in email marketing is a marketing campaign that uses permission-based email-collection methods to capture email addresses from willing consumers. Once you have a potential customer's email, you can add it to a marketing list based on the customer's position in the sales funnel.

For instance, if your prospect signs up for your email list during his or her first interaction with your brand, you might segment that consumer into a list that introduces your online courses and provides actionable tips for interested consumers.

However, if your prospect joins after buying a course, you could send emails about getting the most out of your course material or about applying the information you teach to the real world.

Opt-in email marketing isn't just a way to capture email addresses so you can blast prospects with sales copy. In fact, that's the worst way to use it.

Instead, use opt-in email marketing to nurture your prospects through the sales process.

- **Invite prospects to interact**: Let your email marketing recipients know where to find you online, from your social media accounts to your blog.
- **Encourage customers to convert:** Provide sound reasons why a prospect should buy one of your courses. Use real-world examples to illustrate your points whenever possible.
- **Follow up with prospects:** If a prospect abandons his or her shopping cart or goes inactive for a while, reconnect with a nurturing email that reminds him or her that you exist.
- **Send promotions:** Offer discounts and other promotions that encourage prospects to buy your course for the first time or to buy a subsequent course.
- Set up your opt-in email marketing campaign based on your specific objectives. Every course creator has different goals, so you don't want to copy someone else's campaign. Instead, think of the goals you want to reach, then design emails that help push customers to help you reach them.

- **Gain brand visibility:** If you want to establish yourself as an authority figure in your industry and make more people aware of your brand, encourage your email opt-ins to share your messages. The more people forward your emails, the more signups you get.
- **Boost sales:** Use promotions, bundles, and discounts to get people to finally hit the "buy" button.
- **Increase upsells:** Encourage customers to buy multiple courses and other digital products.
- **Check on progress:** Find out where your customers are in their online courses and whether they need any assistance or have any feedback.
- **Solicit reviews:** Ask your customers to review your courses online. You'll get backlinks as well as more brand visibility. Plus, prospective customers will feel more comfortable buying from you. In fact, nearly 85 percent of respondents to a study stated that they trusted online reviews as much as they valued recommendations from friends.

You'll continually adjust your email marketing campaign as you gain more subscribers and measure the results. Even though you're using an opt-in email approach, you can't always predict whether customers will open, read, or engage with your emails.

Keeping track of key metrics can help.

- **Open rates:** If customers don't open your emails, you might need to create more compelling subject lines or introduce an incentive early in your emails.
- **Engagement rates:** Customers open your emails, but they don't do anything else. If this happens, add more attractive calls to action using freebies and discount codes. Get people to click on links through incentives.
- **Conversion rates**: Do customers buy your online courses after reading your emails? You can

track conversions through email and landing pages to figure out how well you're converting.

Spam Versus Opt-In Email

Spam is a word, whom you don't want people to associate it with your brand.

Unfortunately, even when you use opt-in email, your emails could be perceived as spam. It happens when you use overly promotional, salesy language, or when you send too many emails in too short a time period.

Additionally, if you don't use the opt-in strategy at all, you risk your emails getting diverted to spam folders. If your recipients report your emails as spam, their email clients might automatically assume that everything you send is spam. That's the wrong way to start an email marketing campaign.

So what differentiates spam from opt-in emails?

First, of course, is the permission factor. When you collected an email address, did you get permission from the person who owns it? In other words, did it come via a form or other email- collection tool? If not, you might not want to use it.

Secondly, were you clear about the types of messages the consumer would receive?

It's easy to collect email addresses via a form if you promise rainbows and unicorns. Unless you can actually deliver rainbows and unicorns, however, you're being disingenuous, and your subscribers will quickly catch on to your game.

When you collect email addresses through an opt-in form, make two things perfectly clear:

1. **Email type:** What messages will the subscriber receive? Mention that you send insider tips and tricks, promotions and sales, or other content (but make sure it's true).
2. **Frequency:** How often should subscribers expect to hear from you? If you promise to email only once per month, but you send emails every day, you'll get some backlash.

If you follow those rules, you can separate your email campaign from the dreaded spam word.

A smooth opt-in process from start to finish will ensure that you are collecting subscribers who know what they are signing up for and who will be active recipients when they receive the content they are expecting. Delivering on promises made during the opt-in process and refining your strategy to send targeted mailings will keep your attrition rate low.

Opt-in email: Advantages

- Preserves your email marketing reputation
- Shows customers that you respect their privacy
- Helps you email people who are interest in what you're selling
- Saves you time and money by micro-focusing your list
- Lets you be more targeted in your campaigns
- Helps you build long-term, trust-based relationships with customers
- Can boost your sales and product interest

Email Marketing Tools:

Email marketing tools are tools that marketers use to create, send, test, optimize and report on their email campaigns. An email marketing tool could be a specific tool related to email marketing like an email subject line generator, or an inbox placement testing tool, or a suite of tools that enables a marketer to do all their email marketing end-to-end.

1. Sendloop

One of the most important aspects of refining a drip campaign is targeting the right people. With **Sendloop**, you can funnel contacts into very specific campaigns and track their movements on your site to further tailor your messaging in the future.

2. ActiveCampaign

ActiveCampaign allows you to create drip emails that are driven by subscriber interaction, behavior, interests, location, history and more. With this tool, you can automate the entire life cycle of a subscriber or customer.
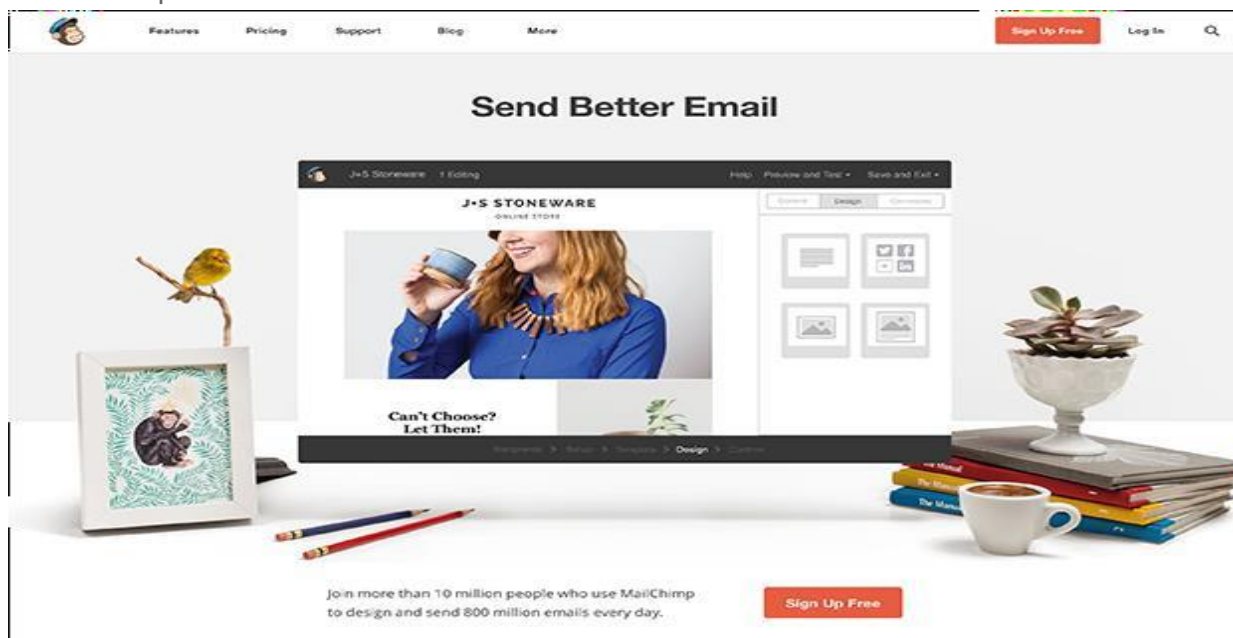
3. BombBomb

Text-only emails can be boring. Heck, even images are becoming boring in today's media- saturated internet landscape. If you want to effortlessly spice up your emails, then you should consider using **BombBomb** to create video-powered drip emails.

4. Drip

As the name suggests, **Drip** is an app designed for streamlining the drip email process. It's a surprisingly simple tool that packs quite the punch. The app features email gathering technology, pre-made templates, and drag and drop elements for simple creation.

5. MailChimp

MailChimp allows you to send drip emails to follow up based on website activity, abandoned carts, activity or inactivity, and much more. You can also use **MailChimp Groups + OptinMonster** to send drip emails based on what the subscriber opted in for, or even based on checkboxes that the user selects on your optin form.

6. Gumroad:

Widely known as a place to sell digital products and services, **Gumroad** now has an email feature that lets you gather and store potential customers alongside existing customers. You can then segment based on numerous features and send updates about your products.

7. Knowtify

As you know, email is a versatile tool. Rarely are two messages ever sent with the same goal in mind. **Knowtify** understands this, and gives you an easy way to launch drip campaigns based on transactional, digest, or behavioral emails.

8. Infusionsoft

In addition to helping automate standard email drip campaign tasks, **Infusionsoft** serves as a general task
manager. The "My Day" feature shows you which appointments you have for the day, as well as which
contacts you need to follow up with.

9. AWeber

Did you recently add a bunch of new subscribers to your email list? Well, instead of bombarding them with a
bunch of past emails, you can use **AWeber's** Follow Up feature to get subscribers up to speed in a
hurry.

10. GetResponse

If you're like most people, your email newsletters are sent at predetermined times. Shouldn't they be integrated into your calendar then? **GetResponse's** autoresponder tool uses drag anddrop features to make calendar management a breeze.

11. ConvertKit

Want some of the more advanced features of a CRM without the price tag? **ConvertKit** allows you to send targeted autoresponders to subscribers based on their interaction with your emails with Automation Rules. They even have blueprints that you can use to quickly create **autoresponder sequences** for almost any situation.

12. Emma

Nobody likes a generalized email newsletter. That's why **Emma** is a great tool. This powerful tool works with Shopify, Salesforce and **OptinMonster** to gather CRM and sales data andpersonalize emails based on

the subscriber.

13. Contactually

Contactually is one of the neatest tools on the list. It's a CRM platform that focuses on vetting contacts. It gathers contacts form your email inbox, website, and social media profiles, and then gathers as much information as it possibly can to guide your messaging.

14. HubSpot

HubSpot is consistently ranked as one of the top marketing automation tools across a spectrum of tasks. One of its top uses involves streamlining email marketing through the use of automated workflows.

15. Intercom

If you're trying to teach your customers/users about your app, **Intercom** lets you send automated email conversations directly in the app. This gives them assistance where they're most likely to see it.

16. Hatchbuck

Just like Gmail now uses tags to optimize messages, so does **Hatchbuck**. You can create tags and assign them to specific contacts based on their interests and the stage of the funnel they're currently in.

17. GetNotify

GetNotify is a free tool that notifies you the instant your email gets read by the recipient. You just send your emails like your normally would, but add ".getnotify.com" to the recipient's email address. Your recipient will not see this, and they will not know that you are tracking their opens.

18. Campaign Monitor

What good is an email marketing campaign if you can't automate things like testing, tracking, and optimizing? With **Campaign Monitor**, you can. It features interactive analytics that are easyto review and act upon.

19. Litmus

Litmus is one of the top tools for render testing emails on any device. You can test up to 40 clients and devices with one single click, which cuts down on the time it takes for you to review each and every email combination.

20. Reach Mail

The **Reach Mail** testing feature lets users compare direct performance metrics on up to five individual email campaigns at once. It also accounts for things like subject lines, content, and images to show you which emails will perform best.

Email tracking:

Email marketing allows you to easily track the effectiveness of your campaigns. When you send out a direct mailing through the post office, for example, you have no way to know how many recipients opened your mail. An email message, though, shows you how many people receivedit, how many opened it and how many clicked through to your links and made a purchase.

Types of Tracking Reports

Depending on the ESP you use, you have a great deal of data and to track and analyze. The kindsof data your can track include, but are not limited to, the following:

- ➢ Email bounce rates
- ➢ Who opened emails
- ➢ What links were clicked
- ➢ Customers that unsubscribe
- ➢ Email forwards

Let's take a closer look at the most commonly used types of tracking reports. As we go through the types of reports, they will become more and more specific

1. **Bounce Rates/Non-Bounce Rates -** Bounce rate refers to the amount of emails that were not received by recipients. It is the equivalent of having a mailed letter sent back to the sender. This number is expressed as a percentage of total emails sent and requires a

simple calculation. Calculating the bounce rate means taking the number of bounced emails (which a tracking report will tell you) and dividing that by the total number of emails you sent to a particular category on your list. You will get a small number (less than one) expressed in decimal form. To get the percent number, move the decimal to the right two places. As an example, if you get 0.25 from your division equation, moving the decimal over two spots gives you 25%.

Bounces can happen for a number of reasons, like firewalls or a full inbox. Most of the time, though, it is out of your control and there is little you can do to fix it. However, you can check for certain things like misspelled email addresses to see if the problem is in your hands and is fixable.

Non-Bounce rates, on the other hand, are the percentage of emails that did get sent through, regardless of whether or not the recipient opened them. This is a very useful number because it is used to let you know detailed information that we will discuss in the next few sections. Calculating the non-bounce rate is also simple. If you already have the bounce rate, all you have to do is subtract the percentage number from 100 to get the non-bounce rate.

2. **Open Rates -** Open rates are the number of interactions your email server gets as a result of a recipient opening an email. This number only comes from the non-bounce rate and not the total number of emails you sent out. Your ESP will know when an email has opened because of one of the following:
   - ➢ The images were displayed in an opened email
   - ➢ A recipient clicked a link in an email

The reason these actions indicate an opened email is because images are stored on the ESP's server and accessed from the server when an email is opened. A link within an email is tracked because clicks are easily trackable. This is another reason why putting images and links into an email is important for your email marketing strategy.

3. **Click-Through Rates -** Click-through rates are the percentage of users clicking on links in an email. This number is taken from the number of opened, non-bounced emails. As you can already see, these tracking data get more and more specific, building off of one another. The click-through rate number will be displayed and calculated by your ESPs software tools. Some ESP software will allow you to view exactly which links were clicked in addition to the number of times each one was clicked.

Click-through rates are especially beneficial for customizing the interests of your customers. It extends beyond the email as well, being used on websites to track who clicks on what links. Since it is easy to track what exactly your customers click on, you can make well-educated assumptions about what they would prefer for you to send them in the future. You can also use click-through rates to recommend other types data to the customer to get them more involved in your company's other marketing channels.

You can also use click-through rates as a means of testing out different versions of an email. Separate a list in two and send out a different version of the same email to each list. Analyze which list has more click-through rates and if necessary, make adjustments to the emails. Keep testing them out until you feel you have an optimal and effective email.

4. **Additional Tracking Reports -** In addition to the tracking data we have already mentioned, there are a few other points of data you can view and perhaps even use to improve the effectiveness of your email marketing strategy. You can see how many people unsubscribed and keep their data in a category of your email list. It is a good practice to keep this data because if the customer decides to subscribe to your email list once more, you do not have to do any additional research on their information. Remember, though, that you cannot send them any emails unless they grant permission again.

You can also use tracking reports to see if anyone has forwarded your email to other email addresses. If your email marketing strategy calls for you to get people to spread the word about

your organization or something it has to say, this is a very useful type of data to track.

You might come across an instance where you want to track how well your emails are doing for certain components of your entire marketing strategy. In some cases, though, using click-through or open rates will do little to help you track your progress and success. Some situations where you will want to know if your emails are effective include:

> ➢ In-Store Purchases
> ➢ Phone Calls
> ➢ Event Attendance

Sometimes, an organization wants to know if their emails are enticing people to participate in actions such as these listed.

Their participation cannot be tracked by software, so being able to track this kind of data involves some participation on the part of your email recipients. The best way to determine the effectiveness of your emails is to have your email recipients give you their email address when the make a purchase at a store or call your organization. For event attendance, you might give them some kind of special code that gets them into the event and can only be viewed from an email.

Email Tracking Tools:

1. ContactMonkey:

ContactMonkey provides email tracking and a Salesforce-integrated sidebar in Gmail or Outlook email clients. The reporting dashboard gives you analytics on how many sends, opens, reads, and interactions your emails receive. Use the merge feature to send to multiple recipients based on a pre-built or on-the-fly list. ContactMonkey's predictive engine provides insight into how your contacts open their emails by device and time, so you know when to send for the best response.

2. ToutApp:

ToutApp combines CRM, phone, and email client integrations into a single platform. You can build email templates and drip campaigns and log real-time customer interactions with emails so your team can jump on opportunities. Playbooks help your team choose the best sales-focused actions for each customer interaction. In-team messaging and notifications are also available. All of these features are accessible directly from your connected CRM, so you don't have to spend a lot of time updating notes and copy-pasting data from one platform to another. ToutApp is built for the enterprise, with privacy settings and full integrations for most of your technology stack.

3. Yesware:

Yesware offers email tracking that drives prescriptive sales analytics. Prescriptive data helps your sales team anticipate customer behavior and better target warm leads. Contextual data reports show you what the best reps are doing so you can duplicate it across your team. An "Activity vs. Engagement" report shows customer engagement with your content, instead of shallow interest. Individual team member reporting shows where your team can improve and where they're lagging. Yesware offers a native connection with Salesforce to help you build customer lists for use in your email campaigns.

4. Clearslide

Clearslide integrates with any existing email client. Build a sales library with your most successful templates, and use Clearslide's customized, real-time tracking to follow customer engagement with all of your

content, including your website. You can automatically upload content into your email templates and scale email blasts with customer segments from your CRM. All of your email client work auto-logs into your CRM, so (again) you don't have to duplicate information.

Social Media Marketing

What is Social Media Marketing, Seven Myths of SMM, Characteristics of Successful Social Media Marketer, Social Media Marketing Plan, Social Media marketing Tools, Publishing Blogs, Podcast and Webinars, Social Media Monitoring, Social Media: Facebook, Twitter.

What is Social Media Marketing?

Social media marketing, or SMM, is a form of internet marketing that involves creating and sharingcontent on social media networks in order to achieve your marketing and branding goals.

Social media marketing includes activities like posting text and image updates, videos, and and other content that drives audience engagement, as well as paid social media advertising.

- The goal of SMM is to produce content that users will share with their social network to help a company increase brand exposure and broaden customer reach.
- One of the key components of SMM is social media optimization (SMO). Like search engine optimization (SEO), SMO is a strategy for drawing new and unique visitors to a website. SMO can be done two ways: adding social media links to content, such as RSS feeds and sharing buttons - or promoting activity through social media by updating statuses or tweets, or blog posts.
- SMM helps a company get direct feedback from customers (and potential customers) while making the company seem more personable. The interactive parts of social media give customers the opportunity to ask questions or voice complaints and feel they are being heard. This aspect of SMM is called social customer relationship management (social CRM).
- SMM became more common with the increased popularity of websites such as Twitter, Facebook, Myspace, LinkedIn, and YouTube. In response, the Federal Trade Commission (FTC) has updated its rules to include SMM. If a company or its advertising agency provides a blogger or other online commenter with free products or other incentives to generate positive buzz for a product, the online comments will be treated legally as endorsements. Both the blogger and the company will be held responsible for ensuring that the incentives are clearly and conspicuously disclosed, and that the blogger's posts contain no misleading or unsubstantiated statements and otherwise complies with the FTC's rules concerning unfair or deceptive advertising.

Social media marketing (SMM) refers to techniques that target social networks and applications to spread brand awareness or promote particular products. Social media marketing campaigns usually center around:
- Establishing a social media presence on major platforms
- Creating shareable content and advertorials
- Cultivating customer feedback throughout the campaign through surveys and contests

Social media marketing is perceived as a more targeted type of advertising and is therefore believed to be very effective in creating brand awareness.

Myths about Social Media Marketing:

Social media marketing has become one of the pillars of a successful digital marketing strategy, and one that every business needs in order to maximize online visibility. It is understandable that not everyone is social media savvy right out the box, and for most, a lot of learning and training is necessary in order to successfully DIY their business' social media efforts.

The good news is that should you need a bit of a crash course in social media, you can teamup with a social media consultant to help you learn the ropes. There are also hundreds of informative articles and how-tos online that you can use as references. No matter which route

you go however, it's always important to know and understand what social media can and cannot do for your business so that you can manage your expectations and establish achievable objectives.

The social media myths that we'll be discussing today are actually quite common. There are lots of people who believe that these illusions are achievable and they expect their digital marketing agency to deliver these ridiculous goals. Let's get these out of the way.

1. Myth One: Just build it and the money will follow
Simply creating social media accounts is not enough to fulfill meaningful marketing objectives. Facebook pages and Twitter accounts don't just gain followers and fans simply by existing. You need to put in the work to promote your social media accounts and publish content that will retain and gain the right audience.

2. Myth Two: It's all about the numbers
It's a common misconception that the more people following your social media accounts the better your yields will be. The reality is that even if you have millions of followers on every social media platform, if none of them become loyal, paying customers, then what's the use of having them there? Quality over quantity should be your mantra.

3. Myth Three: Social media management is a day job
Do your fans and followers follow a 9 to 5 schedule when browsing their social media accounts? Nope. A follower may leave super damaging feedback on your page at 6 in the evening and if you wait until the following morning to address their concern, it may be too late. Timely interaction and engagement with your followers will help in creating a meaningful environment for your audience to linger in. Using scheduling tools and alerts will help you manage your social media accounts efficiently. Here are five tools that we highly recommend.

4. Myth Four: You need to be on every social media platform there is
A lot of social media DIY-ers make this mistake. They believe that they need to be visible on Facebook, Twitter, YouTube, LinkedIn, Instagram, SnapChat, and 10 other platforms because that's what successful social media is all about. Wrong. You don't have to be on every platform, just on platforms that your target audience uses most frequently. You need to be smart and efficient about your time and resources and doing social media marketing on platforms that won't yield prime results will just be a waste of effort.

5. Myth Five: Publish the same type of content to get more views.
If you use effective analytics tools like Cyfe and Buffer, you'll be able to get an insight on the type of content that gets the most engagement and activity. A lot of people mistakenly think that they should publish the same type of content over and over again to replicate these results. Big no-no. Instead of sharing the same article and links day in and day out, add some variety to your content strategy. Give your followers a good reason to check your pages everyday.

6. Myth Six: When it comes to content, quantity over quality always.
Let me start off by saying no. It may be tempting to share scores of articles, links, photos and videos per day but there is a fine line between sharing content and spamming.

Cleverly space out your publishing schedule and don't over do it. Take the time to sift through your content and select the best and most relevant ones to share on your pages.

7. <u>Myth Seven</u>: Delete negative feedback as soon as they are posted.

While it is understandable why business owners would want to delete negative feedback about their products or services, doing so can open a can of worms and ruin your reputation more than the original feedback can. Instead, use these as an opportunity to provide excellent customer service by providing a clear plan of action on how their complaints will be fixed and addressed. Engage with your customers and others will see that you'll be taking care of their needs should they decide to patronize you.

8. <u>Myth Eight</u>: You'll get instant results with social media.

Actually, if you look at almost all types of digital marketing solutions, you won't find any type that will get you instant results. That's just the nature of digital marketing and it's the same for social media. It takes time for you to gain the visibility that would pave the way for your goals to be achieved (e.g. getting x number of likes, an article being shared x number of times). As long as you're hitting your desired metrics within a reasonable period of time, you should stay your course and continue in executing your social media strategy.

9. <u>Myth Nine</u>: Social media is for hard promotion.

While it's true that social media provides a great promotional avenue for your business, keep in mind that it may not be what your audience wants to see. You need to strike a balance between engaging your audience with relevant content and fun interactions and getting your name out there.

10. <u>Myth Ten</u>: Social media performance can't be measured.

There are plenty of tools out there – both free and premium – that can help you track your social media performance. As long as you first establish your social media objectives, it will be easy for you to determine whether you are hitting your marks. Some tools even give you insights on how to improve your social media strategy. Choosing the best tools for the job can give you invaluable information.

<u>Characteristics of a Successful Social Media Marketer:</u>

Social media can be a fun and effective way to reach your customers on a more personal level. Social media networks are mode of social interaction. It is a platform of sharing and discussing information among human beings. Social media can include text, audio, video, images, podcasts and other multimedia communication elements. Social media sites are nothing but a group of special and user friendly websites.

Social Media Marketing is a very broad term. It is a technique of building a business using various social media networks. For instance, videos and blogs that gives exposure to your company.

When someone talks about social media marketing people often think that they may be talking about Facebook and Twitter. But social media networks also offer effective marketing tools that can bring more traffic to your website and improve your online popularity. Social media marketing has many characteristics. To attain a good marketing strategy, you need to have a look at the following SMM characteristics.

☐ Participation

Social media encourages contributions and feedback from everyone. Social media includes delivery of ideas at the time of online conversation. It tries to bridge the gap between companies and audience. With all the new channels of social media, people are enjoying this process of participation.

☐ Openness

Social media success requires honesty, transparency and authenticity. You should maintain a trust worthy relationship with your customers in your SMM (social media marketing) strategy. One fake or negative comment can destroy your online reputation.

- Build relationships

Social media is a two-way communication channel. It requires participation from both companies and customers. As a business owner, it is very important to make good connections with your target audience. Online conversation through various social media tools happen in real time with real people. You get a chance to interact with your target audience and you can answer to their queries. Answering to their queries is a good way to build relationship with customers.

- Reliability

To make your profile reliable, you need to consistently show your online presence. Effective social media marketer visits their targeted sites regularly. They also get involved with new users and promote their products. They talk to their target audience on a regular basis.

- Build communities

Social media sites allow you to build communities quickly, this helps you communicate more effectively. Communities share common interests, such as a love of photography, a political issue or a favorite TV show. These communities help you to know about your target audience. You can also support other communities which you think are good for your business.

- Customer service

It is very essential to take care of your customers. Social media networks are all about helping each others. It's about providing value to your customers, not just promotion.

- Avoid spamming

Don't give importance only to promoting your links. Also share insightful content about your company. Do not send the same message to your community again and again, it works as a spam and it may irritate your customers.

Social media marketing is the most powerful platform for small businesses. An effective social media marketing campaign grows your business and brings more traffic to your website. Social media marketing is the best marketing strategy allows you to promote your company at the same time build relationships.

Social Media Marketing Plan:

Start With a Plan - Before we begin creating social media marketing campaigns, consider your business's goals. Starting a social media marketing campaign without a social strategy in mind is like wandering around a forest without a map—you might have fun, but you'll probably get lost.

Here are some questions to ask when defining your social media marketing goals:
- What are you hoping to achieve through social media marketing?
- Who is your target audience?
- Where would your target audience hang out and how would they use social media?
- What message do you want to send to your audience with social media marketing?

Social media marketing can help with a number of goals, such as:
- Increasing website traffic
- Building conversions
- Raising brand awareness
- Creating a brand identity and positive brand association
- Improving communication and interaction with key audiences

The bigger and more engaged your audience is on social media networks, the easier it will be for you to achieve every other marketing goal on your list!

A major strategy used in social media marketing is to develop messages and content that individual users will share with their family, friends and coworkers. This strategy relies on word of mouth and provides several benefits.

- ☐ First, it increases the message's reach to networks and users that a social media manager may not have been able to access otherwise.
- ☐ Second, shared content carries an implicit endorsement when sent by someone who the recipient knows and trusts.

While social media marketing can provide benefits, it also can create obstacles that companies may not have had to deal with otherwise. For example, a viral video claiming that a company's product causes consumers to become ill must be addressed by the company, regardless of whether the claim is true or false. Even if a company is able to set the message straight, consumers may be less likely to purchase from the company in the future.

Social Media Marketing Suggestions:

Here are a few social media marketing tips to kick off your social media campaigns.

➤ **Social Media Content Planning** — building a social media marketing plan is essential. Consider keyword research and competitive research to help brainstorm content ideas that will interest your target audience.

➤ **Great Social Content** — Consistent with other areas of online marketing, content reigns supreme when it comes to social media marketing. Make sure you post regularly and offer truly valuable information that your ideal customers will find helpful and interesting. The content that you share on your social networks can include social media images, videos, infographics, how-to guides and more.

➤ **A Consistent Brand Image** — Using social media for marketing enables your business to project your brand image across a variety of different social media platforms. While each platform has its own unique environment and voice, your business's core identity, whether it's friendly, fun, or trustworthy, should stay consistent.

➤ **Social Media for Content Promotion** — Social media marketing is a perfect channel for sharing your best site and blog content with readers. Once you build a loyal following on social media, you'll be able to post all your new content and make sure your readers can find new stuff right away. Plus, great blog content will help you build more followers. It's a surprising way that content marketing and social media marketing benefit each other.

➤ **Sharing Curated Links** — While using social media for marketing is a great way to leverage your own unique, original content to gain followers, fans, and devotees, it's also an opportunity to link to outside articles as well. If other sources provide great, valuable information you think your target audience will enjoy, don't be shy about linking to them. Curating and linking to outside sources improves trust and reliability, and you may even get some links in return.

➤ **Tracking Competitors** — It's always important to keep an eye on competitors—they can provide valuable data for keyword research and other social media marketing insight. If your competitors are using a certain social media marketing channel or technique that seems to be working for them, considering doing the same thing, but do it better!

➤ **Measuring Success with Analytics** —You can't determine the success of your social media marketing strategies without tracking data. Google Analytics can be used as a great social media marketing tool that will help you measure your most triumphant social media marketing techniques, as well as determine which strategies are better off abandoned. Attach tracking tags to your social media marketing campaigns so that you can properly monitor them. And be sure to use the analytics within each social platform for even more insight into which of your social content is performing best with your audience.

Social Media Marketing Plan:

Here are few steps to follow in Social Media Marketing Plan of Action.

Step 1: Create Social Media Marketing Goals That Solve Your Biggest Challenges

- ☐ The first step to any strategy is to understand what you want out of your efforts. Social media marketing isn't about flipping a switch and calling it a day. Instead, social media planning should be looked at like cooking your favorite dish.
- ☐ That's why creating goals is so critical to the first part of your social media strategy. At the same time, it's best to **set goals that you know are attainable**. Asking for 1 million

new Instagram followers in 2018 is unrealistic. With achievable goals, you're more likely to stick to the original plan and continue to take on new hurdles as you complete old ones.

- ☐ This is the same reason why brands should never take on every social media channel possible in their current marketing strategy. Try to choose the channels that have the most importance based on your brand's goals. Avoid over complicating a strategy with too many targets and objectives. Simplicity can take you a long way.
- ☐ And also, don't forget to document your social media goals. Not only is it important to help you benchmark where you are, but it also improves your chances of achieving them.

Social Media Goals to Consider in 20th Century:

Goal setting is a staple of all marketing and business strategies. Social media is no exception. Of course, with a range of social capabilities, it can be difficult to determine exactly what your objectives should be. For guidance, here are some common social media goals to consider:

- ☐ **Increase brand awareness:** To create authentic and lasting brand awareness, avoid a slew of promotional messages. Instead, focus on meaningful content and a strong brand personality through your social channels.
- ☐ **Higher quality of sales:** Digging through your social channels is nearly impossible without **monitoring** or **listening** to specific keywords, phrases or hashtags. Through more efficient social media targeting, you reach your core audience much faster.
- ☐ **Drive in-person sales:** Some retailers rely on social media marketing efforts to drive in- store sales. Is your brand promoting enough on social to reward those who come to you? What about alerting customers to what's going on in your stores?
- ☐ **Improve ROI:** There's not a brand on social media that doesn't want to increase its return on investment. But on social, this goal is specific to performing a thorough **audit of your channels** and ensuring cost of labor, advertisements and design stay on track.
- ☐ **Create a loyal fanbase:** Does your brand promote **user-generated content**? Do your followers react positively without any initiation? Getting to this point takes time and effort with creating a positive brand persona on social.
- ☐ **Better pulse on the industry:** What are your competitors doing that seems to be working? What strategies are they using to drive engagement or sales? Having a pulse on the industry could simply help you improve your efforts and take some tips from those doing well.

Step 2: Research Your Social Media Audience

Approximately **79% of adults use Facebook**–but are your customers actively engaging with your brand there? Understanding your audience is necessary to learn things like who buys your products, what age group is the toughest to sell and what income level makes up the most of your returning customers? As for social media, it's just as critical to know your audience.

First, your brand should look into the demographics of your most valuable social channels. Like we mentioned before, you should have a goal in mind for your social media marketing strategy. This is why

you need to research the channels that correlate the most with your goals.

To help you find your focus channels: let's take a quick look at the essential demographics datafor each major network:

- ☐ Facebook's most popular demographics include:
- o Women users (89%)
- o 18-29 year olds (88%)
- o Urban- and rural-located users (81% each)
- o Those earning less than $30,000 (84%)
- o Users with some college experience (82%)
- ☐ Instagram's most popular demographics include:
- o Women users (38%)
- o 18-29 year olds (59%),
  - o Urban-located users (39%)
  - o Those earning less than $30,000 (38%)
  - o Users with some college experience (37%)

- ☐ Twitter's most popular demographics include:
- o Women users (25%)
- o 18-29 year olds (36%)
- o Urban-located users (26%)
- o Those earning $50,000-$74,999 (28%)
  - o Users with college experience or more (29%)
  - ☐ LinkedIn's most popular demographics include:
  - o Men users (31%)
  - o 18-29 year olds (34%)
  - o Urban-located users (34%)
  - o Those earning $75,000 or more (45%)
  - o Users with college experience or more (50%)
  - ☐ Snapchat and other auto-delete app's most popular demographics include:
  - o Men users (24%)
  - o 18-29 year olds (56%)
  - o Those earning less than $50,000 (27%)
  - o Users with some college experience (27%)

Identifying Customer Demographics

While the demographics data above gives you insight into each channel, what about your own customers? Further analysis has to be completed before you can truly know your customer demographics on social media.

That's why many brands use a **social media dashboard** that can provide an overview of who's following you and how they interact with you on each channel. Most brands today are using at least some sort of dashboard. However, does your dashboard address your specific goals?

Whether you're an agency providing insights for your clients or an enterprise company discovering your own demographics, an all-in-one dashboard solution is critical.

Sprout Social prides itself on the in-depth and essential demographics data for your social networks to help you identify your customers. Learn more with a **free 30-day trial** to uncover crucial data with Sprout!

Step 3: Establish Your Most Important Metrics

While your targeted social media metrics might be the most important step of a strategy, it's often the spot most veer off the path. We often get wrapped up in viewing followers and likes as the truth to a campaign, but it's smart to take a step back and evaluate the social metrics associated with your overall goals.

Large audiences and likable content is absolutely great, but here are **some other metrics** you might want to pursue in 2018:

☐ **Reach:** Post reach is the number of unique users who saw your post. How far is yourcontent spreading across social? Is it actually reaching user's feeds?

- ☐ **Sentiment:** This is the measurement of how users reacted to your content, brand or hashtag. Did customers find your recent campaign offensive? What type of sentiment are people associating with your campaign hashtag? It's always better to dig deeper and find what people are saying.
- ☐ **Organic and paid likes:** More than just standard Likes, these likes are defined from paid or organic content. For channels like Facebook, organic engagement is much harder to gain traction, which is why many brands turn to **Facebook Ads**. However, earning organic likes on Instagram isn't quite as difficult.

Step 4: Research Your Social Competitive Landscape

Before you start creating content (we promise we're almost there!), it's really smart to investigate your competitors. We put this before the content creation process because you often find new ways to look at content by analyzing what's making your competitors successful.

Again, we'll always believe you shouldn't steal your competitors' ideas, but instead learn and grow from their success and failures. So how do you find that information? The first step is to find out who's your competition in the first place.

The simplest way to find competitors is through a simple Google search. Look up your most valuable keywords, phrases and industry terms to see who shows up.

Here you can see post break downs of text, images and video to see what your competitors are doing to drive the most engagement. Once you dig through the competitive analysis, you'll have a better idea of what your potential customers want.

Step 5: Build & Curate Engaging Social Media Content

Did someone say content? It's no lie–social media content is extremely important to your marketing strategy. However, it's best to follow the previous steps before planning out content (we caught you, blog skippers!) so you can start building more effective themes.

For starters, we recommend creating content that fits to your brand's identity. This means you should avoid things like reaching out to your unpopular demographics without a complete strategy in place.

It's necessary to find the perfect balance between target content and being overly promotional as well. In fact, **46% of users say they'll unfollow a brand** if there's too many promotional messages. Additionally, 41% of users say they'd unfollow a brand that shared too much irrelevant content.

Video Content or Bust

How important is video to your social media marketing strategy? Extremely–approximately **90% of online shoppers** believe product videos help them make a purchasing decision. Additionally, the average online video is completely watched end to end by **37% of viewers**.

These type of stats should only enforce your reasoning to **invest in social media video content**. Brands can reach users through Instagram Stories, Facebook Live and other in-the-moment media.

Build Content Themes

One of the toughest challenges to visual content is creating it on a day-to-day basis. A **Venngage**

infographic showed 36.7% of marketers said their No.1 struggle with creating visual content was doing so consistently.

This truly shows how important highly-visual content is to marketers and the people they want to reach. That's why building content themes is a great approach to sectioning out your content. Instagram is one your premier channels to work off visual themes.

Step 6: Engage With Your Audience & Don't Ignore

Social media channels are built as networks. This means their main purpose is to be a space to converse, discuss topics and share content. Your brand can't forget these core elements of "networking" and it takes effort to ensure conversations or engagement opportunities aren't left unattended.

Through social media, you gain respect as a brand by just being present and talking to your audience. That's why **social customer care** is so important to brands wanting to increase audience awareness. It's all about engagement.

Designating teams to specific tasks can help your staff run like a well-oiled social media team, whether you're a group of one or 100.

Post at the Best Times to Engage

When is your brand available to engage and interact with customers? You might see some recommending times to post late in the evening. But if your brand isn't there to communicate, what's the point of posting at the preferred time?

Instead, try to ensure your social media or community managers are available and ready to answer any product questions or concerns when you tweet or post. It's smart to learn the **best times to post on social media**, but it's just as critical to engage after posting.

According to our Index, a brand's average response time is **around 10 hours**. But did you know that most users believe brands should respond to social media messages within four hours?

With all the updated algorithms, organic content has a tough time reaching the majority of your audience. The last thing you want to do is ignore those who engage and lose out on sending more down your marketing funnel.

Step 7: Track Your Efforts & Always Improve

So, how well did you do on your social media marketing strategy? Without continuously analyzing your efforts, you'll never know how one campaign did over another. Having a bird's- eye-view of your social media activity helps put things into perspective.

You've got down your most important goals, network preferences and metrics–now it's time to make sure you made the right decisions. Knowing you've made the right choices is still a difficult task in social media.

In fact, **46% of B2B marketers** are unsure if their social strategy actually created revenue for their brand. But marketers are always trying and looking for the perfect connection. That's why the most commonly used metric (80%) for marketers is engagement.

If you work at building lasting relationships, there's a lot less room for failure with your social media marketing strategy.

Publishing Blogs, Podcast and Webinars:

Publishing Blogs:

A blog is basically a 'weblog', a kind of website, a journal that is updated regularly. It is a discussion platform besides being a content achieve. People can discuss a topic on a blog and comment on posts. It is basically run by an individual or a small group.

Blogging

Every activity and skillset that is required to manage a blog comes under the purview of Blogging, for example, writing posts, publishing them, designing, social marketing, etc. In simple words, blogging is the process of adding new content to a blog and updating it at regular intervals.

- **Blogger (Person)** − Person involved in blogging is called a 'blogger'.
- **Blogger (Service)** − It is a service provided by Google that allows us to compose a post, edit, update, and manage it. You can customize your blogs easily with the help of a 'blogger'. It lets you share what is on your mind and earn money. It is a convenient platform for avid as well as novice users. No technical knowledge or coding is required. It runs directly on Google servers and is impossible to hack.

- **WordPress** − It's a free software to create and customize a search engine friendly website or a blog. A number of themes and plugins are available to transform your website as required. Approximately 70 million people are a part of WordPress community. WordPress is available in both free and premium plans.

- **Blogspot** − Blogspot is a free web hosting service gifted to web developers by Google. It helps Google Blogger in delivering its service. We cannot use any other platform to use it.

- **Tumbler** − It is a microblogging platform that allows us to make a blog and customize it. We may use stories, images, videos, audio, etc. Bloggers can either keep their blogs private or follow other blogs.

Advantages of Blogging

- ✓ Better online influence. It assists in making impressions in grabbing a good profile.
- ✓ It forms a good source of income. Pat Flynn earns $100,000 per year from his blog 'Green Exam Academy'.
- ✓ Maintaining a blog can help improve your writing skills.
- ✓ A blogger can easily become a published author.
- ✓ You can get instant feedbacks in the form of comments, shares, etc.
- ✓ Bloggers can be sound learners, as they tend to read and engage more in such content.
- ✓ Get a long fan following list.
- ✓ Blogs can help you build a strong network.
- ✓ Maintaining a blog can help you improve your technical skills on Wordpress, SEO, etc.
- ✓ Sell Online − Blogs can be a great virtual store.
- ✓ Express yourself − Blogging is a great way to share your ideas through inspirational means.
- ✓ Blogging is an easy, yet a sure way to build trust online.

Setting a Blog using WordPress

You can create blogs on many platforms. They can be either free or paid. Here is how you can create a blog using WordPress −

- ☐ Create your account on WordPress.com. Enter your name and Email address and other required details.
- ☐ Select a web address; it can be either free or premium.
- ☐ Choose a suitable WordPress plan.
- ☐ Set up your profile and build your profile page.
- ☐ Configure site settings like Site Title and tagline.

Setting a Blog using Blogger

Blogger.com is a popular platform that is being used widely for creating ready-to-post blogs.Follow the steps given below to create a blog using blogger −

- ☐ Sign up and create an account on www.blogger.com.
- ☐ Enter display name and click 'create your blog now'.
- ☐ Choose your blog title and URL. Verify whether it is available.
- ☐ Choose a desirable template from the given options.
- ☐ You would come across the 'posting' tab. Create post, edit posts, and page here.
- ☐ Enter the title of your post on the 'title' tab.
- ☐ The rest of your post goes in the 'Compose' text editor. You can customize your post by editing its font, size, text color, etc. 'Edit HTML' option is available to insert your content in HTML format.
- ☐ Select 'post option' if you want to enable readers' comment.
- ☐ Save once you are done with it. You can preview the final page before publishing it. Click 'Publish' to publish the post directly.

Blog Promotion

We can take the following measures to promote your blog −

- ☐ Connect your blog to Google+ to allow auto-sharing.
- ☐ Post quality content and post regularly.
- ☐ Write search engine friendly content.
- ☐ Have an Email button in order to receive feedback from your readers.
- ☐ Use your blog link in mail signatures.
- ☐ Enable site feed to let more and more people subscribe to your content.
- ☐ Add your blog to Blogger's listings. Submit your URL to blog directories.
- ☐ Actively comment on other's posts. This way, your profile gets more exposure.
- ☐ Participate in online forums.
- ☐ Use social media for branding.
- ☐ Hold a contest or a carnival.
- ☐ Write as a guest blogger. Write multiple pages and link them together.

Blog Commenting

Commenting on a blog is an art. You need to put some effort to post comments that catch users'attention.
- ☐ Add a few attractive phrases with exclamation mark to draw attention.
- ☐ Comment as early as possible, as the first few comments are the ones read by most.
- ☐ Refrain yourself from over-promoting.
- ☐ Don't be rude or use offensive language.
- ☐ Include questions in your comments. They seek more attention.
- ☐ Be influencing by updating an article.

Podcast:

A podcast is a digital audio file that is made available via Web syndication technologies such as RSS. Although strictly speaking, it's not social media, it's often classified as such because it allows anybody to easily syndicate their own audio content. You can use podcasts as a way to share information with your audiences. Podcasts typically don't form a whole SIM campaign in and of themselves, but work well with other SIM ones.

☐ Podcasting is the preparation and distribution of audio files using RSS to the computers of subscribed users. These files may then be uploaded to digital music or multimedia players like the iPod. A podcast can be easily created from a digital audio file. The podcaster first saves the file as an MP3 and then uploads it to the Web site of a service provider. The MP3 file gets its own URL, which is inserted into an RSS XML document as an enclosure within an XML tag.

☐ Once a podcast has been created, it can be registered with content aggregators, such as podcasting.net or ipodder.org, for inclusion in podcast directories. People can browse through the categories or subscribe to specific podcast RSS feeds which will download to their audio players automatically when they next connect. Although podcasts are generally audio files created for digital music players, the same technology can be used to prepare and transmit images, text, and video to any capable device.

☐ Podcasting has been likened to TiVo because it allows users to listen to their selected podcasts whenever they like, similarly to the way time-shifting lets viewers watch television programs when it suits them. Furthermore, because of the portability of the player devices, users can listen to audio files from the Internet as they go about their daily activities - for example, listening to a news blog entry while at the gym, commuting, or just walking around.

☐ Content producers are increasingly turning to podcasting as an inexpensive and user- friendly new distribution channel that has the potential to reach a large audience. Not surprisingly, musicians and bloggers are prevalent among the early adopters, but mainstream media organizations, including ZDNet and National Public Radio (NPR), are beginning to venture into podcasting as well.

☐ The cultural milieu supporting podcasting is sometimes referred to as the podosphere, just as the cultural environment surrounding the blog is called the blogosphere.

Webinars:

Webinars are taking the digital marketing world by storm. Also known as web conferencing, webinars are services that allow real-time, multicast video conferencing or audio conferencing events to occur even when participants come from remote locations. These are made possible through online technologies like TCP/IP. Some great examples of oft-cited webinar services include Google Hangouts, and ClickMeeting.

Many people today consider webinar as the next big thing in marketing since it offers real-time connectivity and interaction between the presenter or presenters plus guests and the audience that are interacting with them.

Importance of webinar marketing is growing rapidly nowadays. Webinars have quickly become the standard for the new marketing culture of so called "permission marketing." For ones who are not familiar with the term, permission marketing is based, in short, on the knowing participation of potential consumers in the marketing process. Consumers do this because they think the marketing materials

will help them in their business or personal attempts.

- There is no area that webinars cannot be helpful at. Almost any subject that you can think of can provide webinars through you can learn a lot. And they are aimed at all sorts of audiences, from clients to colleagues.

- However, the amount of knowledge and values vary from one area to another, for example you will probably get more following tech webinars than ones form another sector, but knowledge can be useful anyways. Therefore, no matter what industry you are at, you should definitely consider getting involved in them.

- Another positive aspect that makes webinars so important is how easy they are to use. Organizing webinar doesn't require nether the most advanced technology nor any other special requirement. Webinars don't require the time or expense of travel. It is based on the most simplest form, sharing your knowledge with others in fast and easy way. Therefore, all you have to do is to be an expert in certain area and provide the information that you audience needs in order for your webinar to be a success.

- Nowadays, due to so many information that are circulating all around us, consumers are getting smarter and started to demand knowledge instantly. Instead of searching for the right books or getting in touch to people from certain field, consumers are interested in getting the information the easiest way possible. So the Internet search seems like the most logical step. For that reason, your company or your personal project should be promoted there so that it can been reached faster then others. There is no better way to demonstrate your expertise or communicate to potential clients than promoting your brand or idea online.

- Your goal should be to provide all necessary information so that clients have the whole picture of what are you offering. And webinars seem simplest than writing a long posts or articles that no one probably have a time to go through.When it comes to organizing part, webinars give you almost all freedom of process. But there are still a couple or rules that you should be following. First of all, your main goal is to keep it interesting. Therefore, try to pick a topic that is not too wide so that your audience would not get boring listening general information. It's always better to go with a more specific topic so that you can engage people with the same interest and build your first client base. Speaking of that, another aspect should be making your audience active.

- Today, it's not enough to have listeners, you will need more active audience who would be able to spread information about your project everywhere. Therefore, try to keep them involved by appreciating and encouraging their feedback, answering their questions in a reasonable amount of time, incorporating them in your future marketing materials. That's how you can get the most of your webinar.

Here are the reasons why a webinar is a great marketing tool:

1. **Webinars are Convenient:** On-demand webinars are quite convenient to have because at this point, everyone has an online connection and a means to access it.

2. **Webinars Can Help with Your Promotions:** If you want to promote your site or company with the help of webinars, then it's all possible. Webinar presentations, even informational ones, can increase the exposure of your business or company altogether.

3. **Webinars Establish Your Credibility:** By having a webinar, you'll be able to give more credibility to your ideas. The simple act of putting on webinars will allow you, the people you're talking to, and the people who are watching, to understand your concepts and establish agreements.

4. **Webinars Have Huge Applications on Training and Education:** Webinar live streams and webcasts can include how-to videos that showcase training in various fields of study and concepts.

5. **Webinars Can Create and Increase Brand Awareness:** Brand awareness is a concept that involves making audiences more aware of a brand or product through consistent promotion, advertisements, marketing, and labeling focused on a single theme, message, or identity.

6. **The Consumer Reach of Webinars Is Quite Impressive:** Having a webinar, especially involving news and current events that are burning holes in everyone's minds, enables you to reach to most people, particularly your target audience if you play your cardsright.

7. **Webinars Helps Build You a Bigger Audience and Contact List:** Just like with podcasts or simply having a YouTube channel, every webinar you made forges new contacts.

8. **Webinars Are Cost-Effective Solutions:** Webinars aren't that much expensive and some of them are even available for free.

Social Media Monitoring:

Social media monitoring is a process of using social media channels to track, gather and mine the information and data of certain individuals or groups, usually companies or organizations, to assess their reputation and discern how they are perceived online.

Social media monitoring is also known as social media listening and social media measurement.

