Study & Evaluation Scheme

of

Diploma in Computer Science and Engineering
[Applicable w. e. f. session 2012-13 till revised]

TEERTHANKER MAHAVEER UNIVERSITY

Delhi Road, Moradabad, Uttar Pradesh-244001

Website: www.tmu.ac.in

TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)
Delhi Road, Moradabad (U.P)

Study & Evaluation Scheme
of
Diploma in Engineering (Computer Science)

SUMMARY

Programme	:	Diploma in Engineering
Duration	:	3 Years (Semester system)
Medium	:	English
Minimum Required Attendance	:	75 %

Assessment (Theory and Project) :

Internal	External	Total
30+10 (Project)	60	100

Maximum Credit : **191**

Minimum Credit required for the degree : **184**

Internal Evaluation (Theory Papers & Project) :

Class Test I	Class Test II	Class Quiz/ Assig/ Proj.	Attend ance	Grand Total
Best two out of the three				
10 Marks	10 Marks	15 Marks	5 Marks	40 Marks

Evaluation of Practical/ Dissertation & Project Report :

Internal	External	Total
50	50	100

Duration of Examination :

Internal	External
1 ½ hrs.	3 hr.

To qualify the course a student is required to secure a minimum of 40% marks in aggregate including the semester-end examination and teachers' continuous evaluation. (i.e. both internal and external).
A candidate who secures less than 40% of marks in a course shall be deemed to have failed in that course.
Te student should have at least 50% marks in aggregate to clear the semester. In case a student has more than 40% in each course, but less than 50% overall in a semester, he/she shall re-appear in courses where the marks are less than 50% to achieve the required aggregate percentage (of 50%) in the semester. It is compulsory for the student to appear in external examination to clear the course.

Question paper structure

1. *The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weightage 3 marks each).*
2. *Out of the remaining seven questions, student shall be required to attempt any five questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be 9 marks each.*
3. *Weightage to numerical/ case study etc shall be as mentioned at the end of syllabus of each subject.*

Study & Evaluation Scheme
Program: Diploma in Engineering (Computer Science)
Semester- I

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*		
			L	*T*	*P*		*Internal*	*External*	*Total*
1	DIP101	Applied Mathematics – I	4	-	-	4	40	60	100
2	DIP102 OR DIP103	Applied Physics OR Applied Chemistry	5	-	-	5	40	60	100
3	DIP104 OR DIP105	Basics of Electrical & Civil Engineering OR Basics of Electronics & Mechanical Engineering	4	-	-	4	40	60	100
4	DIP106 OR DIP107	Concepts in Information Technology OR Applied Mechanics	4	-	-	4	40	60	100
5	DIP108	Foundation English – I	3	-	-	3	40	60	100
6	DIP151 OR DIP152	Physics Lab OR Chemistry Lab	-	-	3	2	50	50	100
7	DIP153 OR DIP154	Electrical Engineering Lab OR Electronics Engineering Lab	-	-	4	2	50	50	100
8	DIP155 OR DIP156	Information Technology Lab OR Applied Mechanics Lab	-	-	**4**	**2**	**50**	**50**	**100**
9	DIP157 OR DIP158	Workshop Practice OR Engineering Drawing	- 2	 -	**8** 6	**4** 5	50	50	100
Total			**20/ 22**	**-**	**19/** 17	**30/** 31	**400**	**500**	**900**

Semester- II

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*		
			L	*T*	*P*		*Internal*	*External*	*Total*
1	DIP201	Applied Mathematics – II	4	-	-	4	40	60	100
2	DIP202 OR DIP203	Applied Physics OR Applied Chemistry	5	-	-	5	40	60	100
3	DIP205 OR DIP204	Basics of Electronics & Mechanical Engineering OR Basics of Electrical & Civil Engineering	4	-	-	4	40	60	100
4	DIP207 OR DIP206	Applied Mechanics OR Concepts in Information Technology	4	-	-	4	40	60	100
5	DIP208	Foundation English – II	3	-	-	3	40	60	100
6	DIP251 OR DIP252	Physics Lab OR Chemistry Lab	-	-	3	2	50	50	100
7	DIP254 OR DIP253	Electronics Engineering Lab OR Electrical Engineering Lab	-	-	4	2	50	50	100
8	DIP256 OR DIP255	Applied Mechanics Lab OR Information Technology Lab	-	-	**4**	**2**	**50**	**50**	**100**
9	DIP258 OR DIP257	Engineering Drawing OR Workshop Practice	2	-	6 **8**	5 **4**	50	50	100
Total			**22/ 20**	**-**	17/ **19**	**31/** 30	**400**	**500**	**900**

Semester- III

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	DCS301	Operating System	3	2	-	5	40	60	100
2	DCS302	Computer Programming in C	4	-	-	4	40	60	100
3	DCS303	Computer Network	4	-	-	4	40	60	100
4	DEC301	Digital Electronics	3	2	-	5	40	60	100
5	DIP301	English Communication	3	-	-	3	40	60	100
6	DCS351	Operating System Lab (Linux)	-	-	4	2	50	50	100
7	DCS352	C Programming Lab	-	-	4	2	50	50	100
8	DCS353	Computer Network Lab	-	-	4	2	50	50	100
9	DEC351	Digital Electronics Lab	-	-	4	2	50	50	100
Total			**17**	**4**	**16**	**29**	**400**	**500**	**900**

Semester- IV

S. No.	Course Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	DCS401	Data Structures Using C	3	2	-	5	40	60	100
2	DCS402	Database Management System (DBMS)	3	2	-	5	40	60	100
3	DCS403	Computer Organization & Microprocessor	3	2	-	5	40	60	100
4	DCS404	Management Information System	3	2	-	5	40	60	100
5	DCS405	Software Engineering	3	1	-	4	40	60	100
6	DIP401	Technical Communication	3	-	-	3	40	60	100
7	DCS451	Data Structures Using C Lab	-	-	4	2	50	50	100
8	DCS452	Database Management System Lab	-	-	4	2	50	50	100
9	DCS453	Computer Organization & Microprocessor Lab	-	-	4	2	50	50	100
Total			**18**	**9**	**12**	**33**	**390**	**510**	**900**

Semester- V

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*		
			L	*T*	*P*		*Internal*	*External*	*Total*
1	DCS501	Computer Graphics	3	2	-	5	40	60	100
2	DCS502	Java Programming	3	2	-	5	40	60	100
3	DCS503	Multimedia	3	2	-	5	40	60	100
4	DCS504	Object Oriented Programming in C++	3	1	-	4	40	60	100
5	DIP501	Communication Technique	3	-	-	3	40	60	100
6	DIP502*	Social, Psychological and Economics Factors	3	-	-	3	40	60	100
7	DCS551	Computer Graphics Lab	-	-	4	2	50	50	100
8	DCS552	Java Programming Lab	-	-	4	2	50	50	100
9	DCS553	Multimedia Lab	-	-	2	1	50	50	100
10	DCS554	Object Oriented Programming in C++ Lab	-	-	4	2	50	50	100
11	DCS555	Industrial training	-	-	-	4	50	50	100
Total			**18**	**7**	**14**	**36/33**	**490/450**	**610/550**	**1100/ 1000**

Semester- VI

S. No.	*Course Code*	*Subject*	*Periods*			*Credit*	*Evaluation Scheme*		
			L	*T*	*P*		*Internal*	*External*	*Total*
1	DCS601	Web Technology	3	2	-	5	40	60	100
2	DCS602	E-Commerce	3	2	-	5	40	60	100
3	DCS603	Visual Basic **.**Net	3	2	-	5	40	60	100
4	DIP602	Industrial Economics & Principles of Management	3	2	-	5	40	60	100
5	DIP601	Corporate Communication	4	-	-	4	40	60	100
6	DIP603*	Industrial Ecology	3	-	-	3	40	60	100
7	DCS651	Web Technology Lab	-	-	4	2	50	50	100
8	DCS652	Major Project	-	-	8	4	50	50	100
9	DCS653	Visual Basic **.**Net Lab	-	-	4	2	50	50	100
Total			**16**	**8**	**16**	**32/35**	**350/390**	**450/510**	**800/ 900**

*The subject -**Social, Psychological and Economics Factors** will be taught in either V or VI semester

APPLIED MATHEMATICS – I

First Semester

	L	T	P	C
Course Code: DIP101	**4**	**-**	**-**	**4**

Course Contents:

Unit I

ALGEBRA

Series: A.P. and G.P.; n_{th} term, Sum to n terms, Arithmetic Mean.

Binomial theorem for positive, negative and fractional index (without proof). Application of Binomial theorem. **(10 Lectures)**

Unit II

Determinants:

Elementary properties of determinants of order 2 and 3, Multiplication system of algebraic equations, Consistency of equation, Crammer's rule.

Vector algebra:

Dot and Cross product of two vectors, Scalar and vector triple products.

Work done, Moment of a force. **(10 Lectures)**

Unit III

Trigonometry:- Relations between sides and angles of a triangle: Statement of various formulae showing relationship between sides and angles of a triangle. Complex numbers, Representation, Modulus and amplitude De Moivre's theorem, its application in solving algebraic equations, Modulus Function and its properties. **(10 Lectures)**

Unit IV

Co-ordinate Geometry:

Standard form of curves and their simple properties: Parabola, Ellipse, Hyperbola.

Tangent and normal to these curves. **(10 Lectures)**

Unit V

Straight lines, planes and spheres in 3–dimensional space: Distance between two points in space, direction cosines and direction ratios, projections finding equation of a straight line, and shortest distance between two lines.

Different forms of planes, relation between lines and planes, sphere. **(10 Lectures)**

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge. The project will be evaluated by the external examiner.

Text Books:

1. Sharma, R D, *Applied Mathematics*, Dhanpat Rai Prakashan , New Delhi.
2. Luthra , H.R , Applied Mathematics –I , Dhanpat Rai Prakashan , New Delhi

Reference Books:

1. Grewal B S, *Elementary Engineering Mathematics*, Khanna Publication

2. Mittal S C & Mittal, S K., *Two Dimensional Coordinate*, Pragati Prakashan, Meerut
3. Loney, S L, *Trigonometry (I part) AITBS Publishers , Delhi*
4. Sumha Dr. K. S., *Applied Mathematics (I & II)*, Bharat Bharati Prakashan, Meerut.

APPLIED PHYSICS
First/Second Semester

L	T	P	C
5	-	-	5

Course Code: DIP102/202

Course Contents:

Unit I

Vector: - Scalar and vector quantities: Addition, Subtraction, Resolution of vector- Cartesian components of vector, Scalar and vector product of two vectors.

Force and Motion: Parabolic motion, projectiles thrown horizontally and at an angle. Problems on time of flight, horizontal range, and vertical height. Circular motion, angular velocity, angular acceleration and centripetal acceleration. Relationship between linear and angular velocity and acceleration. Centripetal and centrifugal forces. Gravitational force, Kepler's laws, Escape velocity, geostationary satellite.

(10 Lectures)

Unit II

Dynamics of Rigid Body (Rotational Motion): Rotational motion, Moment of inertia, Theorems (Perpendicular and Parallel axis) of moment of inertia (Statement). Radius of gyration, angular momentum, Conservation of angular momentum, Torque, Rotational kinetic energy.

Friction : Introduction , Advantage and disadvantage of friction . Static and dynamic frictional forces.

Fluid Mechanics: Surface tension, Equation of continuity ($A_1V_1=A_2V_2$), Bernoulli's theorem, streamline and Turbulent flow.Viscosity, coefficient of viscosity, & its determination by Stock's method.

(15 Lectures)

Unit III

Elasticity: - Elasticity, stress and strain. Hook's law, elastic limit. Yielding point and breaking point.
Modulus of elasticity: Young's modulus, bulk modulus and modulus of rigidity, Poisson ratio.

Simple Harmonic Motion: Periodic Motion, characteristics of simple harmonic motion; equation of S.H.M. and determination of velocity and acceleration. Simple pendulum. Derivation of their periodic time. Kinetic Energy and Potential Energy in S.H.M. Energy conservation in S.H.M. **(10 Lectures)**

Unit IV

Application of Sound Waves:-

Acoustics:- Standing waves, Closed and Open organ pipes, Resonance. Echo and reverberation and reverberation time. Sabine's formula. Control of reverberation time.

Optics: Quantum nature of light, Coherence , Duality of wave and particle, Concept of Interference, Fraunhoffer single-slit diffraction, Elementary concept of polarisation.

Nuclear physics: Radioactivity, Nuclear stability, Radioactive emission, Nuclear fission and fusion, chain-reaction, Nuclear reactors ,Mass-energy relation, Mass defect and binding energy. **(15 Lectures)**

Unit V

Electrostatics: Electric Charges, Conservation law of charge, Coulomb's law-force between two point charges, superposition principle and continuous charge distribution.
Electric field, electric field due to a point charge, electric field lines, electric dipole.
Electric flux, statement of Gauss's theorem .Electric potential, potential difference, electric potential due to a point charge, equipotential surfaces.