Organizations use social media monitoring to reach out to customers and prospects for information gathering and front-end customer support. It is used to collect and mine data, especially by organizations seeking customer intelligence to determine current industry trends. The process has become easier - yet more tedious - due to free and readily available outlets, like blogs, wikis, news sites, social networking sites, forums, video/photo sharing sites and message boards.

- There are a variety of social media monitoring tools, but most are customized data mining software and Web crawlers. Large enterprises use these tools to search for specific keywords on various websites and blogs.
- The monitoring software transfers the desired words and phrases from unstructured to structured database data for analysis with traditional data mining techniques.

➤ Social media monitoring software provides functionality for listening, tracking, and gathering relevant content across wide ranges of social media.

➤ Social media monitoring products are used by social media, marketing, and communications teams to identify trends, track competitors, and understand customer sentiment.

➤ The products can also be used by researchers to gain information on social trends or by media outlets to identify breaking news. Social media monitoring tools allow marketers to personalize content to specific users or demographics, identify thought leaders or influencers, and respond to positive or negative mentions.

➤ Many social media products monitor posts in a variety of different languages and countries, allowing businesses to localize advertisements. These

qualify for inclusion in the Social Media Monitoring category, a product must:

- Listen for specific mentions across social media
- Identify trending topics or phrases
- Detail customer sentiment
- Organize customer information
- Identify thought leaders and influencers
-

1. Better Understanding of Listening & Monitoring - Another way social media monitoring can benefit your business is by learning the difference between monitoring and social listening. Far too often, the terms social media monitoring and social media listening are considered one in the same.

While it's easy to see why they're mixed together, monitoring and listening are both uniquemethods to view, measure and analyze your audience. Here's how we break down the difference between monitoring and listening:

- **Social media monitoring** is more so the process of collecting social messages into a single stream and to take a specific action in response to each message (via a like, comment or tasked message).
    - **Social media listening** queries large volumes of social messages from specific keywords or topics that then requires your brand to reflect and draw analysis from the these actions.

Understanding the difference between social media monitoring and social media listening is critical to any social strategy. It's also important to know one is not more important than the other.

2. Become More Approachable to Your Customers

Providing excellent customer service is at the forefront of most brand's initiatives. Being an approachable organization means you have to consider every avenue of communication. And this most certainly includes social media.

Social media monitoring tools allow brands to become more approachable by finding customer inquiries and interactions faster.

Positive brand experiences can truly have an effect on customers in your sales funnel. It's always best to think of building strong communication with your customers as a long-term relationship. And what's the best way to open that line of communication? It starts with monitoring your social messages and providing the best customer experience.

3. Never Miss a Brand-Relevant Message

One of the best benefits to social media monitoring is discovering more opportunities to engage with customers. For organizations on social, this means you need to focus on incoming brand- relevant messages, whether you're directly mentioned or not.

And for a lot of brands, there are so many messages, it's easy to miss important questions because they didn't tag, @mention or use your hashtag. However, identifying your brand keywords in a social media monitoring platform, like Sprout Social, makes it simple.

You'll never miss an incoming message, hashtag, mention or even common misspellings by monitoring brand keywords and hashtags. Not only does this help you put all your incoming brand messages in one place, you can also analyze hashtag performance and see how users interact with your brand materials on social.

By identifying relevant keywords on social, you open yourself up to new discussions, blog and social media post ideas and see what topics your audience truly engages with the most.

4. Stay Organized With Marketing Campaigns Tags

An essential benefit of social media monitoring tools is the ability to organize campaigns. When incoming messages related to an important campaign come in, you need to be able to respond or engage in a timely manner. Start by setting up a brand keyword in Sprout that's associated with a specific campaign.

With the brand keyword saved, you'll be able to filter all incoming Tweets or Instagram hashtags with that specific phrase. For brands that receive a large volume of incoming messages for customer support, people sharing your content and everything in between, the ability to filter conversations

based on your brand keywords is a huge time saver.

Not only that, but it also guarantees that important messages don't get overlooked.

5. Interact With Your Top Brand Advocates & Key Customers

Brand advocates are essential to promoting your product and driving more engagement insmaller pockets of the market.

With the help of social media monitoring tools, you easily interact with influencers and brand advocates to truly move the engagement needle. On top of that, monitoring interactions and conversations from key customers can provide valuable instances of ways to include them in your marketing efforts.

Finding places to interact with key customers can make the difference between a small sale and a major win for your business. With monitoring tools, you can find and reply to those customerson the edge to make a purchase from you.

6. Understand What's Working (and Not Working) For Competitors

Social media monitoring isn't strictly limited to your brand. It also pays to understand what your competitors are doing and how they engage with their own fans.

Consider monitoring conversations that contain the names of your top competitors on social. For instance, T-Mobile might want to track conversations about Verizon. It could help them understand some of the pain points of Verizon customers. Then T-Mobile could use these Verizon customer issues in its own marketing messaging to speak more directly to the audience.

7. Win Back Lost Customers

As we mentioned earlier, quickly replying to customers can mean all the difference on social media. When an upset customers Tweets a complaint about your brand, you need to jump on it quickly to resolve the issue. Even if you can't fix their current situation, you could restore your chances of doing business with them in the future.

Don't let negative customer experiences go unnoticed on social media. While some bigger brands receive hundreds or thousands of messages a day, the right monitoring tool helps you dig through the noise and find the biggest issues to address.

Social Media: Face book, Twitter:Facebook:

Facebook is a social networking service provider. It lets you invite and connect with friends, send messages and pictures, like and comment or share them. Facebook has seen outstanding growth since its inception and is poised to maintain its dominance in social networking.

History of Facebook

Facebook was founded by Harvard student Mark Zuckerberg on February 4, 2004. In May 2007, Facebook opened up its developer platform to allow third-party developers to build applications and widgets that, once approved, could be distributed through the Facebook community. In May 2008, Facebook engineers announced Facebook connect, a cross-site initiative that allows users to publish on third-party sites in their Facebook newsfeed. The site was redesigned in late 2008, intended to streamline the website and make it easier to see what friends were doing.

What is Facebook Marketing?

Facebook is undoubtedly the most popular social media platform available with many advantages associated with it. It is primarily a social networking site, however it can be used as a handy tool for promoting and advertising a business. We can use Facebook to promote a brand, market a company, or create awareness about a service or a product. Success with this form of marketing requires more than a fan page and a few friends. When used effectively, Facebook marketing can provide a business with exciting benefits and results. Facebook marketing can enable businessmen to greatly improve their brand awareness and reach out to a wider audience.

Grow Your Business with Facebook

Facebook is fast becoming a powerhouse of marketing activity due to the sheer number of engaging users on the site and the simplicity of connecting with them directly. Facebook can provide your business with a branding outpost on the web where customers, employees, and even the media can find information about your company, products, and services. Facebook connects you and your staff directly to your customers and fans. Facebook can generate new leads for your business by drawing users' attention towards what you are offering. Facebook helps in sharing links, images, and posts on a customizable page to project a better sense of your business. Facebook runs tactics like contests, sweepstakes, etc., that can increase fans and brand awareness of your business.

Latest Facebook Trends

The nature of social media marketing is ever-changing, so it is important to constantly stay updated with what the current market trends are. The latest Facebook trends that a business should be aware of are: using the cover photo for marketing, different types of Facebook posts, more pictures, etc. Facebook looks completely different from how it was a year ago, so it should not be surprising that marketing on the social network has also changed a great deal.

What are Adverts?

Adverts on Facebook are unique. They are shown to specific groups of highly engaged people. If your adverts have a great creative content and are well targeted, they get more likes, comments, and shares. When we boost our page posts or expand the audience for the adverts, more people will see them when they visit Facebook. Facebook ads allow us to promote our business, get more fans to our business page, and drive more leads for our sales team. Facebook ads allow us to advertise a website or content that we manage on Facebook (like a group, page, or event) To create an ad, go to: http://www.facebook.com/advertising And click "create an ad".

Facebook–Do's and Don'ts

Do's

- ✓ Use Facebook to stay in touch with your friends and make new ones.
- ✓ Use Facebook to advertise your organization's events.
- ✓ Use Facebook to get involved with the campus community and learn what is happening around.
- ✓ Use Facebook customer support page since it contains valuable information about privacy controls and other important safety information.
- ✓ Do check each friend request carefully after visiting their profile. ☐ Do use "privacy settings" while building up your photo albums.

Don'ts

- ✓ Don't use your wall to announce your schedules, journey and planning.

- ✓ Don't use public walls as your own. Try to maintain the decorum of groups and fan pages.
- ✓ Don't accept friend requests from strangers.
- ✓ Don't use Facebook for ragging and bullying anyone.
- ✓ Don't post pictures of your friends without their permission.

Increase Facebook Likes for a Fan Page :

- ➤ Create a Facebook fan page with an instantly appealing image, as it will help in attracting more attention.
- ➤ Keep the Facebook fan page up to date by writing suitable description and posting interesting and friendly page titles. Always try to provide your readers with something fresh to read.
- ➤ If you are running a contest on your page, then ask your visitors to like your fan page. Facebook contests are the easiest way to get people excited, as the lure of a big prize compels your target customers to 'like' your page and become your fan.
- ➤ If you are running a business, then you should promote your fan page by using ads in the Facebook, as it is the easiest way to increase the visibility of your brand and reach out to a highly targeted audience.
- ➤ Promote your page on your official website because it helps you to get likes from new visitors on your site. Having a 'like' button on your website is an easy way to drive new likes over time.
- ➤ Synchronize your Facebook page with your other profiles on other social networking sites like Twitter, dig, etc. it will help you get more visitor response.
- ➤ Sometimes educational content is a better incentive for a 'like' than a discount offer or a prize, depending on your industry or the target audience. Providing free written content such as eBooks can drive tons of new fans and customers.

What are Facebook Apps?

Facebook apps are basically software programs that can be added to users' Facebook profiles. These interactive software applications are developed to utilize the core technologies of the Facebook platform. Applications for Facebook have gained massive popularity in the last few years due to its uniqueness and the ease of creating them.

Facebook apps integrate Facebook newsfeeds, notifications, various social channels, and other features to generate awareness and interest in the app by the Facebook users. Apps and games are normally developed to enhance your experience on Facebook.

Facebook Apps –Advantages

- ✓ Increased exposure to potential customers.
- ✓ Easily create new product or service campaigns online.
- ✓ Lower marketing expenses.
- ✓ Reach a targeted customer.
- ✓ Build brand loyalty.
- ✓ Provide multiple marketing platforms.
- ✓ Budget-friendly ads.
- ✓ Marketing strategy is low cost.
- ✓ Allows business to communicate with existing and prospective clients.
- ✓ Can easily update everyone at once about your business.

Twitter:

Twitter is another social networking platform that allows registered users to read and write 140- character messages called 'tweets'. It is available across all devices such as cell phones, desktops, laptops, and tablets.

History of Twitter

Jack Dorsey, an undergraduate student at New York University, introduced the idea of an individual using a message service to communicate with a small group. Twitter was launched as an SMS-based communication platform. Initially it was known as "twttr". On March 21, 2006, Jack Dorsey sent the first ever tweet: "just setting up my twttr".

What is Twitter Marketing?

Twitter marketing is a powerful tool for companies of every size and structure to reach out to new customers, promote their brand, and connect with the rest of the companies. Users can find out if customers are talking about them, and the business can accordingly respond. Tweets create another instance for the business that shows up in the search engine results. Twitter serves as a solid foundation for your business to branch out into other social sites. Twitter is a great platform for projecting what your company is doing and accessing a large audience, where your Tweets can promote products and events.

How to Increase Followers on Twitter?

- ➢ Grow your community by adding a follow button in your website and promote your username.
- ➢ Get noticed with hash tags like #smallbiz etc.
- ➢ Engage with your followers by collecting feedback to build a better business.
- ➢ Sync your email contacts with Twitter.
- ➢ Keep your bio updated with the events or the business campaign you are running.
- ➢ Embed your best tweets and tweet to people every day.
- ➢ You can promote your twitter account on any printed material, e.g., business cards.
- ➢ Follow people who follow you.
- ➢ Make sure you are engaging with your customers on twitter and not to your product.

What is Hash Tag?

The symbol hash tag (#) is used to mark keywords in a tweet. It was originally created by Twitter users. This symbol helps them to categorize the tweets and show them easily when people search for them. Hash tags can occur anywhere in a tweet – middle, end, or at the beginning. If you tweet with a hash tag on a public account, anyone who does a search for that hash tag will find you. A hash tag is a way for people to search for tweets having a common topic.

Sponsored Tweets and Hash Tags

Sponsored tweets are advertising platforms that connect companies with tweeters. Sponsored tweets allow brands to tap into a Twitter user's followers to reach out to new customers. By giving companies access to your twitter stream, tweeters are compensated for each advertisement they accept. The only thing tweeters need to do is to write a tweet based on some simple guidelines provided by the advertiser.

Sponsored Hash Tags place the tag of a customer's choice among the list of trending topics that users see when they access the social network through the web.

- ➢ Add the twitter widget to your site's sidebar as it's a great way to show your latest tweets on your website.
- ➢ Choose from 40 different well-designed twitter buttons to quickly create a badge to promote your account.
- ➢ **TwitThis** is a little button that can be placed in your HTML file or in your blog to allow your readers to quickly and easily share what they are reading with their twitter followers.
- ➢ **Chirrup** is another solution for pulling Twitter comments across any platform. It allows you to display all the references from Twitter on a given webpage.
- ➢ **Aweber** has an excellent feature for any newsletter marketer. Newsletter delivery service has actually created a way to convert RSS to email to tweet.
- ➢ **Twitterfeed** is a pioneer of website and Twitter integration which allows you to automatically insert tweets into your Twitter from any RSS feed.

Following are some of the twitter automation tools that make your profile look like an announcement board.

- ➢ **Twitterfeed** is a service that allows you to set up RSS from your blog or website.
- ➢ **Social Oomph** is a tool to create an automated direct message for new followers.
- ➢ **Tweet Old Post** is a great plugin which allows you to connect a Twitter account with your blog and regularly tweet posts to your followers.
- ➢ **Hootsuite** is a free tool that you can use if you have fewer than five social profiles to manage. It offers an option to schedule updates to specific social media accounts.
- ➢ **Visibili** is a free service that lets you create a custom sharing bar that goes with any links to share through their service.
- ➢ **Twitter Showdown** is a tool that provides valuable insights on follower to-following ratio, level of Tweet engagement, tweet timing, and how two accounts compar

Search Engine Optimization (SEO)

Understanding SEO, Search Engine Optimization Process - Goals, On-Page Optimization, Off-Page Optimization and Analyze, Search Engine Result Process (SERP), SEO Tools.

Understanding SEO:

Search engine optimization (SEO) refers to techniques that help your website rank higher in organic (or "natural") search results, thus making your website more visible to people who are looking for your product or service via search engines.

- ➢ SEO is part of the broader topic of Search Engine Marketing (SEM), a term used to describe all marketing strategies for search. SEM entails both organic and paid search. With paid search, you can pay to list your website on a search engine so that your website shows up when someone types in a specific keyword or phrase.

- ➢ Organic and paid listings both appear on the search engine, but they are displayed in different locations on the page. So, why is it important for your business" website to be listed on search engines? On Google alone, there are over 694,000 searches conducted every second. Every second that your website is not indexed on Google, you are potentially missing out on hundreds, if not thousands of opportunities for someone to visit your website, read your content, and potentially buy your product or service.

- ➢ Practicing SEO basics, as well as more advanced techniques after those, can drastically improve your website's ability to rank in the search engines and get found by your potential customers. Then about paid search, you can pay to have your website listed on the search engines. However, running paid search campaigns can be quite costly if you don't know what you're doing. Not to mention, about 88% of search engine users never click on paid search ads anyway.

- ➢ Because the sole purpose of a search engine is to provide you with relevant and useful information, it is in everyone's best interest (for the search engine, the searcher, and you) to ensure that your website is listed in the organic search listings. In fact, it is probably best to stay away from paid search all together until you feel you have a firm grasp on SEO and what it takes to rank organically.

How does a Search Engine Work?

Search engines perform several activities in order to deliver search results.

- ➢ **Crawling** - Process of fetching all the web pages linked to a website. This task is performed by a software called a crawler or a spider (or Googlebot, in case of Google).

- ➢ **Indexing** - Process of creating index for all the fetched web pages and keeping them into a giant database from where it can later be retrieved. Essentially, the process of indexing is identifying the words and expressions that best describe the page and assigning the page to particular keywords.

- ➢ **Processing** - When a search request comes, the search engine processes it, i.e., it compares the search string in the search request with the indexed pages in the database.

- ➢ **Calculating Relevancy** - It is likely that more than one page contains the search string, so the search engine starts calculating the relevancy of each of the pages in its index to the search string.

- ➢ **Retrieving Results** - The last step in search engine activities is retrieving the best matched results. Basically, it is nothing more than simply displaying them in the browser.

Search engines such as Google and Yahoo! often update their relevancy algorithm dozens of times per month. When you see changes in your rankings, it is due to an algorithmic shift or something else beyond your control.

Although the basic principle of operation of all search engines is the same, the minor differences between their relevancy algorithms lead to major changes in the relevancy of results.

What is Search Engine Rank?

When you search any keyword using a search engine, it displays thousands of results found in its database. A page ranking is measured by the position of web pages displayed in the search engine results.
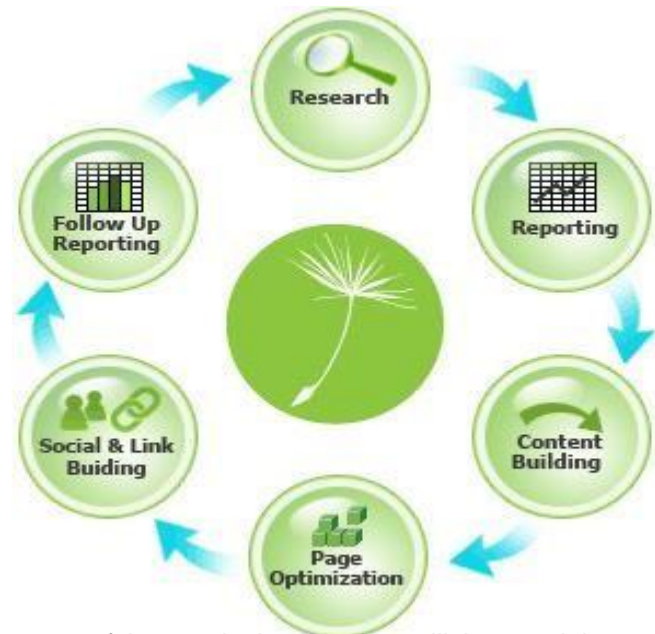
If a search engine is putting your web page on the first position, then your web page rank will be number 1 and it will be assumed as the page with the highest rank. SEO is the process of designing and developing a website to attain a high rank in search engine results.

Search Engine Optimization Process & Goals:

Search Engine Optimization Process:

Before beginning a search engine optimization (SEO) project, it is important to understand the process involved in an effective SEO campaign. To that end, we break the process down into the six steps shown below and describe the

activities involved in each of these steps.

One word on search engine optimization in general first, though. SEO does not start and finish with these steps and the initial work that we do. In order to have ongoing success, it is important to monitor results and build meaningful content on a continual basis.

1. Keyword Research
2. Reporting & Goal Setting
3. Content Building
4. Page Optimization
5. Social & Link Building
6. Follow Up Reporting & Analysis

1. Research
Keyword Research

Keyword phrase research involves identifying a group of keyword phrases that will be used in optimization. This step is critical and requires a considerable amount of time to find a good set of phrases that offer a balanced combination of two important factors: high usage by searchers and relatively low competition within the search engines.

Determining the most used phrase that contains your targeted keyword(s) is relatively easy. Online tools allow you to enter a particular keyword or words and will return all the ways in which that word(s) was used by searchers in the last month and in what volume. A more effective approach is to find a set of phrases that are heavily used by searchers but somewhat less competitive in terms of the total number of search results.

Competitive Research

Once armed with the target keyword phrases, we do a thorough competitive analysis of the subject site against its 7 – 10 biggest competitors (using both offline and online competitors). We use a series of SEO metrics, including indexed content, Alexa rating, inbound links, domain age, and social media following among others. Through this process, we are able to gauge the client site's starting position against its competition and identify areas requiring priority in the subsequent work.

For example, if we see that relative to the competition, the client's site has 50% less indexed content, then content building would be a priority in the goal setting that happens in the next phase.

2. Reporting & Goal Setting

After establishing your targeted keyword phrases and starting position relative to the site's competitive set, it is important to understand what the subject site's starting position is within the search engines. Doing so ensures that you know the specific areas that need work and provides a

baseline against which to gauge the subsequent campaign's success.

Access to site traffic information is very important. These statistics show how searchers are finding and interacting with the subject site, e.g., which search engines, what keyword phrases are being used, bounce rates, most popular content, etc. Understanding the site's traffic level and the source of its referrals can also be a critical tool in making other online marketing decisions.

After developing a complete picture of the site's starting position, goals are set for the SEO plan. These goals are measurable (one big advantage of SEO over other advertising options) and tied to the specific business objectives of the site. In the ongoing progress of reporting and follow up, progress towards the plan's goals are analyzed and reported. Adjustments to the SEO plan can be made according to the findings of these progress reports.

3. Content Building

Content is king in search engine optimization. The search engines love text; high volume, high-quality content related to your business will serve you in a couple of important ways.

First, a site loaded with high-quality content of interest to site users will give them a reason to stay and a reason to come back. After all, the reason they came to your site was to find information. Second, you will receive the added benefit of serving up exactly what the search engines want – content. Search engines will have more information to store about your business and products; that information will translate directly into the ranking they give your site for related keyword phrases. For more information on content development and specific ideas about ways to expand your site's content, read our, Content is Still King.

We often find in the Competitive Research phase that the client's site is falling behind its competitors in the amount of indexed content. In those cases, this phase of the process takes on additional importance.

4. Page Optimization

Following the addition of new, high quality content, we tackle on-page optimization.

- Page Titles
- Text-Based Navigation
- Prominence of Targeted Keyword Phrases
- Site Map
- ALT and META data
- Clean up the Code

5. Social & Link Building

Social Media - In marketing, you fish where the fish are.   And, the fish are using social media in increasing numbers. The power of online sharing through social media provides tremendous opportunities for companies willing to commit the time to using it. During this phase of the process, we help clients establish a social media presence and consult with the client on how best to use those social media profiles to share site content and connect with customers and potential customers.

Building In-Bound Links - Each new, quality link to your site increases the likelihood of both the search engines' spiders running across your site as well as searchers looking for services or products like yours. Google views links to your site (as long as they are links from high quality sites) as votes for your site and rewards the site accordingly. You can check your link popularity with a variety of free online tools. In addition, Google's Webmaster Tools provides information regarding the inbound links to your site. We consult with our clients on ways to build their online reach and influence with new, high-quality inbound links.

6. Follow Up Reporting and Analysis

The same reporting done in the initial phase of the campaign is done again at regular intervals, post-optimization. Rankings, site traffic levels, social signals and other key metrics can then be compared to pre-optimization levels, giving measurable results to the SEO campaign. The specific metrics used in an SEO plan will depend on the goals of that site.

Search Engine Optimization Goals:

The ultimate goal of SEO is to increase the site's usability so that you can bring the right people in from the search engines. The purpose of your site should be clearly defined so that you can make sure your site achieves that purpose.

- When search engine visitors see that your site meets their expectations after they find you on a web search, this means your usability is solid. If visitors are disappointed, the site has missed its mark.
- The goal is to follow the best strategies possible for ranking in the search engines, and to do this you need to understand how they want things done. When the search engine crawls your site, the bots look for certain pieces of information. If the bots deem that the information is up to par, you'll be rewarded with better rankings. To insure that you understand what they're looking for, it helps to become familiar with their terms and conditions and Webmaster guidelines.
- Because of this constraint, the battle to get to the top of Google, Yahoo! Bing and the like has become quite a challenge. You need all the help that you can get! Proper SEO that use white hat techniques, or those that fall in line with what the search engines determine are their "best practices" will be a big step in the right direction.

SEO Strategies

- All search engine optimization spawns from diligent keyword research. This involves finding out just how people are coming to your website – what terms they use, what questions they ask, etc. If you know how people are looking for sites like yours, all you have to do is provide them with the answers they seek. This is all about appealing to your audience. You need to think of popular and related keywords that suit your sites content, then you can incorporate them into the content and the marketing techniques that you employ.
- Another part of SEO is link building, and it's always changing. Link building is where you have a link to your site appear on other sites. Instead, your focus should be on building content and let the linking occur naturally.
- Tactics that worked in the past, such as posted links on articles you write on other sites, are now considered spammy and if there are too many of these, your site can get a penalty.
- To fully understand SEO, you should consider getting some sort of consultant to guide you along. There are so many different marketing techniques out there, making it hard to find just the right one for you. You can use someone else's experience to narrow down your options and pinpoint the perfect strategy to help you reach your audience.

On-Page Optimization:

On-Page SEO refers to how well your website's content is presented to search engines. On page optimization involves ensuring whether a particular webpage is structured in a manner so that it gets found by the search engines for given keywords and key phrases. It not only helps in getting good search engine ranking but

also increases overall readability of the site. The best part is that not much has changed about the on-page optimization approach. It can still be improved immediately by tweaking incorrect elements on a webpage.

There 5 key elements of a successful on page optimization:

1. Page Copy

A good content copy is really the key to your success. It is an open secret that you need to produce original, unique and high quality content of relevance on a continuous basis to perform well and rank high on search engines. There are few things you need to keep in mind while creating the content copy.

Keyword

Each piece of content should be created keeping the focus primarily on a single keyword or a keyphrase. This word or phrase should at least be mentioned for a specific number of times in the whole content and this process is known as keyword density. Each content copy is supposed to maintain a keyword density of 3-5% as par industry standard. Keep a mix of primary and secondary keywords and key phrases in your content but optimize your content around only those keywords and phrases on which you desire to achieve top organic search rankings.

Quality over quantity

You don't essentially need longer articles for better search engine rankings. Web pages with more content intensity and depth have started performing better on search engine ranking since the 2011 Google algorithm update.

2. Title Tags

Arguably title tag is the most important element among the "big three", the other two being page copy and inbound links. Title tag contains the words which appear in the clickable link of the search engine result. Google has limited the page titles up to 70 characters, so it is extremely important that your title tags are keyword-relevant yet concise. For example, when looking up in Google for a query, you might have noticed the chopped off title tags in few results, that's because the title tags for that page are too long. To optimize the title tags primary keywords and secondary keywords should be mentioned in the same order and the branded keywords at the end, this is a rule to follow except for the home page.

3. Meta Data

Meta data is a well-written description summarizing the content of a particular webpage. It used to be one of the most important factors affecting search engine optimization in pre-Panda era. Meta data completely lost its importance in influencing Search Engine rankings from September 2009 after Google's declaration. It was majorly devalued because of a wide practice of spam techniques. Google crawlers though look at the Meta keywords to get an idea about the topicality of the page content. Meta descriptions have to be created within a limit of 155- 160 characters which essentially should not include anything but alphanumeric characters. It can't influence search engine rankings but do help in getting a high click through rate.

Meta description works more as an ad copy for the organic search results which influences the readers to click on a particular link. It can also intelligently accommodate the primary keywords within it, Google especially highlights them if searched key phrase contains the exact key words.

4. Heading Tags

These are the tags which define the content of your page section wise, just like traditional headings and subheadings. There should be one <h1> tag every page, which should include the most relevant key phrase or key word. This tag can be created up till <h6>, though general practice is to use this till <h3>.

Apart from the primary keyword mentioned in the <h1>, you can include the other important keyphrases in <h2> and <h3> tags to define the other sections of the content. The <h1> tag should be optimized well as search engines still give this some value.

5. Interlinking

Strategically, linking one of your website pages to other similar pages on your website providescontext to the search engine and to the readers as well. Some best practices are:

1. Include links in the main content of each page.
2. Paragraph links carry the most weight.
3. Use keyword-rich anchor text in links.
4. Avoid using non-descriptive anchor text (for example, read more, click here, etc).
5. Link to relevant, deep pages.
6. Use breadcrumb navigation on every page
7. Monitor your inbound links through Google Webmaster Tools.
8. Avoid multiple links to the same page from a single page.
9. Less links= More authority per link.

The most common practice of showing "related links" or "tags" at the end of a page or in asidebar is done to thematically relate one page to another.

Off-Page Optimization:

Off-Page SEO refers to your website's overall "authority" on the web determined by what other websites say about your site. Off-page optimization is a long-term process and takes the time to improve. Simply put, off page is all about your online reputation. Off page optimization includes acquiring backlinks to your page from the authority sites in your niche. Backlinks are the currency of any off-page strategy. And, unlike on-page optimization, off-page optimization efforts are not apparently visible on the webpage itself; it does the background work for a better search result.

But, after the recent Google Panda and Penguin updates, off-page optimization scenario has drastically changed. Many effective old school practices became obsolete and negatively affected many big websites with high page ranks.Off page optimization effort can be grossly divided into two parts:

1. Acquiring Backlinks

Acquiring backlinks to your pages from higher authority sites is now more important than ever. Search

engines treat link popularity as one of the key factors for a better search engine ranking. Though, link popularity is not the top ranking factor anymore, as it can easily be manipulated. Nowadays, search engines focus more on the quality of your content and the level of engagement on the site, over the number of links pointing towards your site. So, the success factor is not building a long list of inbound links but building a trail of quality links for your site. Creating quality content that informs and educates your target audience is more important than ever.

TIP: Getting a number of links from multiple domains relevant in your industry are the key. Buying backlinks from non-related domains won't earn you goodwill in search engine results and can even penalize you.

2. Leveraging social interaction with your site

Use of social metrics or social engagement as a ranking factor is an increasing trend. Besides backlinks, Google now gives prominence to social signals around your content. Whether it's the number of people who tweet, 'Like', social bookmark, or "vote" via Google +1 for your content, your site's social footprints has a direct relation with your rankings. SEO has now evolved into social.

3. Promote your content via social channels

Make sure to promote your content through multiple social media channels to obtain some social media traction. You can use multiple platforms to engage your audience, keeping the focus on the ones creating maximum buzz for you. There are various platforms at your exposure:

Facebook

Facebook is the social platform with the maximum number of active users at this moment. You can share your content there but don't use a promotional tone, rather keep it light as people come to Facebook mostly with an intention of socializing in a casual mood. Especially interesting and light topics with pictures get more attention in the form of Likes and Share on Facebook.

Twitter and LinkedIn

You can distribute your content on both these platforms. You can share your content in the form of an article, video, image or even in the form of a simple update. You can join relevant LinkedIn groups and share you articles there too. If you have content of great quality you'll surely be able to create buzz around it.

Google+

It has become very important to share any content you create on Google+, as it is from the search engine provider itself. Recently, there is a lot of noise that Google+ has a indirect correlation with your website's ranking in the search engine. Google also have introduced a new feature called **Google Authorship**. It shows the picture and name of an author with his articles in Google search results. This has come across as a major factor to counter the duplicate content by giving weightage to the authors and the content they have created.

Pinterest

Pinterest is the latest social media sensation. The image sharing website allows you to share pictures from your post to appeal to your target audience. If you have an e-commerce site, Pinterest can help you drive your sales.

Quora

This is a question & answer platform where a lot of people come searching for the solution to different

problems and queries. You can post your content or your opinion in any of the relevant discussion thread and readers can up vote or down vote it. This is in fact the future of commenting. The platform can help you establish yourself as a subject matter expert in your field.

Video Sharing

You can create informational videos on topics like make-up tips or different marketing strategies to share them on free video hosting sites like Vimeo, YouTube etc. generating billions of unique viewers every month.

4. Add social book markings

Social bookmarking is one of those old yet useful off-page SEO techniques being used from the pre-Panda and Penguin age. There are many sites like Tumbler, Stumbleupon, Reddit, Delicious, Digg being the most prominent ones, where people come in searching for different content topics. You can add a social bookmarking panel to your website and share all the content you produce.

5. Guest Blogging

Another way of acquiring strong back links in post Panda era is guest blogging. You have to create relevant and high quality content and submit to the blogs with higher page ranks. If your article contains real good stuffs it will get published and to do that you have to observe the content types and categories your target blogs are covering, it's even great if there are some common or related categories both of you cater to.

For a long term and successful search engine optimization strategy, you need to work on your site structure as well as on building your online reputation by getting backlinks and creating the community around your content. And, ultimately, it boils down to creating interesting and informative content people would like to read and share. Content is still the King.

Search Engine Result Process (SERP):

A **Search Engine Results Page**, or SERP, is the web page that appears in a browser window when a keyword query is put into a search field on a search engine page.

> ➤ The list of results generally includes a list of links to pages that are ranked from the most popular to the least popular from the number of hits for the particular keyword.

> ➤ The list will include not only the links, but also a short description of each page, and of course, the titles of the webpage. The term "search engine results page" may refer to a single page of links returned by a query or the entire set of links returned.

> ➤ Many search engine results pages have different types of listings. These types of SERPs are found most commonly in larger search engines, such as Google.com and Yahoo!. They include results such as:
>   - Contextual
>   - Algorithmic
>   - Sponsored listings
>   - Images
>   - Maps
>   - Organic search listings
>   - Definitions
>   - Suggested search query refinements

> ✓ Major search engines can also offer **specific search engine results pages** that pertain to

specific the specific types of listings. Search engine results pages can also be the results page for an image search, a map search, a news search, a blog search, or many of the other options major search engines offer.

The main elements of SERP are:

1. Direct search results, consisting of links to sites. This is the natural issuance of search engines, where sites are struggling for the highest positions. The search results page contains, by default, 10 links, but the number can be changed in the search settings;
2. Blocks with contextual advertising;
3. Small fields before search results. They can contain typing errors, a quick response to a user request, a calculator, and so on;
4. Pictures are issued in response to a particular search query;
5. Related queries – the search query is refined. The user is offered word forms or similar requests;
6. Elements of management – this includes links to go to the site, prompts when entering a user request.

A search engine results page (SERP) is the list of results that a search engine returns in response to a specific word or phrase query. Each listing includes the linked Web page title, the linked page URL (Uniform Resource Locator), a brief description of the page content and, in some cases, links to points of interest within the website.

There are three main types of results on a SERP:
1. Pages that the search engine spider has crawled and indexed;
2. pages that have been manually added to the search engine's directory;
3. and pages that appear as a result of paid inclusion.

The highest-ranking hits generally link to the most useful information; links grow less relevant as they move farther down the list.

Search Engine Results Pages: What They Are and How They Work

Search engine results pages are web pages served to users when they search for something online using a search engine, such as Google. The user enters their search query (often using specific terms and phrases known as keywords), upon which the search engine presents them with a SERP.

Every SERP is unique, even for search queries performed on the same search engine using the same keywords or search queries. This is because virtually all search engines customize the experience for their users by presenting results based on a wide range of factors beyond their search terms, such as the user's physical location, browsing history, and social settings. Two SERPs may appear identical, and contain many of the same results, but will often feature subtle differences.

The appearance of search engine results pages is constantly in flux due to experiments conducted by Google, Bing, and other search engine providers to offer their users a more intuitive, responsive experience. This, combined with emerging and rapidly developing technologies in the search space, mean that the SERPs of today differ greatly in appearance from their older predecessors.

SERPs typically contain two types of content – "organic" results and paid results.

1. 'Organic' Results

Organic results are listings of web pages that appear as a result of the search engine's algorithm. Search engine optimization professionals, commonly known as SEOs, specialize in optimizing web content and websites to rank more highly in organic search results.

In the following figure, the highlighted results are all organic results:

Organic results on the SERP

The box on the right side of this SERP is known as the Knowledge Graph (also sometimes called the Knowledge Box). This is a feature that Google introduced in 2012 that pulls data to commonly asked questions from sources across the web to provide concise answers to questions in one central location on the SERP. In this case, you can see a wide range of information about Abraham Lincoln, such as the date and place of his birth, his height, the date on which he was assassinated, his political affiliation, and the names of his children – many of which facts have their own links to the relevant pages.

Some SERPs will feature significantly more organic results than others, such as the example above. This is due to the differing intent of various searches. There are three primary types of Internet search: Informational, Navigational and Transactional.

- **Informational searches** are those in which the user hopes to find information on a given topic, such as Abraham Lincoln.
- **Navigational queries** are those in which the user hopes to locate a specific website through their search. This may be the case for individuals searching for a specific website, trying to locate a website whose URL they can no longer remember, or another type of navigational objective.
- **Transactional searches** have high commercial intent, and search queries leading to transactional SERPs may include keywords such as "buy" and other terms that suggest a strong desire to make a purchase.

In contrast to organic results, paid results are those that have been paid to be displayed by an advertiser. In the past, paid results were almost exclusively limited to small, text-based ads that were typically displayed above and to the right of the organic results. Today, however, paid

results can take a wide range of forms, and there are dozens of advertising formats that cater to the needs of advertisers.

Some paid results on your SERP:

In the example above (a SERP for the search query "lawnmowers"), all of the results on the SERP – with the exception of the map and business listing beneath it – are paid results. The three large text-based ads at the top of the SERP are typical PPC ads.

Of those three ads, the lower two (for Craftsman.com and Husqvarna.com) both feature ad extensions allowing prospective customers to navigate to specific pages on their websites directly from the ads.

The image-based ads on the right of the page are Shopping ads, a feature offered on the Google AdWords platform that allows ecommerce retailers' product information to be displayed alongside other results on the SERP. Shopping ads can contain a wide range of information, such as product availability, user reviews, special offers, and more.

There are two additional PPC ads directly beneath the **Shopping ads** that also feature the user review ad extensions, indicated by the star ratings directly beneath the destination URL.

The map and business listing are the only results on this SERP that are not explicitly paid results. This map is shown based on a user's location, and feature listings for local businesses that have set up their free Google My Business listing.

Ranking Signals and Search Algorithms

Organic results are listings that have been indexed by the search engine based on a number of factors, also known as "ranking signals."

For example, the search algorithm used by Google features hundreds of ranking factors, and while nobody outside of Google knows precisely what they are, some are thought to be more important than others. In the past, the link profile of a site – the number of external links that link to a specific website or web page from other websites – was an important ranking signal. It

the two top search engines think of your site. It's helpful to still is to some extent (which is

why Wikipedia ranks so prominently in organic results for so many queries), though search advances at such a rapid pace that ranking signals that were once crucial to the search algorithm may be less important today, a source of constant frustration to SEOs.

SEO Tools:

1. Google Page Speed Insights

Check the speed and usability of your site on multiple devices

Enter a URL, and this tool will test the loading time and performance for desktop and for mobile, plus identify opportunities to improve (and pat you on the back for what you're doing well). The mobile results also come with a user experience score, grading areas like tap targets and font sizes.

2. Moz Local Listing Score

See how your local business looks online

Moz crunches data from more than 15 different sources—including Google, Foursquare, and Facebook—to score your brick-and-mortar business on how it looks online. Results come complete with actionable fixes for inconsistent or incomplete listings.

3. Keywordtool.io

700+ keyword ideas based on a single keyword

Enter a keyword, and the Keyword Tool provides a huge handful of long-tail keyword opportunities, organized alphabetically**.**

4. Google Analytics

Complete web stats and search insights

In addition to tracking pretty much every bit of traffic you could imagine on your website, Analytics also surfaces many keyword insights as to which terms people use to land on your pages.

twitter tips	10
twitter tips	
twitter tips **and tricks**	
twitter tips **for business**	
twitter tips **2014**	
twitter tips **and tricks 2014**	
twitter tips **for nonprofits**	
twitter tips **for authors**	
twitter tips **for journalists**	
twitter tips **for small business**	
twitter tips **for newbies**	

5. Google Webmaster Tools + Bing Webmaster Tools

Constant website analysis, alerts, and error reports

These webmaster tools help give you a taste of what see any bugs, alerts, and indexing issues.

Each of these two tools requires a bit of installation on your site. If you've got a WordPress website, you can add the webmaster code automatically through a plugin like Jetpack or Yoast.

6. Open Site Explorer

Comprehensive link analysis

The free version of Open Site Explorer gives you a quick look a full range of link analysis,including a look at the most impactful links coming your way and your most linked-to pages.

7. Google Keyword Planner

Know what people search for

Enter a keyword or group of keywords into the tool, and Google will return all sorts of helpful stats to
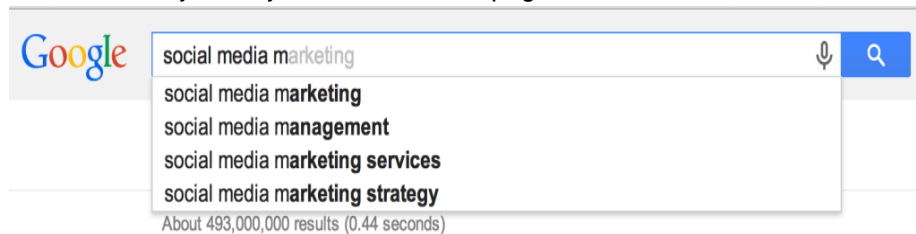
guide your keyword strategy: monthly search volume, competition, and even suggested terms you might not have considered.

8. Google.com in an Incognito Window

Discover auto-fill opportunities

Searching Google.com in an incognito window will bring up that all-familiar list of autofill options, many of which can help guide your keyword research. The incognito ensures that any customized search data Google stores when you're signed in gets left out. Incognito may also be helpful to see where you truly rank on a results page for a certain term.

9. Google Trends

Changes in search volume for key terms

A quick browse or search through Google Trends can show you the hockey-stick rise ofpotential terms and SEO opportunities for your content.

10. QuickSprout Website Analyzer

Full analysis of your website

The QuickSprout tool does a comprehensive look at just about everything: SEO optimization,speed, tags, keywords, social, links, and even competitor comparisons.

11. Schema Creator

Uber-customize the way your search results appear

Create custom code so that your reviews, events, organizations, and people are displayed the way you want on search pages. Once you've created your schema code, copy and paste to your website, or try the free WordPress plugin for an even easier implementation.

Here's an example of schema in action:

12. SimilarWeb

View site stats for any domain

Use this tool to compare traffic between two websites, a helpful tool for competitor research.

13. SERPs Rank Checker

See where your site ranks for certain terms

You can run Rank Checker one of two ways: Input your keyword and your website and see where you land, or leave the website field blank to view the top-to-bottom list of results for a keyword.

14. XML Sitemaps

Build a sitemap

Simply enter your site's URL and some optional parameters, and XML Sitemaps will create asitemap that you can upload to Google Webmaster Tools.

15. Browseo

See your website the way a search engine sees it

Enter your site, and this tool will strip out everything but the guts, revealing your website the way search

spiders see it. This particular view can be helpful to see the hierarchy you've given particular elements (maybe without realizing it!).

16. SEO Site Checkup
Audit and score for your website

Site Checkup runs through a fast audit of your site, checking for proper tags and surfacing anyerrors that might come up.

17. Searchmetrics Website Analyzer
Performance dashboard for search and social rankings

The free version of the Searchmetrics report shows you a taste of how your website ranks insearch and social, along with a preview of top terms.

18. Find Broken Links
Discover errors on your site

The link report from Ninja Internet Marketers combs through your whole site and highlights anumber of link insights, including the internal and external links that need fixing.

19. Ahrefs' Site Explorer and Backlink Checker Complete
overview of your website, pages, and links

A free (and substantial) sampling of what ahrefs offers, the dashboards for referring pages andinbound links are rich and informative.

20. Copyscape
Check for duplicate content

Enter a URL for a blogpost or website, and Copyscape can tell you where else that content existsonline. You might find results that you'll need to follow-up with to help get your SEO in order.

21. Moz toolbar
I've shied away from referencing any toolbars thus far, but the Moz toolbar is just too good to pass up. Once installed, the Moz toolbar can show you SEO insights from within Google search results pages and at any particular website.

22. Robots.txt Generator
Robots.txt files let the web robots know what to do with a website's pages. When a page is disallowed in robots.txt, that's instructions telling the robots to completely skip over those web pages. There are some exceptions in which case a robots.txt might be ignored, most notably malware robots that are looking for security issues.

23. Structured Data Testing Tool
Structured data helps to provide context to the information on your page. This tool from Google uses live data to validate the structured data for any web page, or you can copy/paste code to test it.

24. Microsoft Free SEO Toolkit
The Microsoft SEO Toolkit combines quite a few different tools into one. Used together, it can analyze your site and provide recommendations on how to make your site's content more SEO- friendly, including tweaks to your sitemap and robots.txt. Sorry to all of the Apple folks, this one seems to be Windows-only!

Account Executive(CCAE)

Objective

The objective of course is to learn the aspect GST and Taxation.

Benefit

GST Return Filling, TDS Filing which enables student to get knowledge of their useand role in Accounts Executive.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus Accounts Executive

- Principles of Accountancy
  - Accounting definition, functions, single entry & double entry system ofAccounting.
  - Accounting equations, types of accounts, rules of Accounting,Accounting standards.
  - Accounting concepts & conventions, phases of Accounting: Journal,Ledger & Trial balance.
  - Preparation of Cash book, Subsidiary books.
  - Preparation of Final statements of accounts

- Introduction to Tally
  - Tally-origin, General Features, Accounting features, Inventory feature,Starting TALLY, Start-up screen component, Processing icons,
    Multilingual feature of TALLY, Quit TALLY
  - Company creation; creating, selecting, deleting, shutting a company,altering company details changing data directory, auto selection of company

  - Pre-defined groups in TALLY- Primary groups sub groups- creation ofuser defined primary groups, display- alteration of Groups-Ledger Accounts-creations, display, alteration, deletion.
  - Tally Vouchers-Meaning-Payment Vouchers Receipt vouchers-entering,deleting, cancelling, printing a voucher- Post-dated vouchers
  - Security Control- Meaning, need creation, Display, alteration of securityTALLY Audit features-conduct

- Financial Tally
  - Preparation of Trial Balance- Preparation of Profit & Loss account -Balance sheet.
  - Interest Simple, Compound interest calculation setting up ledger master- Interest Report-Voucher classes and ledger for interest Entry-Billwise interest calculations.

- Receivables and Payable Management Meaning activating bill wise details-sales entries, purchases entries, Purchases Returns, Sales returns Receipt, payment Entries-Display and printing of outstandingprinting reminder letters- printing confirmation.
- Cost, Cost centre, Cost categories- Meaning creation, display, alterationof cost categories and cost centres- allocation of transactions to cost centres-voucher entry using voucher class and cost centre class.
- Budget-Budgetary Control- Meaning, Creation of Budgets, Group Budgets, Budget ledgers, Alteration of budgets-deletion of budgets

- **INCOME TAX RETURN E-FILING**
  - Introduction to Indian Income Tax Act
  - Income Tax Computation
  - Salary Income
  - Income from PGBP
  - Income from House Property
  - Income from Capital Gains
  - Income from Other Sources
  - Tax planning (deduction)
  - How to file Income Tax return?
  - Online Filing of Income Tax Return
  - Provision Related to TDS & Filing

- **Indirect Taxation (GST) GST RETURN E-FILING**
  - What is GST- Goods and Service Tax Indirect Tax for the whole India
  - Overview of Goods & Service Tax
  - Registration and Return
  - Registration under GST (Regular and Composition),
  - Meaning & Scope of Supply, Time of Supply, Value of Supply, Tax RateStructure
  - Invoicing under GST regime,
  - Input Credit Mechanism Return under GST (GSTR1, GSTR2, GSTR3 and so on), Payment of Taxes, Consequences of non– compliance andCompliance

Project

Student makes a project during training period.

Certification

Certificate in Accounts Executive.

Study Material of Account Executive(CCAE)

Goods and Service Tax (GST) :

"GST is a comprehensive, multi - stage, destination - based tax that is levied on every value addition".

Characteristics of goods and Services tax :

1. **Comprehensive :** Scope of business covering the entire trade relatedactivities inclusive of all business transactions.
2. **Multi - stage :** From manufacture to final sale to the consumer.
3. **Destination/Consumption Based :** Goods and Services tax is levied at thepoint of consumption. So, the entire tax revenue will go to consumption state and not to origin state.
4. **Value Addition :** The monetary value added at each stage to achieve thefinal sale to the end customer.

Vision of GST :

To establish highest standards of co - operative federalism in thefunctioning of GST Council.

Mission of GST :

Evolving by a process of wider consultation, a Goods and Service Taxstructure, which is information technology driven and user friendly.

GST and The Cascading effect :

In the pre - GST regime, every purchaser including the final consumer paidtax on tax. This tax on tax is called Cascading effect of taxes.

<u>Illustration :</u>

Mr.X a biscuit manufacturer along with some members, with the input Rs.1000 we can see what happens to the cost of goods and the taxes in the preGST and GST regimes.

Tax calculations in the pre GST regime :

Action	Cost	10% Tax	Total
Manufacturer	1000	100	1100
Warehouse adds a label and repacks @ 300	1400	140	1540
Retailer advertises @500	2040	204	2244
Total	1800	444	2244

This is called the cascading effect of taxes where a tax is paid on taxand the value of the item keeps increasing every time this happens.

Tax calculations in GST regime :

Action	Cost	10% Tax	Actual Liability	Total
Manufacturer	1000	100	100	1100
Warehouse adds label and repacks @300	1300	130	30	1430
Retailer advertises @ 500	1800	180	50	1980
Total	1800		180	1980

An individual is able to claim the input tax credit, thus reducing thetax burden on the final customer.

Primary objectives of GST :

1. The primary objective of GST is One Nation, One Tax, One Market.
2. To merge several Central and State taxes into a single tax.
3. To facilitate a common national market, it helps to improve competitiveness of original goods and services in the market which directlyimpact on GDP of the country.
4. To reduce the Cascading effect of taxes.
5. To ensure speedy and faster economic growth.