Electrodynamics: Electromotive force, Ohm's law, Limitations of Ohm's law, Ampere's Law, faraday's law, Biot- Savart's Law. **(10 Lectures)**

The question paper shall have weightage to numerical/ case study 30% and to theoretical 70%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Nayar P.V., *Engineering Physics*, Pearson Education Pvt. Ltd.

2. TTTI, *Applied Physics, Vol I & II*, Publications Tata Mc Graw Hill.
3. Verma HC, *Concepts in Physics Vol I & II*, Bharti Bhawan Ltd.

Reference Books

1. Subramanian & Brij Lal, *A text book of optics*, S. Chand & Co New Delhi.
2. Jaiswal J. N., *Comprehensive Practical Physics, Vol I & II*, Laxmi Publisher.

APPLIED CHEMISTRY
First/Second Semester

	L	T	P	C
Course Code: DIP103/203	**5**	**-**	**-**	**5**

Course Contents:

Unit:-I

ATOMIC STRUCTURE

Basic concept of atomic structure, Matter wave concept, de Broglie wave equation, Quantum numbers, Heisenberg's Uncertainty Principle, Shapes of orbitals.

CHEMICAL BONDING:- Overview of basic concept, Ionic, Co-valent and Co-oridination Bond, Hydrogen bonding, Valence Bond Theory, Hybridisation and Geometrical shape of $BeCl_2$, BCl_3, CH_4 molecules. **(15 Lectures)**

Unit:- II

ELECTRO CHEMISTRY: Arrhenius's Theory of electrolytic dissociation, Electrolytic conductance, Oswald dilution law. Concept of Acid and bases: Bronsted, Arrhenius's and Lewis theory. Concept of pH and it measurement by pH meter. Buffer solutions, Indicators, Solubility product, Common ion effect with their application, Redox reactions, Electrode potential (Nernst Equation), Electro-chemical cell (Galvanic and Electrolytic). Standard electrode potential, Electro chemical series and its application. **(12 Lectures)**

Unit:- III

ENVIRONMENTAL POLLUTION AND ITS CONTROL: Concept and various types of environmental pollution with special reference to air pollution and water pollution. General measures to control environmental pollution. depletion of Ozone layer, Green house effect, Acid rain, Smog formation, Chemical and photochemical reaction, Various species in atmosphere. Specific industrial pollution like Euro-I and Euro-II. **(10 Lectures)**

Unit:- IV

WATER TREATMENT: Concept of hard and soft water, Hardness of water, Its limits and determination of hardness of water by EDTA method. Softening methods (Only Sods lime, Zeolite and Ion exchange resin process). Disadvantage of hard water in different industries, Boiler feed water boiler scale formation, Corrosion, Caustic embritilment, primming and foaming. Characteristics imparted by various impurities or contaminants such as colour, odour, taste and sediments and their analysis.

CORROSION: Concept of metallic corrosion, Types of corrosion and factors affecting the corrosion rate, Chemical and electrochemical theory of corrosion, Oxide film formation and its characteristics, tarnishing fogging and rusting, Prevention of corrosion by various methods. **(15 Lectures)**

Unit:- V

POLYMERS:

1. Introduction to basic terms used in polymer chemistry and technology. Monomers, Average degree of polymerisation, Average molecular weight.
2. Characteristics of Polymers and their classification

- Addition polymers and their industrial application – Polystyrene, PVC, PAN, Buna-S, Teflon.
- Condensation polymer and their industrial application: Nylon 6, Nylon 6, 6, Bakelite. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 30% and to theoretical 70%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Mittal K.K., *Chemistry for Polytechnic,* Pragati Prakashan, Meerut.
2. Mehta V.P., *Polytechnic Chemistry,* Arun Publisher, Meerut.
3. Chandra S., *Text Book of Chemistry for Polytechnic,* Nav Bharat Prakashan, Meerut.
4. Chaudhari & Kataria, *Text Books of Chemistry for Polytechnic,* Bharat Bharati Prakashan, Meerut.

Reference Books:

1. Gaidher S.R. & Adasul B G, *Basic Chemistry for Polytechnic,* S.Chand Pub., Delhi.
2. Alla Appa Rao, *Polytechnic Chemistry,* New Age International Pub., Delhi.
3. Sharma S.D., *Polytechnic Chemistry,* Dhanpat Rai Pub., Delhi.

BASICS OF ELECTRICAL AND CIVIL ENGINEERING
First/Second Semester

	L	T	P	C
Course Code: DIP104/204	**4**	**-**	**-**	**4**

Course Contents:

UNIT - I

BASIC OF ELECTRICAL QUANTITIES :- Different forms of energy, Advantages of electrical energy, Uses of electrical energy, Basic concept of charge, Current, Voltage, Resistance Power, Energy and their units.

GENERATION, TRANSMISSION AND DISTRIBUTION OF ELECTRIC POWER :- Introduction, Basic idea of generation, Thermal, hydro & nuclear power stations, Transmission of power, Substations, Distribution system **(8 Lectures)**

UNIT –II

DC CIRCUIT:- Ohm's Law, Resistance in series and Parallel, Voltage and current division rule, Kirchhoff's Laws and their application in solving simply D. C. Network.

AC CIRCUIT:-Concept of alternating current and voltage, basic of A.C generator, Equation of instantaneous values. Average rules, R.M.S. value, Form Factor and peak factor of sinusoidal waveform. Simple R-L-C Series circuit concept of three phase A.C. **(8 Lectures)**

UNIT- III

Electromagnetic Circuits:- Magnetic flux, flux density, field intensity, B-H Curve, Hysteresis and eddy current losses, difference between magnetic and electric circuit, Faraday's law, Fleming right hand & left hand rule, lenz law, thumb rule, self and mutual, inductance, induced emf, energy stored in magnetic circuit.

Electrostatics:- Capacitance and capacitor, Charging and discharging, Energy stored in a capacitor, Capacitance in terms of dimension of parallel plate capacitor**,** Series and parallel connection of capacitor. **(8 Lectures)**

Basics of Civil Engineering

Unit IV

- Classification of soil. Elementary ideas of Engineering properties of soil. Bearing capacity of soil.
- Geological consideration for site selection. Difference between Map & plan Engineering scales.

(8 Lectures)

Unit V

- Foundation: Definition of foundation, classification, shallow and deep foundation and their common types, use of Machine foundation Black cotton soil foundation, walls their classification, load bearing, Non load bearing partition and cavity wall. **(8 Lectures)**

Unit VI

- Most common type of masonry used in civil engineering works. Different types of mortars used in masonry work, brick masonry, Stone masonry, concrete block masonry, Bonds used in brick masonry, English & Flemish bonds, elevation, plan of one & one and half brick thick wall laying in English bond two course only. Cross section of wall of two story building. Showing different component. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 30% and to theoretical 70%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Narendra Kumar, *Basic Electrical Engineering*, Asian Publishers, Muzaffernagar.
2. Gupta D.V., *General Civil Engineering*, Asian Publishers, Muzaffernagar.

Reference Books:

1. Therja B.L., *Fundamental of Electrical Engineering*, S.Chand & Co., Delhi.
2. Punmia B.C., *Building Construction*, Laxmi Publication Pvt. Ltd., New Delhi.

BASICS OF ELECTRONICS AND MECHANICAL ENGINEERING
First/Second Semester

	L	T	P	C
Course Code: DIP105/205	**4**	**-**	**-**	**4**

Course Contents:

BASICS OF ELECTRONICS ENGINEERING

DETAILED CONTENTS:

Unit I

Electronic Component & Voltage and Current Sources:- Application of Electronics in different fields, Brief introduction to active and passive components, Resistor working, specification, testing & colour coding of resistor, Capacitor. Working, specification testing & colour coding, inductor working, RF coils, transformer. Concept of constant voltage & current sources, concept of practical voltage & current sources, conversion of voltage to current & current to voltage sources. **(8 Lectures)**

Unit II

Semiconductor Diode:- P-N junction diode, mechanism of current flow in P-N junction, drift and diffusion currents, depletion layer, potential barrier, breakdown, semiconductor diode characteristics, P-N junction diode as rectifier, half wave rectifier, full wave rectifier, bridge rectifier, different types of diode: power diode, zener diodes, varactor diodes, tunnel diode, LED's and photo diodes. **(8 Lectures)**

Unit III

Introduction to Bipolar Transistor Biasing and Stabilization of Operating Point:- Concept of bipolar transistor as a two junction and three terminal device having two kinds of charge carriers, PNP and NPN transistors, their symbols, concept of leakage current, effect of temperature on leakage of current, common base configurations (CB), common emitter configuration (CE), common collector configuration, different types of biasing ciruits for fixing the operation points, single stage CE amplifier circuit with proper biasing components. **(8 Lectures)**

Basics of Mechanical Engineering

Unit IV:

Sources of energy, Energy sources in nature, conventional and non-conventional energy sources. Fuels, their properties and classification.

Machine Components: Brief idea of loading of machine components- pins, cotter and knuckle joints, types of keys, shafts, collars, cranks and eccentrics, couplings and clutches. **(8 Lectures)**

Unit V:

Bearings- use and types.

Lubrication- types of lubrication systems, selection of lubricants on the basis of their properties. **(8 Lectures)**

Unit VI:

Power transmission: Gears- types of gears, gear trains and their applications, nomenclature.

Belts, ropes, chains and discs.

Springs- their types, use and material. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Garg R.P., *Elements of Mechanical Engineering*, Standard Publishers Distributors, Delhi.
2. Sharma Sanjay, *Basic Electronics*, Publication of Engineering & Computer.

CONCEPTS IN INFORMATION TECHNOLOGY

First/Second Semester

	L	T	P	C
Course Code: DIP106/206	**4**	**-**	**-**	**4**

Course Contents:

Unit I

Concepts in computer & Programming; Computer Appreciation: Definition of electronic Computer, Generations, Characteristic and Application of Computers, Computer Hardware, CPU, Memory, Various I/O devices, Software,Types of Computer. **(Lectures 08)**

Unit II

Programming Language Classification & Program Methodology; Computer Languages: Generation of Language, Translators: Interpreter, Assembler Compiler, Software Development life cycle: Waterfall model. **Number System:** Various codes, decimal, binary, octal, hexadecimal conversion. **(Lectures 08)**

Unit III

Internet and Web Technologies; Internet & World Wide Web: Hypertext Marks Language, WWW, Gopher, FTP, Web Browsers, Search Engines, Email. **(Lectures 08)**

Unit IV

Concepts in Operating System & Data Management: Elementary Concepts in Operating System, textual Vs GUI Interface, Introduction to DOS, MS Office Tools MS WORD, MS EXCEL, MS Power Point. **(Lectures 08)**

Unit V

Application of IT, E Commerce, Multimedia, and Entertainment.

Information Representation: Introduction to Information representation in Digital Media: Text, Image, graphics, Animation, Audio, Video etc, Introduction to JPEG & MPEG. **(Lectures 08)**

The question paper shall have weightage to numerical /case Study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Yadav DS, *Foundations of IT*, New Age, Delhi.
2. Curtin, *Information Technology: Breaking News*, Tata Mc Grew Hill, New Delhi.
3. Sinha PK, Fundamentals of Computers, BPB Meerut.

Reference Books

1. Rajaraman, *Introduction to Computers*, Prentice-Hall India, Delhi

Applied Mechanics
First/Second Semester

	L	T	P	C
Course Code: DIP107/207	**4**	**-**	**-**	**4**

Course Contents:

UNIT I

Force Analysis: - System of forces, concept of coplanar and non-coplanar forces including parallel forces. Concurrent and non-concurrent forces, resultant forces, Equilibrium of forces, Law of parallelogram of forces, Law of triangle of forces and its converse, Law of polygon of forces, solution of simple engineering problems by analytical and graphical methods. Such as simple wall crane, jib crane etc. Determination of resultant of any number of forces in one plane acting upon a particle, Conditions of equilibrium of coplanar concurrent forces system. **(8 Lectures)**

UNIT II

Moment and couple, General conditions of Equilibrium Moment and couple Generalized theorem of moments, Application to simple problem on levers-Bell crank Lever, compound lever, steel yard, beams & wheels, lever safety valve, moment of couple, properties of a couple, simple applied problem such as pulley and shaft. General conditions of Equilibrium: General conditions of equilibrium, rigid body. Under the action of coplanar forces, statement of forces, Laws of equilibrium, moment law of equilibrium, application of above on body. **(8 Lectures)**

UNIT III

Friction:- Types of friction: Stoical Limiting and dynamical friction statement of Laws of sliding friction, coefficient of friction, angle of friction: Problems on equilibrium of a body resting on a rough inclined plane, simple problems on friction, conditions of sliding and toppling. **(8 Lectures)**

UNIT IV

Stress and strain:- Concept of stress and strain. Concept of various types of stress and Strains, Definition of tension, compression, shear, bending, torsion, concept of volumetric and lateral strain, Poisson's ratio, ultimate stress, Working stress, elasticity, Hook's Law, Load deformation diagram for mild steel and cast iron. Definition of modulus of elasticity, Yield point, modulus of rigidity and bulk modulus.