Secondary objectives of GST :

1. To reduce compliance cost
2. Seamless flow of tax credit
3. Minimising wastage of time and effort to comply
4. Transparent and corruption free system
5. Supportive to compete at Domestic and International Market
6. Buoyancy in tax collection both for Central and State / UT
7. Tax impact on inflation should be minimal

Salient features of GST :

1. **Supply of goods and services :** GST is applicable on 'supply' of goods or services as against the present concept on the manufacture of goods or onsale of goods or on provision of services.
2. **Principle of destination :** GST is based on the principle of destination – based consumption taxation as against the present principle of origin –based taxation
3. **A Dual GST Model :** It is a dual GST with the Centre and the Statessimultaneously levying tax on a common base
4. **An Integrated GST (IGST) :** Integrated GST (IGST) will be levied on inter –
state supply (including stock transfers) of goods or service.
5. **Import of goods or services covered under IGST :** Import of goods or services will be treated as inter-state supply and would be subject to IGSTin addition to the applicable customs duties
6. **Four rates GST Model :** CGST, SGST, & IGST would be levied at rates to be mutually agreed upon by the Centre and the States. In a recent meeting, the GST Council has decided that GST would be levied at four rates viz. 5%,12%, 18% and 28%
7. **Merger of Existing taxes under GST :** GST replaced the following taxes thatare prevailed in practice under the system of previous tax regime. VAT levied and collected by the Union and State Governments that are subsumed within the GST
8. **Exception from GST :** GST would apply on all goods and services except Alcohol for human consumption. GST on five specified petroleum products (Crude, Petrol, Diesel, ATF & Natural Gas) would by applicable from a date to be recommended by the GSTC. Tobacco and tobacco products would be subject to GST. In addition , the Centre would have the power to levy Central
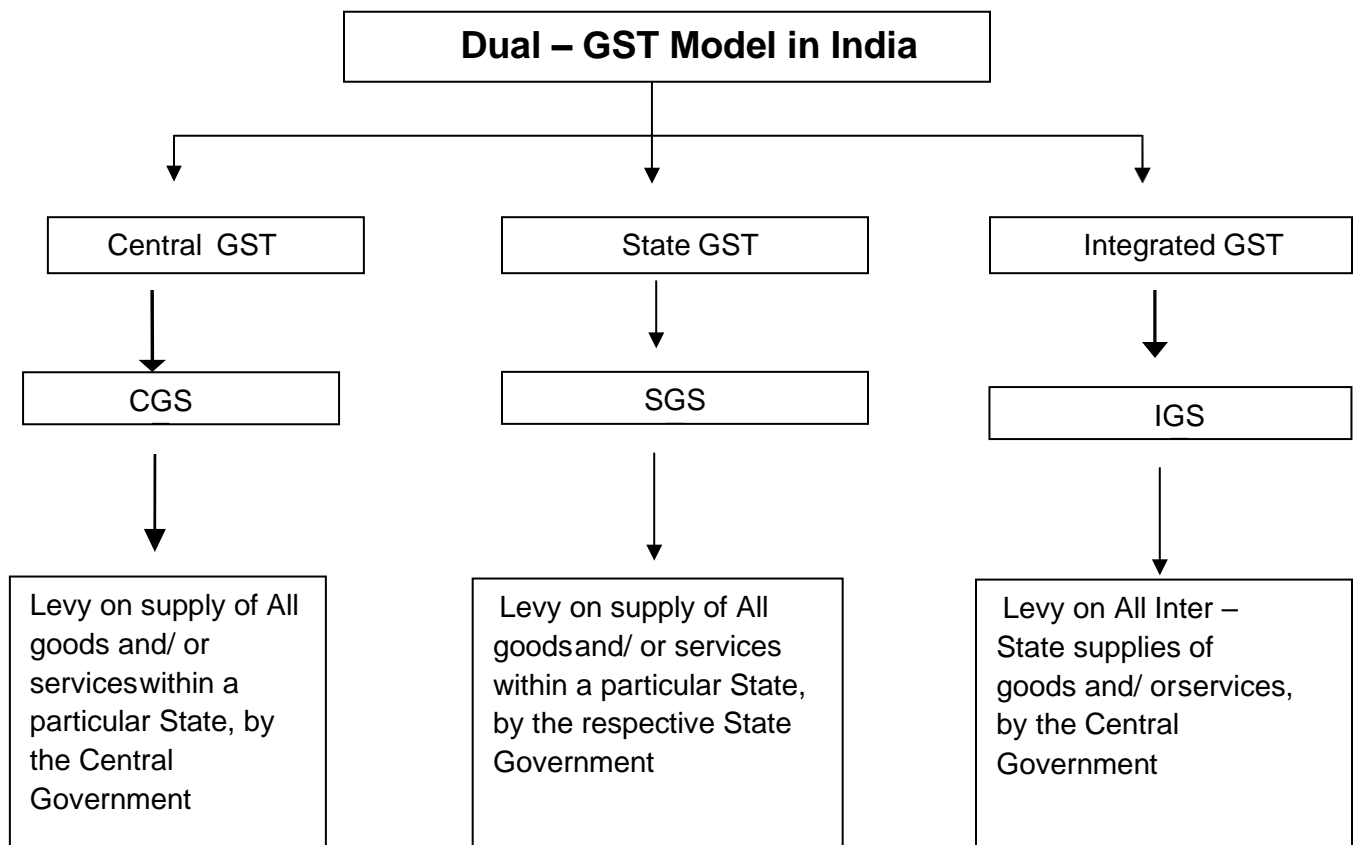
Excise duty on these products.

9. **Composition scheme :** For small taxpayers with an aggregate turnover in a financial year upto 1.5 crores, a composition scheme is available. Under thescheme a taxpayer shall pay tax as a percentage of his turnover in a State during the year without benefit of Input Tax Credit. This scheme will be optional

10. **Input Tax credit (ITC) :** Credit of CGST paid on inputs may be used only for paying CGST on the output and the credit of SGST paid on inputs may be used only for paying SGST. Input Tax Credit (ITC) of CGST cannot be used forpayment of SGST and vice versa. In other words, the two streams of Input Tax Credit (ITC) cannot be cross – utilized, except in specified circumstances of inter - state supplies for payments of IGST.

DUAL GST MODEL :

India adopted a dual GST model, meaning that taxation is administered by both the Union and State Governments. Transactionsmade within a single state are levied with

1. Central GST (CGST) by the Central Government
2. State GST (SGST) by the State Government
3. Integrated GST (IGST)is levied by the Central Government for inter – statetransactions and imported goods or services

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Dual – GST Model in India

Central GST	State GST	Integrated GST
CGS	SGS	IGS
Levy on supply of All goods and/ or serviceswithin a particular State, by the Central Government	Levy on supply of All goodsand/ or services within a particular State, by the respective State Government	Levy on All Inter – State supplies of goods and/ orservices, by the Central Government

GST replaced the following taxes levied and collected by the Union Government :

1. Central Excise Duty
2. Duties of Excise (Medicinal and Toilet Preparations)
3. Additional Duties of Excise (Goods of Special Importance)
4. Additional Duties of Excise (Textiles and Textile Products)
5. Additional Duties of Customs (Commonly known as Counter veilingDuty)
6. Special Additional Duty of Customs. 3(1) CVD: 3(5) Special. CVD.
7. Service Tax
8. Cesses and surcharge in so far as they relate to supply of goods andservices.

State taxes that are subsumed within the GST :

1. State VAT
2. Central States Tax
3. Purchase Tax
4. Luxury Tax
5. Entry Tax (All forms)
6. Entertainment Tax and Amusement Tax (except those levied by the localbodies)
7. Taxes on advertisements
8. Taxes on lotteries, betting and gambling
9. State cesses and surcharges in so far as they relate to supply of goodsand services.

Need for GST in India :

1. **Cascading effect :** The introduction of CENVAT removed to a great extendcascading burden by expanding the coverage of credit for all inputs, including capital goods.
2. **VAT, CENVAT tax burden :** In the State-level VAT, CENVAT load on the goods has not yet been removed and the cascading effect of that part of taxburden has remained unrelieved.
3. **Plethora of taxes :** There were various indirect taxes in India in existence prior to introduction of GST. There was a three tier system of tax collectionin India:
   a) Taxes levied by Central Government i.e. Customs Duties, CentralExcise Duties, Service Tax etc.,
   b) State Excise, VAT, CST, Entry tax, Entertainment tax, luxury taxetc., are levied by the State Government
   c) Local Bodies levy taxes like entertainment tax Octroi, Propertytax, local body tax, etc.
4. **Poor integration of VAT with tax on services :** There has also not been anyintegration of VAT on goods with tax on services at the State level with removal of cascading effect of service tax.
5. **Cascading nature of CST(Central Sales Tax) :** It was another source of distortion in terms of its cascading nature. It was also against one of thebasic principles of consumption taxes that tax should accrue to the jurisdiction where consumption takes place.
6. **Obstacles in free movement of goods :** The National Market wasfragmented with too many obstacles in free movement of goods necessitated by procedural requirement under VAT and CST.
7. **Multiplicity of compliances :** Payment of tax to various authorities, different due dates,

assessment, refund process at various levels made thetaxation system more complex and lead to an increase in compliance cost.Further, there was inbuilt cascading effect of taxes.

8. **Commitment of an inevitable reform process :** India moved towards valueadded taxation both at Central and State level, and this process was complete by the year 2005. Integration of Central VAT and State VAT therefore is nothing but an inevitable consequence of the reform process.

9. **Need of unification tax system :** The Constitution of India envisages afederal nature of power bestowed upon both Union and States in the Constitution itself.

GOODS AND SERVICE TAX COUNCIL

The GST Council is chaired by the Union Finance Minister and other members arethe Union State Minister of Revenue or Finance and Ministers in-charge of Finance or Taxation of all the States.

ADVANTAGES / BENEFITS / IMPACT OF GST

Advantages for the Government :

1. **Make in India** will help to create a unified common national market for India, giving a boost to foreign investment and "Make in India" campaign;

2. **Mitigate Cascading of Taxes** will mitigate cascading of taxes as Input Tax Credit will be available across goods and services at every stages of supply;

3. **Harmonized Principle** Harmonization of laws, procedures and rates of taxbetween Centre and States and across States;

4. **Better Compliance** Improved environment for compliance as all returns areto be filed online, input credits to be verified online, encouraging more paper trail of transactions at each level of supply chain;

5. **Uniformity in Levy** Similar uniform SGST and CGST rates will reduce the incentive for evasion by eliminating rate arbitrages between neighbouringStates and that between intra and inter – state sales;

6. **Improved Taxation System** Common procedures for registration of taxpayers, refund of taxes, uniform formats of tax return, common taxbase, common system of classification of goods and services will lend greater certainty to taxation system;

7. **Reducing Corruption** Greater use of IT will reduce human interface between the taxpayer and the tax administration, which will reducecorruption.

8. **Economic Growth** It will boost export and manufacturing activity, generatemore employment and thus increase GDP with gainful employment leadingto substantive economic growth.

9. **Generating Resources** Ultimately it will help in poverty eradication bygenerating more employment and more financial resources.

Advantages to Trade and Industry :

1. Simple tax regime with fewer exemptions;

2. Increased ease of doing business;

3. Reduction in multiplicity of taxes

4. Elimination of double taxation on certain sectors like works contract,software, hospitality sector;

5. Will mitigate cascading of taxes as Input Tax Credit will be available acrossgoods and services at every stage of supply

6. Reduction in compliance costs – No multiple record keeping for a variety of taxes – so lesser investment of resources and manpower in maintaining records;

7. More efficient neutralization of taxes especially for exports thereby making our products more competitive in the international market and give boost to Indian Exports;

8. Simplified and automated procedures for various processes such as registration, returns, refund, tax payments, etc;

9. Average tax burden on supply of goods or service is expected to come down which will be helping in the growth of industries manufacturing in India.

Advantages to Consumers :

1. Final price of goods is expected to be transparent

2. Reduction in prices of commodities and goods in long run due to reduction in cascading impact of taxation;

3. Relatively large segment of small retailers will be either exempted from tax or will suffer very low tax rates under a compounding scheme – purchases from such entities will cost less for the consumers;

4. Poverty eradication by generating more employment and more financial resources.

Advantages to the States :

1. Supply chain : Expansion of the tax base as they will be able to tax the entire supply chain from manufacturing to retail;

2. Revenue : Power to tax services, which was Hitherto with the Central Government only, will boost revenue and give State access to the fastest growing sector of the economy;

3. Favour to consuming States : GST being destination based consumption tax will favour consuming States;

4. Overall investment : Improve the overall investment climate in the country which will naturally benefit the development in the States;

5. Improved Compliance : Improved Compliance levels of the tax payers will contribute greatly in improving the revenue collection of the States.

IMPACT OF GST ON INDIAN ECONOMY

1. Overall Reduction in Prices
2. Common National Market
3. Benefits to Small Taxpayers
4. Self – Regulating Tax System
5. Non – Intrusive Electronic Tax System
6. Simplified Tax Regime
7. Reduction in Multiplicity of Taxes
8. Consumption Based Tax
9. Abolition of CST
10. Exports to be Zero Rated

11. Protection of Domestic Industry – IGST
12. Decrease in Inflation
13. Ease of Doing Business
14. Decrease in "Black" Transaction
15. More informed consumer
16. States to Gain
17. Make in India
18. Reduction in Cascading of Taxes

Programming C/C++ (CCPCCPP)

Objective

The objective of course is to learn the fundamental programming concepts andmethodologies which are essential to building good C/C++ programs.

Benefit

Core concepts to design, implement, debug and test programs using the fundamental elements of C/C++ which enables student to get basics of programing

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus

Fundamentals of object oriented programming.

- Data Representation
    - Introduction
    - Digital Number System
    - Number Conversions
    - Binary Representation of Integers
    - Binary Representation of Real Numbers
    - Representing Characters in memory
    - ISCII

- General OOP Concepts
    - Introduction
    - Evolution of Software
    - Basic concept of OOP
    - Encapsulation
    - Modularity
    - Advantage and Disadvantages of OOP

    - Getting Started with C++
        - Introduction
        - C++ Character Set
        - Token (Lexical Units)
        - A First Look at C++ Program
        - Using I/O operators
        - Typing and Executing Programs
    - Data Handling
        - Introduction
        - Concept of Data Types
        - C++ Data Types
        - Variables
        - Formatting Output
    - Operators and Expressions in C++
        - Introduction
        - Operators
        - Expressions
        - Assignment Statements

- C++ Standards
- Flow of control
  - Introduction
  - Statements
  - Statements flow control
  - Selection Statements
  - Iteration Statements

- Standard Library Function.
  - Introduction
  - Header Files
  - String and Character Related Function
  - Mathematical Functions

- Structure Data Type Array
  - Introduction
  - Needs of Array
  - Types of Array

- Practical Implementation
  - Data Types
  - Lops
  - Iteration Statements
  - Function
  - Array
  - Structures

Project

Student makes a project during training period.

Certification

Certificate in Programming using C/C++.

Study Material of C++ (CCPCCPP)

What is C++?

C++ is a cross-platform language that can be used to create high-performance applications.

C++ was developed by Bjarne Stroustrup, as an extension to the C language.

C++ gives programmers a high level of control over system resources and memory.

The language was updated 4 major times in 2011, 2014, 2017, and 2020 to C++11, C++14, C++17, C++20.

Why Use C++

C++ is one of the world's most popular programming languages.

C++ can be found in today's operating systems, Graphical User Interfaces, and embedded systems.

C++ is an object-oriented programming language which gives a clear structure to programs and allows code to be reused, lowering development costs.

C++ is portable and can be used to develop applications that can be adapted to multiple platforms.

C++ is fun and easy to learn!

As C++ is close to C, C# and Java, it makes it easy for programmers to switch to C++ or vice versa.

Difference between C and C++

C++ was developed as an extension of C, and both languages have almost the same syntax.

The main difference between C and C++ is that C++ support classes and objects, while C does not.

C++ Install IDE

An IDE (Integrated Development Environment) is used to edit AND compile the code.

Popular IDE's include Code::Blocks, Eclipse, and Visual Studio. These are all free, and they can be used to both edit and debug C++ code.

Note: Web-based IDE's can work as well, but functionality is limited.

We will use **Code::Blocks** in our tutorial, which we believe is a good place to start.

You can find the latest version of Codeblocks at http://www.codeblocks.org/. Download the mingw-setup.exe file, which will install the text editor with a compiler.

C++ Quickstart

Let's create our first C++ file.

Open Codeblocks and go to **File > New > Empty File**.

Write the following C++ code and save the file as myfirstprogram.cpp (**File > Save File as**):

myfirstprogram.cpp

```cpp
#include <iostream>
using namespace std;

int main() {
  cout << "Hello World!";
  return 0;
}
```

Don't worry if you don't understand the code above - we will discuss it in detail in later chapters. For now, focus on how to run the code.

In Codeblocks, it should look like this:

Then, go to **Build > Build and Run** to run (execute) the program. The result will look something to this:

```
Hello World!
Process returned 0 (0x0) execution time : 0.011 s
Press any key to continue.
```

Congratulations! You have now written and executed your first C++ program.

myfirstprogram.cpp

Code:

```cpp
#include <iostream>
using namespace std;

int main() {
  cout << "Hello World!";
  return 0;
}
```

Result:

Hello World!

C++ Syntax

Let's break up the following code to understand it better:

Example

```cpp
#include <iostream>
using namespace std;

int main() {
  cout << "Hello World!";
  return 0;
}
```

Example explained

Line 1: `#include <iostream>` is a **header file library** that lets us work with input and output objects, such as `cout` (used in line 5). Header files add functionality to C++ programs.

Line 2: `using namespace std` means that we can use names for objects and variables from the standard library.

Don't worry if you don't understand how `#include <iostream>` and `using namespace std` works. Just think of it as something that (almost) always appears in your program.

Line 3: A blank line. C++ ignores white space. But we use it to make the code more readable.

Line 4: Another thing that always appear in a C++ program, is `int main()`. This is called a **function**. Any code inside its curly brackets `{}` will be executed.

Line 5: `cout` (pronounced "see-out") is an **object** used together with the *insertion operator* (`<<`) to output/print text. In our example it will output "Hello World!".

Note: Every C++ statement ends with a semicolon `;`.

Note: The body of `int main()` could also been written as:
`int main () { cout << "Hello World! "; return 0; }`

Remember: The compiler ignores white spaces. However, multiple lines makes the code more readable.

Line 6: return 0 ends the main function.

Line 7: Do not forget to add the closing curly bracket } to actually end the main function.

Omitting Namespace

You might see some C++ programs that runs without the standard namespace library. The using namespace std line can be omitted and replaced with the std keyword, followed by the :: operator for some objects:

Example

```
#include <iostream>

int main() {
  std::cout << "Hello World!";
  return 0;
}
```

C++ Variables

Variables are containers for storing data values.

In C++, there are different **types** of variables (defined with different keywords), for example:

- int - stores integers (whole numbers), without decimals, such as 123 or -123
- double - stores floating point numbers, with decimals, such as 19.99 or -19.99
- char - stores single characters, such as 'a' or 'B'. Char values are surrounded by single quotes
- string - stores text, such as "Hello World". String values are surrounded by double quotes
- bool - stores values with two states: true or false

Declaring (Creating) Variables

To create a variable, specify the type and assign it a value:

Syntax

type variableName = value;

Where *type* is one of C++ types (such as int), and *variableName* is the name of the variable (such as **x** or **myName**). The **equal sign** is used to assign values to the variable.

To create a variable that should store a number, look at the following example:

Example

Create a variable called **myNum** of type int and assign it the value **15**:

```
int myNum = 15;
cout << myNum;
```

You can also declare a variable without assigning the value, and assign the value later:

Example

```
int myNum;
myNum = 15;
cout << myNum;
```

Note that if you assign a new value to an existing variable, it will overwrite the previous value:

Example

```
int myNum = 15;  // myNum is 15
myNum = 10;  // Now myNum is 10
cout << myNum;  // Outputs 10
```

Other Types

A demonstration of other data types:

Example

```
int myNum = 5;           // Integer (whole number without decimals)
double myFloatNum = 5.99;    // Floating point number (with decimals)
char myLetter = 'D';         // Character
string myText = "Hello";     // String (text)
bool myBoolean = true;       // Boolean (true or false)
```

You will learn more about the individual types in the Data Types chapter.

Display Variables

The cout object is used together with the << operator to display variables.

To combine both text and a variable, separate them with the << operator:

Example

```
int myAge = 35;
cout << "I am " << myAge << " years old.";
```

Add Variables Together

To add a variable to another variable, you can use the + operator:

Example

```
int x = 5;
int y = 6;
int sum = x + y;
```

```
cout << sum;
```

C++ User Input

You have already learned that cout is used to output (print) values. Now we will use cin to get user input.

cin is a predefined variable that reads data from the keyboard with the extraction operator (>>).

In the following example, the user can input a number, which is stored in the variable x. Then we print the value of x:

Example

```
int x;
cout << "Type a number: "; // Type a number and press enter
cin >> x; // Get user input from the keyboard
cout << "Your number is: " << x; // Display the input value
```

Good To Know

cout is pronounced "see-out". Used for **output**, and uses the insertion operator (<<)

cin is pronounced "see-in". Used for **input**, and uses the extraction operator (>>)

Creating a Simple Calculator

In this example, the user must input two numbers. Then we print the sum by calculating (adding) the two numbers:

Example

```
int x, y;
int sum;
cout << "Type a number: ";
cin >> x;
cout << "Type another number: ";
cin >> y;
sum = x + y;
cout << "Sum is: " << sum;
```

C++ Data Types

As explained in the [Variables] chapter, a variable in C++ must be a specified data type:

Example

```
int myNum = 5;            // Integer (whole number)
float myFloatNum = 5.99;     // Floating point number
double myDoubleNum = 9.98;   // Floating point number
char myLetter = 'D';         // Character
bool myBoolean = true;       // Boolean
string myText = "Hello";     // String
```

Basic Data Types

The data type specifies the size and type of information the variable will store:

Data Type	Size	Description
boolean	1 byte	Stores true or false values
char	1 byte	Stores a single character/letter/number, or ASCII values
int	2 or 4 bytes	Stores whole numbers, without decimals
float	4 bytes	Stores fractional numbers, containing one or more decimals. Sufficient for storing 6-7 decimal digits
double	8 bytes	Stores fractional numbers, containing one or more decimals. Sufficient for storing 15 decimal digits

C++ Operators

Operators are used to perform operations on variables and values.

In the example below, we use the + **operator** to add together two values:

Example

```
int x = 100 + 50;
```

Although the + operator is often used to add together two values, like in the example above, it can also be used to add together a variable and a value, or a variable and another variable:

Example

```cpp
int sum1 = 100 + 50;      // 150 (100 + 50)
int sum2 = sum1 + 250;    // 400 (150 + 250)
int sum3 = sum2 + sum2;   // 800 (400 + 400)
```

C++ divides the operators into the following groups:

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Bitwise operators

Arithmetic Operators

Arithmetic operators are used to perform common mathematical operations.

Operator	Name	Description	Example
+	Addition	Adds together two values	x + y
-	Subtraction	Subtracts one value from another	x - y
*	Multiplication	Multiplies two values	x * y
/	Division	Divides one value by another	x / y
%	Modulus	Returns the division remainder	x % y
++	Increment	Increases the value of a variable by 1	++x

--	Decrement	Decreases the value of a variable by 1	--x

C++ Strings

Strings are used for storing text.

A string variable contains a collection of characters surrounded by double quotes:

Example

Create a variable of type string and assign it a value:

string greeting = "Hello";

To use strings, you must include an additional header file in the source code, the <string> library:

Example

```
// Include the string library
#include <string>

// Create a string variable
string greeting = "Hello";
```

C++ Conditions and If Statements

You already know that C++ supports the usual logical conditions from mathematics:

- Less than: a < b
- Less than or equal to: a <= b
- Greater than: a > b
- Greater than or equal to: a >= b
- Equal to a == b
- Not Equal to: a != b

You can use these conditions to perform different actions for different decisions.

C++ has the following conditional statements:

- Use if to specify a block of code to be executed, if a specified condition is true
- Use else to specify a block of code to be executed, if the same condition is false
- Use else if to specify a new condition to test, if the first condition is false
- Use switch to specify many alternative blocks of code to be executed

The if Statement

Use the if statement to specify a block of C++ code to be executed if a condition is true.

Syntax

```
if (condition) {
  // block of code to be executed if the condition is true
}
```

Note that if is in lowercase letters. Uppercase letters (If or IF) will generate an error.

In the example below, we test two values to find out if 20 is greater than 18. If the condition is true, print some text:

Example

```
if (20 > 18) {
  cout << "20 is greater than 18";
}
```

We can also test variables:

Example

```
int x = 20;
int y = 18;
if (x > y) {
  cout << "x is greater than y";
}
```

The else if Statement

Use the else if statement to specify a new condition if the first condition is false.

Syntax

```
if (condition1) {
  // block of code to be executed if condition1 is true
} else if (condition2) {
  // block of code to be executed if the condition1 is false and condition2 is true
} else {
  // block of code to be executed if the condition1 is false and condition2 is false
}
```

Example

```
int time = 22;
if (time < 10) {
  cout << "Good morning.";
} else if (time < 20) {
  cout << "Good day.";
} else {
  cout << "Good evening.";
}
// Outputs "Good evening."
```

Example explained

In the example above, time (22) is greater than 10, so the **first condition** is false. The next condition, in the else if statement, is also false, so we move on to the else condition since **condition1** and **condition2** is both false - and print to the screen "Good evening".

C++ Switch Statements

Use the switch statement to select one of many code blocks to be executed.

Syntax

```
switch(expression) {
  case x:
    // code block
    break;
  case y:
    // code block
    break;
  default:
    // code block
}
```

This is how it works:

- The switch expression is evaluated once
- The value of the expression is compared with the values of each case
- If there is a match, the associated block of code is executed
- The break and default keywords are optional, and will be described later in this chapter

The example below uses the weekday number to calculate the weekday name:

Example

```
int day = 4;
switch (day) {
  case 1:
    cout << "Monday";
    break;
  case 2:
    cout << "Tuesday";
    break;
  case 3:
    cout << "Wednesday";
    break;
  case 4:
    cout << "Thursday";
    break;
  case 5:
    cout << "Friday";
    break;
  case 6:
    cout << "Saturday";
    break;
  case 7:
    cout << "Sunday";
```

```
    break;
}
```
// Outputs "Thursday" (day 4)

The break Keyword

When C++ reaches a break keyword, it breaks out of the switch block.

This will stop the execution of more code and case testing inside the block.

When a match is found, and the job is done, it's time for a break. There is no need for more testing.

A break can save a lot of execution time because it "ignores" the execution of all the rest of the code in the switch block.

The default Keyword

The default keyword specifies some code to run if there is no case match:

Example

```
int day = 4;
switch (day) {
  case 6:
    cout << "Today is Saturday";
    break;
  case 7:
    cout << "Today is Sunday";
    break;
  default:
    cout << "Looking forward to the Weekend";
}
```
// Outputs "Looking forward to the Weekend"

C++ While Loop

The while loop loops through a block of code as long as a specified condition is true:

Syntax

```
while (condition) {
  // code block to be executed
}
```

In the example below, the code in the loop will run, over and over again, as long as a variable (i) is less than 5:

Example

```
int i = 0;
while (i < 5) {
```

```
  cout << i << "\n";
  i++;
}
```

C++ For Loop

When you know exactly how many times you want to loop through a block of code, use the for loop instead of a while loop:

Syntax

```
for (statement 1; statement 2; statement 3) {
  // code block to be executed
}
```

Statement 1 is executed (one time) before the execution of the code block.

Statement 2 defines the condition for executing the code block.

Statement 3 is executed (every time) after the code block has been executed.

The example below will print the numbers 0 to 4:

Example

```
for (int i = 0; i < 5; i++) {
  cout << i << "\n";
}
```

Example explained

Statement 1 sets a variable before the loop starts (int i = 0).

Statement 2 defines the condition for the loop to run (i must be less than 5). If the condition is true, the loop will start over again, if it is false, the loop will end.

Statement 3 increases a value (i++) each time the code block in the loop has been executed.

Another Example

This example will only print even values between 0 and 10:

Example

```
for (int i = 0; i <= 10; i = i + 2) {
  cout << i << "\n";
}
```

Nested Loops

It is also possible to place a loop inside another loop. This is called a **nested loop**.

The "inner loop" will be executed one time for each iteration of the "outer loop":

Example

```cpp
// Outer loop
for (int i = 1; i <= 2; ++i) {
  cout << "Outer: " << i << "\n"; // Executes 2 times

  // Inner loop
  for (int j = 1; j <= 3; ++j) {
    cout << " Inner: " << j << "\n"; // Executes 6 times (2 * 3)
  }
}
```

The for-each Loop

There is also a "**for-each** loop" (introduced in C++ version 11 (2011), which is used exclusively to loop through elements in an [array](#) (or other data sets):

Syntax

```cpp
for (type variableName : arrayName) {
  // code block to be executed
}
```

The following example outputs all elements in an array, using a "**for-each** loop":

Example

```cpp
int myNumbers[5] = {10, 20, 30, 40, 50};
for (int i : myNumbers) {
  cout << i << "\n";
}
```

C++ Arrays

Arrays are used to store multiple values in a single variable, instead of declaring separate variables for each value.

To declare an array, define the variable type, specify the name of the array followed by **square brackets** and specify the number of elements it should store:

```cpp
string cars[4];
```

We have now declared a variable that holds an array of four strings. To insert values to it, we can use an array literal - place the values in a comma-separated list, inside curly braces:

string cars[4] = {"Volvo", "BMW", "Ford", "Mazda"};

To create an array of three integers, you could write:

int myNum[3] = {10, 20, 30};

Access the Elements of an Array

You access an array element by referring to the index number inside square brackets [].

This statement accesses the value of the **first element** in **cars**:

Example
string cars[4] = {"Volvo", "BMW", "Ford", "Mazda"};
cout << cars[0];
// Outputs Volvo

Note: Array indexes start with 0: [0] is the first element. [1] is the second element, etc.

Change an Array Element

To change the value of a specific element, refer to the index number:

cars[0] = "Opel";

Example
string cars[4] = {"Volvo", "BMW", "Ford", "Mazda"};
cars[0] = "Opel";
cout << cars[0];

Loop Through an Array

You can loop through the array elements with the for loop.

The following example outputs all elements in the **cars** array:

```
string cars[5] = {"Volvo", "BMW", "Ford", "Mazda", "Tesla"};
for (int i = 0; i < 5; i++) {
  cout << cars[i] << "\n";
}
```

C++ Functions

A function is a block of code which only runs when it is called.

You can pass data, known as parameters, into a function.

Functions are used to perform certain actions, and they are important for reusing code: Define the code once, and use it many times.

Create a Function

C++ provides some pre-defined functions, such as main(), which is used to execute code. But you can also create your own functions to perform certain actions.

To create (often referred to as *declare*) a function, specify the name of the function, followed by parentheses **()**:

```
void myFunction() {
  // code to be executed
}
```

Example Explained

- myFunction() is the name of the function
- void means that the function does not have a return value. You will learn more about return values later in the next chapter
- inside the function (the body), add code that defines what the function should do

Call a Function

Declared functions are not executed immediately. They are "saved for later use", and will be executed later, when they are called.

To call a function, write the function's name followed by two parentheses () and a semicolon ;

In the following example, myFunction() is used to print a text (the action), when it is called:

Example

Inside main, call myFunction():

```
// Create a function
void myFunction() {
  cout << "I just got executed!";
}

int main() {
  myFunction(); // call the function
  return 0;
}

// Outputs "I just got executed!"
```

A function can be called multiple times:

Example

```
void myFunction() {
  cout << "I just got executed!\n";
}

int main() {
  myFunction();
  myFunction();
  myFunction();
  return 0;
}

// I just got executed!
// I just got executed!
// I just got executed!
```

Function Declaration and Definition

A C++ function consist of two parts:

- **Declaration:** the return type, the name of the function, and parameters (if any)
- **Definition:** the body of the function (code to be executed)

```
void myFunction() { // declaration
  // the body of the function (definition)
}
```

Note: If a user-defined function, such as myFunction() is declared after the main() function, **an error will occur**:

Example

```
int main() {
  myFunction();
```

```cpp
  return 0;
}

void myFunction() {
  cout << "I just got executed!";
}

// Error
```

However, it is possible to separate the declaration and the definition of the function - for code optimization.

You will often see C++ programs that have function declaration above main(), and function definition below main(). This will make the code better organized and easier to read:

Example

```cpp
// Function declaration
void myFunction();

// The main method
int main() {
  myFunction();  // call the function
  return 0;
}

// Function definition
void myFunction() {
  cout << "I just got executed!";
}
```

C++ What is OOP?

OOP stands for Object-Oriented Programming.

Procedural programming is about writing procedures or functions that perform operations on the data, while object-oriented programming is about creating objects that contain both data and functions.

Object-oriented programming has several advantages over procedural programming:

- OOP is faster and easier to execute
- OOP provides a clear structure for the programs
- OOP helps to keep the C++ code DRY "Don't Repeat Yourself", and makes the code easier to maintain, modify and debug
- OOP makes it possible to create full reusable applications with less code and shorter development time

Tip: The "Don't Repeat Yourself" (DRY) principle is about reducing the repetition of code. You should extract out the codes that are common for the application, and place them at a single place and reuse them instead of repeating it.
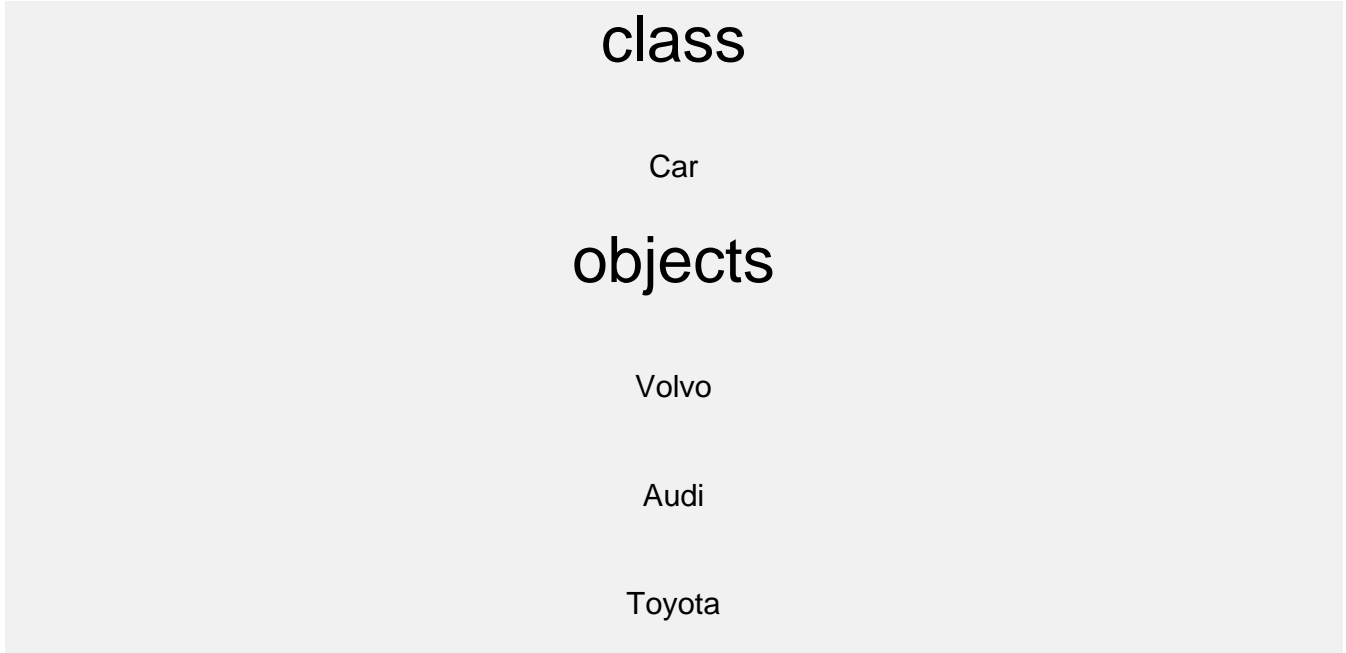
C++ What are Classes and Objects?

Classes and objects are the two main aspects of object-oriented programming.

Look at the following illustration to see the difference between class and objects:

class

Fruit

objects

Apple

Banana

Mango

Another example:

class

Car

objects

Volvo

Audi

Toyota

So, a class is a template for objects, and an object is an instance of a class.

When the individual objects are created, they inherit all the variables and functions from the class.

Accounting On Computer (AOCAC)

Objective

The objective of course is to learn the aspect the computer applications in accountingand Taxation.

Benefit

Students are expert in basic norms and procedures of taxation and computer in general and accounting which enables student to get knowledge of their useand rolein Accounting.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus Accounting

on Computer

- MS-Word & MS-Excel
    - o Basic knowledge of working on MS Word and Excel Sheet
    - o Creating Macros and Opening non-excel sheet in excel.
    - o Import of excel data sheet
    - o Attaching spreadsheets in MS Word

- Data Bases
    - o Basic of Data Base
    - o Working with Forms
    - o Reports and Macros

- Financial Analysis Tools
    - o Cash flow/fund flow analysis
    - o Ratio Analysis
    - o Frequently used checks/validation of inputs
- Use of Internet
    - o Introduction to www and search engine
    - o Netscape Navigator, e-commerce and E-marketing
    - o Advertising and online marketing, electronic payment system
    - o Different types of Payment and useful job hunting sites

- Security in MS office
    - o Protection of documents and worksheets

- Income Tax
    - o Income Heads under Income Tax Act
    - o Classification of Assesses, Deduction and Exemption
    - o Computation of taxable Income and Tax, Advance Tax
    - o Basic concepts of Service Tax
    - o Taxable Services under Service Tax Act
    - o Basic concept of Comprehend VAT, Its registration, Rules and Procedures

- Banking Fundamental

- o   Knowledge of banking procedure and instrumentation
- o   Interest calculation and usage of plastic money
- o   Knowledge of Phone Banking and internet banking
- o   Debit Card & Credit Card
- o   Understanding financial projections and project prepration

- • ESIC
    - o   Introduction of ESIC law
    - o   ESIC rules for contribution

- • EPF
    - o   Introduction of EPF Provisions
    - o   Information about Gratuity Act and Bonus Act

Project

Students make a project during training period.

Certification

Certificate in Accounting on Computer.

Study Material of Accounting on Computer (AOCAC)

COMPUTERIZED ACCOUNTING

UNIT - I

Computerized Accounting:

Computerised accounting system refers to the system of maintaining accounts using computers. It involves the processing of accounting transactions through the use of hardware and softwarein order to keep and produce accounting records and reports.

Features of computerized accounting Simple and integrated

It is designed to automate and integrate all the business operations such as purchase, sales, finance, inventory and manufacturing. The CAS may be integrated with enhanced Management Information System (MIS), multi-lingual and data organisation capabilities to simplify all the business processes of the organisation easily and cost-effectively.

ii) Speed

It can perform functions at much higher speed than doing the same manually.

iii) Accuracy

Computers perform functions with high degree of accuracy. If hardware, software and input by people are proper, the computerised accounting system can assure of accurate outcome.

iv) Reliability

Computers are used to process large volumes of data and hence, data provided by it are reliable.

v) Versatility

Computer and accounting software have the ability to perform diverse tasks. For example, by simply recording accounting entries through accounting software, one can get trial balance, trading account, profit and loss account, balance sheet and diverse reports.

vi) Transparency

With computerised accounting, the organisation will have greater transparency of day-today

business operations and access to the vital information.

vii) Scalability

computerized accounting enables processing of any volume of data in tune with the change in thesize of the business.

viii) On-line facility

computerized accounting offers online facility to store and process transaction and data so as to retrieve information to generate and view financial reports in any part of the world.

ix) Security

In computerized accounting, only the authorised users are permitted to have access to accounting data. Under manual accounting system, it is very difficult to secure such information as it is open to inspection by any person dealing with the books of accounts.

Components of Computerised Accounting System

Components of Computerised Accounting can be classified into six categories, namely,

i) Hardware ii) Software iii) People iv) Procedure v) Data and vi) Connectivity.

i) Hardware

The physical components of a computer constitute its hardware. Hardware consists of input devices and output devices that make a complete computer system. Examples of input devices are keyboard, optical scanner, mouse, joystick, touch screen and slylus which are used to feed data into the computer. Output devices such as monitor and printer are media to get the output from the computer.

ii) Software

A set of programs that form an interface between the hardware and the user of a computer system are referred to as software. The following are the various types of software:

a) **System software**: A set of programs to control the internal operations such as reading data from input devices, giving results to output devices and ensuring proper functioning of components is called system software. The system software includes the following:

(1) **Operating system**: A set of tools and programs to manage the overall working of a computer using a defined set of hardware components is called an operating system. It is the interface between the user and the computer system. Example: DOS, Windows, UBUNTU, imac, etc.

(2) **Programming software**: Special software to accept data and interpret them in the form of machine/assembly language understandable by a computer. Example: C, PASCAL, COBOL, etc.

(3) **Utility software**: These are designed specifically for managing the

computerdevice and its resources. Example: File manager, Anti-virus

software, etc.

b) **Application software**: Programs designed to perform a specific function for a user. An application software can be classified as follows:

(i) General purpose software: This type of application can be used for a variety of tasks and notlimited to one particular function. Example: MS-Office.

(ii) Specific purpose software: This software is created to execute one specific task and they arecustomised to the needs of user. Example: Accounting software, payroll software, etc.

iii) People

The most important element of a computer system is its users. They are also called live-ware ofthe computer system. The following types of people interact with a computer system.

a) System analysts: People who design the operation and processing of the system.

b) System programmers: People who write codes and programs to implement the working of thesystem.

c) System operators: People who operate the system and use it for different purposes.

iv) Procedure

Procedure is a step by step series of instructions to perform a specific function and achieve desired output. In a computer system there are three types of procedures.

a) Hardware oriented procedure: It defines the working of a hardware component.

b) Software oriented procedure: It is a set of detailed instructions for using the software.

c) Internal procedure: It maintains the overall working of each part of a computer system bydirecting the flow of information.

v) Data

The facts and figures that are fed into a computer for further processing are called data. Data are raw input until the computer system interprets them using machine language, stores them in memory, classifies them for processing and produces results in conformance with the instructions given to it. Processed and useful data are called information which is used for decision making.

vi) Connectivity

When two or more computers are connected to each other, they can share information and resources such as sharing of files (data/music, etc), sharing of printer, sharing of facilities like the internet. This sharing is possible using wires, cables, satellite, infra-red, bluetooth, microwave transmission, etc.

Advantages of Computerised Accounting

1. Better Quality Work: The accounts prepared with the use of computerized accounting systemare usually uniform, neat, accurate, and more legible than a manual job.

2. Lower Operating Costs: Computer is a reliable and time-saving device. The volume of job handled with the help of computerized system results in economy and lower operating costs. The overall operating cost of this system is low in comparison to the traditional system.

3. Improves Efficiency: This system is more efficient in comparison to the traditional system. The computer makes sure speed and accuracy in preparing the records and accountsand thus, increases the efficiency of employees.

4. Facilitates Better Control: From the management point of view, there is greater control possible and more information may be available with the use of the computer in accounting. It ensures efficient performance in accounting records.

5. Greater Accuracy: Computerized accounting make sure accuracy in accounting

records and statements. It prevents clerical errors and omissions in records.

6.   Relieve Monotony: Computerized accounting reduces the monotony of doing repetitive accounting jobs. Which are tiresome and time-consuming.

7.   Facilitates Standardization: Computerised accounting provides standardization of accounting routines and procedures. Therefore, it ensures standardization in the accounting records.

8. **Minimizes Mathematical Errors:** While doing mathematical work with computers, errors are virtually eliminated unless the data is entered improperly in the system.

9. **Legibility** : The data displayed on computer monitor is legible. This is because the characters (alphabets, numerals, etc.) are type written using standard fonts. This helps in avoiding errors caused by untidy written figures in a manual accounting system.

10. **Efficiency** : The computer based accounting systems ensure better use of resources and time. This brings about efficiency in generating decisions, useful informations and reports.

11. **Quality Reports** : The inbuilt checks and untouchable features of data handling facilitate hygienic and true accounting reports that are highly objective and can be relied upon.

12. **speed** : Accounting data is processed faster by using a computerized accounting system than it is achieved through manual efforts. This is because computers require far less time than human beings in performing a task.

Disadvantages of Computerized Accounting:

1. **Reduction of Manpower:**

The introduction of computers in accounting work reduces the number of employees in an organization. Thus, it leads to greater amount of unemployment.

2. **High Cost:**

A small firm cannot install a computer accounting system because of its high installation and maintenance cost. To be more economical there should be large volume of work. If the system is not used to its full capacity, then it would be highly uneconomical.

3. **Require Special Skills:**

Computer system calls for highly specialized operators. The availability of such skilled personnel is very scarce and very costly.

4. Other Problems:

Frequent repair and power failure may affect the accounting work very much. Computers are prone to viruses. Often time's people will assume the computer is doing things correctly and problems will go unchecked for long period of time.

5. Cost of Training:

The sophisticated computerised accounting packages generally require specialised staff personnel. As a result, a huge training costs are incurred to understand the use of hardware and software on a continuous basis because newer types of hardware and software areacquired to ensure efficient and effective use of computerised accounting systems.

6. Staff Opposition :

Whenever the accounting system is computerised, there is a significant degree of resistance from the existing accounting staff, partly because of the fear that they shall be made redundant and largely because of the perception that they shall be less important to the organisation.

7. Disruption :

The accounting processes suffer a significant loss of worktime when an organisation switches over to the computerised accounting system. This is due to changes in the working environment that requires accounting staff to adapt to new systems and procedures

8. System Failure :

The danger of the system crashing due to hardware failures and the subsequent loss of work is a serious limitation of computerized accounting system. However, providing for back-up arrangements can obviate this limitation. Software damage and failure may occur due to attacks by viruses. This is of particular relevance to accounting systems that extensively use Internet facility for their online operations. No full-proof solutions are available as of now to tackle the menace of attacks on software by viruses.

Difference Between Manual Accounting and Computerized Accounting

Basis for Comparison	Manual Accounting	Computerized Accounting
Meaning	Manual Accounting is a system of accounting that uses physical registers and account books, for keeping financial records.	Computerized Accounting is an accounting system that uses an accounting software, for recording financial transactions electronically.
Recording	Recording is possible through book of original entry.	Data content is recorded in customized database.
Calculation	All the calculation is performed manually.	Only data input is required, the calculations are performed by computer system.
Speed	Slow	Comparatively faster.
Adjusting entries	It is made for rectification of errors.	It cannot be made for rectification of errors.
Backup	Not possible	Entries of transactions can be saved and backed up
Trial Balance	Prepared when necessary.	Instant trial balance is provided on daily basis.
Financial Statemen	It is prepared at the end of the period, or	It is provided at the click of button.

t	quarter.	

Grouping

In any organisation, the main unit of classification is the major head which is further divided into minor heads. Each minor head may have number of sub-heads. After classification of accounts into various groups namely, major, minor and sub-heads and allotting codes to each account these are programmed into the computer system.

VOUCHERS

Meaning:
'Voucher' is the original documentary evidence in support of any payment or receipt of money by the business. It would be with the help of the voucher that the accuracy of entry can be checked. Voucher alone can tell us about the nature and sources of the transaction, its value and authority.

Types of Accounting Vouchers

- ➢ Sales Voucher
- ➢ Purchase Voucher
- ➢ Payment Voucher
- ➢ Receipt Voucher
- ➢ Contra Voucher
- ➢ Journal Voucher
- ➢ Credit Note Voucher
- ➢ Debit Note Voucher

- **Sales Voucher in Tally**

Sales voucher is one of the most used accounting vouchers in Tally. Users can create this voucher in two different formats; as an invoice, or as a voucher. The invoice format enables users to print a copy of invoices for customers.

- **Purchase Voucher in Tally**

Like sales vouchers, purchase voucher belongs to the accounting category and is available in both invoice and voucher formats. Editing and modifying receipt entries in Tally are easy, as its

voucher format helps accountants to do so quickly.

- **Payment Voucher in Tally**

The payment voucher is another accounting voucher in Tally that helps create and print cheques against the order. Once the payment voucher gets passed, the corresponding cheque can be printed by clicking on 'banking' and then on 'cheque printing'.

- **Receipt Voucher in Tally**

When accountants make a receipt voucher in Tally, all the invoices which have pending payments pop up as a reminder. As soon as the client makes the payment through any mode, the receipt can be updated with the [payment method](#) details.

- **Contra Voucher in Tally**

Contra vouchers are used to withdraw or deposit money in banks with the help of instruments such as cheques/ATM/DD or e-transfer to another account through NEFT/IMPS. With the help of contra vouchers in Tally, accountants can also generate deposit slips for recordkeeping.

- **Journal Voucher in Tally**

Unlike other vouchers, a journal voucher in Tally can come under the roof of both accounting and inventory vouchers. There are multiple uses of a journal voucher in Tally depending on the type of business it is being used for.

- **Credit Note Voucher in Tally**

Credit note voucher in Tally has to be enabled manually. It is usually enabled by pressing F11 and they manually configuring its features. Credit note can also be passed by checking the original invoice. When a client is selected, Tally shows the transaction invoice history that have been raised.

- **Debit Note Voucher in Tally**

Debit note voucher is one of the most-used types of voucher in Tally ERP 9, that is used for managing purchase returns. With the help of this, accountants can generate a debit note for invoicing as well as a voucher.

How do you create, Edit and delete of voucher TYPE?

Create Voucher Type

  ➢ **G**ateway of Tally

- ➢ Inventory info
- ➢ Voucher Type
- ➢ Create
- ➢ Enter Voucher type
- ➢ press Yes to save

Edit Voucher Type

- ➢ **G**ateway of Tally
- ➢ Inventory info
- ➢ Voucher Type
- ➢ Alter
- ➢ Enter Voucher type
- ➢ press Yes to save
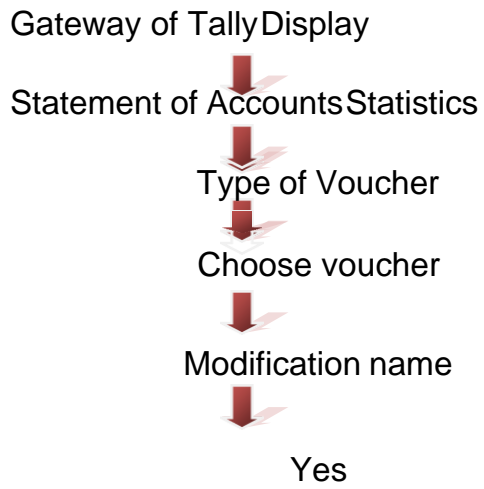
Delete Voucher Type

- ➢ **G**ateway of Tally
- ➢ Inventory info
- ➢ Voucher Type
- ➢ Alter
- ➢ Enter Voucher type
- ➢ Press Alt + D
- ➢ press Yes
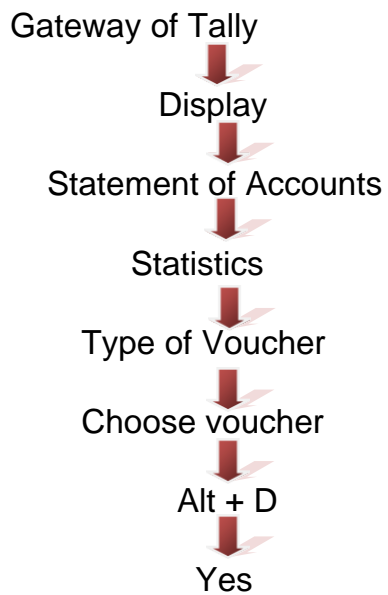
How do you create, Edit and delete of voucher?

Create Voucher

Gateway of Tally ➡ Accounting Voucher ➡ Enter voucher information ➡ Press Yes

Edit Voucher

Gateway of Tally Display

Statement of Accounts Statistics

Type of Voucher

Choose voucher

Modification name

Yes

Delete Voucher

Gateway of Tally

Display

Statement of Accounts

Statistics

Type of Voucher

Choose voucher

Alt + D

Yes

UNIT – II

1. Computerised accounting system

Computerised accounting system refers to the system of maintaining accounts using computers. It involves the processing of accounting transactions through the use of hardware and software in order to keep and produce accounting records and reports. Computerised accounting system takes accounting transactions as inputs that are processed through accounting software to generate the following reports:

- Day books /Journals
- Ledger
- Trial balance
- Trading account
- Profit and loss account
- Balance sheet, etc.

In accounting, computer is commonly used in the following areas:

a) Recording of business transactions

b) Payroll accounting

c) Stores accounting and

d) Generation of accounting reports

It is to be noted that the fundamentals of accounting do not change whether books of accounts are maintained manually or computerised. The same principles of debit and credit are equally applicable in a computerised environment.

2. Accounting software

The main function of CAS is to perform the accounting activities in an organisation and generate reports as per the requirements of the users. To obtain the desired results optimally, need based software or packages are to be installed in the organisation. Depending upon the suitability of business requirements there are three types of software, namely,

(i) Readymade software, (ii) Customised software and (iii) Tailormade software.

(i) Readymade software

These packages are standardised or readymade packages which can be used by the business enterprises immediately on procurement. These packages are used by small and conventional

business enterprises. Cost of installation and maintenance is very low. Training cost is negligible and sometimes the vendor provides free of cost training. These softwares are used by those enterprises where financial transactions are simple, uniform and routine in nature. Few examples of such type of software are Tally, Busy, Marg, Profitbooks.

(ii) Customised software

Many a time, it is not possible that ready-to-use packages suit the requirements of the business enterprise. In such circumstances, customised packages may help the business enterprise for fulfilling their requirements. Customised packages can be modified according to the need of the enterprise. For example, software can record attendance of the employees and on the requirement of the customer it can also count the absence of employees in a month, etc.

These packages are used by medium or large business enterprises. Cost of installation, maintenance and training is relatively higher than that of ready-to-use packages. These softwares are used by those enterprises where financial transactions are somewhat peculiar in nature.

(iii) Tailormade software

Large enterprises have their own way of functioning. For effective management information system, varied and specific information is frequently required by many users which may not be needed in case of small or medium scale enterprises. In such enterprises, depending upon their functioning, need based softwares known as tailored packages are installed. The cost of these packages is very high and specific training for using these packages is also required.

3. Preparing Trial Balance In Tally

The trial balance is a worksheet on which you list all your general ledger accounts and their debit or credit balance. The total debits must equal the total credits. If they don't equal, you know you have an error that must be tracked down. When closing out your books at the end of an accounting period, you will prepare three trial balances:

1. A preliminary trial balance is prepared using your general ledger account balances beforeyou make adjusting entries.

2. An adjusted trial balance is done after preparing adjusting entries and posting them to your general ledger. This will help ensure that the books used to prepare your financialstatements are in balance.

3. A post-closing trial balance is done after preparing and posting your closing entries.

This trial balance, which should contain only balance sheet accounts, will help guarantee that your books are in balance for the beginning of the new accounting period.

Prepare Trial Balance

Gateway of Tally ➡ A/c information ➡ ledger ➡ create ➡ Enter detail ➡ Press yes

Show Trail Balance

Gateway of Tally ➡ Display ➡ Trail Balance

1. **How to create, Alter and Delete of Ledger**

   accountCreate Ledger

Gateway of Tally ➡ A/c information ➡ ledger ➡ create ➡ Enter detail ➡ Press Yes

Alter Ledger

Gateway of Tally ➡ A/c information ➡ ledger ➡ Alter ➡ Choose ledger ➡ Alter ledger name ➡ Press Yes

Delete Ledger

Gateway of Tally ➡ A/c information ➡ ledger ➡ Alter ➡ Choose ledger ➡ Alt + D ➡ Press Yes

4. Maintaining Hierarchy of Ledgers

- ❖ Accounting master files are created with codes and description of account.

- ❖ In a hierarchical coded system reports can generated based on codes

- ❖ General ledger, Debtors ledger and creditors ledger are automatically created by any standard software.

- ❖ At the time of creation, some of the account heads are indicated to the system as cash, bank, debtors and creditors.

- ❖ The system then automatically posts sales to debtors a/c & purchases to creditors a/c

Codification

A proper codification requires a

systematic grouping of accounts. The major groups or heads could be Assets, Liabilities, Revenues and Expenses. The sub-groups or minor heads could be capital, non-current liabilities, current assets, sales and so on.

Codification refers to allotting code numbers to accounts in a hierarchical structure.

Accounts are first systematically grouped in Major Heads such as:

- ❖ Assets

- ❖ Liabilities

- ❖ Revenue Receipts

- ❖ Capital Receipts

- ❖ Revenue Expenditure

- ❖ Capital Expenditure etc.

➢ The sub-groups or Minor Heads could be cash or receivables or payables so on.

➢ The detailed head is often termed as an object classification for control purposes Ex.

     ❖ Salaries

     ❖ Office Expenses

     ❖ Salesman Expenses

     ❖ Workshop Overhead, etc

➢ The classification system should be approved by the top management and auditor before coding and computerization

Types of Reports

List of Reports
Following reports are common to most s/w:

- Cash Book
- Cash Sales Book
- Sales Return register
- Credit Note Register
- Bank Book
- Cash Purchase Book
- Purchase Return register
- Stock movement register
- Journal Book
- Petty Cash Book

- General Ledger
- Stock Ledger
- Purchase Book
- Creditors Ledger
- Subsidiary Ledger
- Production register
- Sales Book
- Debit Note Register
- Debtors Ledger
- Consumption Register

UNIT- III

3.1 Starting Tally

- ➢ Click start Button

- ➢ Choose Programs

- ➢ Click Tally   or

- ➢ Double click Tally icon on Desktop

- ➢ Create company

3.2 Menu's of Gateway of Tally

- ➢ Accounts info
- ➢ Inventory info
- ➢ Import of Data
- ➢ Balance sheet
- ➢ Profit & Loss A/c
- ➢ Stock Summary
- ➢ Ratio Analysis
- ➢ Display
- ➢ Quit

3.3 Exit or Quit from Tally

Press Escape till it reaches the option quit and Press Y (yes) or Enter to quit(Ctrl+Q)

3.4 Select Company

Tally software by double clicking on Tally icon

- ➢ Press Alt + F3 key to Select the company,

- ➢ Choose Select Company option in the company information.

3.5 How to Create, Alter & Deleting Company?

3.5.1 Company Creation

> ➢ Select Tally
> ➢ Press Alt + F3 Option from Gateway of Tally
> ➢ Press 'Create company' option
> ➢ Enter the Company Name, and use the enter key and / or Tab and / or thearrow keys.
> ➢ After entering all the details press enter.
> ➢ Select the Yes option from the accept Yes/NO

3.5.2 Alteration of a company

> ➢ **Com**pany information Press Alt + F3 key to Alter
> ➢ , Choose Select Company option in the company information.
> ➢ Change company name
> ➢ After entering all the details press enter.
> ➢ Select the Yes option from the accept Yes/NO

3.5.3 Deleted of a company

> ➢ **Com**pany information Press Alt + F3 key to Alter
> ➢ Choose Select Company option in the company information.
> ➢ Press select company name
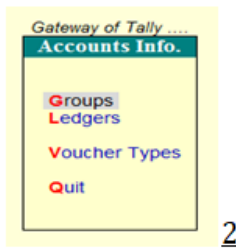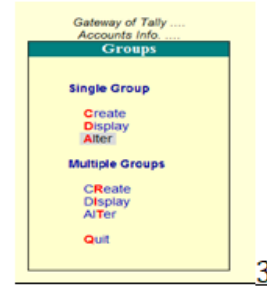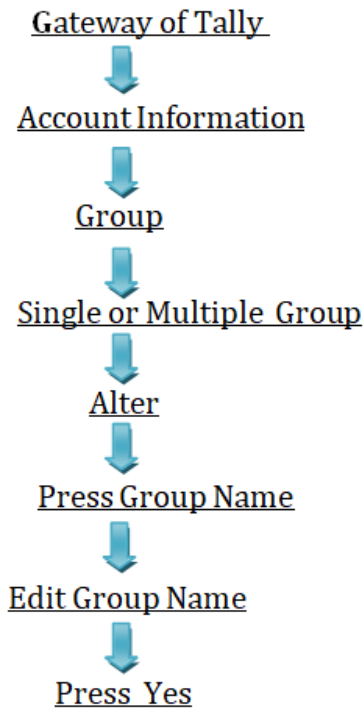> ➢ Press Alt + D select Yes
> ➢ Then Press Yes the company deleted.

3.6 How to create, Alter & Deleting of Group?

2. An adjusted trial balance is done after preparing adjusting entries and posting them to your general ledger. This will help ensure that the books used to prepare your financial statements are in balance.

3. A post-closing trial balance is done after preparing and posting your closing entries. This trial balance, which should contain only balance sheet accounts, will help guarantee that your books are in balance for the beginning of the new accounting period.
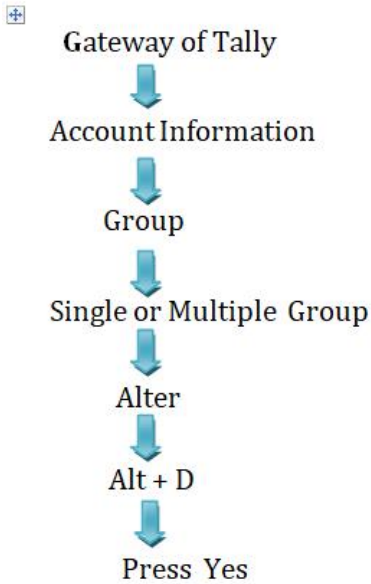
3.6.1 Creation of Group

3.6.2 Edit or Alter Group

Gateway of Tally
↓
Account Information
↓
Group
↓
Single or Multiple Group
↓
Alter
↓
Press Group Name
↓
Edit Group Name
↓
Press Yes

3.6.3 Deleting Group

Gateway of Tally
↓
Account Information
↓
Group
↓
Single or Multiple Group
↓
Alter
↓
Alt + D
↓
Press Yes

3.7 Show or Display Balance sheet, Profit & loss A/c, Ratio, Cash & Fund flow statement.

3.7.1. Balance sheet

Gateway of Tally

Click **Balance sheet**

Change period (F2)

Click print option

Enter Yes

Gateway of Tally

Masters
    Accounts Info.
    Inventory Info.

Transactions
    Accounting Vouchers
    InvenTory Vouchers

Import
    ImpOrt of Data

Reports
    Balance Sheet
    Profit & Loss A/c
    Stock Summary
    Ratio Analysis

    Display
    Multi Account Printing

    Quit

3.7.2 Profit & Loss Account

Gateway of Tally

Click **Profit & Loss Account**
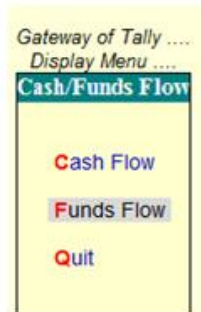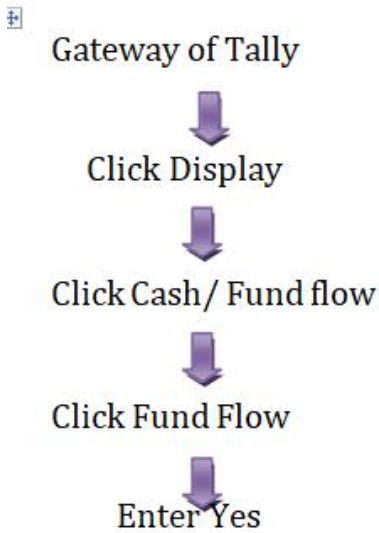
Change period (F2)

Click print option

Enter Yes

Gateway of Tally

Masters
    Accounts Info.
    Inventory Info.

Transactions
    Accounting Vouchers
    InvenTory Vouchers

Import
    ImpOrt of Data

Reports
    Balance Sheet
    Profit & Loss A/c
    Stock Summary
    Ratio Analysis

    Display
    Multi Account Printing

    Quit

3.7.3. Ratio Analysis

Gateway of Tally

↓

Click **Ratio analysis**

↓

Change period (F2)

↓

Click print option

↓

Enter Yes

Gateway of Tally

Masters
  Accounts Info.
  Inventory Info.

Transactions
  Accounting Vouchers
  InvenTory Vouchers

Import
  ImpOrt of Data

Reports
  Balance Sheet
  Profit & Loss A/c
  Stock Summary
  Ratio Analysis

  Display
  Multi Account Printing

  Quit

3.7.5 Fund flow statement

Gateway of Tally

↓

Click Display

↓

Click Cash/ Fund flow

↓

Click Fund Flow

↓

Enter Yes

Gateway of Tally

Masters
  Accounts Info.
  Inventory Info.

Transactions
  Accounting Vouchers
  InvenTory Vouchers

Import
  ImpOrt of Data

Reports
  Balance Sheet
  Profit & Loss A/c
  Stock Summary
  Ratio Analysis

  Display
  Multi Account Printing

  Quit

Gateway of Tally ....
Display Menu

Trial Balance
Day Book

Account Books
Statements of Accounts

Inventory Books
StatEments of Inventory

Cash/Funds Flow

List of Accounts
EXception Reports

Quit

Gateway of Tally ....
Display Menu ....
Cash/Funds Flow

Cash Flow

Funds Flow

Quit

<u>Computer Hardware & Maintenance (AOCCHM)</u>

Objective

The objective of course is to learn the comprehensive understanding of the basichardware in the computer and other devices.

Benefit

Students know the function of each part of computer, its error and there solutions.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Computer Hardware & Maintenance

- Soldering
  - o Step for soldering
  - o Resistor and resistor Connection
  - o Precautions while using soldering components
  - o Basic information about current and voltage
  - o Ohm's law, voltage rise and voltage drop

- Power, Bridge Circuit
  - o Knowledge of Inductor & Capacitor
  - o RC time constant
  - o AC fundaments

- Rectifiers and Amplifiers
  - o Half wave and full wave rectifier
  - o What id Zener Diode
  - o Transistor and transistor amplifier
  - o Operational Amplifier

- Junction PET Characteristics
  - o LED Characteristics
  - o Photo Transistor Characteristics

- Basic Terminology of Computer
  - Computer Fundamentals
  - Operating Systems
  - Application Software
  - Overview of some application software

- Basic Computer Hardware
  - Different hardware devices
  - Input device, processing devices and output devices
  - Working of input and output devices
  - Computer Assembling

- Installation
  - Installation of operating system like window 7, window 8, etc.
  - Installation of Several Application Software like MS-Office
  - Introduction of viruses, detection of virus, Prevention and antivirus utilities
  - Installation of various Device and Drivers
  - Updating and upgrading system.

- Troubleshooting
  - Maintenance of Computer
  - Problem Finding in system and diagnosing it
  - Precaution for smooth working of computer

Project
   Student makes a project during training period

Certification

   Certificate in Computer Hardware & Maintenance

Study Material of Computer Hardware & Maintenance(AOCCHM)

Soldering
Step for soldering
What are the 4 steps of soldering?

Flux – please see the page titled: Soldering 101 – Oxidation, Flux, and Firescale/stain Prevention.

- Step One: Good Fit. This just means that the two pieces of metal that you are joining together, fit as closely as possible. ...
- Step 2: Clean Metal/Solder/Flux/Hands. ...
- Step 3: Heat. ...
- Step 4: Flux.

hat are the 5 S of soldering?

Which are Sort, Set in order, Shine, Standardize, and Sustain.

What is soft soldering?
Soldering is the term for establishing a firmly bonded connection by using solder material, where only the solder reaches a molten condition.

Soldering performed using alloys with a melting point above 450 °C (840 °F; 720 K) is called

 removing oxide films which form on the surface of metals being soldered

Resistor and resistor Connection

 Two or more resistors are said to be connected in series when the same amount of current flows through all the resistors.

What are the 2 types of resistors?

• Types of Resistors. There are many different types of resistors and they can be made from various materials, all of which have their own unique advantages and disadvantages. ...

• Resistive Materials. ...

• Metal Film Resistors. ...

• Wirewound Resistors. ...

• Metal Oxide Resistors. ...

• Metal Strip Resistors.

Two identical resistors in parallel

Resistor

Featured snippet from the web

Resistor is defined as. A passive electrical component with two terminals that are used for either limiting or regulating the flow of electric current in electrical circuits

Precautions while using soldering components

Soldering Safety

• Never touch the element of the soldering iron.... 400°C!

• Hold wires to be heated with tweezers or clamps.

• Keep the cleaning sponge wet during use.

• Always return the soldering iron to its stand when not in use. Never put it down on the workbench.

- Turn unit off and unplug when not in use.

What are the safety hazards of soldering?
Heat & Electrical: The soldering iron will be hot, which may cause burn injuries if contacted directly. Flammable materials may catch fire from the heat, and electric shock hazard from exposed wiring could cause injury or start a fire. Rosin: Solder used for hand soldering electronics typically contains a rosin core.

What is the correct procedure of soldering a component?

Soldering
1. Solder needs a clean surface on which to adhere. Buff the copper foil of a PC board with steel wool before soldering. Remove any oil, paint, wax, etc. ...
2. To solder, heat the connection with the tip of the soldering iron for a few seconds, then apply the solder. Heat the connection, not the solder.

What components are used in soldering?

What Metals are Used? Filler metals used in soldering were once lead based (lead solder), however, owing to regulations, lead-based solders are increasingly replaced with lead free solders, which may consist of antimony, bismuth, brass, copper, indium, tin or silver.

How many types of safety precautions are there?
Personal protective equipment (PPE)
- Gloves.
- Eye protection/face protection.
- Hearing protection.
- Coats/aprons.
- Footwear.
- Head protection.
- Height safety equipment.

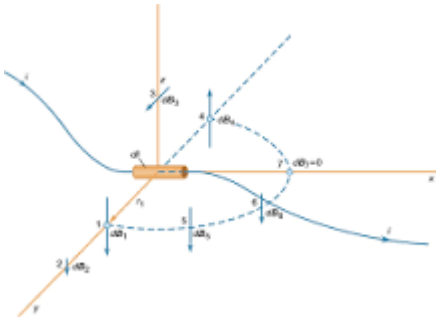## Basic information about current and voltage
voltage is the difference in electric potential between two points. Current is just the rate of flow of electric charge

What is the basic concept of current?

The basic concept of current is that it is the movement of electrons within a substance. Electrons are minute particles that exist as part of the molecular structure of materials.

What is current formula?

Current is usually denoted by the symbol I. Ohm's law relates the current flowing through a conductor to the voltage V and resistance R; that is, V = IR. An alternative statement of Ohm's law is I = V/R.

What are the 3 basics of electricity?

There are three primary electrical parameters: the volt, the ampere and the ohm.
- The Volt. The pressure that is put on free electrons that causes them to flow is known as electromotive force (EMF). ...
- The Ampere. The ampere defines the flow rate of electric current. ...
- The Ohm. The ohm is the unit of resistance in a conductor.

What is called voltage?

Voltage is the pressure from an electrical circuit's power source that pushes charged electrons (current) through a conducting loop, enabling them to do work such as illuminating a light. In brief, voltage = pressure, and it is measured in volts (V).
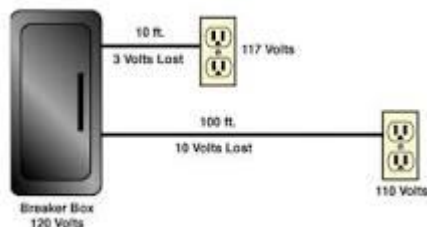
Ohm's law, voltage rise and voltage drop

If the loop enters at the - label and leaves at the + label as in V_y, it is a voltage rise. Otherwise, the loop goes from the + label to the - label as in V_z, so the voltage is a drop.

What is the Ohm's law for voltage drop?
Ohm's Law can be used to determine the DC voltage drop by multiplying current times resistance: V = I R. Also, Kirchhoff's circuit laws state that in any DC circuit, the sum of the voltage drops across each component of the circuit is equal to the supply voltage

What is voltage drop?

Voltage drop is defined as the amount of voltage loss that occurs through all or part of a circuit due to impedance. A common analogy used to explain voltage, current and voltage drop is a garden hose. Voltage is analogous to the water pressure supplied to the hose.

What is the formula for voltage rise?

So the calculation is Vd/r = L x I x Vc/1000 where: L = cable run in metres, 86m. I = the current, 144.51A. Vc = 0.449 mV/A.m.

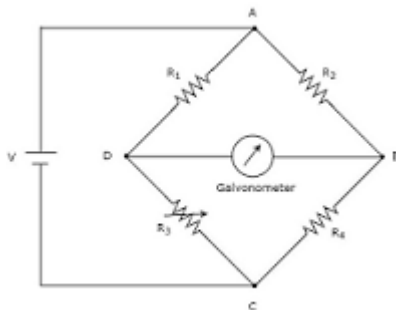# Power, Bridge Circuit

What is a bridge circuit used for?

In power supply design, a bridge circuit or bridge rectifier is an arrangement of diodes or similar devices used to rectify an electric current, i.e. to convert it from an unknown or alternating polarity to a direct current of known polarity.

What are the type of bridge circuits?
Wheatstone, Wien, Maxwell, H-bridge, Fontana, Diode, Kelvin and Carey Foster.

What is bridge in EMI?

ADVERTISEMENT. If the electrical components are arranged in the form a bridge or ring structure, then that electrical circuit is called a bridge. In general, bridge forms a loop with a set of four arms or branches. Each branch may contain one or two electrical components.

What are the benefits of full bridge circuit?
 output voltage is 2 times input voltage and output power is 4 times compared to a half-bridge inverter.

What are the 5 main bridge types?
Five main types of Bridges
- Beam Bridges.
- Integral Beam Bridges.
- Cantilever Bridges.
- Arch Bridges.
- Cable-Stayed Bridges.

Knowledge of Inductor & Capacitor
A capacitor stores energy in an electric field; an inductor stores energy in a magnetic field.

What are the basics of inductor and capacitor?
a capacitor opposes a change in voltage while an inductor opposes a change in the current.

What is the basic knowledge of capacitor
components capable of storing electricity and releasing the stored electricity when

Is inductor AC or DC?
The inductor stores electrical energy in the form of magnetic energy. The inductor does not allow AC to flow through it, but does allow DC to flow through it

What is the use of inductor?

An inductor is defined as a passive component that is used in most electrical circuits to store energy in the form of magnetic energy when electric current flows through it. It is also known as the coil, choke, or reactor. It is a two-terminal electrical component that is characterized by its inductance.

RC time constant
equal to the product of the circuit resistance (in ohms) and the circuit capacitance (in farads)

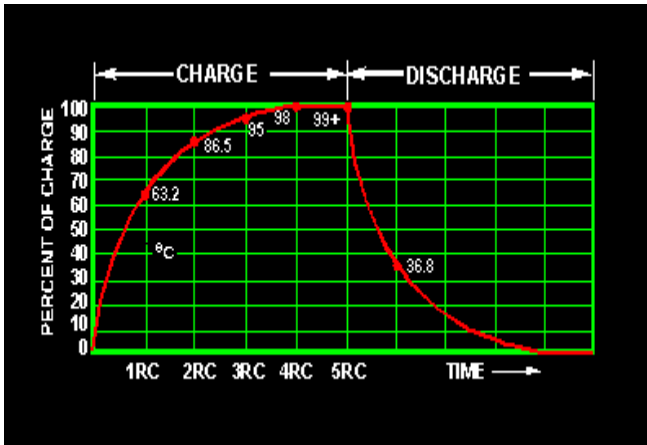**How do you find the time constant of an RC circuit?**
The time constant of an RC circuit is given by the product of the equivalent resistance and capacitance of the circuit: t=RC.

What is the time constant for capacitors?
Ans. The time constant for a resistor-capacitor circuit in series is the time it takes for the cap...Read full

What does time constant depend on?
Ans. In an RC circuit, the amount of time needed for a capacitor to be charged to capacity depends on the ca...Read full

AC fundaments
necessary to analyse the networks consisting of various alternating current and voltage sources, resistances and inductive, capacitive reactances

What are fundamentals of AC?
The main components of AC circuits are resistors, capacitors, and inductors. All these passive electrical elements have one property in common; they restrict electric current in a circuit coil but in completely different ways. The voltages and currents are marked by direction and magnitude in an AC circuit.
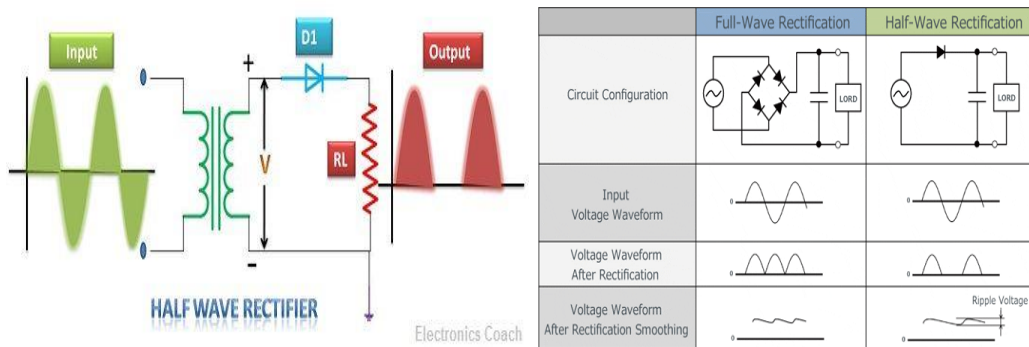
What are the fundamentals of AC and DC current?
Electric current flows in two ways as an alternating current (AC) or direct current (DC). The main difference between AC and DC lies in the direction in which the electrons flow. In DC, the electrons flow steadily in a single direction, while electrons keep switching directions, going forward and then backwards in AC.

Rectifiers and Amplifiers
Half wave and full wave rectifier
Full-wave rectification rectifies the negative component of the input voltage to a positive voltage, then converts it into DC (pulse current) utilizing a diode bridge configuration. In contrast, half-wave rectification removes just the negative voltage component using a single diode before converting to DC.
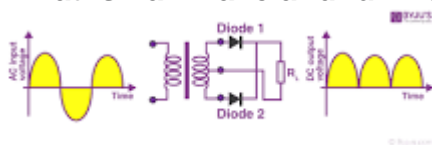
Why half-wave rectifiers are not used in dc power supply?
Half-wave rectifiers are not used in dc power supply because the supply provided by the half-wave rectifier is not satisfactory.

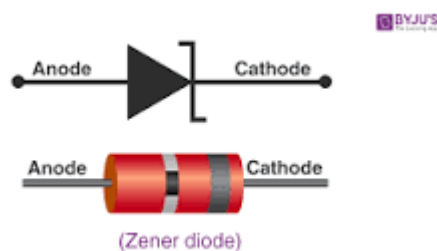**What is the cycle followed by the current in a full-wave rectifier?**
In a full-wave rectifier, the current flows in the half cycle of the input signal.

What is half wave and full wave rectifier?

Definition. The half-wave rectifier is a rectifier which is used for converting the one-half cycle of AC input to DC output. A full-wave rectifier is a rectifier which is used for converting both the half cycles of AC input into DC output.
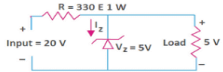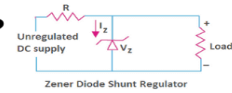
What id Zener Diode

A Zener diode is a heavily doped semiconductor device that is designed to operate in the reverse direction. Zener diodes are manufactured with a great variety of Zener voltages (Vz), and some are even made variable.

What is a Zener diode and its working?
A Zener diode is a semiconductor device that makes the current flow in the forward or in the backward direction. The diode usually consists of a p-n junction which is heavily doped. The diode is designed to conduct the flow of current in the reverse direction after reaching a specified voltage.

What is Zener diode an example of?

Therefore a zener diode is sometimes called a Voltage-regulator diode. For example, the output of half-wave, full-wave or bridge rectifiers consists of ripples superimposed on a DC voltage. By connecting a simple zener diode across the output of the rectifier, we can obtain a more stable DC output voltage.
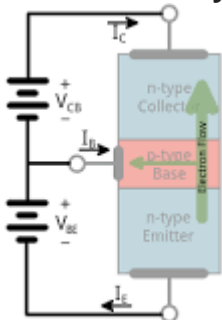
Transistor and transistor amplifier

What is difference between transistor and amplifier?

One of the key characteristics of a transistor is that it can be used as an amplifier

hat are the 3 types of amplifiers using a transistor?

Three of the most fundamental transistor amplifiers are:
common emitter, common collector, and common base.

hich region of operation transistor works as an amplifier?

Hint:Transistor acts as an amplifier in the active region of its output characteristics. The active region, also called the linear region, lies between the saturation and cut-off region and it is the region where the emitter-base junction is forward biased while the collector-base junction is reverse biased.

What is the use of transistor as an amplifier?

Transistor as a Switch

Transistor as an amplifier is used in optical fiber communication. Since the intensity of the output signal is high, it finds application in long-distance communication. The amplification of radio signals is possible because of such amplifiers. Amplifiers are used in wireless communication.

Operational Amplifier
What is the operational amplifier?

An operational amplifier (op-amp) is an integrated circuit (IC) that amplifies the difference in voltage between two inputs. It is so named because it can be configured to perform arithmetic operations.

Why IC 741 is called operational amplifier?

IC 741 Op Amp (Operational Amplifier)

The number 741 indicates that this operational amplifier IC has 7 functional pins, 4 pins capable of taking input and 1 output pin.

Junction PET Characteristics

What are the characteristics of a pet dog?
Dogs are known to be faithful and loyal companions, protective of their masters and territory. There are several breeds, each possessing its own characteristics

What are the characteristics features of pet?
Polyethylene terephthalate (PET)

Chemical formula	$(C_{10}H_8O_4)_n$
Monomers	Terephthalic acid, Ethylene glycol
General properties	Transparency to visible light and microwaves. Very good resistance to ageing, wear and heat. Lightweight, impact and shatter resistant. Good gas and moisture barrier properties

LED Characteristics
Characteristics of LED

•   Light Generated by LED is Directional. A. LED is all forward directional lighting, not Omni as conventional light bulb. ...

•   LED can Generate Different Light Color. A. ...

•   Temperature will Affect LED Efficacy. A. ...

•   Low Energy Consumption. A. ...

•   Long Life.

Photo Transistor Characteristics
Characteristics of Phototransistors

•   Spectral Response. The output of a phototransistor is dependent upon the wavelength of incident light. ...

•   Sensitivity. ...

•   Linearity. ...

•   Collector-Emitter Saturation Voltage - V. ...

- Dark Current - (I_D) ...
- Breakdown Voltages - (V_{BR}) ...
- Speed of Response. ...
- Selecting a Photodetector.

What is the principle of photo transistor?

The working principle of a phototransistor is similar to a photodiode including an amplifying transistor. The light falls on the base terminal of a phototransistor then it will induce a little current then the current amplified through the action of a normal transistor, which results in an extensively large.

What is the principle of transistor characteristics?
Common Base (CB) Configuration of Transistor

Transistor Characteristics	Definition
Current Transfer Characteristics	The variation of collector current(I_C) with the emitter current(I_E), keeping Collector Base voltage(V_{CB}) constant. The resulting current gain has a value less than 1.

Basic Terminology of Computer

What are the basic terminologies of computer?

Basic Computer Terminologies
- CPU. CPU means 'Central Processing Unit'. ...
- RAM. Specifically, RAM stands for "Random Access Memory" or "Ready Access Memory". ...
- Hard-disk Drive. ...
- Floppy Disk. ...
- Hardware. ...
- Software.

Computer science terms related to hardware
- CPU. CPU stands for the Central Processing Unit. ...
- Bit. Bit is an abbreviation for "binary digit," the smallest piece of information used by a computer. ...
- RAM. ...

- Secondary storage. ...
- ROM. ...
- Input/Output Devices (I/O Devices) ...
- Algorithm. ...
- API (Application Programming Interface)

Computer Fundamentals

What are fundamentals of computer?

Step 1 − Accepts data as input. Step 2 − Saves the data/instructions in its memory and utilizes them as and when required. Step 3 − Execute the data and convert it into useful information. Step 4 − Provides the output. Step 5 − Have control over all the above four

How a computer works?

A computer, a digital information-processing machine, works by changing information into binary numbers (ones and zeros) and then using simple mathematics to make decisions about how to rearrange those numbers into words or actions.

Here are the different types of operating systems you need to know:
- Batch OS. The batch operating system does not have a direct link with the computer. ...
- Time-sharing or multitasking OS. ...
- Distributed OS. ...
- Network OS. ...
- Real-time OS. ...
- Mobile OS.

Operating Systems

What are the 5 operating system?

Top 10 Operating Systems

- Windows 10.
- iOS.
- Windows 7.
- macOS Sierra.
- Ubuntu.
- Android.
- Red Hat Linux.
- CentOS.

Application Software

What is application software with example?

The sole purpose of application software is to aid the user in doing specified tasks. Web browsers like Firefox, and Google Chrome, as well as Microsoft Word and Excel, are examples of application software that is used on a personal computer or laptop.

What is meant by application software?

An application, also referred to as an application program or application software, is a computer software package that performs a specific function directly for an end user or, in some cases, for another application. An application can be self-contained or a group of programs.

What's a system software?

System software is a type of computer program that is designed to run a computer's hardware and application programs. If we think of the computer system as a layered model, the system software is the interface between the hardware and user applications. The operating system is the best-known example of system software.

Overview of some application software
Application Software Examples

Real examples of application software include office suites (like Microsoft Word, PowerPoint, and spreadsheets), web browser applications (including Mozilla Firefox, Google Chrome, and Microsoft Edge), and media player applications that include iTunes, VLC, PotPlayer, KMPlayer, etc.

What is the overview of software?

Software is a set of instructions, data or programs used to operate computers and execute specific tasks. It is the opposite of hardware, which describes the physical aspects of a computer. Software is a generic term used to refer to applications, scripts and programs that run on a device.

What are the 10 uses of application software?

Here are a few uses of application software:

- Performs specific tasks. In general, the application software should be designed with the end user in mind. ...

- Manages and manipulates data. ...

- Organize information effectively. ...

- Presentation Software. ...

- Spreadsheet Software. ...

- Database Software. ...
- Multimedia Software. ...
- Simulation Software.

What are the 4 types of application software?

Some of the commonly used application software include:
- Word Processing Software.
- Graphics Software.
- Spreadsheet Software.
- Presentation Software.
- Web Browsers.

Basic Computer Hardware

Different hardware devices
The five types of hardware are mentioned below.
- Monitor.
- Motherboard.
- Keyboard.
- Mouse.
- CPU (Central Processing Unit)

What is different types of hardware?

The hardware of the computer system includes monitor, CPU, keyboard, mouse, printer, sound system, RAM, hard disk and many more. Hardware is used for taking input data from the user, store the data and display the output and execute the commands given by an individual.

Which are the hardware devices?

Common input hardware components include the following:

- Mouse. A mouse is a hand-held pointing device that moves a cursor around a computer screen and enables interaction with objects on the screen. ...
- Keyboard. ...
- Microphone. ...
- Camera. ...
- Touchpad. ...
- USB flash drive. ...
- Memory card.

Input device, processing devices and output devices

What are the input output and processing devices

Input	Processing	Output
keyboard mouse joystick graphics tablet trackball touchpad touchscreen microphone sensor	processor (CPU) processor (GPU) memory motherboard	printer monitor touchscreen plotter speakers headphones motor data projector

Working of input and output devices

Input device helps the computer to receive instructions from users. The output device helps the computer to produce or display the information to

What is the working of output?
An output device works by receiving a signal from the computer and using that signal to perform a task to display the output. For example, below is a basic list of the steps of how an output device works. On a computer keyboard (input device), if you type "H", it sends (inputs) a signal to the computer.

Input Example

Output Example

Computer Assembling

Computer assembly is a process in which all the internal components required for the computer system are fitted so as to make the computer functional.

What are the steps of assembling computer?

1. Step1: Create a Space to Work. ...
2. Step 2: Installing Motherboard/ Central Processing Unit (CPU) ...
3. Step 3: Applying Thermal Paste/ Installing the cooling system.
4. Step 4: Installing the Solid-State Drive (SSD) ...
5. Step 5: Installing the Random-Access Memory (RAM) ...
6. Step 6: Installing input Output shield (I/O shield)

What are the steps procedures in PC assembly and disassembly?

1. Step 1: Open The Case. ...
2. Step 2: Install The Power Supply. ...
3. Step 3: Attach The Components To Motherboard. ...
4. Step 4: Install motherboard.
5. Step 5: Install internal drives.
6. Step 6: Connect all internal cables.
7. Step 7: Install motherboard power connections.
8. Step 8: Connect external cables to the computer.

Computer Assembly Steps

1. Step 1: Open Case. Remove the back screws. ...
2. Step 2: Mount Motherboard. Screw motherboard standoffs into the case. ...
3. Step 3: Mount Processor (CPU) ...
4. Step 4: Install CPU Cooler. ...
5. Step 5: Install Power Supply (PSU) ...
6. Step 6: Mount Memory (RAM) ...
7. Step 7: Install Graphics Card. ...

8. Step 8: Mount Storage Drives.

Installation

Installation of operating system like window 7, window 8, etc.

How to install operating system like Windows 7?
Windows 7 Installation Procedure
1. Boot your PC using Windows 7 DVD/USB drive and press any key if you see Press any key to continue message.
2. Next select your language, keyboard type (Generally the US) and time format.
3. Click the Install button.

How to install Windows 7 from Windows 8?
1. Before You Begin.
2. Create Windows 8 Pro Recovery Media.

3. Download Critical Drivers and Copy to a USB Key.
4. Change System Setup Settings for Windows 7 Installation.
5. Install Windows 7 Professional.
6. Update Critical Drivers from USB Drive.
7. Update All Drivers from Dell Support Website.

Installation of Several Application Software like MS-Office

How to install an application software like Microsoft Office suite?
Watch: Install Office apps
1. Go to office.com. You might need to sign in with your work account.
2. Select Install Office > Microsoft 365 apps > Run , and then select Yes.
3. The Office apps are installed. ...
4. To install Microsoft Teams, go to the office.com page, and choose Teams.
5. Get the Windows app, and then select Run.

What are the application software that are in MS Office?
In this article
- Microsoft Word.
- Microsoft Excel.
- Microsoft PowerPoint.
- Microsoft OneNote.
- Microsoft Outlook.
- Microsoft Publisher.
- Microsoft Access.
- Skype for Business.

What are the 4 types of installation?
There are four approaches of installation; direct, parallel, single-location and phased installation.

Introduction of viruses, detection of virus, Prevention and antivirus utilities
What is the introduction of computer antivirus?

An antivirus product is a program designed to detect and remove viruses and other kinds of malicious software from your computer or laptop. Malicious software - known as malware - is code that can harm your computers and laptops, and the data on them.

What is antivirus Wikipedia introduction?

Antivirus software was originally developed to detect and remove computer viruses, hence the name. However, with the proliferation of other malware, antivirus software started to protect against other computer threats. Some products also include protection from malicious URLs, spam, and phishing.

Modern antivirus solutions are capable of:
- Detecting, blocking, and removing viruses, malware, and ransomware.
- Preventing identity theft and block phishing and fraud.
- Warning about dangerous websites and links before you click.
- Scanning the Dark Web to find if an email address has been compromised.

Installation of various Device and Drivers

Following steps are for your reference how to install the driver in this way.
- Go to Device Manager.
- Find the device that need to install a driver. ...
- Right-click on the device and select Update Driver Software…
- Select Browse my computer for driver software.
- Select Let me pick from a list of device drivers on my computer.

Updating and upgrading system.

What is the difference between updating and upgrading?
A software update is typically a release containing enhancements to the current version. An upgrade is a whole new version of software that represents a significant change or major improvement.

What is system upgrading?
A system upgrade involves either adding new components to an existing piece of IT equipment (a hardware upgrade) or installing more recent software (a software upgrade) System upgrades can be an effective way to extend the life of some computer

How do I update software?
Get the latest Android updates available for you
1. Open your phone's Settings app.
2. Near the bottom, tap System. System update.
3. You'll see your update status. Follow any steps on the screen.

Troubleshooting
Maintenance of Computer
Keep all programs and Internet Browsers up-to-date. Uninstall programs and applications you no longer use. Shutdown your computer over the weekends or when they are unattended for extended periods. Perform a regular backup of any files you do not want to loose.

What is the computer maintenance?

Computer maintenance means keeping your computers and laptops in good condition through regular cleanings, hard drive updates, and virus prevention. Doing so can lengthen the lifespan of your devices and it can also help you browse the web more safely.

What are the 4 types of software maintenance?
• Corrective Software Maintenance. Corrective software maintenance is the typical, classic form of maintenance (for software and anything else for that matter). ...

- Preventative Software Maintenance. ...
- Perfective Software Maintenance. ...
- Adaptive Software Maintenance.

Problem Finding in system and diagnosing it

What is identifying and diagnosing the problem?

Diagnosing the problem requires identifying hypotheses and testing them. A useful approach to building a why map might be to think in terms of processes. Another useful approach might to use existing frameworks and maps when possible.

What is diagnosing process?

The steps of the diagnostic process fall into three broad categories: Initial Diagnostic Assessment – Patient history, physical exam, evaluation of the patient's chief complaint and symptoms, forming a differential diagnosis, and ordering of diagnostic tests.

Precaution for smooth working of computer

What precautions should you take when working with a computer?

Make sure the space underneath your desk is free from clutter and your legs have room to move. Use your mouse as close to the keyboard as possible. Adopt good posture while at the computer. Know how to adjust your chair to the most comfortable position.

What are the 4 types of software maintenance?

- Corrective Software Maintenance. Corrective software maintenance is the typical, classic form of maintenance (for software and anything else for that matter). ...
- Preventative Software Maintenance. ...
- Perfective Software Maintenance. ...

- Adaptive Software Maintenance.

How to clean your computer, Step 1: Hardware
- Wipe down your computer. ...
- Clean Your keyboard. ...
- Blow dust buildup out of computer vents, fans and accessories. ...
- Run check disk tool. ...
- Check surge protector. ...
- Keep PC ventilated. ...
- Back up your hard drives. ...
- Get antivirus software to protect from malware.

10 Essential Computer Maintenance Tips
- Protect with padding. ...
- Organize cords. ...
- Update your operating system. ...
- Unplug to avoid overcharging. ...
- Purge your system of junk files and programs. ...
- Run regular antivirus scans. ...
- Clean the keyboard and case. ...
- Update your passwords.

Web Designing & Office Automation (AOCWDOA)

Objective

The objective of course is to learn the basic application of computer.

Benefit

Students aware of internet, basic software for office use.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Web Designing & Office Automation

- Introduction to Internet
  - Definition and evolution to internet
  - Hardware and software requirement of internet
  - Major features of internet
  - Accessing the internet
  - Search Engine
  - Major Application area of internet

- Internet Protocol
  - Concept of TCP/IP internet Addressing
  - How to get into Internet, Modem, Browser and Internet service provisions

- Internet Services
  - File transfer protocols
  - Opening a connection with a FTP server
  - Transfer file to My Computer
  - Remote Login
  - Bulletin Board and News Groups

- World Wide Web

- o Domain software, the client side and the server side
- o Creating and locating information on the web search engines, URL's

- Introduction to Windows
  - o Fundamentals features of windows
  - o Types of windows and elements of windows
  - o Customizing windows
  - o Working with files and folders, icons, recycle bin control panel, windows explore

- MS-Word
  - o Introduction to MS-Word
  - o Standard Toolbar Word Warp, Text formatting, Formatting paragraphs
  - o Applying efforts to text
  - o Applying animation to text

- MS-Excel
  - o Introduction to MS-Excel
  - o Working with toolbars
  - o Formatting Formulas
  - o Data management
  - o Graphics and chart

- MS-PowerPoint
  - o Introduction to MS-PowerPoint
  - o Power point Slide
  - o Creating a slide- show, adding graphics, formatting, customizing and printing slides

- MS-Access
  - o Introduction to MS-Access
  - o Understanding data base
  - o Creating data base and table through wizard

Project
    Student makes a project during training period

Certification

    Certificate in Computer Web Designing & Office Automation.

Study Material of Web Designing and Office Automation (AOCWDOA)

What is a Computer?

A Computer is a group of electronic devices used to process data. In the 1950s, computers were massive, special-purpose machines that only huge institutions such as governments and universities could afford. Primarily, these early computers performed complex numerical tasks, such as calculating the precise orbit of Mars or planning the trajectories of missiles or processing statistics for the Bureau of the census. Although computers were certainly useful for tasks like these, it soon became apparent that they could also be helpful in an ordinary business environment.

In the 1960s, modern computers began to revolutionize the business world. IBM introduced its System/360 mainframe computer in April 1964 and ultimately sold over 33,000 of these machines. As a result of the commercial success of its System/360, IBM became the standard against which other computer manufacturers and their systems would be measured for years to come.

In the 1970s, Digital Equipment Corporation (DEC) took two more giant steps toward bringing computers into mainstream use with the introduction of its PDP-11 and VAX computers. These models came in many   sizes   to   meet different needs and budgets. Since then, computers continue to shrink in size while providing more power for less money. Today, the most common type of computer you will see is called a personal or PC, because it is designed to be used by just one person at a time. Despite its small size the modern personal computer is more powerful than any of the room-sized machines of the 1960s.

Fundamentals of Computers

A system can be defined as a set of components that work together to accomplish one or more common goals. A Computer is nothing but a system accepting input from a user, process the same, and giving the output in the required format. In other words a computer is a machine , which can be programmed to compute. The characteristics of a

computer are:

- Response to a specific set of commands called as Instructions.
- Execution of a prerecorded list of instructions called Program

Classification of Computers

There are two basic categories of computers: Special purpose and General Purpose. Special purpose computers are designed to perform a specific task such as keeping time in a digital watch or programming a video cassette recorder. In the case of General purpose computers they are adapted to perform any number of functions or tasks. Computers based on their size, cost and performance can be further classified into four types

1. Super Computers
2. Main Frames
3. Mini Computers
4. Micro Computers

Super Computers

Supercomputers are the most powerful computers made. They are built to process huge amounts of data. For example, scientists build models of complex processes and simulate the processes on a supercomputer. One such process is nuclear fission. As a fissionable material approaches a critical mass, the researchers want to know exactly what will happen during every nanosecond of a nuclear chain reaction. A supercomputer can model the actions and reactions of literally millions of atoms as they interact.

Because computer technology changes so quickly the advanced capabilities of a supercomputer today may become the standard features of a PC a few years from now, and next year's supercomputer will be vastly more powerful than today's.

Main Frames

The largest type of computer in common use is the mainframe. Mainframe computers are used where many people in a large organization need frequent access to the same information, which is usually organized into one or more huge databases. For example, consider the Texas

Department of Public Safety,

where people get their drivers' licenses. This state agency maintains offices in every major city in Texas, each of which has many employees who work at computer terminals. A terminal is a keyboard and screen wired to the mainframe. It does not have its own CPU or storage; it is just an input/output (I/O) device that functions as a window into a computer located somewhere else. The terminals at the Public Safety offices are all connected to a common database on a mainframe in the state capital. A mainframe computer controls the database that handles the input and output needs of all the terminals connected to it. Each used has continuous access to the driving records and administrative information for every licensed driver and vehicle in the state- literally, millions of records. On smaller systems, handling this volume of user access to a central database would be difficult and more time consuming.