(8 Lectures)

UNIT V

Beam and trusses:- Definition of statically determinate and indeterminate trusses. Types of supports of tie and struts, Bow's notation space diagram, polar diagram, funicular polygon, calculation of reaction at the support of cantilever and simply supported beams and trusses graphically and Analytically, Graphical solution of simple determinate trusses with reference to forces diagram for determining the magnitude and nature of forces in its various members Analytical method; Methods of joints and method of sections (Simple problems only). **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 50% and to theoretical 50%.

Project work

There will be a project work assigned to students by the subject faculty. It will be of 15 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Bansal R.K., *Engineering Mechanics*, Laxmi Publication Pvt Ltd., Delhi.
2. Khurmi R.S., *Engineering Mechanics*, S. Chand & Co., Delhi.
3. Kapoor J.K., *Applied Mechanics*, Bharat Bharti Prakashan, Meerut.
4. Yadav K.S., *Engineering Mechanics*, Vayu Education of India.

Ref Books:

1. Kumar D.S., *Engineering Mechanics*, S.K. Kataria & Sons, Delhi.

Foundation English – I
First Semester

Course Code: DIP108	L	T	P	C
	3	0	0	3

Course Content:

Unit I

Functional Grammar: Parts of speech – Noun, Pronoun, Adverb, Verb, Adjective, Preposition, Conjunction, Interjection.

Articles- Use of a, an, the, Subject, Predicate. **(8 Hours)**

Practical (Oral): Making the student use correct grammatical rules in sentences. **(2 Hours)**

Unit II

Vocabulary: Word formation, prefix, suffix, synonyms, antonyms, homophones. **(8 Hours)**

Practical (Oral): Make the students read newspaper cuttings and note down words (meanings of which are not known to them). Making efforts to increase their vocabulary. **(2 Hours)**

Unit III

Structure of sentences: Definition of sentence? Kinds of sentences: Simple, Compound, Complex. How sentences are formed? Sentence pattern: Assertive, Affirmative, Negative etc. **(8 Hours)**

Practical (Oral): To make students use different sentences while speaking on any topic. **(2 Hours)**

Unit IV

Comprehension Skills: Role of listening, Reading a passage for comprehension, How to answer questions given from the passage read, How to improve comprehension skills? **(8 Hours)**

Practical (Oral): Making the students practice comprehension in the practical classes.**(2 Hours)**

Recommended Books:

1. Wren & Martin: High School English Grammar & Composition – S. Chand & Co., New Delhi.
2. Better Your English- A Workbook for 1st year Students- Macmillan India, New Delhi.
3. Lewis Norman: Word Power Made Easy-W.R Goyal Publisher & distributor , New Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

PHYSICS LAB
First/Second Semester

	L	T	P	C
Course Code: DIP151/251	**-**	**-**	**3**	**2**

List of Experiments

1. To find the diameter of wire using a screw gauge.
2. To find volume of solid cylinder and hollow cylinder using a vernier caliper.
3. To determine the thickness of glass strip and radius of curvature of a concave surface using a spherometer.
4. To verify the parallelogram law of forces.
5. To determine the atmospheric pressure at a place using Fortin's Barometer.
6. To determine the surface tension of a liquid by capillary rise method.

Evaluation of Practical Examination:- As per Annexure – A

CHEMISTRY LAB
First/Second Semester

	L	T	P	C
Course Code: DIP152/252	**-**	**-**	**3**	**2**

LIST OF PRACTICAL

1. Determination of temporary hardness of water sample by O-Hener's method.
2. To determine the total hardness of water sample in terms of CaCO3 by EDTA titration method using EBT indicator.
3. To determine the percentage of available Chlorine in the supplied sample of Bleaching powder.
4. To analyse inorganic mixture for two acidic and two basic radicals from following radicals:

A. Acidic Radicals: CO_3^{--}, S^{--}, SO_3^{--}, CH_3COO^-, NO_2^-, NO_3^-, Cl^-, Br^-, I^-, SO_4^-

B. Basic Radicals: NH_4^+, Pb^{++}, Cu^{++}, As^{+++}, Sb^{+++}, Sn^{++}, Al^{+++}, Fe^{+++}, Cr^{+++}, Mn^{++}, Zn^{++}, Co^{++}, Ni^{++}, Ba^{++}, Sr^{++}, Ca^{++}, Mg^{++} in an organic compound.

Evaluation of Practical Examination:- As per Annexure – A

ELECTRICAL ENGINEERING LAB

First/Second Semester

	L	T	P	C
Course Code: DIP153/253	**-**	**-**	**4**	**2**

PRACTICAL:

1) To verify the Ohm's Law.
2) To verify that $R_e = R_1+R_2+\ldots\ldots$ where R_1, R_2 etc. are resistance connected in series.
3) Verification of Kirchhoff's current and Voltage Law's applied to D.C. circuit.
4) To observe the A.C. and D.C. waveshape on C.R.O.
5) To study different types of practical transformer.
6) To verify that $1/R_e=1/R_1 + 1/R_2+\ldots..1/R_m$. Where R_1, $R_2\ldots..R_m$ are all resistances connected in parallel.

Evaluation of Practical Examination:- As per Annexure – A

ELECTRONICS ENGINEERING LAB

First/Second Semester

	L	T	P	C
Course Code: DIP154/254	**-**	**-**	**4**	**2**

Practical No.- 1
Object :- To study, Identification & testing of passive Components, Resistor Compactor.
Practical No.- 2
Object:- Draw the V-I characteristics of P-N Junction Diode in forward and reverse Bias.

i) Silicon
ii) Germanium

Practical No.- 3
Object :- Draw the input and output wave form of Half wave rectifier using semi conductor diode.
Practical No.- 4
Object :- Draw the input and output wave form of full wave rectifier using semi conductor diode.
Practical No.- 5
Object :- Draw input and output characteristics of Transistor in common base configuration.
Practical No.- 6
Object :- Draw the V-I characteristics of zener diode.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)
Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale which would include the practical conducted by the students and a Viva taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

<table>
<tr><td colspan="3">PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (40 MARKS)</td><td rowspan="2">VIVA
(10 MARKS)</td><td rowspan="2">TOTAL
INTERNAL
(50 MARKS)</td></tr>
<tr><td>EXPERIMENT
(25 MARKS)</td><td>ATTENDANCE
(10 MARKS)</td><td>QUIZ
(5 MARKS)</td></tr>
</table>

External Evaluation (50 marks)
The evaluation would also be done by the external Examiner based on the experiment conducted during the examination.

INFORMATION TECHNOLOGY LAB
First/Second Semester

	L	T	P	C
Course Code: DIP155/255	**-**	**-**	**4**	**2**

1. Create a document using functions: Save as, page number, Bullets and numbering.
2. Create a document using styles and Formatting options.
3. Create a document using different fonts.
4. Create a document, using the function page set up, & page preview,page color, page border, page no. then print that document.
5. Create a table & perform operation in it.
6. Create a table, chart in excel and implement all formula as addition, subtraction, multiplication and division.
7. How to use Mail Merge in MS Word.
8. Create a Power point presentation using slide designing.
9. Create, Save & print the power point presentation.
10. Create a power point presentation using clipart, Word art gallery & then add transition & Animation effects.

Evaluation of Practical Examination:- As per Annexure – A

APPLIED MECHANICS LAB
First/Second Semester

Course Code: DIP156/256

L	T	P	C
0	0	4	2

LIST OF EXPERIMENTS

1. To verify the law of Polygon of forces.
2. To verify the law of parallelogram and triangle of forces.
3. To verify the law of principle of moments.
4. To find the coefficient of friction between wood, steel, copper and glass.
5. To find the reaction at supports of a simply supported beam carrying point loads only.
6. To find the forces in the jib & tie of a jib crane.
7. To find the forces in the members of a loaded roof truss. (King / Queen post truss)

Evaluation of Practical Examination:- As per Annexure – A

WORKSHOP PRACTICE
First/Second Semester

	L	T	P	C
Course Code: DIP 157/257	**-**	**-**	**8**	**4**

1. Carpentry Shop Work:

- **Ex-1** Planning and sawing practice.
- **Ex-2** Making of Lap Joint.
- **Ex-3** Making of Mortise and tendon Joint
- **Ex-4** Making of Briddle Joint.
- **Ex-5** Making of Dovetail Joint.
- **Ex-6** Making of any one utility articles such as wooden-picture frame, hanger, peg, name plates etc.

2. Fitting Shop:

- **Ex-1** Hacks awing and chipping of M.S. flat.
- **Ex-2** Filing and squaring of chipped M.S. job.
- **Ex-3** Filing on square or rectangular M.S. piece.
- **Ex-4** Making Bolt & Nut by Tap and Die set.
- **Ex-5** To drill a hole in M.S. Plate and taping the same to create threads as per need.
- **Ex-6** Utility article-to prepare a screw driver or paper weight, double open mouth spanner for 18" hexagonal head of a bolt.

3. Welding Shop:

- **Ex-1** Welding practice-Gas and Electric.
- **Ex-2** Welding for lap joint after preparing the edge.
- **Ex-3** Welding of Butt joint after preparation of the edge.
- **Ex-4** 'T' joint welding after preparation of edge.
- **Ex-5** Spot welding, by spot welding Machine.
- **Ex-6** Welding of Plastic by Hot strip method.

4. Machine Shop :

- **Ex-1** Study & sketch of Lathe machine.
- **Ex-2** Plane and step turning & knurling practice.
- **Ex-3** Study & sketch of planning machine and plane a rectangle of cast iron.

Evaluation of Practical Examination:- As per Annexure – A

ENGINEERING DRAWING

First/Second Semester

	L	T	P	C
Course Code: DIP158/258	**2**	**-**	**6**	**5**

1. Drawing, instruments and their uses.

1.1. Introduction to various drawing, instruments.
1.2. Correct use and care of Instruments.
1.3. Sizes of drawing sheets and their layouts.

2. (a) Lettering Techniques **1 Sheet**

Printing of vertical and inclined normal single stroke capital letters and numbers.

(b) Conventional Representation:- Types of lines, Conventional representation of materials.

3. Introduction to Scales **1 Sheet**

Necessity and use, R F

Types of scales used in general in engineering drawing, plane, diagonal and chord scales.

4. (a) Principles of Projection

Orthographic, Pictorial and perspective. Concept of horizontal and vertical planes.
Differences between I and III angle projections. Dimensioning techniques.

(b) Projections of points, lines and planes. **1 Sheet**

5.Orthographic Projections of Simple **2 Sheet**
Geometrical Solids

Edge and axis making given angles with the reference planes. Face making given angles with reference planes. Face and its edge making given angles with reference planes.

6. Section of Solids **1 Sheet**

Concept of sectioning

Cases involving cutting plane parallel to one of the reference planes and perpendicular to the others.

Cases involving cutting plane perpendicular to one of the reference planes and inclined to the other plane, true shape of the section.

7. Development of Surfaces **1 Sheet**

Parallel line and redial line methods of development.

Development of simple and truncated surfaces (Cube, prism, cylinder, cone and pyramid).

8. Isometric Projection. **1 Sheet**

Isometric scale

Isometric Projection of solids.

9. ORTHOGRAPHIC PROJECTION : **1 Sheet**

Nut and Bolt, Rivets and Riveted Joints.

10. PRACTICE ON AUTO CAD:

To draw geometrical figures using line, circle, arc, polygon, ellipse, rectangle – erase and other editing commands and snap commands (two dimensional drawing only).

Text Books:

1. Bhatt N.D., *Engineering Drawing*, Charotar Publishing House Pvt. Ltd., Anand.
2. Upadhayay S.D., *Engineering Drawing*, Bharat Bharti Prakashan, Merrut.
3. Goyal B.K., *Engineering Drawing*, Asian Publishers, Muzaffarnagar.

Evaluation of Practical Examination:- As per Annexure – A

APPLIED MATHEMATICS – II

Second Semester

	L	T	P	C
Course Code: DIP201	**4**	**-**	**-**	**4**

Course Contents:

Unit I

DIFFERENTIAL CALCULUS:

Functions, limits, continuity - functions and their graphs, range and domain, elementary methods of finding limits (right and left), elementary test for continuity and differentiability.

Methods of finding derivative, - Function of a function, Logarithmic differentiation, Differentiation of implicit functions, Higher order derivatives, Leibniz theorem. **(10 Lectures)**

Unit II

Special functions (Exponential, Logarithmic, Hyperbolic, Inverse circular), Definition, Graphs, range and Domain and Derivations of each of these functions.

Application - Finding Tangents, Normal, Points of Maxima/Minima. **(10 Lectures)**

Unit III

Increasing/Decreasing functions, sketching of some simple curves (without assumptions, question, not to be asked in the examination), Rate, Measure, velocity, Acceleration, Errors and approximation. **(10 Lectures)**

Unit IV

Integral Calculus:

Methods of Indefinite Integration: Integration by substitution, Partial fraction and by parts, Meaning and properties of definite integrals, Evaluation of definite integrals. **(10 Lectures)**

Unit V

Application: Finding areas bounded by simple curves, Length of simple curves, Volume of solids of revolution. Simpson's and Trapezoidal Rule: their application in simple cases. **(10 Lectures)**

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Sharma, R D, *Applied Mathematics*, Dhanpat Rai Prakashan , New Delhi.
2. Luthra , H.R , Applied Mathematics –I , Dhanpat Rai Prakashan , New Delhi

Reference Books:

1. Grewal B S, *Elementary Engineering Mathematics*, Khanna Publication.
2. Mittal S C & Mittal, S K., *Two Dimensional Coordinate,* Pragati Prakashan, Meerut.
3. Loney, S L, *Trigonometry (I part) AITBS Publishers , Delhi.*
4. Sumha Dr. K. S., *Applied Mathematics (I & II),* Bharat Bharati Prakashan, Meerut.

APPLIED PHYSICS

Second/First Semester

	L	T	P	C
Course Code: DIP202/102	**5**	**-**	**-**	**5**

Course Contents:

Unit I

Vector: - Scalar and vector quantities: Addition, Subtraction, Resolution of vector- Cartesian components of vector, Scalar and vector product of two vectors.

Force and Motion: Parabolic motion, projectiles thrown horizontally and at an angle. Problems on time of flight, horizontal range, and vertical height. Circular motion, angular velocity, angular acceleration and centripetal acceleration. Relationship between linear and angular velocity and acceleration. Centripetal and centrifugal forces. Gravitational force, Kepler's laws, Escape velocity, geostationary satellite.**(10 Lectures)**

Unit II

Dynamics of Rigid Body (Rotational Motion): Rotational motion, Moment of inertia, Theorems (Perpendicular and Parallel axis) of moment of inertia (Statement). Radius of gyration, angular momentum, Conservation of angular momentum, Torque, Rotational kinetic energy.

Friction : Introduction , Advantage and disadvantage of friction . Static and dynamic frictional forces.

Fluid Mechanics: Surface tension, Equation of continuity ($A_1V_1=A_2V_2$), Bernoulli's theorem, streamline and Turbulent flow. Viscosity, coefficient of viscosity, & its determination by Stock's method.**(15 Lectures)**

Unit III

Elasticity: - Elasticity, stress and strain. Hook's law, elastic limit. Yielding point and breaking point. Modulus of elasticity: Young's modulus, bulk modulus and modulus of rigidity, Poisson ratio.

Simple Harmonic Motion: Periodic Motion, characteristics of simple harmonic motion; equation of S.H.M. and determination of velocity and acceleration. Simple pendulum. Derivation of their periodic time. Kinetic Energy and Potential Energy in S.H.M. Energy conservation in S.H.M. **(10 Lectures)**

Unit IV

Application of Sound Waves:-

Acoustics:- Standing waves, Closed and Open organ pipes, Resonance. Echo and reverberation and reverberation time. Sabine's formula. Control of reverberation time.

Optics: Quantum nature of light, Coherence , Duality of wave and particle, Concept of Interference, Fraunhoffer single-slit diffraction, Elementary concept of polarisation.

Nuclear physics: Radioactivity, Nuclear stability, Radioactive emission, Nuclear fission and fusion, chain-reaction, Nuclear reactors ,Mass-energy relation, Mass defect and binding energy. **(15 Lectures)**

Unit V

Electrostatics: Electric Charges, Conservation law of charge, Coulomb's law-force between two point charges, superposition principle and continuous charge distribution.

Electric field, electric field due to a point charge, electric field lines, electric dipole.

Electric flux, statement of Gauss's theorem .Electric potential, potential difference, electric potential due to a point charge, equipotential surfaces.

Electrodynamics: Electromotive force, Ohm's law, Limitations of Ohm's law, Ampere's Law, faraday's law, Biot- Savart's Law. **(10 Lectures)**

The question paper shall have weightage to numerical/ case study 30% and to theoretical 70%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Kumar Tyagi, Applied Physics, Navbharti Prakashan, Meerut
2. Kushwaha P.S, Applied Physics, Bharat Bharti Pub. , Meerut
3. Jain Vibha, Applied Physics, Dhanpat Rai & Company (P) Ltd. ,Delhi

Reference Books

1. Gaur R.K & Gupta S.L ,Engineering Physics, Dhanpat Rai Pub. ,New Delhi.

APPLIED CHEMISTRY

Second/First Semester

	L	T	P	C
Course Code: DIP203/103	**5**	**-**	**-**	**5**

Course Contents:

Unit:-I

ATOMIC STRUCTURE

Basic concept of atomic structure, Matter wave concept, de Broglie wave equation, Quantum numbers, Heisenberg's Uncertainty Principle, Shapes of orbitals.

CHEMICAL BONDING:- Overview of basic concept, Ionic, Co-valent and Co-oridination Bond, Hydrogen bonding, Valence Bond Theory, Hybridisation and Geometrical shape of $BeCl_2$, BCl_3, CH_4 molecules. **(15 Lectures)**

Unit:- II

ELECTRO CHEMISTRY: Arrhenius's Theory of electrolytic dissociation, Electrolytic conductance, Oswald dilution law. Concept of Acid and bases: Bronsted, Arrhenius's and Lewis theory. Concept of pH and it measurement by pH meter. Buffer solutions, Indicators, Solubility product, Common ion effect with their application, Redox reactions, Electrode potential (Nernst Equation), Electro-chemical cell (Galvanic and Electrolytic). Standard electrode potential, Electro chemical series and its application.**(12 Lectures)**

Unit:- III

ENVIRONMENTAL POLLUTION AND ITS CONTROL: Concept and various types of environmental pollution with special reference to air pollution and water pollution. General measures to control environmental pollution. depletion of Ozone layer, Green house effect, Acid rain, Smog formation, Chemical and photochemical reaction, Various species in atmosphere. Specific industrial pollution like Euro-I and Euro-II. **(10 Lectures)**

Unit:- IV

WATER TREATMENT: Concept of hard and soft water, Hardness of water, Its limits and determination of hardness of water by EDTA method. Softening methods (Only Sods lime, Zeolite and Ion exchange resin process). Disadvantage of hard water in different industries, Boiler feed water boiler scale formation, Corrosion, Caustic embritilment, primming and foaming. Characteristics imparted by various impurities or contaminants such as colour, odour, taste and sediments and their analysis.

CORROSION: Concept of metallic corrosion, Types of corrosion and factors affecting the corrosion rate, Chemical and electrochemical theory of corrosion, Oxide film formation and its characteristics, tarnishing fogging and rusting, Prevention of corrosion by various methods. **(15 Lectures)**

Unit:- V

POLYMERS:

1. Introduction to basic terms used in polymer chemistry and technology. Monomers, Average degree of polymerisation, Average molecular weight.
2. Characteristics of Polymers and their classification

- Addition polymers and their industrial application – Polystyrene, PVC, PAN, Buna-S, Teflon.
- Condensation polymer and their industrial application: Nylon 6, Nylon 6, 6, Bakelite.

(8 Lectures)

The question paper shall have weightage to numerical/ case study 30% and to theoretical 70%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Mittal K.K., *Chemistry for Polytechnic,* Pragati Prakashan, Meerut.
2. Mehta V.P., *Polytechnic Chemistry,* Arun Publisher, Meerut.
3. Chandra S., *Text Book of Chemistry for Polytechnic,* Nav Bharat Prakashan, Meerut.
4. Chaudhari & Kataria, *Text Books of Chemistry for Polytechnic,* Bharat Bharati Prakashan, Meerut.

Reference Books:

1. Gaidher S.R. & Adasul B G, *Basic Chemistry for Polytechnic,* S.Chand Pub., Delhi.
2. Alla Appa Rao, *Polytechnic Chemistry,* New Age International Pub., Delhi.
3. Sharma S.D., *Polytechnic Chemistry,* Dhanpat Rai Pub., Delhi.

BASICS OF ELECTRONICS AND MECHANICAL ENGINEERING

Second/First Semester

	L	T	P	C
Course Code: DIP205/105	**4**	**-**	**-**	**4**

Course Contents:

BASICS OF ELECTRONICS ENGINEERING

DETAILED CONTENTS:

Unit I

Electronic Component & Voltage and Current Sources:- Application of Electronics in different fields, Brief introduction to active and passive components, Resistor working, specification, testing & colour coding of resistor, Capacitor. Working, specification testing & colour coding, inductor working, RF coils, transformer. Concept of constant voltage & current sources, concept of practical voltage & current sources, conversion of voltage to current & current to voltage sources. **(8 Lectures)**

Unit II

Semiconductor Diode:- P-N junction diode, mechanism of current flow in P-N junction, drift and diffusion currents, depletion layer, potential barrier, breakdown, semiconductor diode characteristics, P-N junction diode as rectifier, half wave rectifier, full wave rectifier, bridge rectifier, different types of diode: power diode, zener diodes, varactor diodes, tunnel diode, LED's and photo diodes. **(8 Lectures)**

Unit III

Introduction to Bipolar Transistor Biasing and Stabilization of Operating Point:- Concept of bipolar transistor as a two junction and three terminal device having two kinds of charge carriers, PNP and NPN transistors, their symbols, concept of leakage current, effect of temperature on leakage of current, common base configurations (CB), common emitter configuration (CE), common collector configuration, different types of biasing ciruits for fixing the operation points, single stage CE amplifier circuit with proper biasing components. **(8 Lectures)**

Basics of Mechanical Engineering

Unit IV:

Sources of energy, Energy sources in nature, conventional and non-conventional energy sources. Fuels, their properties and classification.

Machine Components: Brief idea of loading of machine components- pins, cotter and knuckle joints, types of keys, shafts, collars, cranks and eccentrics, couplings and clutches. **(8 Lectures)**

Unit V:

Bearings- use and types.

Lubrication- types of lubrication systems, selection of lubricants on the basis of their properties.

(8 Lectures)

Unit VI:

Power transmission: Gears- types of gears, gear trains and their applications, nomenclature.

Belts, ropes, chains and discs.

Springs- their types, use and material. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Garg R.P., *Elements of Mechanical Engineering*, Standard Publishers Distributors, Delhi.
2. Sharma Sanjay, *Basic Electronics*, Publication of Engineering & Computer.

BASICS OF ELECTRICAL AND CIVIL ENGINEERING

Second/First Semester

	L	T	P	C
Course Code: DIP204/104	**4**	**-**	**-**	**4**

Course Contents:

Unit I

BASICS OF ELECTRICAL QUANTITIES :- Different forms of energy, Advantages of electrical energy, Uses of electrical energy, Basic concept of charge, Current, Voltage, Resistance Power, Energy and their units.

BATTERIES :-Basic idea about primary and secondary cells, Working principle, Construction and Application of lead acid, Nickel cadmium and Silver Oxide Cells. **(8 Lectures)**

Unit II

DC CIRCUIT:- Ohm's Law, Resistance in series and Parallel, Voltage and current division rule, Kirchhoff's Laws and their application in solving simple D. C. Network.

AC CIRCUIT:-Concept of alternating current and voltage, Equation of instantaneous values. Average rules, R.M.S. value, Form Factor and peak factor of sinusoidal waveform. Simple R-L-C Series circuit concept of three phase A.C. **(8 Lectures)**

Unit III

Magnetic Circuits:- Magnetic flux, flux density, field intensity, B-H Curve, difference between magnetic and electric circuit, Faraday's law, Fleming right hand, left hand rule, Lenz law, thumb rule, self and mutual, inductance, induced emf, energy stored in magnetic circuit. **(8 Lectures)**

Basics of Civil Engineering

Unit IV

- Classification of soil. Elementary ideas of Engineering properties of soil. Bearing capacity of soil.
- Geological consideration for site selection. Difference between Map & plan Engineering scales.

(8 Lectures)

Unit V

- Foundation: Definition of foundation, classification, shallow and deep foundation and their common types, use of Machine foundation Black cotton soil foundation, walls their classification, load bearing, Non load bearing partition and cavity wall. **(8 Lectures)**

Unit VI

- Most common type of masonry used in civil engineering works. Different types of mortars used in masonry work, brick masonry, Stone masonry, concrete block masonry, Bonds used in brick masonry, English & Flemish bonds, elevation, plan of one & one and half brick thick wall laying in English bond two course only. Cross section of wall of two story building. Showing different component. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 30% and to theoretical 70%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Narendra Kumar, *Basic Electrical Engineering*, Asian Publishers, Muzaffernagar.
2. Gupta D.V., *General Civil Engineering*, Asian Publishers, Muzaffernagar.