No one really knows where the term mainframe originated. Early IBM documents explicitly define the term frame as a integral part of a computer: "the housing,… hardware support structures,… and all the parts and components therein." It may be that when computers of all sizes and shapes began to appear in computer environments, the big computer was referred to as the main frame, as in the main computer, and that eventually the term was shortened to one word, mainframe.

MS Office

Microsoft Office is a software which was developed by Microsoft in 1988. This Office suite comprises various applications which form the core of computer usage in today's world.

From the examination point of view, questions from MS Office and its applications are frequently asked in all the major Government Exams conducted in the country.

In this article, we shall discuss at length Microsoft Office, its applications, important notes to prepare for the upcoming examinations and some sample questions and answers for the reference of candidates.

Competitive exams including Bank, SSC, Railways, Insurance, etc. have Computer Knowledge as an integral part of their exam syllabus and candidates must note that it can be the most scoring too.

No lengthy calculations or solutions are required to answer Computer knowledge-based questions and instead of complex questions, straightforward and direct questions are asked which makes answering them even easier.

Thus, candidates must focus on this section to improve their overall performance and improve their mark sheet. Given below are a few important links which may help candidates with their preparation for competitive exams:

High Level Computer Languages	Cloud Computing for IBPS PO & SBI PO Exam
Difference between Hardware and Software	10 Important Computer Awareness Terms
Computer Abbreviations & Acronyms	Microsoft Windows

MS Office Applications & its Functions

Currently, MS Office 2016 version is being used across the world and all its applications are widely used for personal and professional purposes.

Discussed below are the applications of Microsoft Office along with each of their functions.

1. MS Word

- First released on October 25, 1983
- Extension for Doc files is ".doc"
- It is useful in creating text documents
- Templates can be created for Professional use with the help of MS Word
- Work Art, colours, images, animations can be added along with the text in the same file which is downloadable in the form of a document
- Authors can use for writing/ editing their work

To read in detail about Microsoft Word, its features, uses and to get some sample questions based on this program of Office suite, visit the linked article.

2. MS Excel

- Majorly used for making spreadsheets
- A spreadsheet consists of grids in the form of rows and columns which is easy to manage and can be used as a replacement for paper
- It is a data processing application
- Large data can easily be managed and saved in tabular format using MS Excel
- Calculations can be done based on the large amount of data entered into the cells of a spreadsheet within seconds
- File extension, when saved in the computer, is ".xls"

Also, visit the Microsoft Excel page to get more information regarding this spreadsheet software and its components.

3. MS PowerPoint

- It was released on April 20, 1987
- Used to create audiovisual presentations
- Each presentation is made up of various slides displaying data/ information
- Each slide may contain audio, video, graphics, text, bullet numbering, tables etc.
- The extension for PowerPoint presentations is ".ppt"
- Used majorly for professional usage
- Using PowerPoint, presentations can be made more interactive

In terms of Graphical user interface, using MS PowerPoint, interesting and appealing presentation and documents can be created. To read more about its features and usage, candidates can visit the linked article.

4. MS Access

- It was released on November 13, 1992
- It is Database Management Software (DBMS)
- Table, queries, forms and reports can be created on MS Access
- Import and export of data into other formats can be done
- The file extension is ".accdb"

5. MS Outlook

- It was released on January 16, 1997
- It is a personal information management system
- It can be used both as a single-user application or multi-user software
- Its functions also include task managing, calendaring, contact managing, journal logging and web browsing
- It is the email client of the Office Suite
- The file extension for an Outlook file is ".pst"

6. MS OneNote

- It was released on November 19, 2003
- It is a note-taking application
- When introduced, it was a part of the Office suite only. Later, the developers made it free, standalone and easily available at play store for android devices
- The notes may include images, text, tables, etc.
- The extension for OneNote files is ".one"
- It can be used both online and offline and is a multi-user application

Apart from the applications mentioned above, various other applications are included in the MS Office suite but these are most commonly used ones and questions based on the same may be asked in the upcoming exams as well.

What is HTML?

- HTML stands for Hyper Text Markup Language
- HTML is the standard markup language for creating Web pages
- HTML describes the structure of a Web page
- HTML consists of a series of elements
- HTML elements tell the browser how to display the content
- HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

A Simple HTML Document

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

Example Explained

- The <!DOCTYPE html> declaration defines that this document is an HTML5 document
- The <html> element is the root element of an HTML page
- The <head> element contains meta information about the HTML page
- The <title> element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)
- The <body> element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.
- The <h1> element defines a large heading
- The <p> element defines a paragraph

HTML Documents

All HTML documents must start with a document type declaration: <!DOCTYPE html>.

The HTML document itself begins with <html> and ends with </html>.

The visible part of the HTML document is between <body> and </body>.

Example

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

HTML Attributes

- All HTML elements can have **attributes**
- Attributes provide **additional information** about elements
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

The href Attribute

The `<a>` tag defines a hyperlink. The `href` attribute specifies the URL of the page the link goes to:

Example

```
<a href="https://www.w3schools.com">Visit W3Schools</a>
```

HTML Headings

HTML headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important heading. `<h6>` defines the least important heading.

Example

```
<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>
```

HTML Paragraphs

The HTML `<p>` element defines a paragraph.

A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.

```
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>
```

The HTML Style Attribute

Setting the style of an HTML element, can be done with the style attribute.

The HTML style attribute has the following syntax:

```
<tagname style="property:value;">
```

Background Color

The CSS background-color property defines the background color for an HTML element.

```
<body style="background-color:powderblue;">

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
```

What is CSS?

Cascading Style Sheets (CSS) is used to format the layout of a webpage.

With CSS, you can control the color, font, the size of text, the spacing between elements, how elements are positioned and laid out, what background images or background colors are to be used, different displays for different devices and screen sizes, and much more!

Tip: The word **cascading** means that a style applied to a parent element will also apply to all children elements within the parent. So, if you set the color of the body text to "blue", all headings, paragraphs, and other text elements within the body will also get the same color (unless you specify something else)!

Using CSS

CSS can be added to HTML documents in 3 ways:

- **Inline** - by using the style attribute inside HTML elements

- **Internal** - by using a `<style>` element in the `<head>` section
- **External** - by using a `<link>` element to link to an external CSS file

The most common way to add CSS, is to keep the styles in external CSS files. However, in this tutorial we will use inline and internal styles, because this is easier to demonstrate, and easier for you to try it yourself.

HTML Images Syntax

The HTML `<img>` tag is used to embed an image in a web page.

Images are not technically inserted into a web page; images are linked to web pages. The `<img>` tag creates a holding space for the referenced image.

The `<img>` tag is empty, it contains attributes only, and does not have a closing tag.

The `<img>` tag has two required attributes:

- src - Specifies the path to the image
- alt - Specifies an alternate text for the image

Syntax

`<img src="url" alt="alternatetext">`

HTML Page Title

Every web page should have a page title to describe the meaning of the page.

The `<title>` element adds a title to your page:

Example

```
<!DOCTYPE html>
<html>
<head>
  <title>HTML Tutorial</title>
</head>
<body>

The content of the document......

</body>
</html>
```

Define an HTML Table

A table in HTML consists of table cells inside rows and columns.

Example

A simple HTML table:

```
<table>
  <tr>
    <th>Company</th>
    <th>Contact</th>
    <th>Country</th>
  </tr>
  <tr>
    <td>Alfreds Futterkiste</td>
    <td>Maria Anders</td>
    <td>Germany</td>
  </tr>
  <tr>
    <td>Centro comercial Moctezuma</td>
    <td>Francisco Chang</td>
    <td>Mexico</td>
  </tr>
</table>
```

Accounting & Tax Procedure (AOCATP)

Objective

The objective of course is to learn the aspect of accounting.

Benefit

Students can learn fundamental of accounting and taxation.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Accounting & Tax Procedure

- Fundamental of accounting
  - Meaning and scope of accounting
  - Basic of Accounting terms
  - Accounting Principles
  - Double entry system
  - Accounting rules
  - Accountancy and Technology

- Various Financial Reports
  - Working with journal
  - Ledger
  - Trial balance
  - Profit and loss account
  - Balance sheet and Different financial statement

- Inventory
  - Statement of Inventory
  - Outstanding Inventory
  - Comparing of Inward and outward of inventory
  - Inventory report

- Report and Analyzing Equity
  - What is Equity
  - Types of stock
  - Dividends and retained earning

- Application of Income tax
  - Income Tax-Definitions
  - Basis of charge
  - Incidence of tax
  - Exempted incomes
  - Computation of income from salaries
  - Income from House property
  - Income from business and profession including depreciation
  - Capital gains and income from other sources

- Deduction and Computation
  - Deemed incomes and clubbing of incomes
  - Set off and carry forward of losses
  - Deductions out of Gross Total income
  - Computation of total of individuals
  - Partnership firms and association of persons

- Filling of Prescribe Forms
  - Income tax Returns
  - Income tax Challan
    - TDS Certificates and returns
    - TDS/TCS, Pan and TAN Application

- Refund and Appeal
  - Recovery and Refund of tax
  - Appeals and Revision
  - E-Filling of Income Tax Returns

Project
Student makes a project during training period

Certification

Certificate in Accounting & Tax Procedure

Study Material of Accounting and Tax Procedure (AOCATP)

Introduction of Accounting and Tax Procedure

Business is an economic activity undertaken with the motive of earning profits and to maximize the wealth for the owners. Business cannot run in isolation. Largely, the business activity is carried out by people coming together with a purpose to serve a common cause. This team is often referred to as an organization, which could be in different forms such as sole proprietorship, partnership, body corporate etc. The rules of business are based on general principles of trade, social values, and statutory framework encompassing national or international boundaries. While these variables could be different for different businesses, different countries etc., the basic purpose is to add value to a product or service to satisfy customer demand.

The business activities require resources (which are limited & have multiple uses) primarily in terms of material, labour, machineries, factories and other services. The success of business depends on how efficiently and effectively these resources are managed. Therefore, there is a need to ensure that the businessman tracks the use of these resources. The resources are not free and thus one must be careful to keep an eye on cost of acquiring them as well.

As the basic purpose of business is to make profit, one must keep an ongoing track of the activities undertaken in course of business. Two basic questions would have to be answered:

(a) What is the result of business operations? This will be answered by finding out whether it has made profit or loss.

(b) What is the position of the resources acquired and used for business purpose? How are these resources financed? Where the funds come from?

The answers to these questions are to be found continuously and the best way to find them is to record all the business activities. Recording of business activities has to be done in a scientific manner so that they reveal correct outcome. The science of book-keeping and accounting provides an effective solution. It is a branch of social science. This study material aims at giving a platform to the students to understand

Accounting Process

basic principles and concepts, which can be applied to accurately measure performance of business. After studying the various chapters included herein, the student should be able to apply the principles, rules, conventions and practices to different business situations like trading, manufacturing or service.

Over years, the art and science of accounting has evolved together with progress of trade and commerce at national and global levels. Professional accounting bodies have been doing intensive research to come up with accounting rules that will be applicable. Modern business is

certainly more complex and continuous updating of these rules is required. Every stakeholder of the business is interested in a particular facet of information about the business. The art and science of accounting helps to put together these requirements of information as per universally accepted principles and also to interpret the results. It is interesting to note that each one of us has an accountant hidden in us. We do see our parents keep track of monthly expenses. We make a distinction between payment done for monthly grocery and that for buying a house or a car. We understand that while grocery is a monthly expense and buying a house is like creating a resource that has indefinite future use. The most common accounting record that each one of us knows is our bank passbook or a bank statement, which the bank maintains for us. It tracks each rupee that we deposit or withdraw from our account. When we go to supermarket to buy something, the cashier at the counter will record things we buy and give us a 'bill' or 'cash memo'. These are source documents prepared for the transaction between the supermarket and us. While these are simple examples, there could be more complex business activities. A good working knowledge of keeping records is therefore necessary. Professional accounting bodies all over the world have been functioning with the objective of providing this body of knowledge. These institutions are engaged in imparting training in the field of accounting. Let us start with some basic definitions, concepts, conventions and practices used in development of this art as well as science.

1.2 DEFINITIONS

In order to understand the subject matter with clarity, let us study some of the definitions which depict the scope, content and purpose of Accounting. The field of accounting is generally sub-divided into:

      (a) Book-keeping

      (b) Financial Accounting

      (c) Cost Accounting and

      (d) Management Accounting

Let us understand each of these concepts.

(a) Book-keeping

The most common definition of book-keeping as given by J. R. Batliboi is "Book-keeping is an art of
recording business transactions in a set of books."

As can be seen, it is basically a record keeping function. One must understand that not all dealings are, however, recorded. Only transactions expressed in terms of money will find place in books of accounts. These are the transactions which will ultimately result in transfer of economic value from one person to the other. Book-keeping is a continuous activity, the records being maintained as transactions are entered into. This being a routine and repetitive work, in today's world, it is taken over by the computer systems. Many accounting packages are available to suit different business organizations.

It is also referred to as a set of primary records. These records form the basis for accounting. It is an art because, the record is to be kept in such a manner that it will facilitate further processing and reporting of financial information

which will be useful to all stakeholders of the business.

(b) Financial Accounting

It is commonly termed as Accounting. The American Institute of Certified Public Accountants defines Accounting as "an art of recoding, classifying and summarizing in a significant manner and in terms

1.1 What is the meaning of tax?

Let us begin by understanding the meaning of tax. Taxes are considered to be the "cost of living in a society". Taxes are levied by the Governments to meet the common welfare expenditure of the society. There are two types of taxes - direct taxes and indirect taxes.

Direct Taxes: If tax is levied directly on the income or wealth of a person, then, it is a direct tax. The person who pays the tax to the Government cannot recover it from somebody else i.e. the burden of a direct tax cannot be shifted. e.g. Income- tax.

Indirect Taxes: If tax is levied on the price of a good or service, then, it is an indirect tax e.g. Goods and Services Tax (GST) or Custom Duty. In the case of indirect taxes, the person paying the tax passes on the incidence to another person.
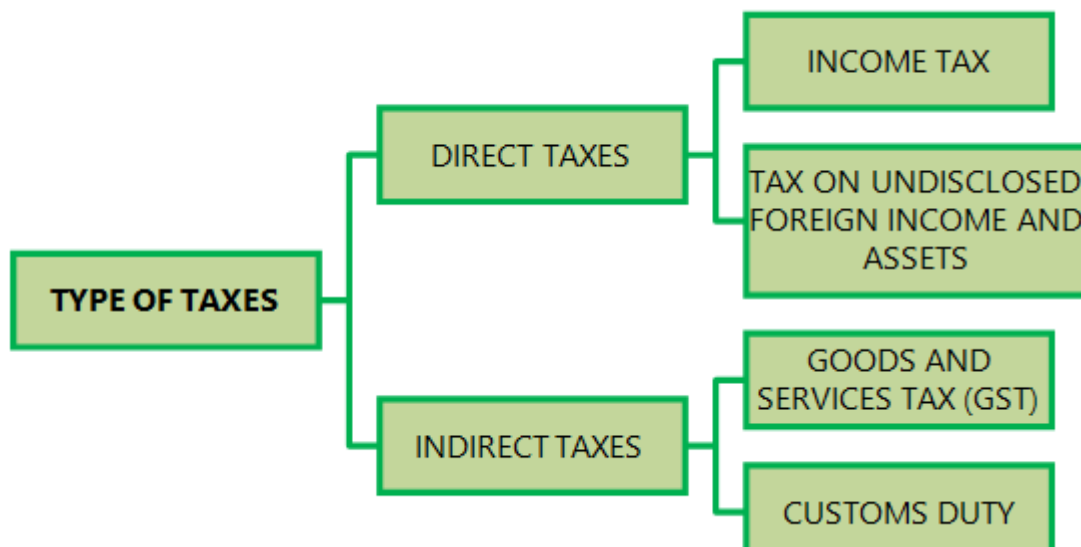
1.1 Why are taxes levied?

The reason for levy of taxes is that they constitute the basic source of revenue to the Government. Revenue so raised is utilized for meeting the expenses of Government like defence, provision of education, health-care, infrastructure facilities like roads, dams etc.

1.2 Power to levy taxes

The Constitution of India, in Article 265 lays down that *"No tax shall be levied or collected except by authority of law."* Accordingly for levy of any tax, a law needs to be framed by the government.

Constitution of India gives the power to levy and collect taxes, whether direct or indirect, to the Central and State Government. The Parliament and State Legislatures are empowered to make laws on the matters enumerated in the Seventh Schedule by virtue of Article 246 of the Constitution of India.

Seventh Schedule to Article 246 contains three lists which enumerate the matters under which the Parliament and the State Legislatures have the authority to make laws for the purpose of levy of taxes.

The following are the lists:

(i) **Union List:** Parliament has the exclusive power to make laws on the matterscontained in Union List.

(ii) **State List:** The Legislatures of any State has the exclusive power to makelaws on the matters contained in the State List.

(iii) **Concurrent List:** Both Parliament and State Legislatures have the power tomake laws on the matters contained in the Concurrent

Income-tax is the most significant direct tax. ***Entry 82 of the Union List*** *i.e., List Iin the Seventh Schedule to Article 246 of the Constitution of India has given the power to the Parliament to make laws on taxes on income other than agricultural income.*

list.

1.3 Overview of Income-tax law in India

In this material, we would be introducing the students to the Income-tax law inIndia. The income-tax law in India consists of the following components –
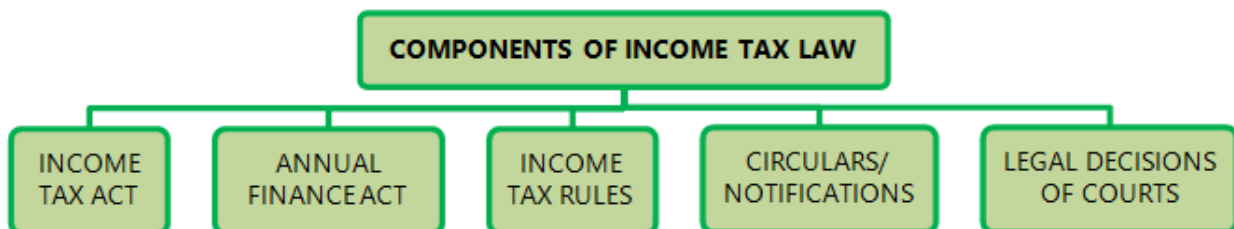
Income-tax Act, 1961

The levy of income-tax in India is governed by the Income-tax Act, 1961. In thisbook, we shall briefly refer to this as the Act.

• It extends to the whole of India.

• It came into force on 1st April, 1962.

• It contains sections 1 to 298 and schedules I to XIV.

❖ A section may have **sub-sections or clauses and sub-clauses**.

☐ When each part of the section is independent of each other and one is not related with other, such parts are called a "Clause". "Sub section", on the other hand refers to such parts of a section where each part is related with other and all sub sections taken together completes the concept propounded in that section.

- **Example 1**

  o The clauses of section 2 define the meaning of terms used in the Income-tax Act, 1961. Clause (1A) defines "agricultural income", clause (1B) defines "amalgamation" and so on. Each one of them is independent of other clause of the same section.

  o Likewise, the clauses of section 10 contain the exemptions in respect of certain income, like clause (1) provides for exemption of agricultural income and clause (2) provides for exemption of share income of a member of a Hindu Undivided Family and so on.

  o Section 5 defining the scope of total income has two sub- sections (1) and (2). Sub-section (1) defines the scope of total income of a resident and sub-section (2) defines the scope of total income of a non-resident. Each sub section is related with the other in the sense that only when one reads them all, one gets the complete idea related with scope of total income.

  ❖ A section may also have **Provisos and Explanations**.

  - The Proviso(s) to a section/sub-section/clause spells out the exception(s)/condition(s) to the provision contained in the respective section/sub-section/clause, i.e., the proviso spells out the cases where the provision contained in the respective section/sub-section/clause would not apply or where the provision would apply with certain modification.

  - The *Explanation* to a section/sub-section/clause gives a clarification relating to the provision contained in the respective section/sub-section/clause.

- **Example 2**

  o Sections 80GGB and 80GGC provides for deduction from gross total income in respect of contributions made by companies and other persons, respectively, to political parties or an electoral trust.

  o The proviso to sections 80GGB and 80GGC provide that no deduction shall be allowed under those sections in respect of any sum contributed by cash to political parties or an electoral trust. Thus, the provisos to these sections spell out the circumstance when deduction would not be available thereunder in respect of contributions made.

  o The *Explanation* below section 80GGC provides that for the purposes of sections 80GGB and 80GGC, "political party" means a political party registered under section 29A of the Representation of the People Act, 1951. Thus, the *Explanation* clarifies that the political party has to be a registered political party.

  - The Income-tax Act, 1961 undergoes change every year with additions and substitutions brought in by the Annual Finance Act passed by Parliament. Sometimes, the Income-tax Act, 1961 is also amended through other legislations like Taxation Laws (Amendment) Act.

The Finance Act

Every year, the Finance Minister of the Government of India introduces the Finance Bill in the Parliament's Budget Session. When the Finance Bill is passed by both the houses of the Parliament and gets the assent of the President, it becomes the Finance Act. Amendments are made every year to the Income-tax Act, 1961 and other tax laws by the Finance Act.

The First Schedule to the Finance Act contains four parts which

specify the ratesof tax -

- **Part I** of the First Schedule to the Finance Act specifies the rates of tax applicable for the current Assessment Year. Accordingly, Part I of the First Schedule to the Finance Act, 2022 specifies the rates of tax for A.Y. 2022-23.

- **Part II** specifies the rates at which tax is deductible at source for the current Financial Year. Accordingly, Part II of the First Schedule to the Finance Act, 2022 specifies the rates at which tax is deductible at source for F.Y. 2022-23

- **Part III** gives the rates for calculating income-tax for deducting tax from income chargeable under the head "Salaries" and computation of advancetax for F.Y. 2022-23.

- **Part IV** gives the rules for computing net agricultural income.

Income-tax Rules, 1962

The administration of direct taxes is looked after by the Central Board of Direct Taxes (CBDT).

- The CBDT is empowered to make rules for carrying out the purposes of theAct.

- For the proper administration of the Income-tax Act, 1961, the CBDT frames rules from time to time. These rules are collectively called **Income-tax Rules, 1962**.

- Rules also have sub-rules, provisos and *Explanation*s. The proviso to a Rule/Sub-rule spells out the exception to the limits, conditions, guidelines, basis of valuation, as the case may be, spelt out in the Rule/Sub-rule. The *Explanation* gives clarification for the purposes of the Rule.

- It is important to keep in mind that along with the Income-tax Act, 1961, these rules should also be studied.

Circulars and Notifications

Circulars

- Circulars are issued by the CBDT from time to time to deal with certain specific problems and to clarify doubts regarding the scope and meaning of certain provisions of the Act.

  - Circulars are issued for the guidance of the officers and/or assessees.

  - The department is bound by the circulars. While such circulars are notbinding on the assessees, they can take advantage of beneficial circulars.

  ### *Notifications*
  - Notifications are issued by the Central Government to give effect to the provisions of the Act. The CBDT is also empowered to make and amend rules for the purposes of the Act by issue of notifications which are binding on both department and assessees.

  ### Case Laws
  - Case Laws refer to decision given by courts. The study of case laws is an important and unavoidable part of the study of Income-tax law. It is not possible for Parliament to conceive and provide for all possible issues that may arise in the implementation of any Act. Hence the judiciary will hear the disputes between the assessees and the department and give decisions on various

issues.

- The Supreme Court is the Apex Court of the Country and the law laid down by the Supreme Court is the law of the land. The decisions given by various High Courts will apply in the respective states in which such High Courts have jurisdiction.

Note – Case laws are dealt with at the Final level.

1.5. Levy of Income-tax

Income-tax is a tax levied on the total income of the previous year of every person [Section 4].

A person includes an individual, Hindu Undivided Family (HUF), Association of Persons (AOP), Body of Individuals (BOI), a firm, a company etc.

(1)   Total Income and Tax Payable

Income-tax is levied on an assessee's total income. Such total income has to be computed as per the provisions contained in the Income-tax Act, 1961.

Let us go step by step to understand the procedure for computation of total income of an individual for the purpose of levy of income-tax –

Step 1 – Determination of residential status

The residential status of a person has to be determined to ascertain which income is to be included in computing the total income. The residential status as per the Income-tax Act, 1961 can be classified as under –

IMPORTANT DEFINITIONS

In order to understand the provisions of the Act, one must have a thorough knowledge of the meanings of certain key terms like 'person', 'assessee', 'income', etc. To understand the meanings of these terms we have to first check whether they are defined in the Act.

Terms defined in the Act: Section 2 gives definitions of the various terms and expressions used therein. If a particular definition is given in the Act itself, we have to be guided by that definition. For e.g. the term 'perquisite' has been defined under section 17(2) for the purpose of taxation of salaries.

Terms not defined under the Act: If a particular definition is not given in the Act, reference can be made to the General Clauses Act or dictionaries.

Students should note this point carefully because certain terms like "dividend", "transfer", etc. have been given a wider meaning in the Income-tax Act, 1961 than they are commonly understood. Some of the important terms defined under section 2 are given below:

2.1 Assessee [Section 2(7)]

"Assessee" means a person by whom any tax or any other sum of money is payable under this Act. In addition, it includes –

Every person in respect of whom any proceeding under this Act has beentaken for the assessment of

- his income; or
- the income of any other person in respect of which he is assessable; or
- the loss sustained by him or by such other person; or

- the amount of refund due to him or to such other person.
- Every person who is deemed to be an assessee under any provision of this Act;
- Every person who is deemed to be an assessee-in-default under any provision of this Act.

2.2 Assessment [Section 2(8)]

This is the procedure by which the income of an assessee is determined. It may be by way of a normal assessment or by way of reassessment of an income previously assessed. Assessment Procedure will be dealt with in detail at the Final level.

2.3 Person [Section 2(31)]

The definition of 'assessee' leads us to the definition of 'person' as the former is closely connected with the latter. The term 'person' is important from another point of view also viz., the charge of income-tax is on every 'person'.
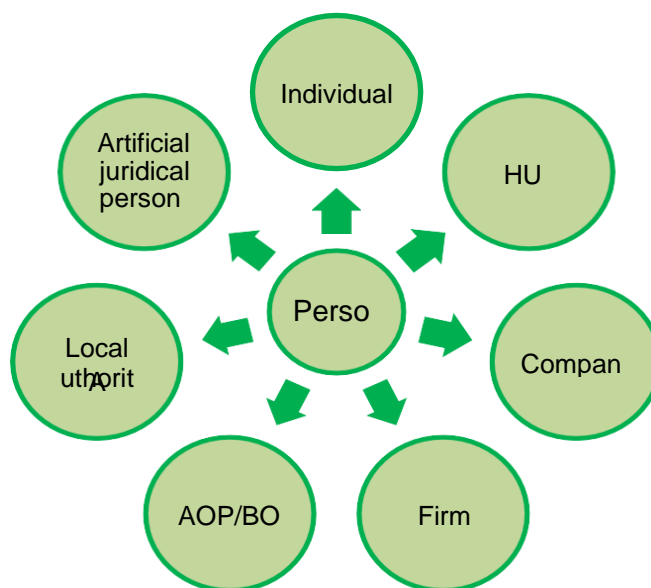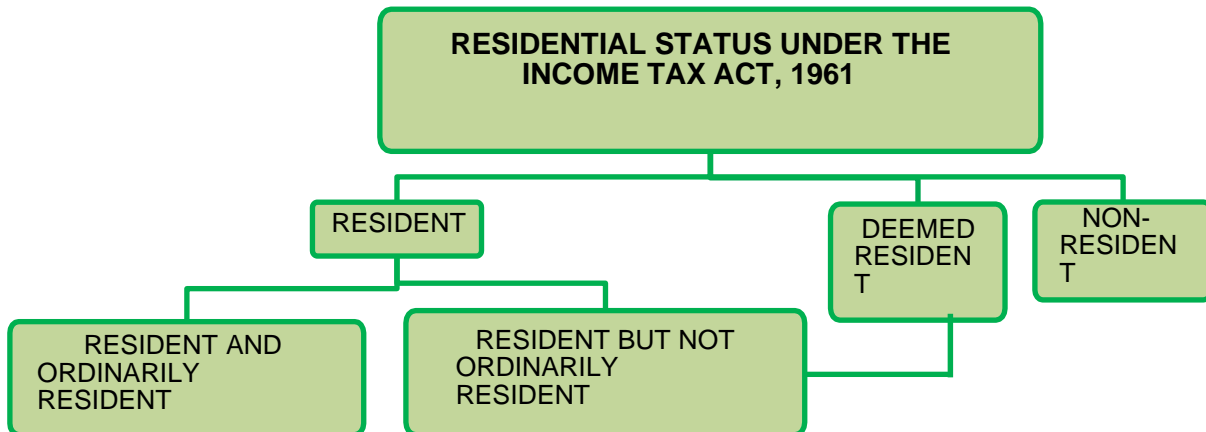
Python Programming (CCPP22)

Objective

The objective of course is to learn the fundamental of python programming.

Benefit

Core concepts of Python Programming.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Python Programming

- Introduction of Python
  - Installing Python IDES – Python IDLE and Anaconda
  - Writing Your First Python Program
  - Data-types in Python
  - Variables in Python – Declaration and Use
  - Typecasting in Python
  - Operators in Python – Assignment, Logical, Arithmetic etc.
  - Taking User Input (Console)
  - Conditional Statements – If else and Nested If else and elif
  - Python Collections (Arrays) – List, Tuple, Sets and Dictionary
  - Loops in Python – For Loop, While Loop & Nested Loops
  - String Manipulation – Basic Operations, Slicing & Functions and Methods
  - User Defined Functions – Defining, Calling, Types of Functions, Arguments

- **Object Oriented Programming in Python**
  - Basics of Object Oriented Programming
  - Creating Class and Object
  - Constructors in Python – Parameterized and Non-parameterized
  - Inheritance in Python
  - In built class methods and attributes
  - Multi-Level and Multiple Inheritance
  - Method Overriding and Data Abstraction
  - Encapsulation and Polymorphism

Project

    Student makes a project during training period.

Certification

    Certificate in Python Programming

<u>Study Material of Python (CCPP22)</u>

What is Python?

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

What can Python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.

Good to know

- The most recent major version of Python is Python 3, which we shall be using in this tutorial. However, Python 2, although not being updated with anything other than security updates, is still quite popular.
- In this tutorial Python will be written in a text editor. It is possible to write Python in an Integrated Development Environment, such as Thonny, Pycharm, Netbeans or Eclipse which are particularly useful when managing larger collections of Python files.

Python Syntax compared to other programming languages

- Python was designed for readability, and has some similarities to the English language with influence from mathematics.
- Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
- Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

Example

```python
print("Hello, World!")
```

Execute Python Syntax

As we learned in the previous page, Python syntax can be executed by writing directly in the Command Line:

```
>>> print("Hello, World!")
Hello, World!
```

Variables

Variables are containers for storing data values.

Creating Variables

Python has no command for declaring a variable.

A variable is created the moment you first assign a value to it.

Example

```python
x = 5
y = "John"
print(x)
print(y)
```

Variable Names

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)
- A variable name cannot be any of the [Python keywords](#).

Example

Legal variable names:

```python
myvar = "John"
my_var = "John"
_my_var = "John"
myVar = "John"
MYVAR = "John"
myvar2 = "John"
```

Built-in Data Types

In programming, data type is an important concept.

Variables can store data of different types, and different types can do different things.

Python has the following data types built-in by default, in these categories:

Text Type:	str
Numeric Types:	int, float, complex
Sequence Types:	list, tuple, range
Mapping Type:	dict
Set Types:	set, frozenset
Boolean Type:	bool
Binary Types:	bytes, bytearray, memoryview
None Type:	NoneType

Getting the Data Type

You can get the data type of any object by using the type() function:

Example

Print the data type of the variable x:

```
x = 5
print(type(x))
```

Python Numbers

There are three numeric types in Python:

- int
- float
- complex

Variables of numeric types are created when you assign a value to them:

Example

```
x = 1    # int
y = 2.8  # float
z = 1j   # complex
```

Specify a Variable Type

There may be times when you want to specify a type on to a variable. This can be done with casting. Python is an object-orientated language, and as such it uses classes to define data types, including its primitive types.

Casting in python is therefore done using constructor functions:

- int() - constructs an integer number from an integer literal, a float literal (by removing all decimals), or a string literal (providing the string represents a whole number)
- float() - constructs a float number from an integer literal, a float literal or a string literal (providing the string represents a float or an integer)
- str() - constructs a string from a wide variety of data types, including strings, integer literals and float literals

Example

Integers:

```
x = int(1)   # x will be 1
y = int(2.8) # y will be 2
z = int("3") # z will be 3
```

Example

Floats:

```
x = float(1)     # x will be 1.0
y = float(2.8)   # y will be 2.8
z = float("3")   # z will be 3.0
w = float("4.2") # w will be 4.2
```

Strings

Strings in python are surrounded by either single quotation marks, or double quotation marks.

'hello' is the same as "hello".

You can display a string literal with the print() function:

Example

```
print("Hello")
print('Hello')
```

Boolean Values

In programming you often need to know if an expression is True or False.

You can evaluate any expression in Python, and get one of two answers, True or False.

When you compare two values, the expression is evaluated and Python returns the Boolean answer:

Example
```
print(10 > 9)
print(10 == 9)
print(10 < 9)
```

Python Operators

Operators are used to perform operations on variables and values.

In the example below, we use the + operator to add together two values:

Example
```
print(10 + 5)
```

List

Lists are used to store multiple items in a single variable.

Lists are one of 4 built-in data types in Python used to store collections of data, the other 3 are Tuple, Set, and Dictionary, all with different qualities and usage.

Lists are created using square brackets:

Example

Create a List:

```
thislist = ["apple", "banana", "cherry"]
print(thislist)
```

Loop Through a List

You can loop through the list items by using a for loop:

Example

Print all items in the list, one by one:

```python
thislist = ["apple", "banana", "cherry"]
for x in thislist:
  print(x)
```

Tuple

Tuples are used to store multiple items in a single variable.

Tuple is one of 4 built-in data types in Python used to store collections of data, the other 3 are List, Set, and Dictionary, all with different qualities and usage.

A tuple is a collection which is ordered and **unchangeable**.

Tuples are written with round brackets.

Example

Create a Tuple:

```python
thistuple = ("apple", "banana", "cherry")
print(thistuple)
```

Tuple Items

Tuple items are ordered, unchangeable, and allow duplicate values.

Tuple items are indexed, the first item has index [0], the second item has index [1] etc.

Ordered

When we say that tuples are ordered, it means that the items have a defined order, and that order will not change.

Unchangeable

Tuples are unchangeable, meaning that we cannot change, add or remove items after the tuple has been created.

Allow Duplicates

Since tuples are indexed, they can have items with the same value:

Example

Tuples allow duplicate values:

```
thistuple = ("apple", "banana", "cherry", "apple", "cherry")
print(thistuple)
```

Access Tuple Items

You can access tuple items by referring to the index number, inside square brackets:

Example[Get your own Python Server](#)

Print the second item in the tuple:

```
thistuple = ("apple", "banana", "cherry")
print(thistuple[1])
```

Set

Sets are used to store multiple items in a single variable.

Set is one of 4 built-in data types in Python used to store collections of data, the other 3 are [List](#), [Tuple](#), and [Dictionary](#), all with different qualities and usage.

A set is a collection which is *unordered*, *unchangeable**, and *unindexed*.

* Note: Set *items* are unchangeable, but you can remove items and add new items.

Sets are written with curly brackets.

Example

Create a Set:

```
thisset = {"apple", "banana", "cherry"}
print(thisset)
```

Dictionary

Dictionaries are used to store data values in key:value pairs.

A dictionary is a collection which is ordered*, changeable and do not allow duplicates.

As of Python version 3.7, dictionaries are *ordered*. In Python 3.6 and earlier, dictionaries are *unordered*.

Dictionaries are written with curly brackets, and have keys and values:

Example

Create and print a dictionary:

```
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisdict)
```

Dictionary Items

Dictionary items are ordered, changeable, and does not allow duplicates.

Dictionary items are presented in key:value pairs, and can be referred to by using the key name.

Example

Print the "brand" value of the dictionary:

```
thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisdict["brand"])
```

Python Conditions and If statements

Python supports the usual logical conditions from mathematics:

- Equals: a == b
- Not Equals: a != b
- Less than: a < b
- Less than or equal to: a <= b
- Greater than: a > b
- Greater than or equal to: a >= b

These conditions can be used in several ways, most commonly in "if statements" and loops.

An "if statement" is written by using the if keyword.

Example

If statement:

```
a = 33
b = 200
if b > a:
  print("b is greater than a")
```

Creating a Function

In Python a function is defined using the def keyword:

Example
```
def my_function():
  print("Hello from a function")
```

Calling a Function

To call a function, use the function name followed by parenthesis:

Example
```
def my_function():
  print("Hello from a function")

my_function()
```

What is a Module?

Consider a module to be the same as a code library.

A file containing a set of functions you want to include in your application.

Create a Module

To create a module just save the code you want in a file with the file extension .py:

Example

Save this code in a file named mymodule.py

```
def greeting(name):
  print("Hello, " + name)
```

Use a Module

Now we can use the module we just created, by using the import statement:

Example

Import the module named mymodule, and call the greeting function:

```
import mymodule

mymodule.greeting("Jonathan")
```

Variables in Module

The module can contain functions, as already described, but also variables of all types (arrays, dictionaries, objects etc):

Example

Save this code in the file mymodule.py

```
person1 = {
  "name": "John",
  "age": 36,
  "country": "Norway"
}
```

Built-in Math Functions

The min() and max() functions can be used to find the lowest or highest value in an iterable:

Example
```
x = min(5, 10, 25)
y = max(5, 10, 25)

print(x)
print(y)
```

The abs() function returns the absolute (positive) value of the specified number:

Example
```
x = abs(-7.25)

print(x)
```

The pow(*x, y*) function returns the value of x to the power of y (x^y).

Example

Return the value of 4 to the power of 3 (same as 4 * 4 * 4):

```
x = pow(4, 3)

print(x)
```

The Math Module

Python has also a built-in module called math, which extends the list of mathematical functions.

To use it, you must import the math module:

```
import math
```

When you have imported the math module, you can start using methods and constants of the module.

The math.sqrt() method for example, returns the square root of a number:

Example

```
import math

x = math.sqrt(64)

print(x)
```

The math.ceil() method rounds a number upwards to its nearest integer, and the math.floor() method rounds a number downwards to its nearest integer, and returns the result:

Example

```
import math

x = math.ceil(1.4)
y = math.floor(1.4)

print(x) # returns 2
print(y) # returns 1
```

The math.pi constant, returns the value of PI (3.14...):

Example

```
import math

x = math.pi

print(x)
```

Artificial Intelligence & Machine Learning (CCAIML22)

Objective

The objective of course is to learn the Artificial Intelligence & Machine Learning.

Benefit

Student know how to create technology that allows computers and machines to work intelligently.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Artificial Intelligence & Machine Learning

- PRE PREPARATORY CONTENT
  - INTRODUCTION TO PYTHON FOR DATA ANALYSIS
  - PYTHON FOR DATA SCIENCE
  - MATH FOR MACHINE LEARNING
  - DATA VISUALISATION IN PYTHON
  - DATA ANALYSIS USING SQL

- STATISTICS ESSENTIAL
  - ANALYTICS PROBLEM SOLVING
  - INVESTMENT ASSIGNMENT
  - INFERENTIAL STATISTICS
  - HYPOTHESIS TESTING

- MACHINE LEARNING
  - LINEAR REGRESSION
  - LINEAR REGRESSION ASSIGNMENT
  - LOGISTIC REGRESSION
  - NAIVE BAYES
  - MODEL SELECTION

- Natural Language Processing
  - LEXICAL PROCESSING
  - SYNTACTIC PROCESSING
  - SYNTACTIC PROCESSING-ASSIGNMENT
  - SEMANTIC PROCESSING

Project

Student makes a project during training period.

Certification

Certificate in Artificial Intelligence & Machine Learning

Study Material of Artificial Intelligent (CCAIML22)

What is Artificial Intelligence?

Artificial Intelligence suggest that machines can mimic humans in:

- Talking
- Thinking
- Learning
- Planning
- Understanding

Artificial Intelligence is also called **Machine Intelligence** and **Computer Intelligence**.

Arthur Samuel 1959:

"Machine Learning is a subfield of computer science that gives computers the ability to learn without being programmed"

Arthur Samuel, IBM Journal of Research and Development, Vol. 3, 1959.

Wikipedia 2022:

Artificial intelligence is intelligence demonstrated by machines. Unlike natural intelligence displayed by humans and animals, which involves consciousness and emotionality.

Investopedia 2022:

Artificial intelligence refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.

IBM 2022:

Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.

Britannica 2022:

Artificial intelligence is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings, ... such as the ability to reason, discover meaning, generalize, or learn from past experience.

Artificial Intelligence (AI)

Artificial Intelligence is a scientific discipline embracing several **Data Science** fields ranging from narrow AI to strong AI, including machine learning, deep learning, big data and data mining.
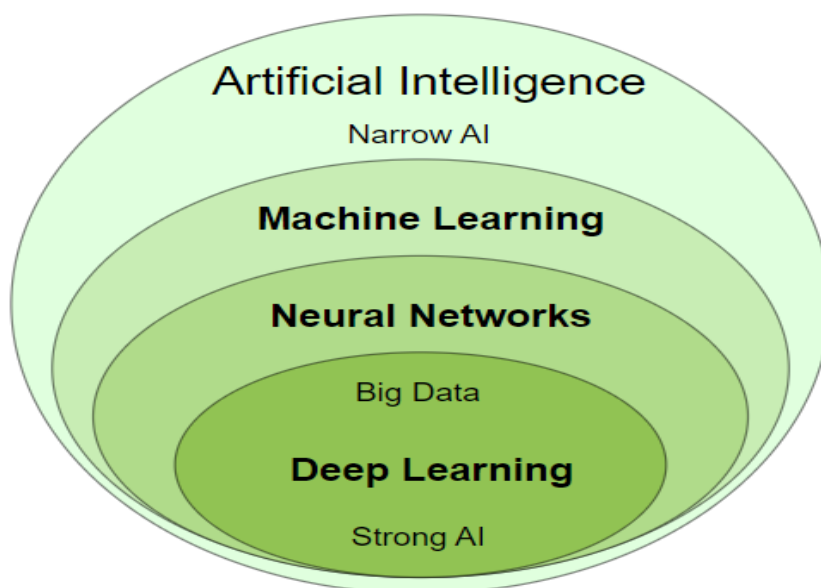
Narrow AI

Narrow Artificial Intelligence is limited to narrow (specific) areas like most of the AI we have around us today:

- Email spam Filters
- Text to Speech
- Speech Recognition
- Self Driving Cars
- E-Payment
- Google Maps
- Text Autocorrect
- Automated Translation
- Chatbots
- Social Media
- Face Detection
- Visual Perception

- Search Algorithms
- Robots
- Automated Investment
- NLP - Natural Language Processing
- Flying Drones
- IBM's Dr. Watson
- Apple's Siri
- Microsoft's Cortana
- Amazon's Alexa
- Netflix's Recommendations

Narrow AI is also called **Weak AI**.

Weak AI: Built to **simulate** human intelligence.

Strong AI: Built to **copy** human intelligence.

Strong AI

Strong Artificial Intelligence is the type of AI that mimics human intelligence.

Strong AI indicates the ability to think, plan, learn, and communicate.

Strong AI is the theoretical next level of AI: **True Intelligence**.

Strong AI moves towards machines with self-awareness, consciousness, and objective thoughts.

Machine Learning in JavaScript

Traditionally, Machine Learning applications are using R or Python.

But JavaScript has a great future as an Machine Learning language:

- JavaScript is well known. All developers can use it.
- Security is built in. JavaScript cannot access your files.
- JavaScript is faster than Python.
- JavaScript can use hardware acceleration.
- JavaScript runs in the browser

JavaScript is Good for Machine Learning

Machine Learning can be math-heavy. The nature of neural networks is highly technical, and the jargon that goes along with it tends to scare people away.

This is where JavaScript comes to help, with easy to understand software to simplifying the process of creating and training neural networks.

With new Machone Learning libraries, JavaScript developers can add Machine Learning and Artificial Intelligence to web applications.

WebGL API

WebGL is a JavaScript API for rendering 2d and 3D graphics in any browser.

WebGL can run on both integrated and standalone graphic cards in any PC.

WebGL brings 3D graphics to the web browser. Major browser vendors Apple (Safari), Google (Chrome), Microsoft (Edge), and Mozilla (Firefox) are members of the WebGL Working Group.
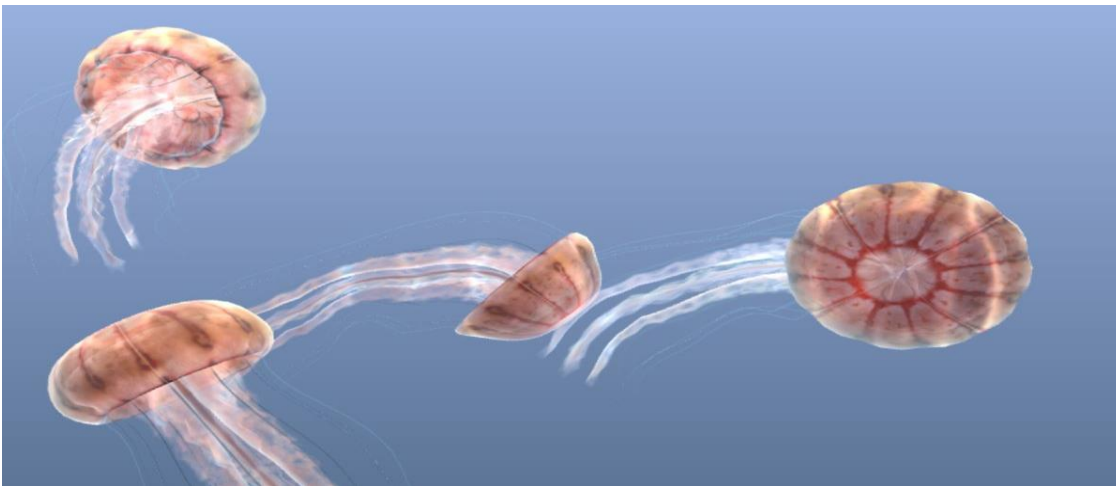
JavaScript Machine Learning Libraries

Machine Learning in the **Browser** means:

- Machine Learning in JavaScript
- Machine Learning for the Web
- Machine Learning for Everyone
- Machine Learning on more Platforms

Advantages:

- Easy to use. Nothing to install.
- Powerful graphics. Browsers support WebGL.
- Better privacy. Data can stay on the client.
- More platforms. JavaScript runs on mobile devices.

Math.js

Math.js is an extensive math library for JavaScript and Node.js.

Math.js is powerful and easy to use. It comes with a large set of built-in functions, a flexible expression parser, and solutions to work with many data types like numbers, big numbers, complex numbers, fractions, units, arrays, and matrices.

Brain.js

Brain.js is a JavaScript library that makes it easy to understand Neural Networks because it hides the complexity of the mathematics.

Brain.js is simple to use. You do not need to know neural networks in details to work with Brain.js.

Brain.js provides multiple neural network implementations as different neural nets can be trained to do different things well.

ml5.js

ml5.js is trying to make machine learning more accessible to a wider audience.

The ml5 team is working to wrap machine learning functionality in friendlier ways.

The example below uses only **three lines** of code to classify an image:

```
<img id="image" src="pic1.jpg" width="100%">

<script>
const classifier = ml5.imageClassifier('MobileNet');
classifier.classify(document.getElementById("image"), gotResult);
function gotResult(error, results) { ... }
</script>
```

Try substitute "pic1.jpg" with "pic2.jpg" and "pic3.jpg".

TensorFlow

TensorFlow Playground is a web application written in **d3.js**.

With TensorFlow Playground you can learn about **Neural Networks** (NN) without math.

In your own **Web Browser** you can create a Neural Network and see the result.

TensorFlow.js was previously called Tf.js and Deeplearn.js.

Plotting in the Browser

Here is a list of some JavaScript libraries to use for both Machine Learning graphs and other HTML charts:

- [Plotly.js](#)
- [Chart.js](#)
- [D3.js](#)
- [Google Chart](#)

Plotting Equations

Enter Equation: | sin(x) * 2 + |

01234567891516171819
Scatter Draw Line

Plotting Values

Enter X and Y Values: | 50,60,70,80 | 7,8,8,9,9,9,1 |

60801001201408101214
Scatter Draw Lines

Machine Learning Languages

Programming languages involved in **Machine Learning** and Artificial Intelligence are:

- LISP
- R
- Python
- C++
- Java
- JavaScript
- SQL

LISP

LISP is the second oldest programming language in the world (1958), one year younger than Fortran (1957).

The term **Artificial Intelligence** was made up by **John McCarthy** who invented LISP.

LISP was founded on the theory of **Recursive Functions** (self modifying functions), and this is very suitable for Machine Learning programs where "self-learning" is an important part of the program.

The R Language

R is a programming language for **Graphics** and **Statistical** computing.

R is supported by the [R Foundation for Statistical Computing](#).

R comes with a wide set of statistical and graphical techniques for:

- Linear Modeling
- Nonlinear Modeling
- Statistical Tests
- Time-series Analysis
- Classification
- Clustering

Python

Python is a general-purpose coding language. It can be used for all types of programming and software development.

Python is typically used for server development, like building web apps for web servers.