Ref Books:

1. Therja B.L., *Fundamental of Electrical Engineering*, S.Chand & Co., Delhi.
2. Punmia B.C., *Building Construction*, Laxmi Publication Pvt. Ltd., New Delhi.

Applied Mechanics
Second/First Semester

	L	T	P	C
Course Code: DIP207/107	**4**	**-**	**-**	**4**

Course Contents:

UNIT I

Force Analysis: - System of forces, concept of coplanar and non-coplanar forces including parallel forces. Concurrent and non-concurrent forces, resultant forces, Equilibrium of forces, Law of parallelogram of forces, Law of triangle of forces and its converse, Law of polygon of forces, solution of simple engineering problems by analytical and graphical methods. Such as simple wall crane, jib crane etc. Determination of resultant of any number of forces in one plane acting upon a particle, Conditions of equilibrium of coplanar concurrent forces system. **(8 Lectures)**

UNIT II

Moment and couple, General conditions of Equilibrium Moment and couple Generalized theorem of moments, Application to simple problem on levers-Bell crank Lever, compound lever, steel yard, beams & wheels, lever safety valve, moment of couple, properties of a couple, simple applied problem such as pulley and shaft. General conditions of Equilibrium: General conditions of equilibrium, rigid body. Under the action of coplanar forces, statement of forces, Laws of equilibrium, moment law of equilibrium, application of above on body. **(8 Lectures)**

UNIT III

Friction:- Types of friction: Stoical Limiting and dynamical friction statement of Laws of sliding friction, coefficient of friction, angle of friction: Problems on equilibrium of a body resting on a rough inclined plane, simple problems on friction, conditions of sliding and toppling. **(8 Lectures)**

UNIT IV

Stress and strain:- Concept of stress and strain. Concept of various types of stress and Strains, Definition of tension, compression, shear, bending, torsion, concept of volumetric and lateral strain, Poisson's ratio, ultimate stress, Working stress, elasticity, Hook's Law, Load deformation diagram for mild steel and cast iron. Definition of modulus of elasticity, Yield point, modulus of rigidity and bulk modulus.

(8 Lectures)

UNIT V

Beam and trusses:- Definition of statically determinate and indeterminate trusses. Types of supports of tie and struts, Bow's notation space diagram, polar diagram, funicular polygon, calculation of reaction at the support of cantilever and simply supported beams and trusses graphically and Analytically, Graphical solution of simple determinate trusses with reference to forces diagram for determining the magnitude and nature of forces in its various members Analytical method; Methods of joints and method of sections (Simple problems only). **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 50% and to theoretical 50%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Bansal R.K., *Engineering Mechanics*, Laxmi Publication Pvt Ltd., Delhi.
2. Khurmi R.S., *Engineering Mechanics*, S. Chand & Co., Delhi.
3. Kapoor J.K., *Applied Mechanics*, Bharat Bharti Prakashan, Meerut.
4. Yadav K.S., *Engineering Mechanics*, Vayu Education of India.

Ref Books:

1. Kumar D.S., *Engineering Mechanics*, S.K. Kataria & Sons, Delhi.

CONCEPTS IN INFORMATION TECHNOLOGY

Second/First Semester

	L	T	P	C
Course Code: DIP206/106	**4**	**-**	**-**	**4**

Course Contents:

Unit I

Concepts in computer & Programming; Computer Appreciation: Definition of electronic Computer, Generations, Characteristic and Application of Computers, Computer Hardware, CPU, Memory, Various I/O devices, Software,Types of Computer. **(Lectures 08)**

Unit II

Programming Language Classification & Program Methodology; Computer Languages: Generation of Language, Translators: Interpreter, Assembler Compiler, Software Development life cycle: Waterfall model. **Number System:** Various codes, decimal, binary, octal, hexadecimal conversion. **(Lectures 08)**

Unit III

Internet and Web Technologies; Internet & World Wide Web: Hypertext Marks Language, WWW, Gopher, FTP, Web Browsers, Search Engines, Email. **(Lectures 08)**

Unit IV

Concepts in Operating System & Data Management: Elementary Concepts in Operating System, textual Vs GUI Interface, Introduction to DOS, MS Office Tools MS WORD, MS EXCEL, MS Power Point. **(Lectures 08)**

Unit V

Application of IT, E Commerce, Multimedia, and Entertainment.

Information Representation: Introduction to Information representation in Digital Media: Text, Image, graphics, Animation, Audio, Video etc, Introduction to JPEG & MPEG. **(Lectures 08)**

The question paper shall have weightage to numerical/ case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books

1. Yadav DS, *Foundations of IT,* New Age, Delhi.
2. Curtin, *Information Technology: Breaking News,* Tata Mc Grew Hill, New Delhi.
3. Sinha PK, Fundamentals of Computers, BPB Meerut.

Reference Books

1. Rajaraman, *Introduction to Computers*, Prentice-Hall India, Delhi

Foundation English –II
Second Semester

Course code: DIP 208	L	T	P	C
	3	0	0	3

Course Content:
Course Content:
Unit I
Functional Grammar : Preposition, preposition of time & date, of travel & movement, other details of preposition ; Tense, Tense structure, Modals : use of can, could, may, might, should, should be, must, must be, has, have & had. **(8 hours)**
Practical (oral): Making the students use the above grammatical rules in different sentences of their own. **(2 hours)**

Unit II
Functional English: Writing Application – leave application, application for fee concession, change in subject, issuing character certificate, etc.; Letter writing : Types of Letters, Business Letters, Formatting of Letters. **(8 hours)**
Practical (oral): Making the students write different applications & Letters in the practical classes. **(2 hours)**

Unit III
Paragraph Writing: What is Paragraph Writing? Structure of Paragraph, coherence and unity, Development of Paragraph, Writing a Paragraph. **(8 hours)**
Practical (oral): Making the students write Paragraph on any topic in the practical classes. **(2 hours)**

Unit IV
Précis Writing: What is Précis? Techniques of Précis Writing, Writing a Précis. **(8 hours)**
Practical (oral): Making the students Write Précis in the practical classes. **(2 hours)**

Recommended Books:

1. Wren & Martin : High School English Grammar & Composition, S.Chand & Co., New Delhi
2. Raman Meenakshi & Sharma Sangeeta – Technical Communication- Principles & Practices O.U.P.N. Delhi.
3. Chaturvedi P.D-Business Communication .Pearson Education New Delhi .
4. Better your english- A workbook for Ist year students Macmillan India New Delhi.

NOTE:
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.
*** Latest editions of all the suggested books are recommended.**

PHYSICS LAB

Second/First Semester

	L	T	P	C
Course Code: DIP251/151	**-**	**-**	**3**	**2**

List of Experiments

1. To find the diameter of wire using a screw gauge.
2. To find volume of solid cylinder and hollow cylinder using a vernier caliper.
3. To determine the thickness of glass strip and radius of curvature of a concave surface using a spherometer.
4. To verify the parallelogram law of forces.
5. To determine the atmospheric pressure at a place using Fortin's Barometer.
6. To determine the surface tension of a liquid by capillary rise method.

Evaluation of Practical Examination:- As per Annexure – A

CHEMISTRY LAB

Second/First Semester

	L	T	P	C
Course Code: DIP252/152	**-**	**-**	**3**	**2**

LIST OF PRACTICAL

1. Determination of temporary hardness of water sample by O-Hener's method.
2. To determine the total hardness of water sample in terms of CaCO3 by EDTA titration method using EBT indicator.
3. To determine the percentage of available Chlorine in the supplied sample of Bleaching powder.
4. To analyse inorganic mixture for two acidic and two basic radicals from following radicals:

A. Acidic Radicals: CO_3^{--}, S^{--}, SO_3^{--}, CH_3COO^-, NO_2^-, NO_3^-, Cl^-, Br^-, I^-, SO_4^-

B. Basic Radicals: NH_4^+, Pb^{++}, Cu^{++}, As^{+++}, Sb^{+++}, Sn^{++}, Al^{+++}, Fe^{+++}, Cr^{+++}, Mn^{++}, Zn^{++}, Co^{++}, Ni^{++}, Ba^{++}, Sr^{++}, Ca^{++}, Mg^{++} in an organic compound.

Evaluation of Practical Examination:- As per Annexure – A

ELECTRONICS ENGINEERING LAB
Second/First Semester

	L	T	P	C
Course Code: DIP254/154	**-**	**-**	**4**	**2**

LIST OF PRACTICAL

Practical No.- 1
Object :- To study, Identification & testing of passive Components, Resistor Compactor.
Practical No.- 2
Object:- Draw the V-I characteristics of P-N Junction Diode in forward and reverse Bias.

iii) Silicon
iv) Germanium

Practical No.- 3
Object :- Draw the input and output wave form of Half wave rectifier using semi conductor diode.
Practical No.- 4
Object :- Draw the input and output wave form of full wave rectifier using semi conductor diode.
Practical No.- 5
Object :- Draw input and output characteristics of Transistor in common base configuration.
Practical No.- 6
Object :- Draw the V-I characteristics of zener diode.

Evaluation of Practical Examination:- As per Annexure – A

ELECTRICAL ENGINEERING LAB

Second/First Semester

	L	T	P	C
Course Code: DIP253/153	**-**	**-**	**4**	**2**

PRACTICALS:

1) To verify the Ohm's Law.
2) To verify that $R_e = R_1+R_2+\ldots\ldots$ where R_1, R_2 etc. are resistance connected in series.
3) Verification of Kirchhoff's current and Voltage Law's applied to D.C. circuit.
4) To observe the A.C. and D.C. waveshape on C.R.O.
5) To study different types of practical transformer.
6) To verify that $1/R_e=1/R_1 + 1/R_2+\ldots..1/R_m$. Where R_1, $R_2\ldots..R_m$ are all resistances connected in parallel.

Evaluation of Practical Examination:- As per Annexure – A

INFORMATION TECHNOLOGY LAB
Second/First Semester

	L	T	P	C
Course Code: DIP255/155	**-**	**-**	**4**	**2**

1. Create a document using functions: Save as, page number, Bullets and numbering.
2. Create a document using styles and Formatting options.
3. Create a document using different fonts.
4. Create a document, using the function page set up, & page preview,page color, page border, page no. then print that document.
5. Create a table & perform operation in it.
6. Create a table, chart in excel and implement all formula as addition, subtraction, multiplication and division.
7. How to use Mail Merge in MS Word.
8. Create a Power point presentation using slide designing.
9. Create, Save & print the power point presentation.
10. Create a power point presentation using clipart, Word art gallery & then add transition & Animation effects.

Evaluation of Practical Examination:- As per Annexure – A

APPLIED MECHANICS LAB
Second/First Semester

Course Code: DIP256/156

L	T	P	C
0	0	4	2

LIST OF EXPERIMENTS

1. To verify the law of Polygon of forces.
2. To verify the law of parallelogram and triangle of forces.
3. To verify the law of principle of moments.
4. To find the coefficient of friction between wood, steel, copper and glass.
5. To find the reaction at supports of a simply supported beam carrying point loads only.
6. To find the forces in the jib & tie of a jib crane.
7. To find the forces in the members of a loaded roof truss. (King / Queen post truss)

Evaluation of Practical Examination:- As per Annexure – A

ENGINEERING DRAWING

Second/First Semester

	L	T	P	C
Course Code: DIP258/158	**2**	**-**	**6**	**5**

1. Drawing, instruments and their uses.

1.1. Introduction to various drawing, instruments.
1.2. Correct use and care of Instruments.
1.3. Sizes of drawing sheets and their layouts.

2. (a) Lettering Techniques **1 Sheet**

Printing of vertical and inclined normal single stroke capital letters and numbers.

(b) Conventional Representatfion:

Types of lines, Conventional representation of materials.

3. Introduction to Scales **1 Sheet**

Necessity and use, R F

Types of scales used in general engineering drawing. Plane, diagonal and chord scales.

4. (a) Principles of Projection

Orthographic, Pictorial and perspective. Concept of horizontal and vertical planes.
Difference between I and III angle projections. Dimensioning techniques.

(b) Projections of points, lines and planes. **1 Sheet**

5.Orthographic Projections of Simple **2 Sheet**

Geometrical Solids: Edge and axis making given angles with the reference planes. Face making given angles with reference planes. Face and its edge making given angles with reference planes.

6. Section of Solids **1 Sheet**

Concept of sectioning

Cases involving cutting plane parallel to one of the reference planes and perpendicular to the others. Cases involving cutting plane perpendicular to one of the reference planes and inclined to the other plane, true space of the section.

7. Development of Surfaces **1 Sheet**

Parallel line and redial line methods of developments.

Development of simple and truncated surfaces (Cube, prism, cylinder, cone and pyramid).

8. Isometric Projection. **1 Sheet**

Isometric scale

Isometric Projection of solids.