Python is also typically used in **Data Science**.

An advantage for using Python is that it comes with some very suitable libraries:

- NumPy (Library for working with Arrays)
- SciPy (Library for Statistical Science)
- Matplotlib (Graph Plotting Library)
- NLTK (Natural Language Toolkit)
- TensorFlow (Machine Learning)
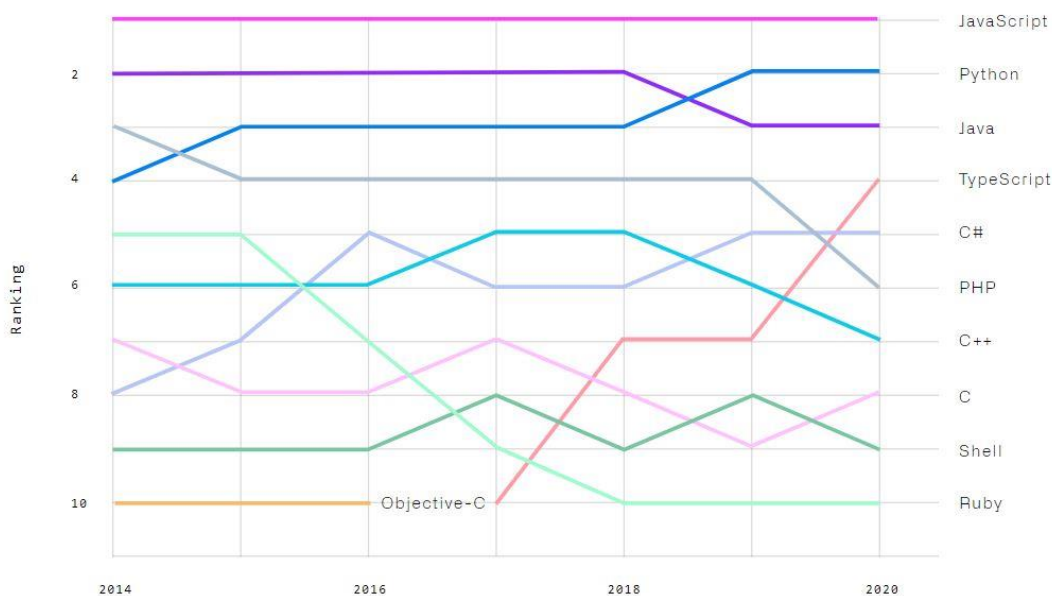
C++

C++ holds the title: "**The worlds fastest programming language**".

Because of the speed, C++ is a preferred language when programming Computer Games.

It provides faster execution and has less response time which is applied in search engines and development of computer games.

Google uses C++ in Artificial Intelligence and Machine Learning programs for SEO (Search Engine Optimization).

SHARK is a super-fast C++ library with support for supervised learning algorithms, linear regression, neural networks, and clustering.

MLPACK is also a super-fast machine learning library for C++.

Java

Java is another general-purpose coding language that can be used for all types of software development.

For Machine Learning, Java is mostly used to create algorithms, and neural networks.

SQL

SQL (Structured Query Language) is the most popular language for managing data.

Knowledge of SQL databases, tables and queries helps data scientists when dealing with data.

SQL is very convenient for storing, manipulating, and retrieving data in databases.

Cloud Computing (CCCC22)

Objective

The objective of course is to learn the Cloud Computing.

Benefit

Student know the concept of cloud computing and area where we use it.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Cloud Computing

Introduction to cloud computing
- Properties, Characteristics & Disadvantages
- Pros and Cons of Cloud Computing,
- Benefits of Cloud Computing

Visualisation
- Overview of data visualization and its importance
- The importance of data visualization
- The relationships, comparisons, distribution, and composition of data

Fundamentals
- Core concepts of data warehousing
- Primary components and architectures of data warehousing
- To review and configure cloud storage options

Private cloud environment
- Security and privacy to be maintained through private clouds
- Elimination of third-party or intruders

Public cloud environment
- o Administration of public cloud
- o Managing multiple users of the same data at the same time

Cloud security
- o Infrastructure Security
- o Network-level security
- o Host level security
- o Data Security and Storage
- o Cloud Access: authentication, authorization and accounting

Project

Student makes a project during training period.

Certification

Certificate in Cloud Computing

Study Material of Cloud Computing (CCCC22)

The Client-Server Model

The client-server model is an important concept in cloud computing.

It is about many clients using services from a centralized server.

What is the Client-Server Model?

The Client-Server model is about a client that interacts and makes requests to a computer server.

A client is the way that the person interact with the server.

Client   Server

Image created by Amazon Web Services

The server does tasks for the client and returns information.

What is Cloud Computing?

Cloud computing is a computing service made available over the internet.

Cloud computing is a pay-as-you-go model for delivering IT resources.

You pay only for what you use.

Deployment Models

There are three different kinds of deployment models:

- Cloud-based
- On-premises
- Hybrid

The models are different ways of accessing compute services - over the internet, locally, or in a combination.

Cloud-Based Deployment

Everything runs in the cloud.

This model allows you to build new applications or move existing ones to the cloud.

There are different levels of services ranging from low to high.

The level of service has different requirements on your management, architecting, and infrastructure.

For example, a company might create an application consisting of virtual servers, databases, and networking components entirely based in the cloud.

On-Premises Deployment

Deploy resources by using virtualization and resource management tools.

On-Premises Deployment is also known as private cloud deployment.

For example, you might have applications that run on technology that is fully kept in your on-premises data center.

Though this model is much like legacy IT infrastructure, its application management and virtualization technologies make it more effective.

Hybrid Deployment

In a hybrid deployment, you connect cloud resources to an on-premises infrastructure.

This approach is relevant in many situations.

Why Choose Cloud Computing?

There are many reasons for going with the cloud.

Cloud computing enables benefits such as:

- Cost savings

- Security
- Scalability
- Flexibility

Payment Model

The cloud payment model is flexible.

You do not have to invest in a data center, servers, and other resources.

The cloud services is a variable expense.

You can use the services from the start and consume more as you grow.

Fewer Operations

Having your own data centers and servers requires resources and staffing.

Cloud computing reduces operation and lets you focus on important things, such as your applications and customers.

Flexible Capacity

Having and managing your own servers can result in unused capacity and limitations.

On the other hand, you can grow freely with cloud computing.

You pay for what you use

Economies at Scale

Cloud computing is about shared resources.

Sharing the infrastructure cost with hundreds of thousands of other customers lowers the overall costs.

Increased Speed

The flexibility of cloud computing makes it easier to develop and deploy applications.

You can test and utilize resources as you want in minutes.

This freedom allows you to experiment and invent more.

It allows for instant resource access.

Global Reach

AWS has data centers all over the world.

The AWS Cloud's global reach allows you to swiftly deploy apps to consumers anywhere.

Customers can access your apps quickly.

You can pick the ones near your clients to reduce the latency.

AWS EC2 - Virtual Cloud Server

EC2 is a virtual server in the AWS Cloud.

AWS EC2 is short for AWS Elastic Cloud Compute.

It makes scaling of capacity up and down easy.

Why AWS EC2?

It makes the process of increasing and decreasing capacity easier.

As a result, you can access the resources at demand.

No upfront investment is needed.

You only pay for what you need.

EC2 is secure.

Get Started With AWS EC2

You can get started with EC2 in three steps.

1. Launch

Start with selecting a template with basic configurations.

The config includes the operating system, application server, or applications.

Next, decide the instance type and hardware configuration of your instance.

Finally, specify the security settings to control the traffic in and out of your instance.

2. Connect

There are many ways to connect an instance.

Programs and applications have multiple connection methods to exchange data.

Users can connect and access the computer desktop by logging in.

3. Use

Once connected, you can use the instance.

Execute commands to install software, add storage, copy, and organize files, and much more.

AWS EC2 Instance Types

There are different instance types.

Which one to use depends on the needs.

More About EC2 Instance Types

The types are best used for different things.

Therefore, when selecting an instance type, consider the needs.

For example, needs can be a requirement for compute, memory, or storage.

General Purpose Instance

The General Purpose Instance balances computing, memory, and networking resources.

It fits many purposes. Such as:

- Application servers

- Gaming servers
- Backend servers for companies
- Small and medium databases

The General Purpose Instances are best when there is a balance between the resources.

Compute Optimized Instances

The Compute Optimized Instances are best there is a need for high compute.

This type is also good for application servers, gaming servers, and web applications.

The main difference is that this type is ideal for high-performance and compute-intensive needs.

Memory Optimized Instances

This type can deliver large dataset workloads fast.

Memory is a temporary storage area.

It loads from storage, holds the data, and processes it before the computer can run it.

The processing allows for a preloading process and gives the CPU direct access to the computer program.

The Memory Optimized Instances are best when huge amounts of data need to be preloaded before running the app.

Accelerated Computing Instances

This type use hardware accelerators.

The accelerators boost the data processing.

The Accelerated Computing Instances are best for graphics applications and streaming.

Storage Optimized Instances

This type is best when you have large datasets on local storage.

Some examples:

- Large file systems

- Data warehouses
- Online transaction systems

The Storage Optimized Instances are designed to deliver many inputs as fast as possible.

AWS EC2 Auto Scaling

EC2 Auto Scaling can be added as a buffer on top of your instances.

It can add new instances to the application when necessary and terminate them when no longer needed.

You can set up a group of instances.

Here you can set a **minimum capacity** of instances that will always be running. The rest will operate when necessary.

You can set the **desired number** of AWS EC2 instances in the scaling group.

However, the desired capacity defaults to your minimum capacity if not specified.

The last configuration is **Maximum capacity**.

Here you set the maximum capacity of instances to be used.

The Auto Scaling groups allow you to have a dynamic environment.

You set the minimum capacity, the desired number, and the maximum capacity.

The group will operate within the config and give you a predictable and cost-effective architecture.

What is AWS SNS?

SNS is a cloud service for the mass delivery of messages.

It is a fully managed publish-subscribe messaging and mobile communication service.

It can be event-driven, with automated services responding to triggers.

Distributed systems and micro services can be decoupled with messaging between them through AWS SNS.

Application-to-person messaging to users is possible with SMS, mobile push, and email.

Message Endpoints

AWS SNS can publish messages to many different endpoints:

- HTTP and HTTPS
- Email and Email-JSON
- AWS SQS
- Applications
- AWS Lambda
- SMS (depending on region)

The Difference between SQS and SNS

SNS is a notification system, which pushes messages to its subscribers.

SQS is a queuing system, and the receivers have to pull the messages to be processed and deleted from the queue.

SNS and SQS can works well together.

What is CloudFormation

CloudFormation is an infrastructure service.

It lets you create templates that describe the AWS services that you want.

Then, it handles the config and provisioning of the resources described in the template.

It makes it easier because you do not have to configure the resources individually.

CloudFormation helps to handle the dependencies between the resources.

AWS Virtual Private Cloud

AWS Virtual Private Cloud is also called AWS VPC.

VPC is a service that lets you isolate your AWS resources in an isolated network.

The boundaries created around the resources let AWS restrict the network traffic.

In addition, it allows you to include the sections of the AWS Cloud that you want in the isolated network.

Resources can be organized in subnets.

A subnet is a section in the VPC that can contain specific resources.

Internet Gateway

Public traffic can be allowed to your VPC.

The traffic is allowed by an Internet Gateway.
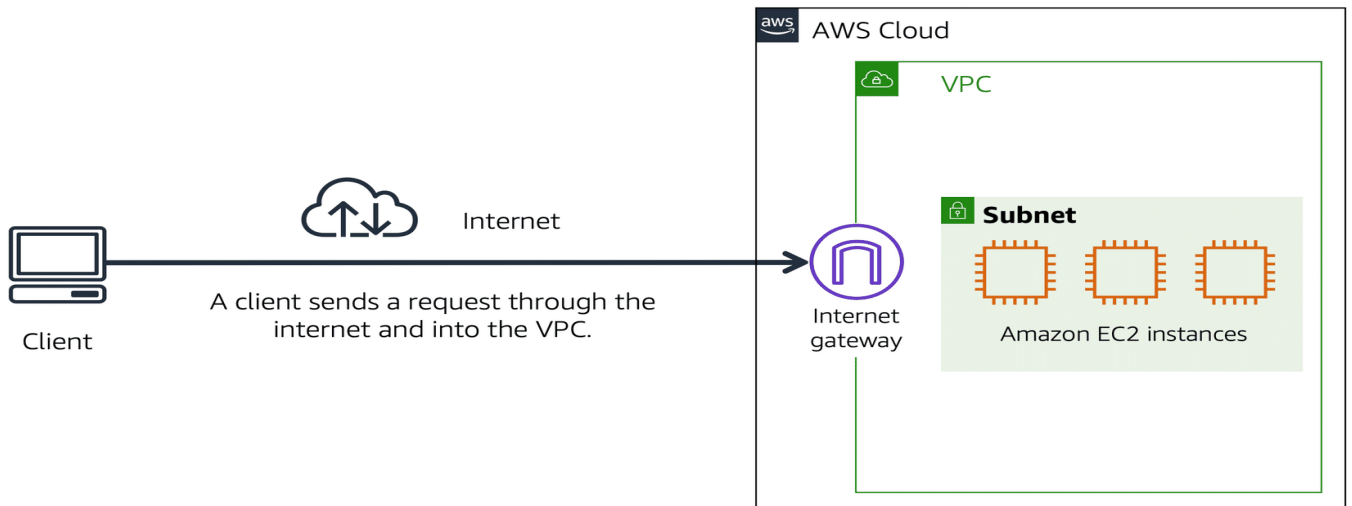
Image created by Amazon Web Services

An Internet Gateway is a door between the VPC and the internet.

The traffic enters the VPC through the Internet Gateway.

Without the Internet Gateway, you cannot access the resources in the VPC.

Virtual Private Gateway

A Virtual Private Gateway is used to access private resources in the VPC.

It has extra layers of protection.

The Virtual Private Gateway encrypts the internet traffic, keeping it protected.

It is a component that allows the encrypted traffic to enter the VPC.
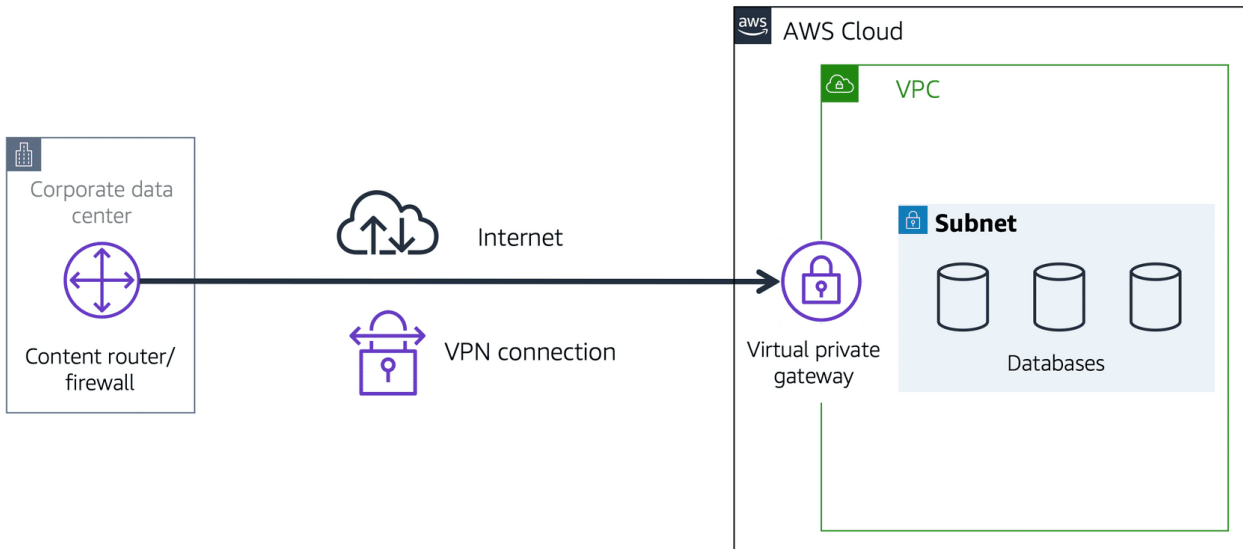
Image created by Amazon Web Services

The Virtual Private Gateway allows you to make a Virtual Private Network (VPN) between the VPC and private network.

It only allows traffic from approved networks.

Many businesses use VPNs to ensure that their traffic and data are secure.

AWS Direct Connect

AWS Direct Connect lets you make a dedicated private connection between the Data Center and a VPC.

A dedicated connection is to have the link for yourself.

The link is not shared with others.

Only you and your data can travel through the connection.
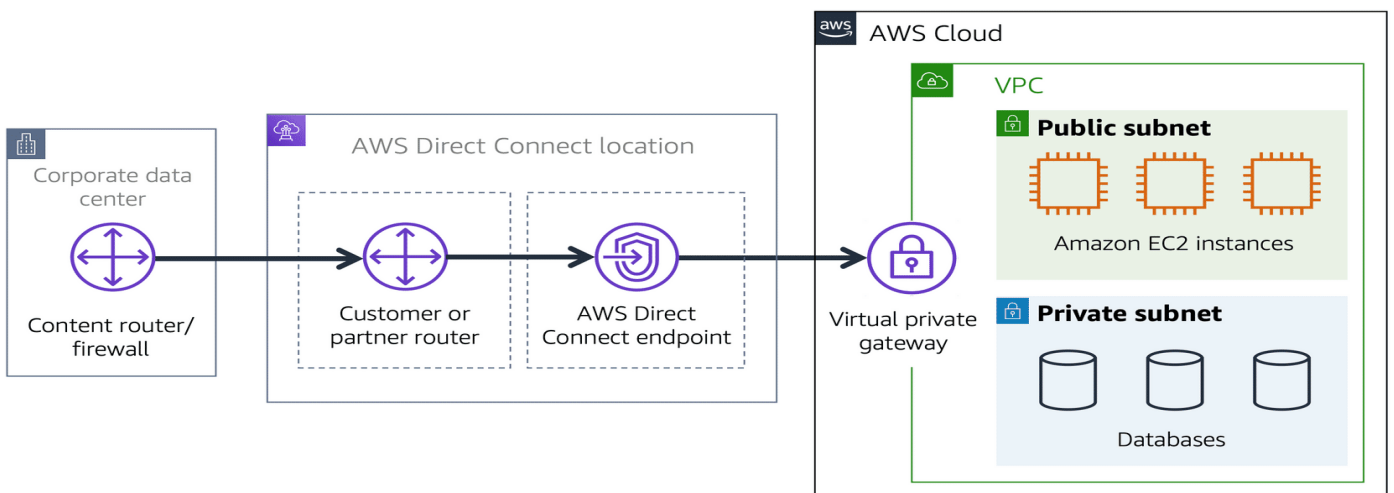
Domain Name System

Domain Name System is also called DNS.

DNS is the service that lets someone access your website from their browser.

The DNS is like a phone book.

It connects the IP address to the domain name.
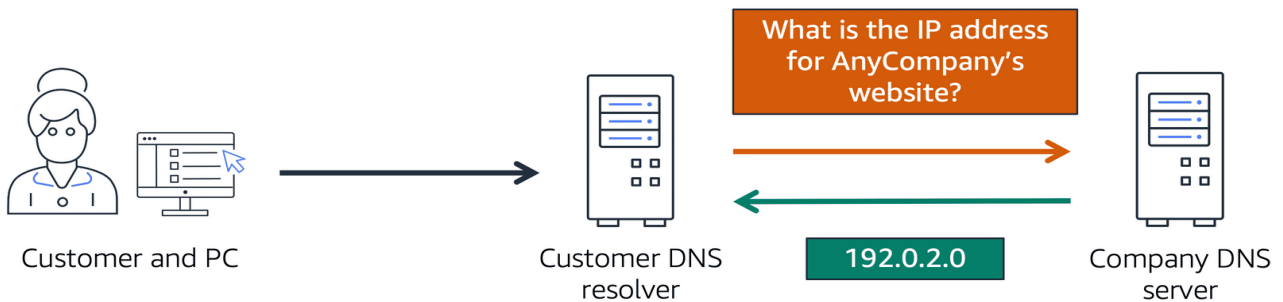
Image created by Amazon Web Services

AWS Route 53

Route 53 is a DNS web service.

It routes end users to internet apps hosted in AWS.

Route 53 connects users and their requests to AWS resources and external resources.

Route 53 has a feature to manage DNS records.

You can register new and transfer domains with Route 53.

You can manage all of your domain names from Route 53.

Use AWS Route 53 and AWS CloudFront

Route 53 and CloudFront can be combined to deliver content.
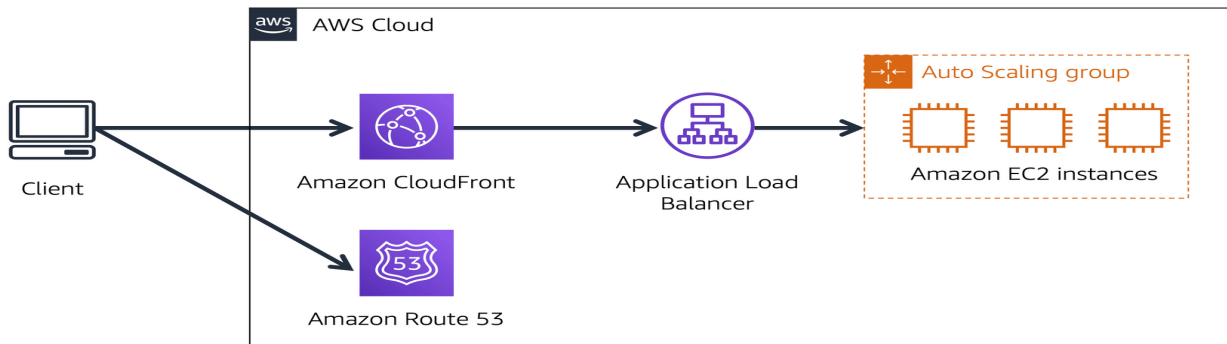
Image created by Amazon Web Services

The picture explained:

The company has 3 EC2 Instances in an Auto Scaling group.

The group is attached to an Application Load Balancer.

1. User requests data from the website application.
2. Route 53 uses DNS resolution to identify the IP address.
3. The data is sent back to the user.
4. The user request is sent to the nearest Edge Location through CloudFront.
5. CloudFront connects to the Application Load Balancer.
6. The Load Balancer sends the packet to the EC2 instance.

Android Development (CCAD22)

Objective

The objective of course is to learn the Android Development.

Benefit

Students can know about developing android apps from basic level.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Android Development

Java Basics and overview
- o Using variables
- o Flow Control
- o Arrays and matrices
- o Working with Strings
- o Basic OOP
- o Array List and collections
- o Static variables and methods
- o Basic Threading

First Android App
- o What is Android
- o First Android app
- o How to run and debug applications (Emulator vs. Real device)
- o Android project structure
- o XML files
- o Enhancing the first app

Basic Android concepts
- o Activity
- o Menus
- o Intents
- o Context

Android capabilities
- o intelliJIDEA / Android Studio
- o Permissions
- o Working with files
- o Working with the network
- o Debugging Android apps

Project

Student makes a project during training period.

Certification

Certificate in Android Development

Study Material of Android Development (CCAD22)

Introduction to Android:

Android is an operating system developed by Google. It is modified version of Linux kernel and other open source software. Today android used in many electronic devices like touchscreen mobile, tablets, android TV, Android Auto for cars, and Android watches, each with a specialized user interface. Android are also used on game, digital cameras other electronics.

Important points:

1. Initially, Google's supported integrated development environment (IDE) or development tool was Eclipse using the Android Development Tools (ADT) plugin, In December 2014, Google released Android Studio, based on IntelliJ IDEA, Now its primary IDE for Android application development.

2. Android App are written using the Android software development kit (SDK). We extend the functionality of devices using SDK.

3. The SDK includes a complete set of following development tools:

- Debugger
- Software libraries
- Handset emulator based on QEMU
- Documentation
- Sample code

4. There are 2.8 million apps(March 2017) available on Google Play store, which can be use by users by downloading and installing the application's APK (Android application package) file, or by downloading them using an application store program that allows users to install, update, and remove applications from their devices. Google Play Store is the primary application store installed on Android devices that comply with Google's compatibility requirements and license the Google Mobile Services software. Google Play Store allows users to look, download and update applications published by Google and third-party developers.

5. User devices are digitally signed with certificates whose private keys need to be kept very carefully by the developer of the applications. By certificates of application, the Android OS identify the author of an application and relationships between developers and their applications.

Android features:

- **Messaging:** Android provides the Android Push Messaging services whcih inclides SMS, MMS, threaded text messaging, Android Cloud To Device Messaging (C2DM) and Android Google Cloud Messaging (GCM).
- **Auto Correction and Dictionary:** Android Operating System provides the Auto Correction feature. When any word is misspelled, then Android recommends the meaningful and correct words matching the words that are available in Dictionary. Users can add, edit and remove words from Dictionary as per their wish.
- **Web browser:** The web browser available in Android is based on the open-source Blink layout engine, coupled with Chrome's V8 JavaScript engine. The browser is variably known as 'Android Browser', 'AOSP browser', 'stock browser', 'native browser', and 'default browser'. Starting with Android 4.4 KitKat, Google has mandated that the default browser for Android proper be Google Chrome. Since Android 5.0 Lollipop, the WebView browser that apps can use to display web content without leaving the app has been separated from the rest of the Android firmware in order to facilitate separate security updates by Google.
- **Voice-based:** Android provides the voice actions for calling, texting, navigation, etc.
  Multi-touch: Android provides the native support for multi-touch. It was initially made available in handsets such as the HTC Hero. The feature was originally disabled at the kernel level. Google has since released an update for the Nexus One and the Motorola Droid which enables multi-touch natively.
- **Multitasking:** Android provides the multitasking of applications with unique handling of memory allocation.
- **Screen capture:** Android provides the facility of capturing a screenshot by pressing the power and home-screen buttons at the same time.
- **TV recording:** Android TV provides the facility of capturing video and replaying it.
- **Video calling:** Android does not support native video calling but some handsets have a customized version of the operating system that supports it, either via the UMTS network or over IP. Video calling is available through Google Talk, Skype etc.
- **Multiple language support:** Android supports multiple languages.
- **Connectivity:** Android supports connectivity through technologies like GSM/EDGE, Bluetooth, LTE, CDMA, EV-DO, UMTS, NFC, IDEN and WiMAX.
- **Bluetooth:** Android supports bluetooth for voice dialing and sending contacts between phones, playing music, sending files (OPP), accessing the phone book (PBAP), A2DP and AVRCP.
- **Streaming media support:** Android supports the RTP/RTSP streaming 3GPP PSS, ISMA), HTML progressive download (HTML5 video tag). Adobe Flash Streaming (RTMP) and HTTP Dynamic Streaming are supported by the Flash plugin.
- **Media support:** Android supports the WebM, H.263, H.264, AAC, HE-AAC (in 3GP or MP4 container), MPEG-4 SP, AMR, AMR-WB (in 3GP container), MP3, MIDI, Ogg Vorbis, FLAC, WAV, JPEG, PNG, GIF, BMP, and WebP.
- **Storage:** Android used SQLite for data storage purposes. It is a lightweight relational database.
- **Native Apps:** Android apps are also written in HTML.

Android Application Fundamental:

An archive file with .apk extension, an Android package. One APK file contains all the contents of an Android app and is the file that Android-powered devices use to install the app. Android SDK tools compile your application code along with data and resource files into an APK.

Android Architecture Diagram:
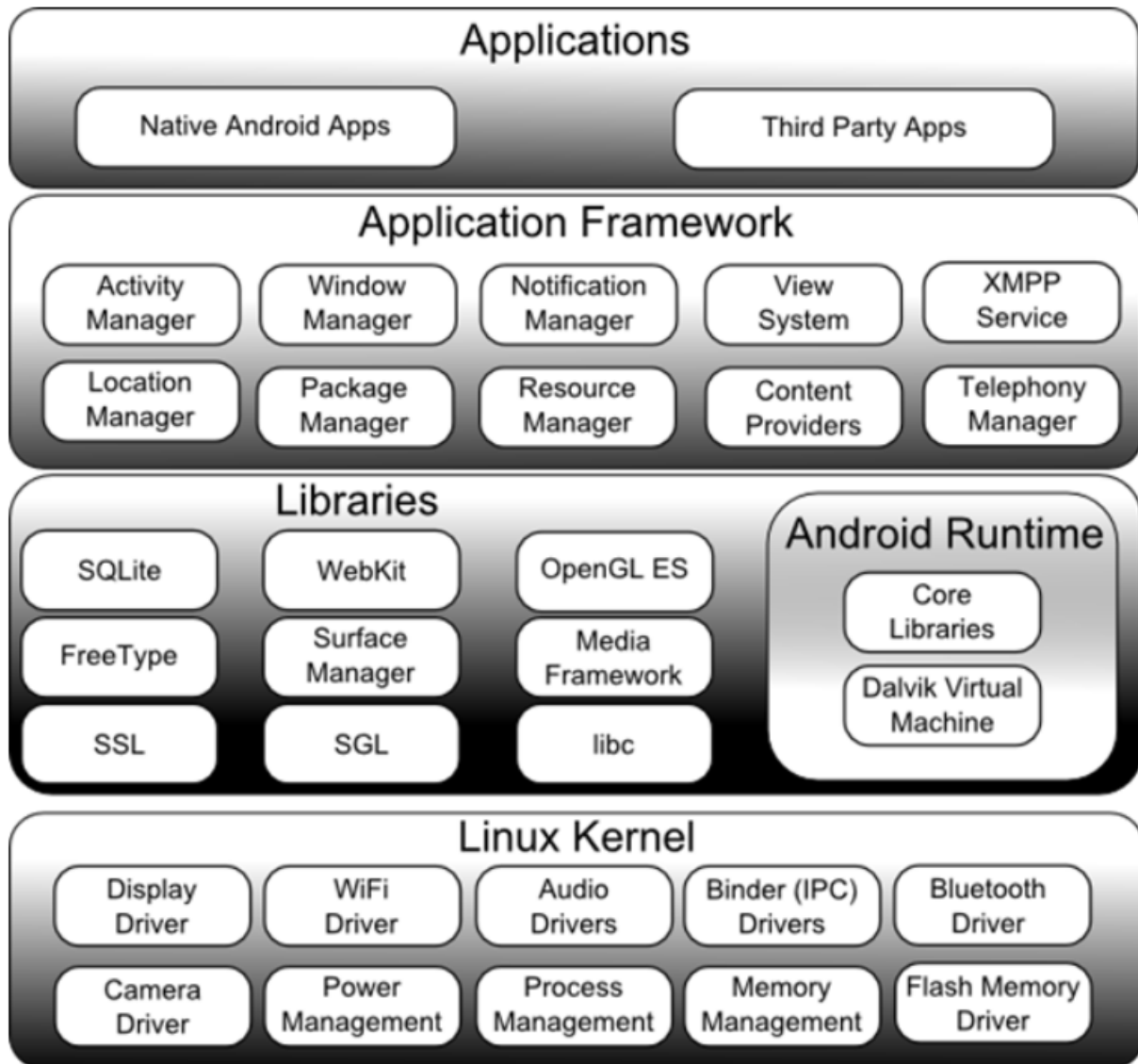
Android can be simply understood as a software package. It is a Linux based operating system for mobile devices. Here, we are going to understand the architecture of Android in detail. Android architecture is also known as the Android software stack. It can be categorized into five parts:

- Linux kernel
- native libraries (middleware)
- Android Runtime
- Application Framework
- Applications

Linux kernel:

Linux kernel exists at the root of android architecture and is thus also called as the heart of the android architecture. The device drivers, power management, memory management, device management, and resource access comes under the responsibility of the Linux Kernel.

Native Libraries:

Native libraries such as WebKit, OpenGL, FreeType, SQLite, Media, C runtime library (libc), etc are on top of the Linux kernel.

SI.No.	Library	Responsibility
1	WebKit library	Browser support
2	SQLite	Database
3	FreeType	Font support
4	Media	Playing and recording audio and video formats

Android Runtime:

The core libraries and DVM (Dalvik Virtual Machine) are there in android runtime. They are responsible for running android applications. Originally being like JVM, DVM is optimized for mobile devices to consume less memory and to facilitate a fast performance.

Android Framework:

The Android framework is on the top of Native libraries and android runtime. Android APIs like UI (User Interface), telephony, resources, locations, Content Providers (data) and package managers are a part of the Android framework. For the development of the android application, the Android framework facilitates a lot of classes and interfaces.

Applications:

Applications are present on the top of the android framework. The Android framework is used by all the applications including home, contact, settings, games, browsers. The android framework itself uses android runtime and libraries. While the Linux kernel is used by the Android runtime and native libraries. Linux kernel is the heart of the android architecture.

Android Hide Title Bar and Full Screen Example:

Code to hide the title bar in android.

activity_main.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

Activity class:

File: MainActivity.java

```java
package com.example.app1;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Window;
import android.view.WindowManager;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_NO_TITLE); //will hide the title
        getSupportActionBar().hide(); // hide the title bar
        this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
            WindowManager.LayoutParams.FLAG_FULLSCREEN); //enable full screen
        setContentView(R.layout.activity_main);


    }
}
```

Output:
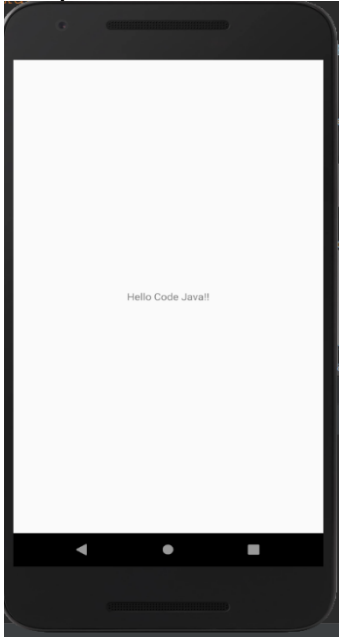
Android Button Example with Listener:

The below example is to create two text fields and one button to display the additional result of two numbers. The sum of two input values is displayed on the Toast, on clicking the button. We can act on a button by calling the listener on the button or adding the onClick property of a button in the XML file of the activity.

Syntax 1:

```
button.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
          //code
        }
});
```

Syntax 2:

```
<Button
      android:onClick="methodName"
/>
```

Drag the component or write the code for UI in activity_main.xml:

Here, we will drag two text fields from the Text Fields palette and one button from the Form Widgets palette. For the UI components the generated code then will be:

File: activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity">

  <EditText
    android:id="@+id/editText1"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="61dp"
        android:ems="10"
        android:inputType="number"
        tools:layout_editor_absoluteX="84dp"
        tools:layout_editor_absoluteY="53dp" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editText1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="32dp"
        android:ems="10"
        android:inputType="number"
        tools:layout_editor_absoluteX="84dp"
        tools:layout_editor_absoluteY="127dp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editText2"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="109dp"
        android:text="ADD"
        tools:layout_editor_absoluteX="148dp"
        tools:layout_editor_absoluteY="266dp" />
</RelativeLayout>
```

Activity class:

The code of the MainActivity.java file is to display the added value of the two numbers entered by the user.

```java
package com.example.app1;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private EditText edittext1, edittext2;
    private Button buttonSum;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        addListenerOnButton();
    }

    public void addListenerOnButton() {
        edittext1 = (EditText) findViewById(R.id.editText1);
        edittext2 = (EditText) findViewById(R.id.editText2);
```

```
        buttonSum = (Button) findViewById(R.id.button);

        buttonSum.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String value1=edittext1.getText().toString();
                String value2=edittext2.getText().toString();
                int a=Integer.parseInt(value1);
                int b=Integer.parseInt(value2);
                int sum=a+b;
                Toast.makeText(getApplicationContext(),String.valueOf(sum), Toast.LENGTH_LONG).show();
            }
        });
    }
}
```

Output:
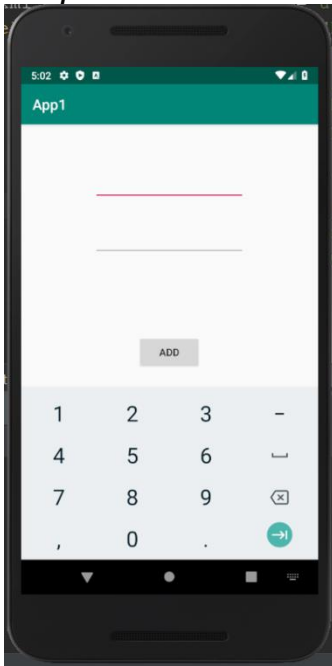
Java Script (CCJS22)

Objective

The objective of course is to learn the Java Script.

Benefit

Students can know about responsive website by using JavaScript language.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Java

Script

- **Basic JavaScript Introduction**
    - o What is JavaScript?
    - o Evolution of JavaScript
    - o Features of JavaScript
    - o Advantages and Disadvantages of JavaScript
    - o How does JavaScript works?
    - o Structure of a JavaScript program
    - o How to write JavaScript in Notepad++, Visual Studio Code, and EclipseIDE?
    - o How to add JavaScript in HTML?
    - o How to include External JavaScript in HTML?

- **JavaScript Data Types and Variables**
    - o Data Types in JavaScript
    - o JavaScript Variables
    - o Types of Variables in JavaScript
    - o Key Difference between Var, Let, and Const

- **JavaScript Operators**
    - o What are Operators in JavaScript?
    - o Assignment Operator
    - o Comparison Operators
    - o Logical Operators
    - o Conditional Operators

- **JavaScript Statement**
    - o Conditional Statement
    - o Loop statements

- **Objects in JavaScript**
    - o What is an Object?
    - o Types of Objects
    - o Array Object
    - o String Object
    - o Date Object
    - o Number Object

Project

Student makes a project during training period.

Certification

Certificate in Java Script.

Study Material of java Script (CCJS22)

JavaScript Can Change HTML Content

One of many JavaScript HTML methods is getElementById().

The example below "finds" an HTML element (with id="demo"), and changes the element content (innerHTML) to "Hello JavaScript":

Example

document.getElementById("demo").innerHTML = "Hello JavaScript";

JavaScript accepts both double and single quotes:

Example

document.getElementById('demo').innerHTML = 'Hello JavaScript';

JavaScript Can Change HTML Attribute Values

In this example JavaScript changes the value of the src (source) attribute of an <img> tag:

The Light Bulb

Turn on the light   Turn off the light

JavaScript Can Change HTML Styles (CSS)

Changing the style of an HTML element, is a variant of changing an HTML attribute:

Example

document.getElementById("demo").style.fontSize = "35px";

JavaScript Can Hide HTML Elements

Hiding HTML elements can be done by changing the display style:

Example

document.getElementById("demo").style.display = "none";

JavaScript Can Show HTML Elements

Showing hidden HTML elements can also be done by changing the display style:

Example

document.getElementById("demo").style.display = "block";

JavaScript Where To

The <script> Tag

In HTML, JavaScript code is inserted between <script> and </script> tags.

Example

```
<script>
document.getElementById("demo").innerHTML = "My First JavaScript";
</script>
```

Old JavaScript examples may use a type attribute: <script type="text/javascript">.
The type attribute is not required. JavaScript is the default scripting language in HTML.

JavaScript Functions and Events

A JavaScript function is a block of JavaScript code, that can be executed when "called" for.

For example, a function can be called when an **event** occurs, like when the user clicks a button.

JavaScript in <head> or <body>

You can place any number of scripts in an HTML document.

Scripts can be placed in the <body>, or in the <head> section of an HTML page, or in both.

JavaScript in <head>

In this example, a JavaScript function is placed in the <head> section of an HTML page.

The function is invoked (called) when a button is clicked:

Example

```
<!DOCTYPE html>
<html>
<head>
<script>
function myFunction() {
  document.getElementById("demo").innerHTML = "Paragraph changed.";
}
</script>
</head>
<body>

<h2>Demo JavaScript in Head</h2>

<p id="demo">A Paragraph</p>
<button type="button" onclick="myFunction()">Try it</button>

</body>
</html>
```

JavaScript in <body>

In this example, a JavaScript function is placed in the <body> section of an HTML page.

The function is invoked (called) when a button is clicked:

Example

```
<!DOCTYPE html>
<html>
<body>

<h2>Demo JavaScript in Body</h2>

<p id="demo">A Paragraph</p>

<button type="button" onclick="myFunction()">Try it</button>

<script>
function myFunction() {
  document.getElementById("demo").innerHTML = "Paragraph changed.";
```

```
}
</script>

</body>
</html>
```

Placing scripts at the bottom of the <body> element improves the display speed, because script interpretation slows down the display.

External JavaScript

Scripts can also be placed in external files:

External file: myScript.js

```
function myFunction() {
  document.getElementById("demo").innerHTML = "Paragraph changed.";
}
```

External scripts are practical when the same code is used in many different web pages.

JavaScript files have the file extension **.js**.

To use an external script, put the name of the script file in the src (source) attribute of a <script> tag:

Example

```
<script src="myScript.js"></script>
```
You can place an external script reference in <head> or <body> as you like.

The script will behave as if it was located exactly where the <script> tag is located.

External scripts cannot contain <script> tags.

External JavaScript Advantages

Placing scripts in external files has some advantages:

- It separates HTML and code
- It makes HTML and JavaScript easier to read and maintain
- Cached JavaScript files can speed up page loads

To add several script files to one page - use several script tags:

Example

```
<script src="myScript1.js"></script>
```

```
<script src="myScript2.js"></script>
```

External References

An external script can be referenced in 3 different ways:

- With a full URL (a full web address)
- With a file path (like /js/)
- Without any path

This example uses a **full URL** to link to myScript.js:

Example

```
<script src="https://www.w3schools.com/js/myScript.js"></script>
```

JavaScript Programs

A **computer program** is a list of "instructions" to be "executed" by a computer.

In a programming language, these programming instructions are called **statements**.

A **JavaScript program** is a list of programming **statements**.

In HTML, JavaScript programs are executed by the web browser.

JavaScript Statements

JavaScript statements are composed of:

Values, Operators, Expressions, Keywords, and Comments.

This statement tells the browser to write "Hello Dolly." inside an HTML element with id="demo":

Example

```
document.getElementById("demo").innerHTML = "Hello Dolly.";
```

Most JavaScript programs contain many JavaScript statements.

The statements are executed, one by one, in the same order as they are written.

Semicolons ;

Semicolons separate JavaScript statements.

Add a semicolon at the end of each executable statement:

Examples

```
let a, b, c;  // Declare 3 variables
a = 5;        // Assign the value 5 to a
b = 6;        // Assign the value 6 to b
c = a + b;    // Assign the sum of a and b to c
```

When separated by semicolons, multiple statements on one line are allowed:

```
a = 5; b = 6; c = a + b;
```

JavaScript Syntax

JavaScript syntax is the set of rules, how JavaScript programs are constructed:

```
// How to create variables:
var x;
let y;

// How to use variables:
x = 5;
y = 6;
let z = x + y;
```

JavaScript Values

The JavaScript syntax defines two types of values:

- Fixed values
- Variable values

Fixed values are called **Literals**.

Variable values are called **Variables**.

JavaScript Literals

The two most important syntax rules for fixed values are:

1. **Numbers** are written with or without decimals:

10.50

1001

2. **Strings** are text, written within double or single quotes:

"John Doe"

'John Doe'

JavaScript Variables

In a programming language, **variables** are used to **store** data values.

JavaScript uses the keywords var, let and const to **declare** variables.

An **equal sign** is used to **assign values** to variables.

In this example, x is defined as a variable. Then, x is assigned (given) the value 6:

```
let x;
x = 6;
```

JavaScript Operators

JavaScript uses **arithmetic operators** (+ - * /) to **compute** values:

```
(5 + 6) * 10
```

JavaScript uses an **assignment operator** (=) to **assign** values to variables:

```
let x, y;
x = 5;
y = 6;
```

JavaScript Expressions

An expression is a combination of values, variables, and operators, which computes to a value.

The computation is called an evaluation.

For example, 5 * 10 evaluates to 50:

5 * 10

Expressions can also contain variable values:

x * 10

The values can be of various types, such as numbers and strings.

For example, "John" + " " + "Doe", evaluates to "John Doe":

"John" + " " + "Doe"

JavaScript Keywords

JavaScript **keywords** are used to identify actions to be performed.

The let keyword tells the browser to create variables:

```
let x, y;
x = 5 + 6;
y = x * 10;
```

The var keyword also tells the browser to create variables:

```
var x, y;
x = 5 + 6;
y = x * 10;
```

In these examples, using var or let will produce the same result.

You will learn more about var and let later in this tutorial.

JavaScript Comments

Not all JavaScript statements are "executed".

Code after double slashes // or between /* and */ is treated as a **comment**.

Comments are ignored, and will not be executed:

```
let x = 5;   // I will be executed
```

```
// x = 6;   I will NOT be executed
```

JavaScript Identifiers / Names

Identifiers are JavaScript names.

Identifiers are used to name variables and keywords, and functions.

The rules for legal names are the same in most programming languages.

A JavaScript name must begin with:

- A letter (A-Z or a-z)
- A dollar sign ($)
- Or an underscore (_)

Subsequent characters may be letters, digits, underscores, or dollar signs.

Note

Numbers are not allowed as the first character in names.

This way JavaScript can easily distinguish identifiers from numbers.

JavaScript is Case Sensitive

All JavaScript identifiers are **case sensitive**.

The variables lastName and lastname, are two different variables:

let lastname, lastName;
lastName = "Doe";
lastname = "Peterson";

JavaScript does not interpret **LET** or **Let** as the keyword **let**.

JavaScript and Camel Case

Historically, programmers have used different ways of joining multiple words into one variable name:

Hyphens:

first-name, last-name, master-card, inter-city.

Underscore:

first_name, last_name, master_card, inter_city.

Upper Camel Case (Pascal Case):

FirstName, LastName, MasterCard, InterCity.

Lower Camel Case:

JavaScript programmers tend to use camel case that starts with a lowercase letter:

firstName, lastName, masterCard, interCity.

JavaScript Character Set

JavaScript uses the **Unicode** character set.

Unicode covers (almost) all the characters, punctuations, and symbols in the world.

For a closer look, please study our [Complete Unicode Reference](#).

JavaScript Variables

4 Ways to Declare a JavaScript Variable:

- Using var
- Using let
- Using const
- Using nothing

What are Variables?

Variables are containers for storing data (storing data values).

In this example, x, y, and z, are variables, declared with the var keyword:

Example

```
var x = 5;
var y = 6;
```

```
var z = x + y;
```

In this example, x, y, and z, are variables, declared with the let keyword:

Example

```
let x = 5;
let y = 6;
let z = x + y;
```

In this example, x, y, and z, are undeclared variables:

Example

```
x = 5;
y = 6;
z = x + y;
```

From all the examples above, you can guess:

- x stores the value 5
- y stores the value 6
- z stores the value 11

When to Use JavaScript var?

Always declare JavaScript variables with var, let, or const.

The var keyword is used in all JavaScript code from 1995 to 2015.

The let and const keywords were added to JavaScript in 2015.

If you want your code to run in older browsers, you must use var.

When to Use JavaScript const?

If you want a general rule: always declare variables with const.

If you think the value of the variable can change, use let.

In this example, price1, price2, and total, are variables:

Example

```
const price1 = 5;
const price2 = 6;
let total = price1 + price2;
```

The two variables price1 and price2 are declared with the const keyword.

These are constant values and cannot be changed.

The variable total is declared with the let keyword.

This is a value that can be changed.

Just Like Algebra

Just like in algebra, variables hold values:

let x = 5;
let y = 6;

Just like in algebra, variables are used in expressions:

let z = x + y;

From the example above, you can guess that the total is calculated to be 11.

> ## Note
>
> Variables are containers for storing values.

JavaScript Identifiers

All JavaScript **variables** must be **identified** with **unique names**.

These unique names are called **identifiers**.

Identifiers can be short names (like x and y) or more descriptive names (age, sum, totalVolume).

The general rules for constructing names for variables (unique identifiers) are:

- Names can contain letters, digits, underscores, and dollar signs.
- Names must begin with a letter.
- Names can also begin with $ and _ (but we will not use it in this tutorial).
- Names are case sensitive (y and Y are different variables).
- Reserved words (like JavaScript keywords) cannot be used as names.

> ## Note
>
> JavaScript identifiers are case-sensitive.

The Assignment Operator

In JavaScript, the equal sign (=) is an "assignment" operator, not an "equal to" operator.

This is different from algebra. The following does not make sense in algebra:

x = x + 5

In JavaScript, however, it makes perfect sense: it assigns the value of x + 5 to x.

(It calculates the value of x + 5 and puts the result into x. The value of x is incremented by 5.)

Note

The "equal to" operator is written like == in JavaScript.

JavaScript Data Types

JavaScript variables can hold numbers like 100 and text values like "John Doe".

In programming, text values are called text strings.

JavaScript can handle many types of data, but for now, just think of numbers and strings.

Strings are written inside double or single quotes. Numbers are written without quotes.

If you put a number in quotes, it will be treated as a text string.

Example

```
const pi = 3.14;
let person = "John Doe";
let answer = 'Yes I am!';
```


Declaring a JavaScript Variable

Creating a variable in JavaScript is called "declaring" a variable.

You declare a JavaScript variable with the var or the let keyword:

```
var carName;
or:
let carName;
```

After the declaration, the variable has no value (technically it is undefined).

To **assign** a value to the variable, use the equal sign:

carName = "Volvo";

You can also assign a value to the variable when you declare it:

let carName = "Volvo";

In the example below, we create a variable called carName and assign the value "Volvo" to it.

Then we "output" the value inside an HTML paragraph with id="demo":

Example