9. ORTHOGRAPHIC PROJECTION : **1 Sheet**

Nut and Bolt, Rivets and Riveted Joints.

10. PRACTICE ON AUTO CAD:

To draw geometrical figures using line, circle, arc, polygon, ellipse, rectangle – erase and other editing commands and snap commands (two dimensional drawing only).

Text Books:

1. Bhatt N.D., *Engineering Drawing*, Charotar Publishing House Pvt. Ltd., Anand.
2. Upadhayay S.D., *Engineering Drawing*, Bharat Bharti Prakashan, Merrut.
3. Goyal B.K., *Engineering Drawing*, Asian Publishers, Muzaffarnagar.

Evaluation of Practical Examination:- As per Annexure – A

WORKSHOP PRACTICE

Second/First Semester

	L	T	P	C
Course Code: DIP257/157	**-**	**-**	**8**	**4**

1. Carpentry Shop Work:

- **Ex-1** Planning and sawing practice.
- **Ex-2** Making of Lap Joint.
- **Ex-3** Making of Mortise and tendon Joint
- **Ex-4** Making of Briddle Joint.
- **Ex-5** Making of Dovetail Joint.
- **Ex-6** Making of any one utility articles such as wooden-picture frame, hanger, peg, name plates etc.

2. Fitting Shop:

- **Ex-1** Hacks awing and chipping of M.S. flat.
- **Ex-2** Filing and squaring of chipped M.S. job.
- **Ex-3** Filing on square or rectangular M.S. piece.
- **Ex-4** Making Bolt & Nut by Tap and Die set.
- **Ex-5** To drill a hole in M.S. Plate and taping the same to create threads as per need.
- **Ex-6** Utility article-to prepare a screw driver or paper weight, double open mouth spanner for 18" hexagonal head of a bolt.

3. Welding Shop:

- **Ex-1** Welding practice-Gas and Electric.
- **Ex-2** Welding for lap joint after preparing the edge.
- **Ex-3** Welding of Butt joint after preparation of the edge.
- **Ex-4** 'T' joint welding after preparation of edge.
- **Ex-5** Spot welding, by spot welding Machine.
- **Ex-6** Welding of Plastic by Hot strip method.

4. Machine Shop :

- **Ex-1** Study & sketch of Lathe machine.
- **Ex-2** Plane and step turning & knurling practice.
- **Ex-3** Study & sketch of planning machine and plane a rectangle of cast iron.

Evaluation of Practical Examination:- As per Annexure – A

OPERATING SYSTEMS
Third Semester

	L	T	P	C
Course Code: DCS 301	**3**	**2**	**-**	**5**

Course Contents:

Unit -I

Introduction: Operating System and Function, Evolution of Operating System, Batch, Interactive, Time Sharing and Real Time System, System Protection. Operating System Structure, System Components, Operating System Services. **(8 Lectures)**

Unit - II

Concurrent Processes: Process Concept, Principle of Concurrency, Producer / Consumer Problem, Critical Section, Problem, Semaphores, Classical Problems in Concurrency, Inter Processes Communication, Process Scheduling. **(8 Lectures)**

Unit - III

CPU Scheduling: Scheduling Concept, Performance Criteria Scheduling Algorithm, Multiprocessor Scheduling. Deadlock: System Model, Deadlock Characterization, Prevention, Avoidance and Detection, Recovery From Deadlock. **(8 Lectures)**

Unit - IV

Memory Management: Basic Machine, Resident Monitor, Multiprogramming with Fixed Partition, Multiprogramming With Variable Partition, Multiple Base Register, Paging, Segmentation, Paged Segmentation, Virtual' Memory Concept, Demand Paging, Performance, Paged Replaced Algorithm. **(8 Lectures)**

Unit - V

I/O Management & Disk Scheduling: I/O Devices and The Organization of I/O Function, I/O Buffering, Disk I/O, Operating System Design Issues. File System: File Concept, File Organization and Access Mechanism, File Directories, File Sharing. **(8 Lectures)**

The question paper shall have weightage to case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Book:

1. Milenekovie, *"Operating System Concept"*, McGraw Hill, Delhi.
2. Petersons, *"Operating Systems"*, Addision Wesley.
3. Dietal, *"An Introduction to Operating System"*, Addision Wesley.
4. Tannenbaum, *"Operating System Design and Implementation"*, PHI, Delhi.
5. Gary Nutt, *"Operating System, A Modern Perspective"*, Addision Wesley.

References Books:

1. Stalling, *Willium, "Operating System"*, Maxwell Macmillan.
2. Silveschatza, Peterson J, *"Operating System Concepts"*, Willey.
3. Crowley, *"Operating System*", TMH, Delhi.

COMPUTER PROGRAMMING USING 'C'
Third Semester

	L	T	P	C
Course Code: DCS 302	**4**	**-**	**-**	**4**

Course Contents:

Unit-1

Algorithm and Programming Development steps in development of a program, Flow charts, Algorithm development, Program Debugging.

Program Structure:- I/o statements, assign statements. Constants, variables and data types, Operators and Expressions, Standards and Formatted, Use of Header & Library files. **(8 Lectures)**

Unit-2

Control Structures:

Introduction, Decision making with IF – statement, IF – Else and Nested IF, While and do-while, for loop, Break and switch statements.

Functions:- Introduction to functions, Global and Local Variables, Function Declaration, Standard functions, Parameters and Parameter Passing, Call – by value/reference, Recursion. **(8 Lectures)**

Unit-3

Introduction to Arrays, Array Declaration and Initialization, Single and Multidimensional Array. Arrays of characters. **(8 Lectures)**

Unit-4

Pointers:- Introduction to Pointers, Address operator and pointers, Declaring and Initializing pointers, Assignment through pointers.

Structures and Unions:- Declaration of structures, Accessing structure members, Structure Initialization, Unions. **(8 Lectures)**

Unit-5

Strings:- Introduction, Declaring and Initializing string variables, Reading and writing strings, String handling functions, Array of strings

Files:- Introduction, File reading/writing in different modes, File manipulation using standard function types. **(8 Lectures)**

The question paper shall have weightage to case study 80% and to theoretical 20%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Salaria RS, *Application Programming in C*, Khanna Book Publishing Co (P) Ltd. New Delhi.
2. Schaum Series, *Programming in C*, McGraw Hills Publishers, New York.

References Books:-

1. Yashwant Kanetkar, *Exploring* – BPB Publications, New Delhi.

COMPUTER NETWORK
Third Semester

	L	T	P	C
Course Code: DCS303	**4**	**-**	**-**	**4**

Course Contents:

Unit-1

Networks Basics:- What is network, Network Criteria, Peer-to –peer Network, Client-Server Network, LAN, MAN and WAN, Topologies, Tranmission media. **(8 Lectures)**

Unit-2

OSI Model:- Standards, OSI Reference Model, OSI Physical layer concepts, OSI Data-link layer concepts, OSI Networks layer concepts, OSI Transport layer concepts, OSI Session layer concepts, OSI presentation layer concepts, OSI Application layer concepts. **(8 Lectures)**

Unit-3

Introduction to TCP/IP :- TCP/IP Protocols, Concept of physical and logical addressing, Different classes of IP addressing, Subnetting and supernetting, IPV4 vs IPV6 .

Network Architecture:- Ethernet Specification and Standardization: 10 mbps (Traditional Ethernet), 100 mbps (Fast Ethernet) and 1000 mbps (Gigabit Ethernet), Concept of Leased Lines and Backbone Lines, Channel allocation **(8 Lectures)**

Unit-4

Network Connectivity:- Network connectivity Devices, NICs, Hubs, Repeaters, Multiplexers, Modems, Routers and Protocols, Firewall, ATM, VOIP, Remote Procedure Call, Connection Management.

(8 Lectures)

Unit-5

Application Layer, File transfer, Data access management, Virtual Private Network, Virtual Terminal,internet and public network.

Wireless Networking:- Basics of Wireless, Wireless LAN, Wi-Fi, WiMax and Broadband Wireless and Bluetooth technology,Email . **(8 Lectures)**

The question paper shall have weightage to case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS:-

1. Tanenbaum, *Computer Networks*, Prentice Hall of India, New Delhi.
2. Forouzan, *Data Communications and Networking*, Tata McGraw Hill, New Delhi.
3. William Stallings, *Data and Computer Communication*, Pearson Education, New Delhi
4. Schatt Stan, *Area Networks* , Prentice Hall of India, New Delhi
5. Evanson Tami, *Network+ Lab manual*,- BPB Publications, Delhi.
6. *Networking Essentials* – BPB Publications New Delhi
7. *Computer Network and Communications* , Cyber Tech Publications, New Delhi.

References Books:-

1. Peterson Richard, *Linux – The complete Reference*, Tata McGraw Hill, New Delhi.
2. Issac Yates, *Linux – Install and Configuration Black Book*, IDG Books India Private Limited, Delhi.
3. *Unleashed Linux*, TechMedia Publishers, New Delhi

DIGITAL ELECTRONICS

Third Semester

	L	T	P	C
Course Code: DEC301	**3**	**2**	**-**	**5**

Course Contents:

Unit I

Introduction:-Define digital and analog signals and systems, difference between analog and digital signals, Need of digitization and applications of digital systems

Number System: Decimal, Binary, Octal, and Hexadecimal systems; Binary Arithmetic, BCD and Gray code. Boolean algebra and the 'Demerger's Theorems. **(Lectures 08)**

Unit II

Logic Gates: BUFFER, NOT, AND, OR, NAND, NAND, NOR, X-OR, and X_NOR gates **Combinational Logic Circuits**: SOP and POS forms, reduction and inter conversion of forms, logic design using K maps. **(Lectures 08)**

Unit III

Adder & Subtract or circuits: Half adder, full adder, half subtract or, full subtract or; design of all these circuits. using discrete gates.

Flip-Flops: RS flip-flop, J-K, D-, T-flip-flops; Racing problem and the Master-Slave J-K flip-flop. **(Lectures 08)**

Unit IV

Sequential Logic Circuits: Design of asynchronous and synchronous up/down counters, Shift Registers: SIPO, SISO, PIPO, and PISO register Multiplexers, demultiplexers; decoders and encoders. **(Lectures 08)**

Unit V

Analog to digital and digital to analog converters: Basic terms and definitions, Conversion methods, Types of converters. **(Lectures 08)**

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Malvino & Leach "*Digital Principles and Applications*", Tata McGraw Hill, Delhi.
2. Gayakwad R.A. "*Op-Amps and Linear Integrated Circuits*", Prentice Hall of India, Delhi.

Reference Books:

1. Taub & Schilling *"Digital Electronics*", Tata McGraw Hill, Delhi.
2. Nagrath IJ. "*Electronics Analog and Digital*", Prentice Hall of India Ltd Delhi.
3. Jain R.P. "*Modern Digital Electronics*", Tata McGraw Hill Delhi.

English Communication
Third Semester

Course Code: DIP 301

L	T	P	C
3	0	0	3

Course Content:

Unit I

Functional Grammar: Active, Passive voice, Conditional Sentences, Syntax, Concord, Common Errors. **(8 hours)**

Practical (oral): To make students practice the above mentioned grammatical RULES in the practical classes. **(2 hours)**

Unit II

Communication: Meaning & Importance of Communication, Process of Communication, Language as a tool of Communication. **(8 hours)**

Practical (Oral): To make students speak on their understanding of Communication in English. **(2 hours)**

Unit III

Writing Skills: Reporting events, Writing newspaper reports, Bio-data making, Writing of C.V. & Resumes, Writing job application. **(8 hours)**

Practical (Oral): To make students practice writing on the above mentioned processes. **(2 hours)**

Unit IV

Listening Skills: The listening process, hearing & listening, types of listening, Barriers to listening. **(8 hours)**

Practical (oral): To make student develop the skills of listening & thus improve their speaking skills. **(2 hours)**

Recommended Books:

1. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi
2. Wren & Martin : High School English Grammar & Composition- S.Chand & Co. N.Delhi

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

OPERATING SYSTEM LAB (LINUX)
Third Semester

	L	T	P	C
Course Code: DCS 351	**-**	**-**	**4**	**2**

LIST OF PRACTICALS

Installing Linux

1. Creating and managing user accounts.
2. Practice on Linux commands.
3. Practice on VI (Visual Interface) commands.
4. Write and execute at least 10 programmers in Linux using shells such as
- Factorial of numbers
- Even/odd numbers
- Fibonacci series
- Prime numbers
- Arrange of numbers
- Reverse of numbers
- Lower case to upper case
- Greatest of three numbers etc.

5. Installing and configuring X-windows
6. Create file and folder
7. Searching a file
8. Installation of device drivers
9. Creating user accounts
10. Customizing desktop
11. Setting monitor resolution

Evaluation of Practical Examination:- As per Annexure – A

RECOMMENDED BOOKS

1. Richard Peterson, *Linux – The Complete Reference*, Tata McGraw Hill, New Delhi
2. Die Annleblanc and Issac Yates, *Linux – Install and Configuration Black Book*, IDG Books India Private Ltd., Delhi.
3. *Unleashed Linux*, Tech Media Publishers.