```
<p id="demo"></p>

<script>
let carName = "Volvo";
document.getElementById("demo").innerHTML = carName;
</script>
```

Note

It's a good programming practice to declare all variables at the beginning of a script.

One Statement, Many Variables

You can declare many variables in one statement.

Start the statement with let and separate the variables by **comma**:

Example

```
let person = "John Doe", carName = "Volvo", price = 200;
```

A declaration can span multiple lines:

Example

```
let person = "John Doe",
carName = "Volvo",
price = 200;
```

JavaScript Arithmetic

JavaScript Arithmetic Operators

Arithmetic operators perform arithmetic on numbers (literals or variables).

Operator	Description
+	Addition
-	Subtraction
*	Multiplication
**	Exponentiation ([ES2016](#))
/	Division
%	Modulus (Remainder)
++	Increment
--	Decrement

Arithmetic Operations

A typical arithmetic operation operates on two numbers.

The two numbers can be literals:

Example

let x = 100 + 50;

or variables:

Example

let x = a + b;

or expressions:

Example

let x = (100 + 50) * a;

Operators and Operands

The numbers (in an arithmetic operation) are called **operands**.

The operation (to be performed between the two operands) is defined by an **operator**.

Operand	Operator	Operand
100	+	50

Adding

The **addition** operator (+) adds numbers:

Example

let x = 5;
let y = 2;
let z = x + y;

Subtracting

The **subtraction** operator (-) subtracts numbers.

Example

```
let x = 5;
let y = 2;
let z = x - y;
```

Multiplying

The **multiplication** operator (*) multiplies numbers.

Example

```
let x = 5;
let y = 2;
let z = x * y;
```

Dividing

The **division** operator (/) divides numbers.

Example

```
let x = 5;
let y = 2;
let z = x / y;
```

<u>JavaScript Data Types</u>

JavaScript has 8 Datatypes

1. String
2. Number
3. Bigint
4. Boolean
5. Undefined
6. Null
7. Symbol
8. Object

The Object Datatype

The object data type can contain:

1. An object
2. An array
3. A date

Examples

```
// Numbers:
let length = 16;
let weight = 7.5;

// Strings:
let color = "Yellow";
let lastName = "Johnson";

// Booleans
let x = true;
let y = false;

// Object:
const person = {firstName:"John", lastName:"Doe"};

// Array object:
const cars = ["Saab", "Volvo", "BMW"];

// Date object:
const date = new Date("2022-03-25");
```

JavaScript Arrays

An array is a special variable, which can hold more than one value:

```
const cars = ["Saab", "Volvo", "BMW"];
```

Why Use Arrays?

If you have a list of items (a list of car names, for example), storing the cars in single variables could look like this:

```
let car1 = "Saab";
let car2 = "Volvo";
let car3 = "BMW";
```

However, what if you want to loop through the cars and find a specific one? And what if you had not 3 cars, but 300?

The solution is an array!

An array can hold many values under a single name, and you can access the values by referring to an index number.

Creating an Array

Using an array literal is the easiest way to create a JavaScript Array.

Syntax:

const *array_name* = [*item1, item2, ...*];

It is a common practice to declare arrays with the const keyword.

Learn more about const with arrays in the chapter: JS Array Const.

Example

const cars = ["Saab", "Volvo", "BMW"];

JavaScript For Loop

Loops can execute a block of code a number of times.

JavaScript Loops

Loops are handy, if you want to run the same code over and over again, each time with a different value.

Often this is the case when working with arrays:

Instead of writing:

```
text += cars[0] + "<br>";
text += cars[1] + "<br>";
text += cars[2] + "<br>";
text += cars[3] + "<br>";
text += cars[4] + "<br>";
text += cars[5] + "<br>";
```

You can write:

```
for (let i = 0; i < cars.length; i++) {
  text += cars[i] + "<br>";
}
```

Different Kinds of Loops

JavaScript supports different kinds of loops:

- **for** - loops through a block of code a number of times
- **for/in** - loops through the properties of an object
- **for/of** - loops through the values of an iterable object
- **while** - loops through a block of code while a specified condition is true
- **do/while** - also loops through a block of code while a specified condition is true

The For Loop

The **for** statement creates a loop with 3 optional expressions:

```
for (expression 1; expression 2; expression 3) {
  // code block to be executed
}
```

Expression 1 is executed (one time) before the execution of the code block.

Expression 2 defines the condition for executing the code block.

Expression 3 is executed (every time) after the code block has been executed.

Example

```
for (let i = 0; i < 5; i++) {
  text += "The number is " + i + "<br>";
}
```

From the example above, you can read:

Expression 1 sets a variable before the loop starts (let i = 0).

Expression 2 defines the condition for the loop to run (i must be less than 5).

Expression 3 increases a value (i++) each time the code block in the loop has been executed.

Expression 1

Normally you will use expression 1 to initialize the variable used in the loop (let i = 0).

This is not always the case. JavaScript doesn't care. Expression 1 is optional.

You can initiate many values in expression 1 (separated by comma):

Example

```
for (let i = 0, len = cars.length, text = ""; i < len; i++) {
  text += cars[i] + "<br>";
}
```

And you can omit expression 1 (like when your values are set before the loop starts):

Example

```
let i = 2;
let len = cars.length;
let text = "";
for (; i < len; i++) {
  text += cars[i] + "<br>";
}
```

Expression 2

Often expression 2 is used to evaluate the condition of the initial variable.

This is not always the case. JavaScript doesn't care. Expression 2 is also optional.

If expression 2 returns true, the loop will start over again. If it returns false, the loop will end.

If you omit expression 2, you must provide a **break** inside the loop. Otherwise the loop will never end. This will crash your browser. Read about breaks in a later chapter of this tutorial.

Expression 3

Often expression 3 increments the value of the initial variable.

This is not always the case. JavaScript doesn't care. Expression 3 is optional.

Expression 3 can do anything like negative increment (i--), positive increment (i = i + 15), or anything else.

Expression 3 can also be omitted (like when you increment your values inside the loop):

Example

```
let i = 0;
let len = cars.length;
let text = "";
for (; i < len; ) {
  text += cars[i] + "<br>";
  i++;
}
```

Loop Scope

Using var in a loop:

Example

```
var i = 5;

for (var i = 0; i < 10; i++) {
  // some code
}

// Here i is 10
```

Using let in a loop:

Example

```
let i = 5;

for (let i = 0; i < 10; i++) {
  // some code
}

// Here i is 5
```

In the first example, using var, the variable declared in the loop redeclares the variable outside the loop.

In the second example, using let, the variable declared in the loop does not redeclare the variable outside the loop.

When let is used to declare the i variable in a loop, the i variable will only be visible within the loop.

For/Of and For/In Loops

The for/in loop and the for/of loop are explained in the next chapter.

JavaScript Classes

ECMAScript 2015, also known as ES6, introduced JavaScript Classes.

JavaScript Classes are templates for JavaScript Objects.

JavaScript Class Syntax

Use the keyword class to create a class.

Always add a method named constructor():

Syntax

```
class ClassName {
  constructor() { ... }
}
```

Example

```
class Car {
  constructor(name, year) {
    this.name = name;
    this.year = year;
  }
}
```

The example above creates a class named "Car".

The class has two initial properties: "name" and "year".

A JavaScript class is **not** an object.

It is a **template** for JavaScript objects.

Using a Class

When you have a class, you can use the class to create objects:

Example

```
const myCar1 = new Car("Ford", 2014);
const myCar2 = new Car("Audi", 2019);
```

The example above uses the **Car class** to create two **Car objects**.

The constructor method is called automatically when a new object is created.

The Constructor Method

The constructor method is a special method:

- It has to have the exact name "constructor"
- It is executed automatically when a new object is created
- It is used to initialize object properties

If you do not define a constructor method, JavaScript will add an empty constructor method.

Class Methods

Class methods are created with the same syntax as object methods.

Use the keyword class to create a class.

Always add a constructor() method.

Then add any number of methods.

Syntax

```
class ClassName {
  constructor() { ... }
  method_1() { ... }
  method_2() { ... }
  method_3() { ... }
}
```

Create a Class method named "age", that returns the Car age:

Example

```
class Car {
  constructor(name, year) {
    this.name = name;
    this.year = year;
  }
  age() {
    const date = new Date();
    return date.getFullYear() - this.year;
  }
}

const myCar = new Car("Ford", 2014);
document.getElementById("demo").innerHTML =
"My car is " + myCar.age() + " years old.";
```

You can send parameters to Class methods:

Example

```
class Car {
  constructor(name, year) {
    this.name = name;
    this.year = year;
  }
```

```
  age(x) {
    return x - this.year;
  }
}

const date = new Date();
let year = date.getFullYear();

const myCar = new Car("Ford", 2014);
document.getElementById("demo").innerHTML=
"My car is " + myCar.age(year) + " years old.";
```

JavaScript Object Properties

Properties are the most important part of any JavaScript object.

JavaScript Properties

Properties are the values associated with a JavaScript object.

A JavaScript object is a collection of unordered properties.

Properties can usually be changed, added, and deleted, but some are read only.

Accessing JavaScript Properties

The syntax for accessing the property of an object is:

objectName.property   // person.age

or

objectName["*property*"]   // person["age"]

or

objectName[*expression*]   // x = "age"; person[x]

The expression must evaluate to a property name.

Example 1

person.firstname + " is " + person.age + " years old.";

Example 2

person["firstname"] + " is " + person["age"] + " years old.";

JavaScript for...in Loop

The JavaScript for...in statement loops through the properties of an object.

Syntax

```
for (let variable in object) {
  // code to be executed
}
```

The block of code inside of the for...in loop will be executed once for each property.

Looping through the properties of an object:

Example

```
const person = {
  fname:" John",
  lname:" Doe",
  age: 25
};

for (let x in person) {
  txt += person[x];
}
```

Adding New Properties

You can add new properties to an existing object by simply giving it a value.

Assume that the person object already exists - you can then give it new properties:

Example

```
person.nationality = "English";
```

Deleting Properties

The delete keyword deletes a property from an object:

Example

```
const person = {
  firstName: "John",
  lastName: "Doe",
  age: 50,
  eyeColor: "blue"
};

delete person.age;
```

or delete person["age"];

```
const person = {
  firstName: "John",
  lastName: "Doe",
  age: 50,
  eyeColor: "blue"
};

delete person["age"];
```

The delete keyword deletes both the value of the property and the property itself.

After deletion, the property cannot be used before it is added back again.

The delete operator is designed to be used on object properties. It has no effect on variables or functions.

The delete operator should not be used on predefined JavaScript object properties. It can crash your application.

Nested Objects

Values in an object can be another object:

```
myObj = {
  name:"John",
  age:30,
  cars: {
    car1:"Ford",
    car2:"BMW",
    car3:"Fiat"
  }
}
```

You can access nested objects using the dot notation or the bracket notation:

```
myObj.cars.car2;
```

or:

```
myObj.cars["car2"];
```

or:

```
myObj["cars"]["car2"];
```

or:

```
let p1 = "cars";
let p2 = "car2";
myObj[p1][p2];
```

Nested Arrays and Objects

Values in objects can be arrays, and values in arrays can be objects:

```
const myObj = {
  name: "John",
  age: 30,
  cars: [
    {name:"Ford", models:["Fiesta", "Focus", "Mustang"]},
    {name:"BMW", models:["320", "X3", "X5"]},
    {name:"Fiat", models:["500", "Panda"]}
  ]
}
```

To access arrays inside arrays, use a for-in loop for each array:

```
for (let i in myObj.cars) {
  x += "<h1>" + myObj.cars[i].name + "</h1>";
  for (let j in myObj.cars[i].models) {
    x += myObj.cars[i].models[j];
  }
}
```

JavaScript Function Parameters

A JavaScript function does not perform any checking on parameter values (arguments).

Function Parameters and Arguments

Earlier in this tutorial, you learned that functions can have **parameters**:

```
function functionName(parameter1, parameter2, parameter3) {
  // code to be executed
}
```

Function **parameters** are the **names** listed in the function definition.

Function **arguments** are the real **values** passed to (and received by) the function.

Parameter Rules

JavaScript function definitions do not specify data types for parameters.

JavaScript functions do not perform type checking on the passed arguments.

JavaScript functions do not check the number of arguments received.

Default Parameters

If a function is called with **missing arguments** (less than declared), the missing values are set to undefined.

Sometimes this is acceptable, but sometimes it is better to assign a default value to the parameter:

Example

```
function myFunction(x, y) {
  if (y === undefined) {
    y = 2;
  }
}
```

Default Parameter Values

ES6 allows function parameters to have default values.

Example

If y is not passed or undefined, then y = 10.

```
function myFunction(x, y = 10) {
  return x + y;
}
```

```
myFunction(5);
```

Function Rest Parameter

The rest parameter (...) allows a function to treat an indefinite number of arguments as an array:

```javascript
function sum(...args) {
  let sum = 0;
  for (let arg of args) sum += arg;
  return sum;
}

let x = sum(4, 9, 16, 25, 29, 100, 66, 77);
```

The Arguments Object

JavaScript functions have a built-in object called the arguments object.

The argument object contains an array of the arguments used when the function was called (invoked).

This way you can simply use a function to find (for instance) the highest value in a list of numbers:

```javascript
x = findMax(1, 123, 500, 115, 44, 88);

function findMax() {
  let max = -Infinity;
  for (let i = 0; i < arguments.length; i++) {
    if (arguments[i] > max) {
      max = arguments[i];
    }
  }
  return max;
}
```

Or create a function to sum all input values:

```javascript
x = sumAll(1, 123, 500, 115, 44, 88);

function sumAll() {
  let sum = 0;
  for (let i = 0; i < arguments.length; i++) {
    sum += arguments[i];
  }
  return sum;
```

}

Arguments are Passed by Value

The parameters, in a function call, are the function's arguments.

JavaScript arguments are passed by **value**: The function only gets to know the values, not the argument's locations.

If a function changes an argument's value, it does not change the parameter's original value.

Changes to arguments are not visible (reflected) outside the function.

Objects are Passed by Reference

In JavaScript, object references are values.

Because of this, objects will behave like they are passed by **reference:**

If a function changes an object property, it changes the original value.

Changes to object properties are visible (reflected) outside the function.

JavaScript Function call()

Method Reuse

With the call() method, you can write a method that can be used on different objects.

All Functions are Methods

In JavaScript all functions are object methods.

If a function is not a method of a JavaScript object, it is a function of the global object (see previous chapter).

The example below creates an object with 3 properties, firstName, lastName, fullName.

```
const person = {
  firstName:"John",
  lastName: "Doe",
  fullName: function () {
    return this.firstName + " " + this.lastName;
  }
}

// This will return "John Doe":
person.fullName();
```

JavaScript Classes

ECMAScript 2015, also known as ES6, introduced JavaScript Classes.

JavaScript Classes are templates for JavaScript Objects.

JavaScript Class Syntax

Use the keyword class to create a class.

Always add a method named constructor():

Syntax

```
class ClassName {
  constructor() { ... }
}
```

Example

```
class Car {
  constructor(name, year) {
    this.name = name;
    this.year = year;
  }
}
```

Web Development Using PHP (CCWDPHP22)

Objective

The objective of course is to learn the fundamental Website Development using PHP which are essential to design a Website.

Benefit

Core concepts to design, implement and test website using the fundamental Elements of Website Designing which enables student to get knowledge of webdevelopment

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Web Development using PHP

- **HTML with CSS**
  - Basic structure of HTML,
  - designing a web page,
  - inserting links images,
  - horizontal rules,
  - Formatting text, title, headings,
  - colors, fonts, sizes, simple tables and forms.
  - HTML tags, hyperlinks
  - Adding graphics and images,
  - image maps, imagefiles.
  - Using tables, forms, style sheets and frames.
  - Floating of web sites/pages.

- **PHP Tutorial**
  - PHP - Introduction
  - PHP - Environment Setup
  - PHP - Syntax Overview
  - PHP - Variable Types
  - PHP - Constants

- PHP - Operator Types
- PHP - Decision Making
- PHP - Loop Types
- PHP - Arrays
- PHP - Strings
- PHP - Web Concepts
- PHP - GET & POST
- PHP - File Inclusion
- PHP - Files & I/O
- PHP - Functions
- PHP - Cookies
- PHP - Sessions

Project

Student makes a project during training period.

Certification

Certificate in Web Development using PHP

Study Material of Web Development Using PHP (CCWDPHP22)

What is PHP?

- PHP is an acronym for "PHP: Hypertext Preprocessor"
- PHP is a widely-used, open source scripting language
- PHP scripts are executed on the server
- PHP is free to download and use

PHP is an amazing and popular language!

It is powerful enough to be at the core of the biggest blogging system on the web (WordPress)!
It is deep enough to run large social networks!
It is also easy enough to be a beginner's first server side language!

What is a PHP File?

- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP code is executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension ".php"

What Can PHP Do?

- PHP can generate dynamic page content
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect form data
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data

With PHP you are not limited to output HTML. You can output images or PDF files. You can also output any text, such as XHTML and XML.

Why PHP?

- PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- PHP supports a wide range of databases
- PHP is free. Download it from the official PHP resource: www.php.net
- PHP is easy to learn and runs efficiently on the server side

What's new in PHP 7

- PHP 7 is much faster than the previous popular stable release (PHP 5.6)
- PHP 7 has improved Error Handling
- PHP 7 supports stricter Type Declarations for function arguments
- PHP 7 supports new operators (like the spaceship operator: <=>)

Basic PHP Syntax

A PHP script can be placed anywhere in the document.

A PHP script starts with <?php and ends with ?>:

```
<?php
// PHP code goes here
?>
```

The default file extension for PHP files is ".php".

A PHP file normally contains HTML tags, and some PHP scripting code.

Below, we have an example of a simple PHP file, with a PHP script that uses a built-in PHP function "echo" to output the text "Hello World!" on a web page:

Example

```
<!DOCTYPE html>
<html>
<body>

<h1>My first PHP page</h1>

<?php
echo "Hello World!";
?>

</body>
</html>
```

Creating (Declaring) PHP Variables

In PHP, a variable starts with the $ sign, followed by the name of the variable:

Example

```
<?php
$txt = "Hello world!";
$x = 5;
$y = 10.5;
?>
```

After the execution of the statements above, the variable $txt will hold the value Hello world!, the variable $x will hold the value 5, and the variable $y will hold the value 10.5.

Note: When you assign a text value to a variable, put quotes around the value.

Note: Unlike other programming languages, PHP has no command for declaring a variable. It is created the moment you first assign a value to it.

Think of variables as containers for storing data.

PHP Variables

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume).

Rules for PHP variables:

- A variable starts with the $ sign, followed by the name of the variable
- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive ($age and $AGE are two different variables)

PHP Data Types

Variables can store data of different types, and different data types can do different things.

PHP supports the following data types:

- String
- Integer
- Float (floating point numbers - also called double)
- Boolean
- Array
- Object
- NULL
- Resource

PHP String

A string is a sequence of characters, like "Hello world!".

A string can be any text inside quotes. You can use single or double quotes:

Example
```php
<?php
$x = "Hello world!";
```

```php
$y = 'Hello world!';

echo $x;
echo "<br>";
echo $y;
?>
```

PHP Integer

An integer data type is a non-decimal number between -2,147,483,648 and 2,147,483,647.

Rules for integers:

- An integer must have at least one digit
- An integer must not have a decimal point
- An integer can be either positive or negative
- Integers can be specified in: decimal (base 10), hexadecimal (base 16), octal (base 8), or binary (base 2) notation

In the following example $x is an integer. The PHP var_dump() function returns the data type and value:

Example

```php
<?php
$x = 5985;
var_dump($x);
?>
```

PHP Float

A float (floating point number) is a number with a decimal point or a number in exponential form.

In the following example $x is a float. The PHP var_dump() function returns the data type and value:

Example

```php
<?php
$x = 10.365;
var_dump($x);
?>
```

PHP Boolean

A Boolean represents two possible states: TRUE or FALSE.

```php
$x = true;
$y = false;
```

Booleans are often used in conditional testing. You will learn more about conditional testing in a later chapter of this tutorial.

PHP Array

An array stores multiple values in one single variable.

In the following example $cars is an array. The PHP var_dump() function returns the data type and value:

```php
<?php
$cars = array("Volvo","BMW","Toyota");
var_dump($cars);
?>
```

You will learn a lot more about arrays in later chapters of this tutorial.

PHP Object

Classes and objects are the two main aspects of object-oriented programming.

A class is a template for objects, and an object is an instance of a class.

When the individual objects are created, they inherit all the properties and behaviors from the class, but each object will have different values for the properties.

Let's assume we have a class named Car. A Car can have properties like model, color, etc. We can define variables like $model, $color, and so on, to hold the values of these properties.

When the individual objects (Volvo, BMW, Toyota, etc.) are created, they inherit all the properties and behaviors from the class, but each object will have different values for the properties.

If you create a __construct() function, PHP will automatically call this function when you create an object from a class.

Example

```php
<?php
class Car {
  public $color;
  public $model;
  public function __construct($color, $model) {
    $this->color = $color;
    $this->model = $model;
  }
  public function message() {
    return "My car is a " . $this->color . " " . $this->model . "!";
  }
}

$myCar = new Car("black", "Volvo");
```

```
echo $myCar -> message();
echo "<br>";
$myCar = new Car("red", "Toyota");
echo $myCar -> message();
?>
```

PHP NULL Value

Null is a special data type which can have only one value: NULL.

A variable of data type NULL is a variable that has no value assigned to it.

Tip: If a variable is created without a value, it is automatically assigned a value of NULL.

Variables can also be emptied by setting the value to NULL:

Example

```php
<?php
$x = "Hello world!";
$x = null;
var_dump($x);
?>
```

Network Security (CCNS22)

Objective
The objective of course is to learn the Network Security.

Benefit
Students can know about how important is network security is important and its groundconcept.

Duration

2 Month (44 Hours)

Examination

Paper – Practical and Theory Exam.

Course content & syllabus of Network Security

☐ Introduction
- o Attacks, Services and Mechanisms
- o Security Attacks, Security Services
- o Integrity check, digital Signature
- o Authentication

Secret Key Cryptography
- o Block Encryption, DES rounds, S-Boxes
- o IDEA: Overview, comparison with DES, Key expansion, IDEA rounds

Public key Cryptography
- o Algorithms
- o **Modular arithmetic (addition, multiplication, inverse, and exponentiation)**
- o RSA: generating keys, encryption and decryption

Authentication
- o Password Based,
- o Address Based,
- o Cryptographic Authentication
- o Passwords in distributed systems
- o On-line vs offline guessing, storing
- o Cryptographic Authentication: passwords as keys, protocols

Network Security
- o Electronic mail security
- o IP security
- o Network management security.

Project

Student makes a project during training period.

Certification

Certificate in Network Security.

Cyber Crime

What is Cyber Crime? Just like regular crime, it also exists on the Internet. Here are some examples of Cyber Crime:

- Identity Theft
- Online Predators
- BEC ("Business Email Compromise")
- Ransomware
- Stealing of sensitive intellectual property

Increasing Crime

Cyber Crime has been increasing regularly every year. Why is Cyber Crime on the rise? Here are some reasons:

- Cyber Crime is easy to accomplish
- Low risks of getting caught
- For little work there is often high returns
- Attackers can target thousands of victims
- Money laundering is easier with Cryptocurrencies

Challenges like identity theft can have significant consequences on an individual, causing not only the potential of financial losses but also a lot of personal grief.

The Internet offers many services to facilitate money laundering, usually making it a trivial process. As money is exchanged in cryptocurrency, services such as tumblers make it hard to track the money.

Tumblers are services which split up cryptocurrency transactions and forward the money through many accounts, with different values, for thousands of people, making them hard to track.

Cyber Criminals

Who are Cyber Criminals? It can be anyone, but let us discuss some common ones we see in the media all the time:

- State-sponsored groups targeting organizations in other countries
- Hacking Groups out to target companies to make them pay ransom

- Kids in their rooms doing illegal hacking

Catching Cyber Criminals

Cyber Criminals can stay anonymous with trivial means, and typically easy to avoid getting caught. When attackers do get caught, it is often because of mistakes made by the attackers themselves, for example as a result of becoming complacent. There is also a great deal of potential for law-enforcement to use caught cyber criminals to rat out others in the industry.

Law enforcement do, however, have many challenges in tracking down cyber-crime. You might see attack traffic coming in from a system residing in UK, and when taking down this system, you realize it was being remotely controlled by e.g. another system in India. Cooperating with law-enforcements across borders, you might be able to get to the system in India, but only to realize it was again remotely controlled through e.g. Pakistan.
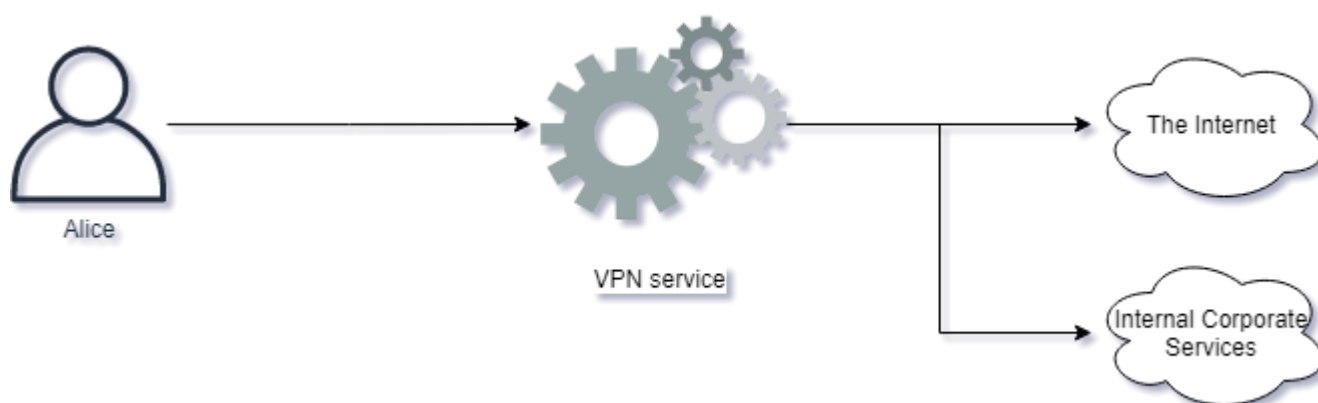
Protocols and Networking

It is essential for Cyber Security Professionals to have a solid understanding of how computers communicate. There is much more happening behind the scenes of computer networks than what can be observed when using applications.

The OSI Model

The OSI ("Open Systems Interconnection") model represents an easy and intuitive way to standardize the different parts required to communicate across networks.

The model makes it clear what is required to communicate on a network by splitting the requirements into multiple layers.

This is what the OSI Model looks like:

Layer	What it does
7 - Application	Where humans process data and information
6 - Presentation	Ensures data is in a usable format
5 - Session	Capable of maintaining connections
4 - Transport	Data is forwarded to a service capable of handling requests
3 - Network Layer	Responsible for which path packets should travel on a network
2 - Data Link	Responsible for which physical devices packets should go to
1 - Physical	The physical infrastructure to transport data

Layer	Where it is implemented
7 - Application	Software
6 - Presentation	Software

5 - Session	Software

The top 3 layers are typically implemented in software within the Operating System:

The bottom 3 layers are typically implemented in hardware within devices on the network, e.g. Switches, Routers and Firewalls:

Layer	Where it is implemented
3 - Network Layer	Hardware
2 - Data Link	Hardware
1 - Physical	Hardware

Layer 4, the Transport layer, connects the software with the hardware layers.

SDN ("Software Defined Networking") is technology which allows more layers of the hardware to be implemented via software.

Layer 7 - Application Layer

The business logic and functionality of the application lies here. This is what the users use to interact with services across a network. Most developers create applications on the Application Layer.

Most of the applications you use are on the Application Layer, with the complexity of the other layers hidden.

Examples of Layer 7 Applications:

- HTTP ("Hypertext Transfer Protocol") - Enables us to access web applications
- FTP ("File Transfer Protocol") - Allows users to transfer files
- SNMP ("Simple Network Management Protocol") - Protocol to read and update network device configurations

There are many applications which uses these protocols like Google Chrome, Microsoft Skype and FileZilla.

You are accessing this class via Layer 7!

Layer 6 - Presentation Layer

Typically an unseen layer, but is responsible of adapting, transforming and translating data. This is to ensure the application and layers beneath can understand one another.

- Encoding Schemes used to represent text and data, for example ASCII(American Standard Code for Information Interchange) and UTF(Unicode Transformation Format).
- Encryption for services, for example SSL ("Secure Sockets Layer") and TLS ("Transport Security Layer")
- Compression, for example GZip in use in many implementations of HTTP.

Layer 5 - Session Layer

This layer's responsibility is handling connections between the application and the layers below. It involves establishing, maintaining and terminating connections, otherwise referred to as sessions.

Common protocols which represent the Session Layer well are:

- SOCKS - A protocol for sending packets through a proxy server.
- NetBIOS - An older Windows protocol for establishing sessions and resolving names.
- SIP ("Session Initiation Protocol") - For engaging in VOIP ("Voice Over IP") communications

Layer 4 - Transport

The layer which allows applications to be represented on the network.

Some well known applications on this layer:

- TCP ("Transmission Control Protocol") - Used for many applications, ensuring stability, control of how much data can be sent at any given time, reliability and more.
- UDP ("User Datagram Protocol") - Lightweight and quick protocol use for many services.
- QUIC ("Quick UDP Internet Connections") - A protocol designed for faster connections and goes hand-in-hand with the version 2 of the HTTP protocol.

Layer 3 - Network

A layer responsible of routing packets between networks via routers.

On this layer, the following protocols reside:

- IP ("Internet Protocol") - Used everyday when accessing the Internet. Comes in two versions, IP version 4 and 6.
- ICMP ("Internet Control Message Protocol") - Used by network devices and network operators, to diagnose network connections or for devices to send and respond to error conditions and more.
- IPSec ("Internet Protocol Security") - Allows encrypted and secure connections between two network devices.

Layer 2 - Link

Link networks, as the name implies, consist of protocols designed to send packets through the actual links (physical connections) that network nodes are connected to. A simpler way of thinking of it is that the Link Layer is responsible for moving data from physical over to logical (to the network layer).

Protocols on this layer include:

- Ethernet - An essential protocol used by most operating systems when connecting to networks using a physical cable.
- Wi-Fi ("Wireless Fidelity") - For accessing networks via radio signals. It uses a family of protocols called IEEE 802.11.xx
- NDP ("Neighbor Discovery Protocol") - IP version 6(IPv6) uses this protocol on the Link Layer to gather information required to communicate via IPv6

Layer 1 - Physical

Physical layer represents the signaling which allows bits and bytes to transfer between a physical medium. It can be transferred via radio or signals over a cable, using electrical signals or light, for example fiber.

Examples of the Physical Layer protocols includes:

- CAN Bus ("Controller Area Network") - Used in microcontrollers and other devices to communicate to other similar devices, not involving a computer. Often used in ICS ("Industrial Control Systems").
- Ethernet Physical Layer - Used by Ethernet on the physical layer to send signals with speeds up to many gigabits of traffic per second.
- Bluetooth Physical Layer - Bluetooth also has its own specifications on how radio signals should be sent and received.

Firewalls

Firewalls are a central architectural element to any network. They are designed to keep out all network traffic, except traffic which we allow. Firewalls operate on Layer 4, typically controlling TCP and UDP access to internal assets. Next-Generation Firewalls operate on all the layers of the OSI model, including Layer 7.

Traffic entering a network, e.g. through a Firewall, is called ingress traffic. Traffic leaving is called egress.

Layer 4 Firewall

The traditional Firewall is a Layer 4 Firewall with features such as:

- NAT
- Routing
- Blocking or Allowing traffic
- Track active network connections
- Support VPN connections

Note: These Firewalls are typically cheaper and offers more throughput on the network than a more modern Next-Generation Firewall.

NGFW ("Next-Generation Firewalls")

A modern Firewall has capabilities that range much wider than a a Layer 4 Firewall. These capabilities are typically security features.

A NGFW Firewall can also track active network connections, but is also typically capable of tracking:

- Locations via geo-location databases. This means the Firewall can make blocking or allow actions based on the location of users. Location services are not always accurate and can often easily be bypassed using VPN services or by using other services like jump stations for attacks.
- Users
- Applications
- Sessions
- Ports and services
- IP addresses

Other features of a NGFW includes:

- Identify and control applications on the network.
- It can be virtualized to run as a software Firewall.
- Often offers simple and intuitive management.
- Supports protecting against known threats via ("Intrusion Prevention System").
- Potential to detect and prevent unknown threats via sandboxing solutions.

- Offers a potential to manage unknown traffic, e.g. traffic which cannot be attributed to an application.
- Capabilities to terminate and inspect encrypted traffic.
- Can control users, not just system via respective IP addresses.
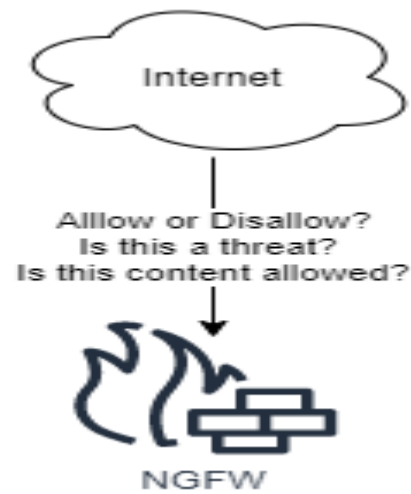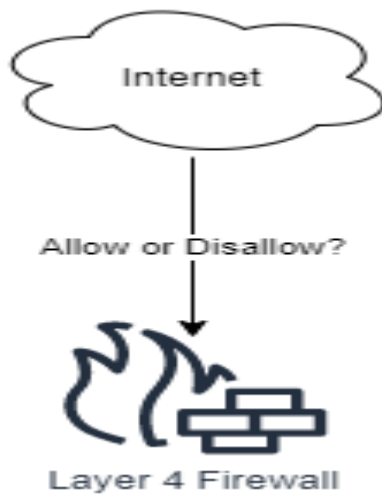
Segmentation

Firewalls can segment traffic between hosts and systems into segments, sometimes called zones. Each segment holds services which are allowed to communicate between one another.

Any connection to or from the segment should be carefully controlled by the Firewall, preventing any unauthorized connections to make successful connections. Smaller segments offer more segregation, but requires more management.

Without any segmentation, users and systems can talk directly to each other without the Firewalls enforcement. This is called a flat network.

Adding more segmentation we can envision segments representing services, where each segment is a service provided in the organization. Each segment could contain the different servers responsible for making the service operational. Communications within the segment is allowed, but any access in and out from the segment is controlled by the Firewall.

Another segmentation idea would be to control segments based on their functions, for example clustering web applications within a segment with other web-applications, databases within one segment and other kinds of services within their segment.

Note: A very common user directory is Microsoft's Windows Active Directory. It holds information about which users, computers and groupings the organization holds.

The best and most secure kind of segmentation is called zero-trust architecture, forcing all systems on the network to explicitly be allowed to communicate to different services.

To ease management of Firewall rules, the Firewall management is ideally connected to the organizations user directory. This can allow Firewall administrators to create careful rules based on employee responsibilities, allowing the organization to add and remove permissions which are applied on the network without asking the Firewall administrators for changes anytime there is a role change. This is sometimes called user-based policy control. Examples include:

- IT-Administrators should be able to use management protocols to the different services.
- HR employees should be allowed to access HTTPS to the HR platforms.
- Helpdesk employees can only access helpdesk related services.
- Unrecognizable users can be identified and provisioned accordingly.

Nmap - The Network Mapper

Nmap has for a long time been considered as the standard port scanner for both network engineers and security professionals. We can use it to discover assets to attack or defend.

Network Mapping

One way to identify hosts which are active on the network is to send a ping, i.e. ICMP Echo Request, to all IP Addresses in the network. This is often referred to as a Ping Sweep.

This approach is not very good in discovering assets. It is likely that systems on the network will ignore incoming pings, perhaps due to a Firewall blocking them or because of a Host-Based Firewall. A host-based firewall is simply a firewall which is implemented on the system instead of on the network.

A better approach involves sending a different kinds of packets to a system to try ask for any kind of answer to determine if system is alive or not. For example Nmap will send the following packets to the system to try cause a response:

- ICMP Echo Request
- TCP SYN packet to port 443
- TCP ACK packet to port 80
- ICMP Timestamp request

Based on the TCP specifications, that is the rules of communications, a system should always engage in a three-way handshake before starting to communicate. Nmap seems to be intentionally breaking the rules with the packets above. Can you spot which packet is not behaving as systems would expect?

Sending a TCP ACK packet to port 80 is not conforming to the rules of the TCP standard. Nmap does this specifically to try cause the target system to make a reply. In order to send packets which are not following the rules, Nmap must run with the highest level of privileges, e.g. root or local administrator. Most port scanners will be more accurate because of this.

Disabling the Network Mapping can be done with Nmap with the -Pn flag. Nmap will now consider all IP/systems to be up and go directly to port scanning.

Try this at home now if you would like to. Careful, if you are at a corporate environment, always get permission before you start running scanners as you do not want to violate any rules of your workspace. To try Nmap now, follow these simple steps:

- Go download Nmap at https://nmap.org. Make sure you download the version that matches your operating system
- Install Nmap and launch the tool from a command line terminal
- Find your local IP address and subnet
- Run Nmap to scan it to see what kinds of systems it can discover: nmap -vv IP/netmask

We are adding two -v flag to tell Nmap we want verbose output, that makes the scan more fun to watch while it completes.

```
Wireless LAN adapter Wi-Fi 2:

   Connection-specific DNS Suffix  . : home
   IPv6 Address. . . . . . . . . . . :
   Temporary IPv6 Address. . . . . . :
   Link-local IPv6 Address . . . . . : fe80::2118:dc0c:2c61:a8cc%21
   IPv4 Address. . . . . . . . . . . : 10.0.0.5
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::763a:efff:fe43:4f62%21
                                       10.0.0.138

Ethernet adapter Bluetooth Network Connection 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
PS C:\> nmap -vv 10.0.0.0/24
Starting Nmap 7.91 ( https://nmap.org ) at 2021-02-19 21:04 W. Europe Standard Time
Initiating ARP Ping Scan at 21:04
Scanning 255 hosts [1 port/host]
```

ARP Scan

The ARP protocol is contained within a LAN, but if the hosts you need to discover is on the LAN we could use this protocol to try reveal systems on the network. By simply iterating over all available IP addresses on the LAN network with the ARP protocol, we are trying to force systems to reply.

The scan looks like this:

Eve: Please Provide Mac Address of system 192.168.0.1
Eve: Please Provide Mac Address of system 192.168.0.2
Eve: Please Provide Mac Address of system 192.168.0.3
Eve: Please Provide Mac Address of system 192.168.0.4
Eve: Please Provide Mac Address of system 192.168.0.5-254
Default Gateway: 192.168.0.1 is me and my MAC Address is AA:BB:CC:12:34:56
Bob: 192.168.0.3 is me and my MAC Address is: BB:CC:DD:12:34:56
Alice: 192.168.0.4 is me and my MAC Address is: CC:DD:EE:12:34:56
Note: ARP Scanning is a simple and effective way to find hosts on the LAN, but not outside of the LAN.

Port Scanning

Port Scanning is done to try determine which services we can connect to. Each listening service provides attack surface which could potentially be abused by attackers. As such it is important to learn which ports are open.

Attackers are interested in knowing which applications are listening on the network. These applications represent opportunities for attackers. There might be vulnerabilities enabling them to attack successfully the organization.

Port Scanning works by sending packets to an application and looking for any replies. This is exceptionally easy for TCP, as if a TCP service is available it will always reply with a SYN/ACK packet. For UDP however it is more difficult. In order to detect if the service is available or not, in most cases the attacker must send specific input which forces the application to reply. Most applications hosted in UDP will not reply unless the Clients sends exactly the input required to engage in communications.

TCP Port Scanning

TCP is an easy protocol to scan because the TCP standard dictates that systems should reply with a SYN/ACK when receiving a SYN. We can send a SYN packet to all 65536 ports and record all SYN/ACK's coming back and conclude the ports which are opened based on the reply of a SYN/ACK. When no reply is received, we can assume the port is closed or filtered by for example a Firewall.

With the SYN/ACK on port 445 we have identified the port is open.

UDP Port Scanning

With UDP it is harder to determine if a port is up or not. For UDP ports the scanner can not rely on a SYN/ACK. In fact, the scanner must almost always rely on making the service listening cause some sort of reply.

With so many ports potentially open and different services only replying to the correct kind of data, it becomes time consuming and hard to scan all ports in a reasonable time.

Consider the following conversation where Eve tries to figure out if a UPD port is open:

Eve need to talk the correct protocol, and make sure the packets reach their destination, e.g. no packet loss. Otherwise Eve might not discover the port is open.

Because of this UDP scanning can be very time consuming if we want to scan all ports.

Useful Nmap Scan Types and Options

There are many scanners out there, however in this section we focus on how to utilize Nmap to the full potential.

Nmap can be told to scan the most common ports with the argument --top-ports.

nmap --top-ports 100 <target>

The scanner can try determine versions of the application listening behind a port. This is called service scanning and can be enabled with the -sV flag.

nmap -sV <target>

Nmap has many built-in scripts designed to target a specific service and interact with it. Scripts can do all sorts of things like pull out information from the service or try to exploit it. We can enable the script scanner with the -sC flag. This enables only safe checks, as such no denial of service or exploitation attempts.

nmap -sC <target>

Operating System detection can be done with the scanner, allowing it to try determine which operating system is running. It uses many different parameters to try measure and estimate the likelihood of what operating system it is. This can be enabled with the -O argument.

nmap -O <target>

The aggressive mode of Nmap enables many flags at once. The scanner will do version and OS detection, enable the script scanner and scan the top 1000 most common ports. It can be enabled wit the -A option.

nmap -A <target>

Nmap can also scan IPv6 across all of the above flags. It is enabled by adding the -6 flag.

nmap -6 <target>
Note: The best way to understand is to practice and get hands on experience. Go ahead and download Nmap and try these different scans against systems in your own environment!

Nmap Timing options

Scanning can be done with different speeds. Slower speeds have a less likelihood to be detected by IDS systems, while a fast scan might overwhelm the system. Nmap supports the following options:

- T0 - Paranoid. This option is for attackers whom do not want to be detected. IDS systems can correlate multiple requests within a certain timespan. The paranoid option will try to circumvent this by only sending very few packets per second.
- T1 - Sneaky. Faster but designed to evade IDS systems.
- T2 - Polite. Slow scan doing its best job not to crash a system.
- T3 - Normal. It's simply the default.
- T4 - Aggressive. Fast scan which gives results fast. Most systems can cope with this.

- T5 - Insane. We are sending at full capacity and performance.

Zenmap

Nmap has a built-in GUI ("Graphical User Interface") a long side with other tools too. The GUI can be useful to visualize networks and browse open ports across different hosts. The GUI looks like this:
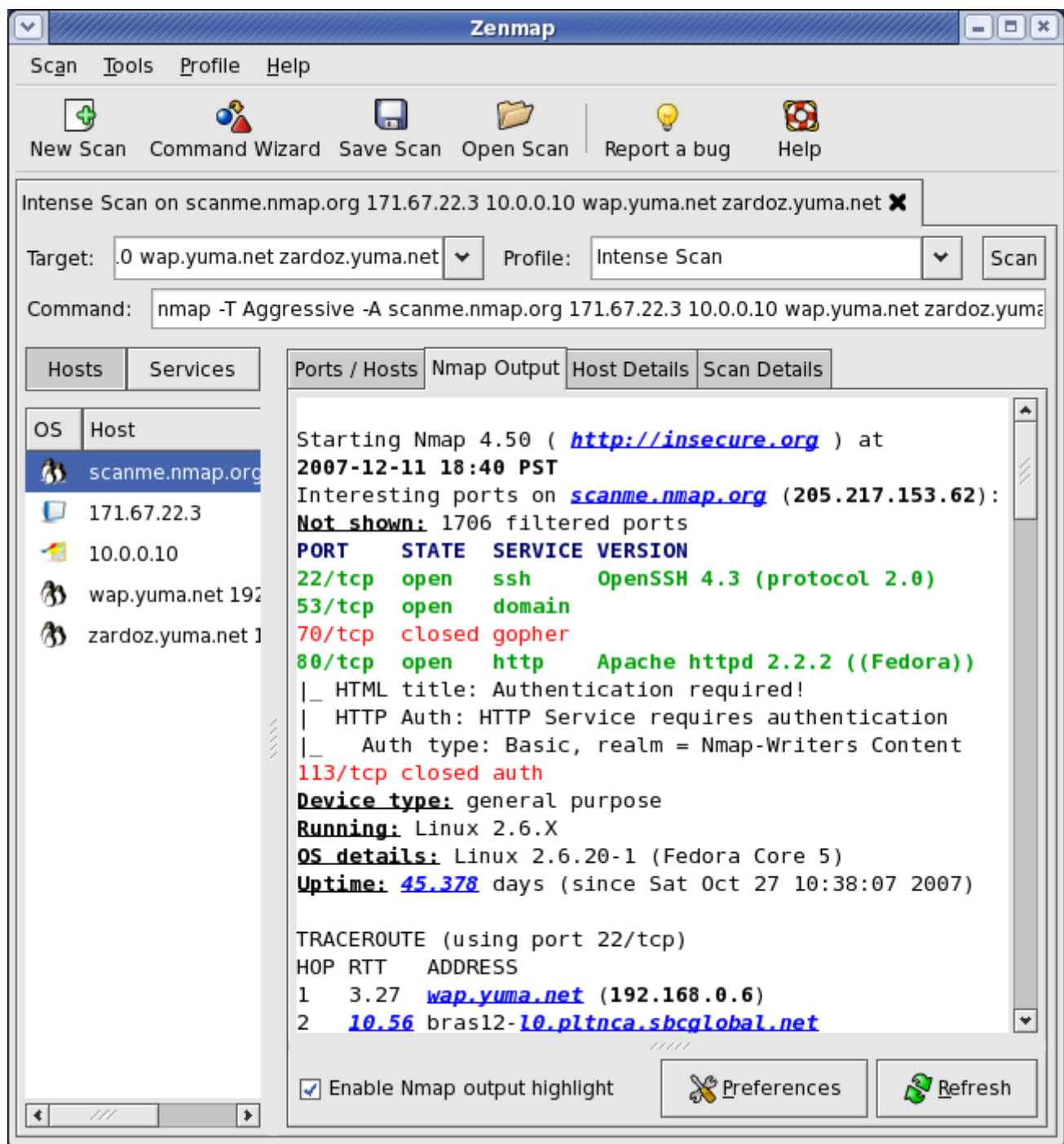
Network Attacks

Attacks on protocols and applications hosted on the Network are plentiful. Web Applications are covered in its own section in this course.

Services can have inherent bugs in them allowing them to be exploited by attackers. These attacks typically involve using special instructions to the Operating System, via the vulnerable service, to take control of the process operating the network service. Buffer Overflows is a category of such attacks.

A network typically holds many applications, some which holds simple logins and others with complex functionality. One way to gain an overview of the attack surface, and also map out easy to exploit vulnerabilities, is to port scan all the assets in the target environment, then screenshot them.

Tools like EyeWitness (https://github.com/FortyNorthSecurity/EyeWitness) accomplish this. The tool allows us to quickly get an overview of which assets are represented on the network, then provides screenshots of each service. By having the screenshots we can easily look and assess quickly which systems we should take a closer look at.

Exploiting a service means to abuse the service in ways it was not intended to. Often this exploitation activity means the attackers are capable of running their own code, this is called RCE ("Remote Code Execution").

Buffer Overflow

Exploitation of network services sometimes involve abusing memory management functions of an application. Memory management? Yes, applications need to move around data within the computers memory in order to make the application work. When programming languages give the developer control of memory, problems like Buffer Overflow might exist. There exists many similar vulnerabilities, and in this section we review Buffer Overflows.

Programming language C and C++ allows developers very much control of how memory is managed. This is ideal for applications which requires developers to program very closely to the hardware, but opens up for vulnerabilities. Programming languages like Java, JavaScript, C#, Ruby, Python and others does not easily allow developers to make these mistakes, making Buffer Overflows less likely in applications written in these languages.

Buffer Overflows happen when un-sanitized input is placed into variables. These variables are represented on the Operating System via a memory structure called a Stack. The attacker can then overwrite a portion of the stack called the Return Pointer.

Note: The stack memory structure is simply where a program stores variables and information it needs to run. The stack will be located within a computers RAM ("Random Access Memory")

The Return Pointer decides where the CPU ("Central Processing Unit") should execute code next. The CPU simply controls which instructions the system should perform at any given moment. The return pointer is simply an address in memory where execution should happen. The CPU must always be told where to execute code, and this is what the return pointer allows it to do.

When attacker is able to control the Return Pointer, it means the attacker can control which instructions the CPU should execute!

For example consider the following code C example (do not worry, you do not have to be a C developer, but do your best to try understand what this simple application does):

```
#include <string.h>
void storeName (char *input) {
  char name[12];
  strcpy(name, input);
}

int main (int argc, char **argv) {
  storeName(argv[1]);
  return 0;
}
```

IDOR ("Insecure Direct Object Reference")

IDOR vulnerabilities happen when developers have not implemented authorization requirements to access resources.

Eve, by simply changing an identifier, e.g. the document Rest parameter, she can access Alice's documents.

This happens when the web application does not enforce authorization between objects, allowing attackers to enumerate values and test access to other points of data.

For example we might have the following pseudo-code showing no signs of authorization:

```
$id = getInputFromUser();
$doc = getDocument($id);
return $doc;
```

The code above asks for input from user, performs no validation or sanitization, then performs a lookup with the getDocument function directly and returns the document in question.

A better implementation would be to check the privileges:

```
$id = getInputFromUser();
$user = findUsername();
$doc = "";
if (hasAccessToDocument($user, $id)) {
  $doc = getDocument($id);
} else {
  $doc = "Not authorized for this document";
}
return $doc;
```

WIFI Basics

WIFI as most people know it stems from the IEEE 802.11 protocol. There are other protocols which uses radio for signaling too, for example:

- Bluetooth, for communicating with devices we carry, typically smartphones, headphones etc.
- NFC ("Near Field Communications"), implemented in access badges and credit cards for wireless transmission of data.
- RFID ("Radio Frequency Identification"), used for access cards and other devices, for example a car which can wirelessly transmit its identifier to a toll-road system.
- ZigBee and Z-Wave, used for enterprise and home automation.

Wireless communication is typically done via an AP ("Access Point"), a wireless base station which acts as a switch and router between clients that wish to communicate. Peer-to-peer communications are also possible, but less typical.

The name of a wireless network is known as the SSID ("Service Set Identifier").

Because WIFI signals reach everyone in the vicinity it enables attackers to easily use an antenna to "sniff" communications for anyone transmitting. Sniffing simply means to listen for packets which the network interface can see.

WIFI sometimes allow users to reach internal applications, increasing attack potential. Furthermore, WIFI devices have management interfaces and firmware which can hold vulnerabilities, sometimes not always patched as timely as other assets in the enterprise.

WIFI Security

WIFI have the option of

- No security
- Access list based on MAC addresses
- PSK ("Pre-Shared Key")
- Enterprise authentication

Many WIFI attacks rely on network cards with two primary features, namely:

- Monitor Mode: Makes the network card forward packets destined to all MAC addresses to the Operating System, not just its own.
- Packet Injection: The network card supports crafting packets with a different source MAC address than its own.

Open WIFI Networks

An open WIFI network is a network with no password on it. Communication between AP and Clients is not encrypted and everyone has to rely on their own sources of encryption to protect their traffic. These kinds of networks are very convenient and accessible for users, but makes security compromises.

An attacker on these kinds of networks can easily see what everyone else is doing by simply sniffing packets. Such packets can contain sensitive details or simply details about what the users are doing on the network.

Hidden SSID

AP's can often turn off broadcasting the name of the wireless network. This requires clients to demonstrate knowledge of the SSID to join the network. It is not considered best-practice to enable hidden SSID, because the name of the network is exposed anytime a client joins. Furthermore, the clients now need to ask and broadcast information about the network they want to join, everywhere they travel. An attacker could then sniff the WIFI traffic of clients and potentially learn more information about whom the clients are and where they have joined networks before.

MAC Address Filtering

Some AP's support access control based on MAC Addresses. The AP can create an allow-list of which MAC addresses should be allowed to join and communicate on the network.

This approach is in-secure. An attacker can sniff and observe other systems communicating on the network already. Then record their MAC addresses and update the attackers own MAC address to be one which is already allowed. This effectively bypasses the MAC Address Filtering requirement.

PSK ("Pre-Shared Key")

PSK simply means the network is configured with a password. PSK protection is typically implemented via a protocol called WPA ("WIFI Protected Access"). Older protocols for authentication can also be used, for example WEP ("Wired Equivalent Privacy") but has for a long time been considered obsolete as it is highly in-secure and easy for attackers to crack.

WPA comes in different forms with WPA3 being the latest standard as of the year 2021. WPA is not entirely safe against attackers either, but offers much more protection than WEP. To break into a WPA enabled network the attacker must try to crack the password with a password cracker. This is considered an expensive process in terms of time if the password is reasonably strong.

If an attacker can observe (sniff) anyone whom authenticates to the network, they have enough to engage in password cracking activities. Tools like aircrack-ng ("https://www.aircrack-ng.org/") supports cracking WIFI passwords.

Enterprise Authentication

Enterprise Access Points can also support authenticating clients based on certificates, which requires PKI ("Public Key Infrastructure") or enterprise credentials by integrating to a centralized authentication service.

This has some benefits, especially the concept of key management. With a PSK network, the inherent challenge is how passwords are distributed, rotated and revoked.

While Enterprise Authentication provides better security management regarding keys, it also involves a more complex infrastructure and offers other opportunities for attackers.

Fake WIFI Access Points

Attackers can easily start broadcasting networks pretending to be other networks. Often clients will automatically connect to networks in range if they present themselves with the appropriate SSID. This allows attackers to make clients connect to the attackers network, allowing them to sniff and change traffic as the attacker wishes.

SIEM ("Security Information Event Management")

Most systems produces logs often containing important security information.

An event is simply observations we can determine from logs and information from the network, for example:

- Users logging in
- Attacks observed in the network
- Transactions within applications

An incident is something negative we believe will impact our organization. It might be a definitive threat or the potential of such a threat happening. The SOC should do their best to determine which events can be concluded to actual incidents, which should be responded to.

The SIEM processes alerts based on logs from different sensors and monitors in the network, each which might produce alerts that are important for the SOC to respond to. The SIEM can also try to correlate multiple events to determine an alerts.

SIEM's typically allow events from the following areas to be analyzed:

- Network
- Host
- Applications

Events from the network is the most typical, but least valuable as they don't hold the entire context of what has happened. The network typically reveals who is communicating where,

over which protocols, and when, but not the intricate details about what happened, to whom and why.

Host events give more information in regards to what actually happened and to whom. Challenges such as encryption is no longer blurred and more visibility is gained into what is taking place. Many SIEM's are enriched with great details about what happens on the hosts themselves, instead of only from the network.

Events from application is where the SOC typically can best understand what is going on. These events give information about the Triple A, AAA ("Authentication, Authorization and Account"), including detailed information about how the application is performing and what the users are doing.

For a SIEM to understand events from applications it typically requires work from the SOC Team to make the SIEM understand these events, as support is often not included "out-of-the-box". Many applications are proprietary to an organization and the SIEM does not already have an understanding of the data the applications forward.

SOC Staffing

How a SOC is staffed greatly varies based on the requirements and structure of an organization. In this section we take a quick look at typical roles involved in operating a SOC. An overview of potential roles:

As in most organized teams, a role is appointed to lead the department. The SOC Chief determines the strategy and tactics involved to counter threats against the organization.

The SOC Architect is responsible for ensuring the systems, platforms and overall architecture is capable of delivering what the team members require to perform their duties. A SOC Architect will help build correlation rules across multiple points of data and ensures incoming data conforms to the platform requirements.

Analyst Lead is responsible that processes, or playbooks, are developed and maintained to ensure analysts are capable to find the information necessary to conclude alerts and potential incidents.

Level 1 Analysts serve as the first responders to alerts. Their duty is, within their capabilities, to conclude alerts and forward any troubles to a higher level analyst.

Level 2 Analysts are distinguished by having more experience and technical knowledge. They should also ensure any troubles in resolving alerts are forwarded to the Analyst Lead to aid the continuous improvement of the SOC. The Level 2, together with the Analyst Lead, escalates incidents to the Incident Response Team.

The IRT ("Incident Response Team") is a natural extension to the SOC Team. The IRT team is deployed to remediate and solve the issues impacting the organization.

Penetration Testers ideally also support the defense. Penetration Testers have intricate knowledge of how attackers operate and can help in root cause analysis and understanding

how break-ins occur. Merging attack and defense teams is often referred to as Purple Teaming and is considered a best-practice operation.

Escalation Chains

Some alerts require immediate actions. It is important for the SOC to have defined a process of whom to contact when different incidents occur. Incidents can occur across many different business units, the SOC should know who to contact, when and on which communication mediums.

Example of an escalation chain for incidents impacting one part of a organization:

1. Create an Incident in the appointed Incident Tracking System, assigning it to correct department or person(s)
2. If no direct action happens from department/person(s): send SMS and Email to primary contact
3. If still no direct action: phone call primary contact
4. If still no direct action: call secondary contact

Classification of Incidents

Incidents should be classified according to their:

- Category
- Criticality
- Sensitivity

Depending on the incidents classification and how it is attributed, the SOC might take different measures to solve the issue at hand.

The category of incident will determine how to respond. There exists many kinds of incident and it is important for the SOC to understand what each incident type means for the organization. Example incidents are listed below:

- Inside Hacking
- Malware on Client workstation
- Worm spreading across the network
- Distributed Denial of Service Attack
- Leaked Credentials

The criticality of an incident is determined based on how many systems is impacted, the potential impact of not stopping the incident, the systems involved and many other things. It is important for the SOC to be able to accurately determine the criticality so the incident can be closed accordingly. Criticality is what determines how fast an incident should be responded to.
Should the incident be responded to immediately or can the team wait until tomorrow?

Sensitivity determines who should be notified about the incident. Some incidents require extreme discretion.

SOAR ("Security Orchestration, Automation and Response")

To counter the advancements of threat actors, automation is key for a modern SOC to respond fast enough. To facilitate fast response to incidents, the SOC should have tools available to automatically orchestrate solutions to respond to threats in the environment.

The SOAR strategy means ensuring the SOC can use actionable data to help mitigate and stop threats which are developing more real-time than before. In traditional environments it takes attackers very short time from the time of compromise until they have spread to neighboring systems. Contrary to this it takes organizations typically a very long time to detect threats that have entered their environment. SOAR tries to help solve this.

SOAR includes concepts such as IAC "Infrastructure as Code" to help rebuild and remediate threats. SDN ("Software Defined Networking") to control accesses more fluently and easily, and much more.

What to monitor?

Events can be collected across many different devices, but how do we determine what to collect and monitor? We want the logs to have the highest quality. High fidelity logs that are relevant and identifying to quickly stop the threat actors in our networks. We also want to make it hard for attackers to circumvent the alerts we configure.

Indicator	Difficulty to change
File checksums and hashes	Very Easy
IP Addresses	Easy
Domain Names	Simple
Network and Host Artifacts	Annoying

Tools	Challenging
Tactics, Techniques and Procedures	Hard

If we look at different ways to catch attackers, it becomes evident where we should focus. Here is a list of possible indicators we can use to detect attackers, and how hard it is considered for attackers to change.

File checksums and hashes can be used to identify known pieces of malware or tools used by attackers. Changing these signatures are considered to be trivial for attackers as their code can be encoded and changed in multiple different ways, making the checksums and hashes change.

IP Addresses are also easy to change. Attackers can use IP addresses from other compromised hosts or simply use IP addresses within the jungle of different cloud and VPS ("Virtual Private Server") providers.

Domain Names can also be reconfigured quite easily by attackers. An attacker can configure a compromised system to use a DGA ("Domain Generation Algorithm") to continuously use a new DNS name as time passes. One week the compromised system uses one name, but the next week the name has changed automatically.

Network and Host Artifacts are more annoying to change, as this involves more changes for the attackers. Their utilities will have signatures, like a user-agent or the lack of thereof, that can be picked up by the SOC.

Tools become increasingly harder to change for attackers. Not the hashes of the tools, but how the tools behave and operate when attacking. Tools will be leaving traces in logs, loading libraries and other things which we can monitor to detect these anomalies.

If the defenders are capable of identifying Tactics, Techniques and Procedures threat actors use, it becomes even harder for attackers to get to their objectives. For example, if we know the threat actor likes to use Spear-Phishing and then Pivoting peer-to-peer via to other victim systems, defenders can use this to their advantage. Defenders can focus training to staff at risk for spear-phishing and start implementing barriers to deny peer-to-peer networking.

Password Strength

What determines a strong password? Is it how complex the password is? How many characters it has? The number of special characters?

The famous comic creator xkcd.com brilliantly shows how passwords can be attacked in the comic below. Review it for a second and let us discuss further.

Note: Entropy means the lack of predictability. The higher entropy, the harder to crack via standard means.
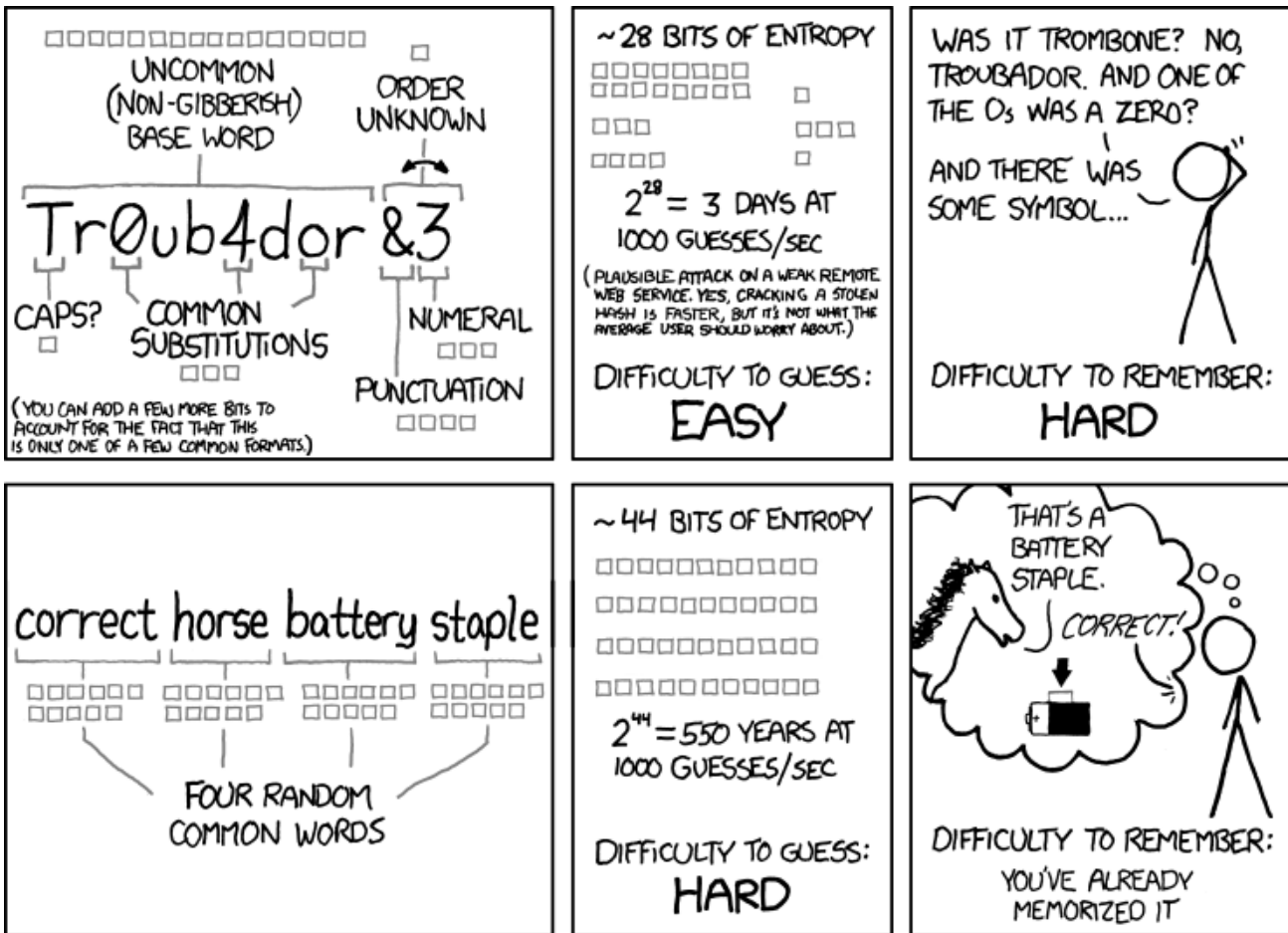
Comic from XKCD: https://xkcd.com/936/

If we consider the first password *Tr0ub4dor&3*, this password is will fit most password policy rules, for example having capitalized letter, numbers, special characters and a length of 11 characters. This password has however some problems, it is:

- Hard to remember. Did you replace the first o (the letter) character with a 0 (the number), or was it the second? Did you replace the a character with a 4, or not?
- Hard to type. You have to type in different letters, numbers and special characters in a special order. It will likely not be the fastest words being typed on your keyboard.
- It is not very strong! The password is based off a rather common word and it does not offer much strength, only about 28 bits of entropy.

Instead of selecting passwords which have these negative factors, we can instead greatly increase the entropy of passwords in simple ways. If we consider the password *CorrectHorseBatteryStaple* we see a considerate improvement of the password:

- The password is easy to type. Typing in regular words is for many an everyday activity and you can get really fast at it.
- It is easy to remember. By using a visual picture of the password, a horse, a battery, a staple and the word correct, we can remember it much easier.
- It is significantly stronger against most password cracking activities! It offers about 44 bits of entropy, making it really hard to crack.

Passwords like this one is called passphrases and is generally a much better practice than a simple word with some complexity. Consider how you could improve the password to be

even stronger, and to fit password policy rules such as special characters and capital letters! You can even use spaces in your password, making passphrases even more natural to type.

Password Managers

Writing down your password has for many years been considered a bad-practice, but is it really? Using the same password across multiple services online has a significant risk, what if one of those platforms get hacked? Then that password is compromised and attackers can re-use the password across all other services where it is used.

To fight this problem, the recommendation is to not re-use the same password across multiple services. This makes it really hard for users as they are not only required to use unique passwords, but at the same time create strong and robust passwords! A password manager help solve this problem by offering users to, in a secure as possible way, write down passwords in a file, database or other system, making passwords easy accessible and ensuring they are strong and unique across different services.

When implemented correctly, a password manager will:

- Make the use of the Internet a much more secure activity
- Increase productivity as passwords for different services can easily be found, copied and pasted into the respective services the user want to log into
- Offer easy ways to reset and regenerate new passwords when needed.

Writing down passwords is considered a much lower risk for our users rather than having them reusing passwords. Yes, this is not a perfect solution as the password manager could potentially get compromised, however it is considered a much more safe approach.

Passwordless Solutions

What if passwords in themselves could be put to an end? There is always someone who can not type in a longer passphrase as their password every day. There may be several reasons for this, for example:

- Non IT savvy workers in the office
- A doctor who visits many different computers in the hospital, every day while visiting different patients in different rooms
- It is hard to type in the password on the system which requires it

The development and implementation of systems which does not require users to provide a password is developing rapidly. Instead of asking users to authenticate with a password, what if we allowed them to use for example:

- Something they are, for example their face or fingerprint
- Something they have, for example a token or their cell-phone

There are challenges to this, but in terms of security, are we really making the problem worse, or better for our users? We must remember we are not looking to implement perfect security systems, they are normally outside of reach and not implementable, so instead we must make careful considerations on how we can limit the threats and at the same time

make life easier for our users. Passwords are not perfect, and neither is passwordless solutions. Which one will you implement for your users?

Multi-Factor Authentication

As we learn that regardless of what solution is used to verify users, there will still be significant risks associated with their accounts, other solutions can be implemented to help reduce the risk.

Multi-Factor Authentication allows solutions to not only verify a user based on for example their password, but at the same time require the users to present a second factor to prove who they are.
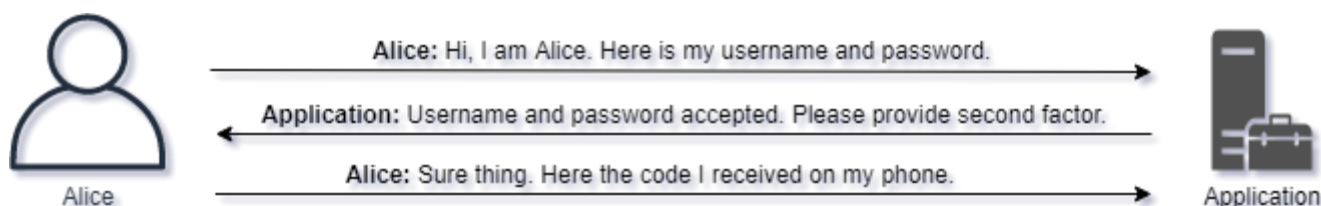
There can be several different ways to ask for a second factor. Here are a few examples:

- Use an authentication application on a smart-phone to provide a secret code
- Receive a secret code via SMS ("Short Message Service") on a phone
- Use a hardware token to provide a secret code
- Present a fingerprint or face to identify the individual

All of the above requires not only a password to be known, but also asks for a second item (a factor) to be provided.

Solutions like these are sometimes considered very invasive to the users. To help solve this problem a concept of DAC ("Discretionary Access Control") can be applied. DAC allows the login solution to consider whether or not to challenge a user with a multi-factor code. For example a multi-factor might only be necessary when a user:

- Logs in from a new location
- Uses a different browser or software to access the application
- Tries to perform a sensitive action in the application, for example change password or perform a money transaction above a certain threshold

Password Guessing

When attackers encounter applications and services, there might be the opportunity to do Password Guessing. Password Guessing is an activity which involves attackers interacting with the application over the network, trying lists of different combinations of usernames and passwords.

Password Guessing gives the attacker an opportunity to find accounts with a weak username and password combination.

If the attacker is successful in finding a valid account to log in with, new opportunities is presented to the attacker. Consider what kind of functionality and data is now presented to the attacker. Here are some examples where and attacker successfully guesses someone's password:

- Attacker accesses an email account of an employee. Inside there are thousands of emails ranging years back in history. Within the emails there are passwords communicated, allowing attacker to log into more systems. Furthermore, hundreds of attachments are present, some which may contain very sensitive information.
- Attackers successfully guess the Admin accounts password for an HVAC ("Heating, Ventilation and Air Conditioning") system who's responsibility is to cool down the server room. The attackers are able to change the parameters of the HVAC and through careful modification causes the server-room to overheat.
- A VPN service is available on the Internet, allowing employees to reach internal resources. One of the employees has a weak password which is guessed by an attacker through days of repeated password guessing. The attacker accesses the VPN service and is now on the inside network of the organization. From here, the attacker installs ransomware within the organization.
- A web application is deployed on the Internet. It holds no obvious vulnerabilities from the outside, however attackers were able password guess into a regular users account on the system. Because the company hosting the web application trusts their users, the web security on the inside of the application was poor. From here, the attacker was able to use web exploits to compromise the server.

Many network services have built-in administrator accounts, some even with the default password unchanged since it was installed. For each service on the network, attackers can try to log in with default credentials. Furthermore, the attacker can try typical and weak passwords. Here are some examples of typical and weak passwords. Notice all of them end with an exclamation mark in order to defeat password policies:

Password	Comment
Summer2021!	Many people, including helpdesks of companies, perform password resets and set the password to the season of the year and the year we are currently in.
W3schools123!	The name of the company is often used as peoples passwords. The number 123 and ! at the end is selected by users to pass password policies and make it a bit more complex.
Rosalynn2006!	Rosalynn, perhaps someone's child? Users often use something of personal affection as their passwords. Names of children and perhaps the year they were born is very popular.

Qwerty123456!	A seemingly random password? This password is someone pressing keyboard keys in order, then using numbers to do the same thing.

A tool which allows us to easily configure lists of usernames and passwords to try against a multitude of different services is THC-Hydra (https://github.com/vanhauser-thc/thc-hydra). It supports plenty of protocols to attack such as:

- RDP ("Remote Desktop Protocol")
- FTP ("File Transfer Protocol")
- SMB ("Server Message Block")
- Telnet
- SSH ("Secure Sockets Host")

To use THC-Hydra to target for example FTP, the following command can be used:

hydra -L common_usernames.txt -P common_passwords.txt ftp://localhost/

This command uses a list of common usernames and common passwords to try each of them against the FTP service at localhost or an IP address of your choice.

Credential Stuffing

A common attack for attackers to use is Credential Stuffing. This involves attackers downloading huge databases of credentials and testing applicable credentials against the network service. A leak of credentials happen when a third party service is hacked, database is stolen and then leaked on the Internet for anyone to download.

Unfortunately many users re-use the same password on different services, allowing Credential Stuffing attacks to become very efficient against organizations.

Note: Anyone, including you, can go about searching the Internet for leaked databases containing credentials and passwords. It is not very hard to hack when people do not change their passwords?!

Password Cracking

While Password Guessing is an online attack, Password Cracking is an offline attack. It involves attackers stealing password representations from a target first.

Passwords are typically represented as a password hash. A hash is way to store users passwords by sending them through a one-way function, making the password impossible to reverse unless password cracking is used.

If the attacker is capable of retrieving credentials from a system, these credentials are likely to be protected via encryption or hashing. Hashing is a one-way function designed to not be reversed into its original value.

Password cracking involves using computing power, that is the CPU ("Central Processing Unit") and GPU ("Graphical Processing Unit"), to try create password guesses which matches the protected credentials retrieved from the system.

Note: The GPU is typically much better in password cracking because it has hundreds of micro cores which are all capable of doing small tasks on their own. This allows a password cracker to become much faster as it can scale the cracking activities over many different cores.

Services Without Authentication

By exploring and discovering applications sometimes you can encounter applications which are not protected with authentication. These applications are useful for attackers to explore, for example taking advantage of a search field hunting for sensitive information.

Many applications on a network can freely be explored, sometimes providing attackers with the exact data they are looking for.

When performing network mapping and port scanning exercises, each discovered system and service should be explored.

Using Existing Credentials

Typically an attacker is already using credentials of users in the environment. For example if an attacker has compromised someone's computer system they can re-use the credentials already in-use by the system.

This provides attackers with many more opportunities. Consider all the applications which could now be abused. For example:

- Email
- SharePoint
- HR and Accounting
- VPN ("Virtual Private Networking")

Once an attacker has access to an application behind access control, vulnerabilities and data is often plentiful.

Credentials from a system can also be extracted via different means, typically involving having administrator access of the system. Mimikatz (https://github.com/gentilkiwi/mimikatz) is such a tool which tries to dump the credentials from the system.

Certificate Course in Yogasana and Meditation

Code: CCYM
Duration: 40 Hours
Three Months – One Lecture per Day

Aims:
.• ᵉTo acquaint students with the practical knowledge of Yogasana.
- To provide appropriate information about benefits of Suryanamashkar .
- Learning skills leading to meditation.
- To acquire Practical knowledge of Kriya and bandha.

Objectives:

- To dissipate feeling of anxiety.
- To gain an inner sense of peace and tranquility.
- To Learn various relaxation methods of meditation enhancing mental peace.
- To promote healthy behaviour among the society that they will inculcate for life.

Module 1
I. Yogasana
1. 1 Standing Asana: Tadasana, Trikonasana, Urdhahastotanasana, Vrikshasana, Ardhchakrasna, Padhastanasana, Ashwasthasana
1.2 SittingAsana: Padmasana, Vakrasana, Ardhamatsyendrasana, Janusirsasana, Paschimottanasana, Vajrasana, Ushtrasana, Shasankasana, Gomukhasana ,Mandukasana, Bhadrasana, Singhasana
1 .3 Prone Lying Asana: Bhujangasana, Shalabhasana, Dhanurasana, Makarasana
1.4 Supine Lying Asana: Pawanmuktasana and its variation, setubandhasana„ sarvangasana, Ardhahalasana, Uttanpadasana, Halasana, Naukasana , Cakrasana ,Markatasana, Shavasana.

Module II
2.Yogic Sukshma Vyayama, Sthula Vyayama and Surya Namaskar
2.1 Yogic Sukshmavyayma
2.2 Yogic SthulaVyayama
2.3 Suryaa Namaskara

Module III
### 3.	Practices leading to Meditation
3.1 Pranav and Soham Japa
3.2 Yoga Nidra
3.3 Chakra Meditation
3.4 Ajapa Dharana
3.5 Om Meditation

Course Outcomes: By the end of Course, the students will be able to:

- CO1: Prevent the effects of stress in educators and develop healthy strategies of dealing with the daily work demand.
- CO2: Foster participant's ability to relax.
- CO3: Learn the best practices to improve student's emotional balance, through practical and experiential activities which can be adapted to any classroom.
- CO4: Favour student's search for self-awareness and identity and thus to promote changes in brain areas associated with attention and decision-making.

Assessment with Pen and Paper:
Possible assessment methods include: quizzes, tests, collected assignments, group activities and demonstration of skills and performance. Such assessments and related assignments will develop critical thinking techniques and reading, along with developing classical music skills.

Grading System will be adopted for Certification.

Marks	Grades	Grade Point
>90 and <=100	A1	10
>80 and <=90	A2	9
>70 and <=80	B1	8
>60 and <=70	B2	7
>50 and <=60	C1	6
>40 and <=50	C2	5

Certificate Course on Shatkarma, Pranayam and Meditation

Code: CCSKPM
Duration: 40 Hours
Three Months – One Lecture per Day

Aims:
- To acquaint students with the practical knowledge of Shatkarma.
- To provide appropriate information about benefits of Pranayama .
- Learning skills to develop meditation techniques.

Objectives:
- To remove gross impurities.
- To cure a range of impurities.
- To enhance the vital energy Prana.

Module I
Yoga Kriya Pranayama and Dhyan
Shatkarma: Knowledge and ability to perform the following practices:
1.1 Neti (Jal and Sutra)
1.2 Dhauti (Vaman + Vastra)
1.3 Nauli
1.4 Agnisara
1.5 Trataka
1.6 Kapalbhati

Module II
2. Pranayama
2.1 Breath Awareness.
2.2 Yogic Breathing.
2.3 Nadishodhan Pranayama
2.4 Suryabhedi
2.5 Ujjayi
2.6 Shitali
2.7 Sitkari
2.8 Bhastrika
2.9 Bhramari

Module III
3. Bandha and Mudra
3.1 JalandharaBandha, UddiyanaBandha, MaulaBandha, Tri Bandha
3.2 Yoga Mudra, Shanmukhi Mudra, Shambhavi Mudra, VipareetKarni Mudra

Course Outcomes: By the end of Course, the students will be able to:

- CO1: Develop techniques of concentration.
- CO2: Eradicates all diseases, fatigue and sloth and close the doorway creating

these problems.
- CO3: Understand the concept and principles of Shatkarmas.
- CO4: Develop understanding about breathing practice.

Assessment with Pen and Paper:
Possible assessment methods include: quizzes, tests, collected assignments, group activities and demonstration of skills and performance. Such assessments and related assignments will develop critical thinking techniques and reading, along with developing classical music skills.

Grading System will be adopted for Certification.

Marks	Grades	Grade Point
>90 and <=100	A1	10
>80 and <=90	A2	9
>70 and <=80	B1	8
>60 and <=70	B2	7
>50 and <=60	C1	6
>40 and <=50	C2	5

Certificate Course in Yoga and Diet Management

Code: CCYDM
Duration: 40 Hours
Three Months – One Lecture per Day

Aims:
- To optimize body weight with appropriate protein.
- To prevent chronic diseases by improving dietary habits.

Objectives:
- To achieve a state of positive health.
- Prevention of deficiency diseases.
- Increasing the life expectancy.

Module I
1.Yoga Therapy
1.1 Yoga Therapy: Area and Role Of Lifestyle and Diet in Yoga Therapy, Yoga for Health.
1.2 Yoga Management:- Arthritis, Cervical Spondylosis, Back Pain, Sciatica Pain, Hernia
 1.3 Kidney Disease, Thyroid, Obesity, Liver Related Problem, Diabetes, Constipation.
1.4 Hypertension, Heart Disease, Vision Defects, Insomnia, Headache, Mental Stress.

Module 2. Diet and Nutrition
2.1 Knowledge of Yogic Principles -Ahara, Vihar, Achar- Vichar.
2.2 Alternative Therapy: Basic principles of Ayurveda, Naturopathy.
2.3 Yogic concept of' healthy living: Tridosha.
2.4 Therapeutic importance of Dincharya and Ritucarya,
2.5 Importance or Diet (Aahara).
2.6 Yoga as preventive and promotive health care

Module III
3. Bandha and Mudra
3.1 JalandharaBandha, UddiyanaBandha, MaulaBandha, Tri Bandha
3.2 Yoga Mudra, Shanmukhi Mudra, Shambhavi Mudra, VipareetKarni Mudra

Course Outcomes: By the end of Course, the students will be able to:

- Utilize knowledge from the physical and biological sciences as a basis for understanding the role of food and nutrients in health and disease processes.
- Provide nutrition counseling and education to individuals, groups, and communities throughout the lifespan using a variety of communication strategies.
- Apply technical skills, knowledge of health behavior, clinical judgment, and decision-making skills when assessing and evaluating the nutritional status of individuals and communities and their response to nutrition intervention.
- Implement strategies for food access, procurement, preparation, and safety for

individuals, families, and communities.

Assessment with Pen and Paper:
Possible assessment methods include: quizzes, tests, collected assignments, group activities and demonstration of skills and performance. Such assessments and related assignments will develop critical thinking techniques and reading, along with developing classical music skills.

Grading System will be adopted for Certification.

Marks	Grades	Grade Point
>90 and <=100	A1	10
>80 and <=90	A2	9
>70 and <=80	B1	8
>60 and <=70	B2	7
>50 and <=60	C1	6
>40 and <=50	C2	5

Certificate Course in Stress Management by Yoga

Code: CCSMY
Duration: 40 Hours
Three Months – One Lecture per Day

Aims:
- Enhancing your ability to cope with adversity.
- To provide appropriate information about health.
- Learning skills such as problem solving, prioritizing task.
- To develop time management skills to reduce stress.

Objectives:
.
- To recognise the stressor.
- To Learn various relaxation methods to reduce stress.
- To recognize the cognitive components for stress.
- To promote healthy behaviour among the society that they will inculcate for life.

Module I
1. Yoga and Mental Health
1.1 Define mental health, Holistic health, Medical & Yogic perspective
I .2 Concept of Chitta (Conciseness)
I .3 Concept of Chitta Bhumis (state of mind)
1.4 Concept of Pancha Kosha (pranic body)

Module II
2. Mental Hygiene
2. I Mental Hygiene and roll of yoga in mental hygiene
2.2 Relationship between mind and body.

Module III
3. Meditation - Yoga
3.1 Swara yoga the balance of life
3.2 Mental deep relaxation (Pratyahara) and meditation (dhyana)
3.3 The mind and personality
3.4 Importance of true knowledge — Kath Upanishad

Module IV
4. Yoga & Stress Management

4. I Human Psyche: Yogic and modern concept, Behaviour and consciousness
4.2 Concept of stress according to modern science and yoga
4.3 Stress and Personality
4.4 Role of yoga in life management

Course Outcomes: By the end of Course, the students will be able to:

- CO1: Identify and understand the signs and symptoms of stress.
- CO2: Distinguish methods to control and/or reduce stress in their daily life.
- CO3: Develop coping skills that will enable the student to control his/her level of stress.

Assessment with Pen and Paper:
Possible assessment methods include: quizzes, tests, collected assignments, group activities and demonstration of skills and performance. Such assessments and related assignments will develop critical thinking techniques and reading, along with developing classical music skills.

Grading System will be adopted for Certification.

Marks	Grades	Grade Point
>90 and <=100	A1	10
>80 and <=90	A2	9
>70 and <=80	B1	8
>60 and <=70	B2	7
>50 and <=60	C1	6
>40 and <=50	C2	5

1. Certificate Course in Universal Human Values & Professional Ethics

Code: CCUHVPE
Duration: 40 Hours
Three Months- One Lecture per day

Aims:

- To enhance the standard of the students beyond those levels specified in academic curriculum.
- Enable the students to acquire a more holistic perspective.
- To facilitate the students to gain innovative and creative skills.

Objectives:

- To improve employability skills of students.
- To bridge the skill gaps and make students industry ready.
- To provide an opportunity to students to develop their interdisciplinary skills.

Module I: Human Values

1.1 Morals, values and Ethics – Integrity – Work ethic – Service learning
1.2 Civic virtue – Respect for others – Living peacefully – Caring – Sharing
1.3 Honesty – Courage – Valuing time – Cooperation – Commitment – Empathy.

Module II: Safety, Responsibilities and Rights

2.1 Safety and Risk – Assessment of Safety and Risk, Risk Benefit Analysis
2.2 Respect for Authority, Confidentiality, Conflicts of Interest
2.3 Occupational Crime, Professional Rights, Employee Rights (IPRs)

Module III: Global Issues

3.1 Moral Leadership
3.2 Code of Conduct
3.3 Corporate Social Responsibility.

Course Outcomes: By the end of the course, the student will be able to:

- CO1: Identify and analyse an ethical issue in the subject matter under investigation or in a relevant field.
- CO2: Assess their own ethical values and the social context of problems.
- CO3: Learn about the ethical responsibilities.
- CO4: Learn about the different professional roles.

Assessment with Pen and Paper:

Possible assessment methods include: quizzes, tests, collected assignments, group activities and demonstration of skills and performance. Such assessments and related assignments will develop critical thinking techniques and reading, along with developing ethics and values.

Grading System will be adopted for Certification.

Marks	Grades	Grade Point
>90 and ≤100	A1	10
>80 and ≤90	A2	9
>70 and ≤80	B1	8
>60 and ≤70	B2	7
>50 and ≤60	C1	6
>40 and ≤50	C2	5

medha

Medha is coming soon to your college campus. Get ready to upskill yourself and become industry-ready by learning 21st-century skills.

About Medha

Medha is a non-profit organization that works to bridge the gap between *education and employment* by facilitating 21st-century skills training, Internship, industry exposure, and placements on college campuses.

Medha works in three states and has impacted the lives of more than 25000 students. You can know more about Medha by clicking here - www.medha.org.in

Do you want to learn these skills & develop your personality?

Resume Writing?   Public speaking?   Presentation skills?

Interview skills?   Time management?   Leadership skills?

Team work?   Goal Setting?   Group discussion?

Crtitical thinking?   Professional ettiquettes?

Medha presents a 30-hours' certificate course: e Career Advancement Bootcamp (eCAB)

Topics :
You will learn all the abovementioned skills that will develop your perosonality as well.

Duration :
eCAB is a 30 hours' course.

Certification :
You will earn a valued certificate if you complete the training with mimum 75% or above attendance.

After training:
You will get number of internships and placement opportunities, exposure visits, chance to participate in learning journeys and competition.

Training fee :
Interested students can enrol by paying one-time contribution Rs. 500 for all the mentioned services. You will also receive a student-kit.

The program will be conducted in the batch of 25 students. You can submit your interest by filling this form - Click here

We will conduct an orientation session with students who submit their interests.

Get ready to skill yourself and stand out in the crowd!

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)
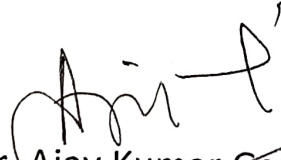
(Affiliated to Kurukshetra University, Kurukshetra)

REF. NO. IBC/Notice/2022/419   DATED 12/5/2022

Notice

Placement and Career Guidance Cell in collaboration with Medha is going to organize a Certification ceremony of three skill development course batches and felicitation to the winners of presentation skill competition on 13th May, 2022 at 10:30 A.M. onwards in Seminar Hall.

Dr. Ajay Kumar Garg
Principal

I.B. POST GRADUATE COLLEGE

(ESTD. 1956)

G.T. ROAD, PANIPAT-132103 (HARYANA)

(Affiliated to Kurukshetra University, Kurukshetra)

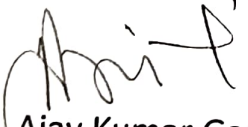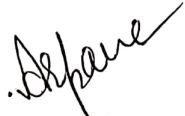REF. NO. IB./N.ohie/2022/ 576(i)   DATED. 7./11/2022.

Notice

Placement & Career Guidance Cell, in collaboration with Medha, will organize a certification ceremony on 9th November, 2022. During this event, the certificate will be provided to 106 students who have completed the 30 hours Career Advancement Bootcamp course by Medha.

Refer to the below-mentioned details:

Course Name	Career Advancement Bootcamp
Place	Seminar Hall, I.B.(PG) College, Panipat
Batches	CAB 4, CAB 5, CAB 6, and CAB 7
Date	9th November 2022
Time	11:00 AM - 01:00 PM

All the students who have completed their training need to be present at the venue on time.

Dr. Ajay Kumar Garg
Principal cum Patron

Dr. Arpana Garg
Convenor, Placement & Career Guidance Cell

Piyush Gupta
Medha

कौशल विकास कोर्स के विजेताओं को प्रमाणपत्र देकर किया सम्मानित

आईबी कालेज में कौशल विकास कोर्स के विजेताओं को प्रमाण पत्र देकर सम्मानित करते प्राचार्य व अन्य। (मोहन लाल)

पानीपत, 13 मई (विनोद पांचाल) : आईबी स्नातकोत्तर महाविद्यालय में करियर गाइडैंस एवं प्लेसमैंट सेल और मेधा फाऊंडेशन के संयुक्त तत्वावधान में कौशल विकास कोर्स के तीन बैचेस के प्रतिभागियों एवं प्रस्तुतिकरण कौशल प्रतियोगिता के विजेताओं को प्रमाण पत्र एवं सम्मानित करने के लिए समारोह आयोजित किया गया। समारोह का शुभारंभ प्राचार्य डॉ.अजय गर्ग, डा. अर्पणा गर्ग, प्रो. अजयपाल सिंह, मेधा लर्निंग फाऊंडेशन से प्रीति सिंह, मिस सदफ सिराज, पीयूष एंड मिस सौम्या द्वारा दीप प्रज्वलन किया

गया। प्राचार्य डा. अजय गर्ग ने कहा कि विद्यालय विद्यार्थियों को केवल शिक्षा ही नहीं बल्कि उनके रोजगार उन्मुख विकास के लिए प्रयासरत है।

उन्होंने कहा कि विद्यार्थियों को विभिन्न स्किल जैसे पब्लिक स्पीकिंग, कम्युनिकेशन स्किल सिखाने के लिए महाविद्यालय ने मेधा फाऊंडेशन के साथ मिलकर स्किल डिवैल्पमैंट कोर्स एवं प्रस्तुतीकरण स्किल प्रतियोगिता कराई गई। समारोह में प्रो.निशा, प्रो. रुचिका, डॉ. रामेश्वर दास, डा. किरण मदान, डा. पूनम मदान, डा. नीलम, डा. निधि मौजूद रहे।

आईबी महाविद्यालय में सम्मान समारोह आयोजित

पानीपत (सच कहूँ न्यूज)। जी . टी . रोड स्थित आई. बी .स्नातकोत्तर महाविद्यालय में करियर गाइडेंस एवं प्लेसमेंट सेल और मेधा फॉउंडेशन के संयुक्त तत्वाधान में कौशल विकास कोर्स के तीन बैचेस के प्रतिभागियों एवं प्रस्तुतिकरण कौशल प्रतियोगिता के विजेताओं को प्रमाण पत्र एवं सम्मानित करने के लिए समारोह आयोजित किया गया। इस समारोह का शुभारंभ प्राचार्य डॉ अजय कुमार गर्ग, डॉ अर्पणा गर्ग, प्रो. अजयपाल सिंह, मेधा लर्निंग फाउंडेशन से मति प्रीति सिंह , मिस सदफ सिराज , पीयूष एंड मिस सौम्या द्वारा दीप प्रज्वलन एवं सरस्वती वंदना के साथ किया गया इस अवसर पर प्रधानाचार्य डॉ अजय कुमार गर्ग ने कहा कि हमारा विद्यालय विद्यार्थियों को केवल शिक्षा ही नहीं बल्कि उनके रोजगार उन्मुख विकास हेतु प्रयासरत है। उन्होंने यह भी कहा कि विद्यार्थियों

को विभिन्न स्किल जैसे पब्लिक स्पीकिंग , कम्युनिकेशन स्किल इत्यादि सिखाने के लिए हमारे महाविद्यालय ने मेधा फाउंडेशन के साथ मिलकर स्किल डेवलपमेंट कोर्स एवं प्रस्तुतीकरण स्किल प्रतियोगिता कराई गई। इसी के तहत हमने 2021 में मेधा लर्निंग फाउंडेशन के साथ मिलकर ओरियंटेशन कोर्स स्टार्ट किए गए और हम तीन सर्टिफिकेट कोर्स कंप्लीट कर चुके हैं। इस कोर्स में विद्यार्थियों को सामूहिक कार्य, नेतृत्व के गुण ,प्रस्तुतिकरण ,संचार स्किल , रहडळ

विश्लेषण इत्यादि सिखाई गई इस अवसर पर प्रो.अजय पाल सिंह ने कहा कि समय बदल रहा है और विद्यार्थियों को पढ़ाई के साथ साथ व्यवसायिक प्रशिक्षण तथा कौशल विकास पर जोर देने की जरूरत है तभी हर विद्यार्थी अपनी जिंदगी में नई ऊंचाइयों को छू पायेगा । इस समारोह के सफल आयोजन में प्रो.निशा और प्रो. रुचिका ने अहम भूमिका निभाई इस समारोह में डॉ.रामेश्वर दास, डॉ. किरण मदान, डॉ. पूनम मदान, डॉ. नीलम, डॉ. निधि आदि मौजूद रहे।

आईबी कालेज में सर्टीफिकेट वितरण समारोह सम्पन्न

सवेरा न्यूज/ विनोद पांचाल

पानीपत , 12 नवम्बर : आईबी पीजी कालेज में कैरियर एडवांसमेंट बुटकैम्प की सफलतापूर्वक समाप्ति पर सिर्टिफकेट वितरण समारोह का आयोजन किया गया। गौरतलब है कि प्लेसमेंट एवं कैरियर गाइडेंस सेल और मेधा के संयुक्त तत्वावधान में महाविद्यालय कैंपस में 30 घंटे के बूटकैम्प का संचालन किया गया। जिसका मकसद विद्यार्थियों को 21वीं सदी के रोजगार कौशल सिखाना था। कैम्प में कालेज के 106 विद्यार्थियों को कम्युनिकेशन, कोलैबोरेशन,

आईबी कालेज में सिर्टिफकेट वितरण समारोह में छात्र-छात्राओं को सर्टिफकेट देते हुए। (मोहन लाल)

क्रिएटविटी और क्रिटिकल थिंकिंग जैसे कौशल सिखाने का कार्य किया गया। समारोह का शुभारम्भ प्राचार्य डा. अजय कुमार गर्ग, डा. अर्पणा गर्ग, डा. किरण मदान, प्रो. पवन कुमार ,डा. शिर्मला ,डा. निधि, प्रो. माधवी व मेधा से

संजुल ,अशोक भाखरी, मिस सदफ , मिस पूजा, मिस शीतल ने दीप प्रज्जवलन करके किया। प्राचार्य डा. अजय कुमार गर्ग ने कहा कि विद्यार्थी अकादमिक शिक्षा के साथ रोजगार कौशल तो सीख ही रहे है हम उन्हें रोजगार के अवसरों से भी जोड़ रहे हैं। मेधा के साथ हमने अगले दो वर्षों के लिए एमओयू भी किया है। जिसके अंतर्गत शिक्षा से रोजगार तक के लिए विद्यार्थियों को तैयार किया जाएगा। कार्यक्रम के सफल आयोजन में प्रो. निशा,प्रो.रुचिका, प्रो. पूजा, प्रो. लीना, प्रो. कोमल ने अहम योगदान दिया।

आई. बी. कॉलेज,पानीपत में हुआ सर्टिफिकेट वितरण समारोह का आयोजन

पानीपत कमाल हुसैन जी टी रोड स्थित आई.बी. कॉलेज, पानीपत में कैरियर एडवांसमेंट बूटकैम्प की सफलतापूर्वक समाप्ति पर सर्टिफिकेट वितरण समारोह का आयोजन किया गया। बताते चलें कि प्लेसमेंट एवं कैरियर गाइडेंस सेल और मेधा के संयुक्त तत्वावधान में महाविद्यालय कैंपस में 30 घंटे के बूटकैम्प का संचालन किया गया जिसका मकसद विद्यार्थियों को 21सवीं सदी के रोजगार कौशल सिखाना था इस कैम्प में कॉलेज के 106 विद्यार्थियों को कम्युनिकेशन, कोलैबोरेशन, क्रिएटिविटी, और क्रिटिकल थिंकिंग जैसे कौशल सिखाने का कार्य किया गया।

समारोह का शुभारम्भ कॉलेज प्राचार्य डॉ अजय कुमार गर्ग, डॉ अर्पणा गर्ग,डा किरण मदान,प्रो पवन कुमार ,डा सर्वीना ,डा निधि,प्रो माधवी और मेधा से भी संजुल

अशोक भाखरी, मिस सदफ, मिस पूजा, मिस शीतल ने दीप प्रज्जवलन करके किया। इस मौके पर प्राचार्य डा अजय

कुमार गर्ग जी ने कहा कि हमारे विद्यार्थी अकादमिक शिक्षा के साथ रोजगार कौशल तो सीख ही रहे हैं, हम उन्हें रोजगार के

अवसरों से भी जोड़ रहे हैं।
इस अवसर पर मेधा के साथ हमने अगले दो वर्षों के लिए एम ओ यू भी किया है

जिसके अंतर्गत शिक्षा से रोजगार तक के लिए विद्यार्थियों को तैयार किया जाएगा और अत्यन्त हर्ष का विषय है कि 300 से ज्यादा विद्यार्थी इससे लाभान्वित हो रहे हैं। प्लेसमेंट एवं कैरियर गाइडेन्स सेल की कन्वीनर डॉ अर्पणा गर्ग ने कहा - विद्यार्थियों की दक्षता में बहुत सुधार हुआ है, अब वे बेहतर आत्मविश्वास के साथ कम्युनिकेट करते हैं इस प्रोग्राम में प्रशिक्षित विद्यार्थियों ने बढ़-चढ़कर हिस्सा लिया और विभिन्न कार्यक्रम प्रस्तुत किये।

सक्षम, अश्वनी, आयशा, और संचित ने गीत प्रस्तुत किया। विद्यार्थियों ने दो स्किट भी प्रस्तुत किये जिनके टॉपिक थे "भविष्य की तैयारी और इंटरव्यू" कार्यक्रम के सफल आयोजन में प्रो दिशा,प्रो रुचिका,प्रो पूजा,प्रो स्नेहा,प्रो कोमल ने अहम योगदान दिया।