C PROGRAMMING LAB
Third Semester

	L	T	P	C
Course Code: DCS 352	**-**	**-**	**4**	**2**

LIST OF PRACTICALS:

1. Write a Program (WAP) to calculate temperature in Fahrenheit to Celsius using formula C= (F-32)/1.8.
2. WAP to calculate Sum & average of N numbers.
3. WAP to convert integer arithmetic to a given number of day and month.
4. WAP to find maximum and minimum out of 3 numbers a, b & c.
5. WAP to find e^b.
6. WAP to find factorial of positive integer.
7. WAP to find sum of series up to n number, 2+5+8+……+n.
8. WAP to print all the number between 1 to 100 which are dividing by 7.
9. WAP to generate Fibonacci series up to n.
10. WAP to find position in class first =360, second=240, third=120 otherwise fail. Read marks of 3 subjects.
11. Write an iterative function to calculate factorial of given number.
12. Write a recursive function to calculate factorial of given number.
13. WAP to find whether number is prime or not.
14. WAP to find even & odd up to a given limit.
15. WAP to find addition of two matrix of n*n order.
16. WAP to find multiplication of two matrix of n*n order.

Evaluation of Practical Examination:- As per Annexure – A

COMPUTER NETWORK LAB
Third Semester

	L	T	P	C
Course Code: DCS 353	**-**	**-**	**4**	**2**

LIST OF PRACTICALS:

1. . Identification of various networks components
- connections, BNC, RJ-45,
Cables: Co-axial, twisted pair, UTP
- NIC (network interface card)
- Switch, hub

2. Preparing of networks
3. Establishment of a LAN
4. Use of protocols in establishing LAN
5. Trouble shooting of networks
6. Installation of network device drivers
7. Installation of networks (Peer to Peer Networking, client server interconnection)
8. Use/installation of proxy server

Evaluation of Practical Examination:- As per Annexure – A

DIGITAL ELECTRONICS LAB
Third Semester

	L	T	P	C
Course Code: DEC 351	**-**	**-**	**4**	**2**

LIST OF PRACTICALS

1. Verify truth tables of various basic logic functions.
2. Verify truth tables of various universal logic functions.
3. Design and verify the truth table of Half Adder
4. Design and verify the truth table of Full Adder
5. Design and verify the truth table of Half Subtractor
6. Design and verify the truth table of Full Subtractor
7. Design 4:1 Multiplexer
8. Design 1:4 Demultiplexer
9. Design 4:1 Encoder
10. Design 1:4 Decoder.
11. To study various types of flip-flop
12. To study various types of counters

Evaluation of Practical Examination:- As per Annexure – A

DATA STRUCTURES USING 'C'
Fourth Semester

	L	T	P	C
Course Code: DCS 401	**3**	**2**	**-**	**5**

Course Contents:

Unit-1

Fundamental Notations:- Problem solving concept, top down and bottom up design, structured programming, Concept of data types, variables and constants, Concept of pointer variables and constants. **(8 Lectures)**

Unit-2

Arrays

Concept of Arrays, Single dimensional array, Two dimensional array, Storage strategy of multidimensional arrays, Operations on arrays with Algorithms (searching, traversing, inserting, deleting. **(8 Lectures)**

Unit-3

Linked Lists:- Introduction to linked list and doubly linked list, Representation of linked lists in Memory, Traversing a linked list, Searching linked list, Insertion and deletion into linked list, Introduction to Circular link list, Doubly link lists. **(8 Lectures)**

Unit-4

Stacks, Queues and Recursions:- Introduction to stacks, Representation of stacks, Implementation of stacks, Uses of stacks, Introduction to queues, Implementation of queues (with algorithm), Circular Queues, De-queues, Recursion. **(8 Lectures)**

Unit-5

Traversing Binary Trees (Pre order, Post order and In order), Searching, inserting and deleting binary search trees, Introduction to Binary Search Tree.

Sorting and Searching :- Introduction, Search algorithm (Linear and Binary), Sorting algorithms (Bubble Sort, Insertion Sort, Selection Sort, Merge Sort). **(8 Lectures)**

The question paper shall have weightage to case study 60% and to theoretical 40%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS:-

1) Salaria RS, *Data Structures and Algorithm Using C*, Khanna Book Publishing Co. (P) Ltd. New Delhi
2) Patel R.B., *Expert data structures with C* – Khanna Publishers, New Delhi.
3) Schaum's Outline Series – *Data structures* –McGraw Hill, Delhi.
4) Sanjiv Sofat, *Data Structures*, Khanna Publishers, New Delhi.
5) Tanenbaum, *Data Structures*, Prentice Hall of India, New Delhi.
6) Schaum's Series, *Data Structure* , McGraw Hills Publications, Delhi.
7) Tenenbaum, *Data Structure using Pascal*, Prentice Hall of India, Delhi.
8) Kruse Robert, *Data Structure using C*, Prentice Hall of India, Delhi.
9) Kanekar Yashwant, *Data Structure through C*, BPB Publications, Delhi.
10) Srivastava SK, Srivastava Deepali, *Data Structure through C in depth*, BPB Publications Delhi.

REFERENCE BOOKS:-

1) Glenn W. Rowe, *Introduction to Data Structure and Algorithm with C++*, Prentice Hall of India, Delhi.
2) Chattopadhyay Sameeran, Chottopadhyay Matangini, *Data Structure through "C" Language*, BPB Publications, Delhi.
3) DOEACC, *Data Structure through "C" Language*, BPB Publications, Delhi.
4) Shukla, *Data Structure using "C" Lab Workbook*, BPB Publications, Delhi.

DATABASE MANAGEMENT SYSTEM (DBMS)

Fourth Semester

	L	T	P	C
Course Code: DCS 402	**3**	**2**	**-**	**5**

Course Contents:

Unit-1

Database Systems; Database and its purpose, Characteristics of the database approach, Advantages and disadvantages of database systems. Classification of DBMS, Database Administrators, Introduction to SQL, DDL, DML. **(8 Lectures)**

Unit-2

Database System Concepts and Architecture:- Data models, schemas, instances, data base state. DBMS Architecture; The External level, The conceptual level, The internal level, Mappings. Data Independence; Logical data Independence, Physical data Independence. Database Languages and Interfaces; DBMS Language, DBMS Interfaces. **(8 Lectures)**

Unit-3

Data Modeling using E.R. Model (Entity Relationship Model) :-Data Models Classification; File based or primitive models, traditional data models, semantic data models. Entities and Attributes, Entity types and Entity sets, Key attribute and domain of attributes, Relationship among entities. **(8 Lectures)**

Unit-4

Relational Model:- Relational Model Concepts: Domain, Attributes, Tuples and Relations. Relational constraints and relational database schemes; Domain constraints, Key constraints and constraints on Null. Relational databases and relational database schemes, Entity integrity, referential integrity and foreign key. **(8 Lectures)**

Unit-5

Normalization:- Non-loss decomposition and functional dependencies, First, Second and Third normal forms, Boyce/Codd normal form, Joining concepts, Transaction control, Locking techniques. **(8 Lectures)**

The question paper shall have weightage to case study 20% and to theoretical 80%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS

1) Vig Renu and Walia Ekta, *Fundamentals of Database Management Systems*, ISTE, Publication, New Delhi.

REFERENCE BOOKS:-

1) Leon Alexis and Leon Mathews , *Database Management Systems*; Vikas Publishing House Pvt. Ltd., New Delhi

COMPUTER ORGANISATION & MICROPROCESSOR
Forth Semester

	L	T	P	C
Course Code: DCS 403	**3**	**2**	**-**	**5**

Course Contents:

Unit I

Logic Gates: BUFFER, Logic gates, Boolean algebra and the 'Demourgon's Theorems, Half adder, full adder, half subtractor,full subtractor.

Microprocessor: Evolution of Micriprocessor, Microcomputer system, Architecture of a Microprocessor (With reference to 8085 microprocessor) Bus, bus organization of 8085, Block diagram of 8085 and function of each block, Pin details of 8085. **(Lecture 8)**

Unit II

Memory: Basic concept and hierarchy, Memories and I/O interfacing, Concept of memory mapping, partitioning of total memory space. N* M bit RAM, Expansion of word length and capacity, static and dynamic RAM.

Cache memory:- concept and design issues, address mapping and page replacement.

Auxiliary memories:- Magnetic disk, magnetic tape and optical disks, Virtual memory: concept and Implementation. **(Lecture 8)**

Unit-III

Central Processing Unit:- Addition and subtraction of signed numbers ,Signed operands multiplication, Booth's algorithm, Division algorithm. Floating point arithmetic operations, general registers organization, stack organization and addressing modes.

Programming: Programming (with respect to 8085 microprocessor),Brief idea of machine and assembly languages, Machines and Mnemonic codes. **(Lectures 08)**

Unit-IV

Control Unit:- Instruction types, Edge triggered And Level triggered, Instructions formats, instruction cycles and sub cycles (fetch and execute etc) , execution of a complete instruction. Explanation of the instructions groups:Data transfer groups.

Arithmetic Group, Logic Group, microprogramming sequencing : wide branch addressing, micro-instruction with next address field, pre-fetching microinstructions. **(8 Lectures)**

Unit-V

Input / Output: - Peripheral devices (8255 PPI, 8257 DMA controller), I/O interface, I/O ports, Interrupts: types of interrupts .Modes of Data Transfer: Programmed I/O, I/O and Direct Memory Access, Serial Communication: Synchronous-asynchronous communication, standard communication interfaces. **(8 Lectures)**

The question paper shall have weightage to case study 40% and to theoretical 60%.

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge. The project will be evaluated by the external examiner.

Text Books:

1. Patterson, *Computer Organisation and Design*, Elsevier Pub, Delhi.
2. William Stalling, " *Computer Organization*", PHI, Delhi.
3. Moris Mano," *Computer System Architecture*", PHI, Delhi
4. Ramesh S Gaonker, *Microprocessor Architecture, Programming and Applications with 8080/8085*, Willey Eastern Ltd. New Delhi

Reference Book:

1. John P Hays, " *Computer Organization*", McGraw Hill, Delhi.
2. Tannenbaum," *Structured Computer Organization'*, PHI, Delhi
3. Mathur, *Introduction to Microprocessors*, Tata McGraw Hill, New Delhi

MANAGEMENT INFORMATION SYSTEM
Fourth Semester

	L	T	P	C
Course Code: DCS 404	**3**	**2**	**-**	**5**

Course Contents:

Unit I:

Introduction to Information system, Types of Information system, Components of IS, MIS, Importance and Need of MIS, Network and Internet, Information System Design, IT Infrastructure Library, Decision Support System. **(8 Lectures)**

Unit II:

Structure of MIS, MIS vs Data Processing, Knowlwdge requirement of MIS, Information flow in MIS, MIS and Information Resource Management, Service Management, Availability Management. **(8 Lectures)**

Unit III:

Information system in Businees, Problem with MIS, Causes and solution, Problem Management, The Planning Process, Controlling process in an organization, Database Backup & Storage, Archive & Retrieve, Disaster Recovery, Database & Application Protection. **(8 Lectures)**

Unit IV:

Internet , Intranet, Extranet, Computer and internet Security, Access Management. Intrusion Detection, Security Information Management, Identity management, Release management. **(8 Lectures)**

Unit V:

Introduction to Cyber Ethics, Intellectual Property, Cyber Crimes, Ethical challenges, Electronics Commerce, Electronic Data Interchange, Smart Card, Artificial Intelligence, Expert Systems.

(8 Lectures)

The question paper shall have weightage to case study 05% and to theoretical 95%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:-

1. Goel Ritendra, *Computer Application in Management*, New Age International Publishers, New Delhi.
2. Chowdhury G.G., *Text Retrieval Systems in information Management*, New Age International Publishers, New Delhi.

Reference Book:

1. Bhunia C.T., *Information Technology Network and Internet* by, New Age International Publishers, New Delhi.

SOFTWARE ENGINEERING
Fourth Semester

	L	T	P	C
Course Code: DCS 405	**3**	**1**	**-**	**4**

Course Contents:

Unit I

Introduction to software engineering, Importance of software, The evolving role of software, Software Characteristics, Software Components, Software Applications, Software Crisis, Software engineering problems, Software Development Life Cycle, Software Process. **(8 Lectures)**

Unit II

Water Fall Model, The Incremental Model, Prototyping, Spiral Model, role of management in software development. Design principles, problem partitioning, abstraction, and top down and bottom up-design, structured approach, functional versus object oriented approach, Cohesion, Coupling. **(8 Lectures)**

Unit III

Programming approaches, structured programming, programming style and internal documentation, Testing, Types of testing, Levels of testing, Life cycle, test plan, Verification & validation, debugging. **(8 Lectures)**

Unit IV

The Management spectrum- (The people, the product, the process, the project), cost estimation, project scheduling, staffing, software configuration management, Maintenance and its types, quality assurance plan, project monitoring, risk management. **(8 Lectures)**

Unit V

Reliability, Reliability metrics, Reliability growth modeling, Software quality, ISO 9000 certification for software industry, SEI capability maturity model, comparison between ISO & SEI CMM. CASE and its Scope, CASE support in software life cycle, documentation, project management, Reverse Software Engineering, Architecture of CASE environment. **(8 Lectures)**

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Pressman, Roger S., *"Software Engineering: A Practitioner's Approach"*, McGraw Hill, Delhi.
2. Jalote, Pankaj, *"Software Engineering"*, Narosa, Delhi.
3. Schaum's Series, *"Software Engineering"*, TMH, Delhi
4. Alexis, Leon and Mathews Leon, *"Fundamental of Software Engineering"*, Vikas Publications, Delhi.

Reference Books:

1. Sommerville, Ian, *"Software Engineering"*, AWL.
2. Bell, *"Software Engineering for students"*, Pearson Education, Delhi.
3. Govil Kapil, *Beginner Computer Science Software Engineering"*, Selective & Scientific Books, ISBN 81 – 89128 – 07 – 8

Technical Communication
Fourth Semester

Course Code: DIP 401

L	T	P	C
3	0	0	3

Course Content:

Unit I

Pre-requisites of Technical Written Communication: One Word Substitution, Spelling process, words often confused and misused, Technical terms. **(8 hours)**

Practical (oral):

To make students practice the above mentioned topics & take care of the technical terms & also use those in different sentences. **(2 hours)**

Unit II

Technical Communication: Nature, origin & development, salient features, significance, Difference between Technical Communication & General Writing. **(8 hours)**

Practical (oral) : To make students speak on the development of Technical Communication. **(2 hours)**

Unit III

Forms of Technical Communication: What is a Report ? Characterstics of Report, steps to be followed for Report writing, Structure of Report, Importance of Report Writing. **(8 hours)**

Practical (oral): To make students practice how to write a report and then speak on the subject matter of the report. **(2 hours)**

Unit IV

Technical Proposal: What is Proposal ? Significance of proposal, format of proposal, characteristics' of a good proposal. **(8 hours)**

Practical (oral): To make students practice writing a proposal. **(2 hours)**

Recommended Books:

1. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi.
2. Mohan K& Sharma R- Business correspondence and Report writing TMH New Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

DATA STRUCTURE USING C LAB
Fourth Semester

	L	T	P	C
Course Code: DCS 451	**-**	**-**	**4**	**2**

Write Program in C++ for the following:

1. WAP to calculate Sum & average of N numbers.
2. WAP using switch case to find maximum and minimum out of 3 numbers a, b & c.
3. WAP to print all the number between 1 to 100 which are dividing by 9.
4. WAP to find addition of two matrix of n*n order.
5. Sorting programs: Bubble sort, Merge sort, Insertion sort, Selection sort.
6. Searching programs: Linear Search, Binary Search.
7. Array implementation of Stack, Queue, Circular Queue.
8. Implementation of Stack, Queue.
9. Implementation of Binary tree.
10. Program for Tree Traversals (preorder, inorder, postorder).

Evaluation of Practical Examination:- As per Annexure – A

DATA BASE MANAGEMENT SYSTEM LAB
Fourth Semester

	L	T	P	C
Course Code: DCS 452	**-**	**-**	**4**	**2**

The program to be implemented using SQL:

1. Create the Database & Table using SQL.
2. Entering the values in Database using insert & delete option.
3. Updation of the tables.
4. WAP for joining (left,right,equivqlent).
5. Create a table using primary , Candidate & foreign keys.
6. Implementation of connectivity of front end to back end.
7. Implement Aggregate function.
8. Searching a content in a table.

Evaluation of Practical Examination:- As per Annexure – A

COMPUTER ORGANISATION & MICROPROCESSOR LAB
Forth Semester

	L	T	P	C
Course Code: DCS 453	**-**	**-**	**4**	**2**

LIST OF PRACTICALS

1. Study of 8085 Microprocessor Kit used in laboratory Familiarization with Kit and identification of its various parts like keyboard, Memory, Timer,\ Interrupt Controller, Display Unit, Interface Unit.

2. Writing an assembly language program using mnemonics and test them on 8 BIT **MICROPORCESSOR KIT**

- Addition of two, 8 bit numbers.
- Subtraction of 8 bit numbers.
- Multiplication of 8 bit numbers.
- Division of 8 bit numbers.

3. Some exercises of assembly language programs using a 8255 input & output ports.

4. To identify various components, devices and sections of computer.

5. To Study the motherboards

6. To interconnect the system unit with the video monitor, mouse and key board and test the operation of the computer.

7. To connect various add on cards and I/O devices to a computer motherboard and test their working.

Evaluation of Practical Examination:- As per Annexure – A

COMPUTER GRAPHICS
Fifth Semester

	L	T	P	C
Course Code: DCS 501	**3**	**2**	**-**	**5**

Course Contents:

Unit-1

Graphic Systems: Introduction to Computer Graphics, Display devices, Types, Applications of display devices,

Scan conversion and Output Primitives:- Scan converting the point, Scan converting the straight line - Bresenham's line algorithm, Scan converting a circle - Defining a circle, Bresenham's circle algorithm, Region filling - introduction, flood filling, boundary filling. **(8 Lectures)**

Unit-2

Graphic primitives in Algorithms, Point plotting, line drawing algorithms – DDA algorithms, Bresenham's line algorithms, circle-generating algorithms, ellipses

Two-Dimensional Transformations:- Basic transformations-translation, scaling, rotation, matrix representations and homogeneous coordinates, composite transformations, viewing transformation.

(8 Lectures)

Unit-3

Windowing and Clipping Techniques:-Windowing concepts, clipping algorithms, area clipping, line clipping, polygon clippings, text clipping, blanking, window to-viewpoint transformation, Cohen Sutherland clipping algorithm. **(8 Lectures)**

Unit-4

2-D and 3-D Graphics: Three dimensional transformation, Z-buffer algorithm, Curve: Bezier, B-spline surface. Concept of Projection. **(8 Lectures)**

Unit-5

Perspective and Parallel transformations, Animation: Introduction, Types, Applications, Languages. Image: Visual effect (Aliasing & Anti Aliasing). **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS:

1. Roy A Plastock and Gordon Kalley, *Theory and problems of Computer Graphics*, Schaum's Outline series McGraw Hill Publishers, Delhi.
2. Steven Harrington, *Computer Graphics Programming Approach*.

REFERENCE BOOKS:

1. Rajaraman A, *Computer Graphics for Engineers*, Narosa Publishing House Pvt Ltd Daryaganj, New Delhi 110002.

JAVA PROGRAMMING
Fifth Semester

	L	T	P	C
Course Code: DCS 502	**3**	**2**	**-**	**5**

Course Contents:

Unit I

Core Java: Introduction, Operator, Data type, Variable, Arrays, Control Statements, Methods & Classes, Inheritance, Package and Interface, Exception Handling, Multithread, I/O. **(8 Lectures)**

Unit II

Java Applet, String handling, Networking, Event handling, Introduction to AWT, AWT controls, Layout managers, Menus, Images, Graphics. **(8 Lectures)**

Unit III

Java Swing: Creating a Swing Applet and Application, Programming using Panes, Pluggable Look and feel, Labels, Text fields, Buttons, Toggle buttons, Checkboxes, Radio Buttons, View ports, Scroll Panes, Scroll Bars, Lists, Combo box, Progress Bar, Menus and Toolbars, Layered Panes, Tabbed Panes, Split Panes, Layouts, Windows, Dialog Boxes. **(8 Lectures)**

Unit IV

JDBC: The connectivity Model, JDBC/ODBC Bridge, java.sql package, connectivity to remote database, navigating through multiple rows retrieved from a database. **(8 Lectures)**

Unit V

Java Servlets: Served basics, Servlet API basic, Life cycle of a Servlet, Running Servlet, Debugging Servlets, Thread-safe Servlets, Introduction to Java Server Pages (JSP). **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Margaret Levine Young, *"The Complete Reference Internet"*, TMH, Delhi.
2. Naughton, Schildt, *"The Complete Reference JAVA2"*, TMH, Delhi

Reference Books:

1. Balagurusamy E, *"Programming in JAVA"*, TMH, Dlehi.
2. Dustin R. Callway, *"Inside Servlets"*, Addison Wesley, Delhi.
3. Mark Wutica, *"Java Enterprise Edition"*, QUE
4. Steven Holzner, *"Java2 Black book"*, Dreamtech

MULTIMEDIA
Fifth Semester

	L	T	P	C
Course Code: DCS 503	**3**	**2**	**-**	**5**

Course Contents:

Unit 1

Introduction to multimedia, Evolution of Multimedia, Objects of Multimedia, hypertext, hyper graphics, animation, Scope of Multimedia in Business, Multimedia H/W & S/W. **(8 Lectures)**

Unit 2

Multimedia Hardware : OCR, touch-screen, scanners, digital cameras, speakers, printers, plotters, optical disks and drives as CD-ROM and DVD. multimedia networks, text, sound (MIDI),Audio, Video. **(8 Lectures)**

Unit 3

Image and sound file formats, multimedia file formats, compression, standards and techniques, Macromedia products, Basic drawing techniques, multimedia operating systems. **(8 Lectures)**

Unit 4

Photo-shop workshop, image editing tools, specifying and adjusting colors, using gradient tools, selection and move tools, Sampling variables. **(8 Lectures)**

Unit 5

Multimedia Authoring Tools:- Types of Authoring programmes – Icon based, Time based, object oriented working in macromedia flash, exploring interface using selection of PEN tools. Working with drawing and painting tools, applying colour viewing and manipulating time line, animating, processing, guiding layers, importing and editing sound and video clips in flash. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS:-

1. William Casanova and Molina, *Multimedia An Introduction*; Prentice Hall of India, New Delhi
2. Vaughan, *Multimedia Making it work*, Tay
3. *Photo-shop for Windows Bible*, Deke Maclelland IDG Books India, Pvt. Ltd., New Delhi.
4. Hillman, *Multimedia Technology and Application*, Galgotia Publications, New Delhi

REFERENCE BOOKS

1. *Flash 5 Bible by Rein Hardit*, IDG Books India Pvt. Ltd, Delhi.
2. *Flash 5 in easy steps*, Vandome IDG Books India Pvt. Ltd, Delhi.
3. Li and Drew, *Fundamentals of Multimedia*, Pearson Publications, Delhi.

OBJECT ORIENTED PROGRAMMING IN C++

Fifth Semester

	L	T	P	C
Course Code: DCS 504	**3**	**1**	**-**	**4**

Course Contents:

Unit-1

Introduction and Features:- Fundamentals of object oriented programming – procedure oriented programming Vs. object oriented programming (OOP). Object oriented programming concepts – Classes, reusability, encapsulation, inheritance, polymorphism, Abstraction. **(8 Lectures)**

Unit-2

Language Constructs:- Review of constructs of C used in C++ : variables, types and type declarations, user defined data types; increment and decrement operators, relational and logical operators; if then else clause; conditional expressions, input and output statement, loops, switch case. **(8 Lectures)**

Unit-3

Classes and Objects:- Class creation, Object accessing class members, Private Vs Public, Constructor and Destructor Objects.

Member Functions:- Method definition, Inline functions implementation, Constant member functions Friend Functions ,Overloading, operator overloading, function overloading, constructor overloading.

(8 Lectures)

Unit-4

Inheritance:- Definition of inheritance, Types of inheritance, protected data, private data, public data, inheriting constructors and destructors, constructors and destructors of derived classes, virtual functions.

(8 Lectures)

Unit-5

Polymorphism and Virtual Functions:- Polymorphism, Types of Polymorphism, Virtual functions, pure virtual functions, different operation on the file, creation of file streams, stream classes, header files, updating a file, opening and closing a file. **(8 Lectures)**

The question paper shall have weightage to numerical/ case study 70% and to theoretical 30%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS

1. KR Venugopal and Rajkumar, T Ravishankar, *Mastering C++*; Tata McGraw hill Publishing Co. Ltd., New Delhi.
2. E. Balaguruswamy, *Object Oriented Programming in C++*, TMH Publishing Co. Ltd, New Delhi.
3. Robert Lafore, *C++*, Galgotia Publications Pvt. Ltd., Daryaganj, New Delhi.
4. Arora Vipan, *Object Oriented Programming using C++*; Eagle Parkhashan Jalandhar.
5. Gupta & Gupta, *Object Oriented Programming in C++*., Ishan Publication, Delhi.
6. Rajaram R , *Object Oriented Programming and C++*; New Age International (P) Ltd., Publishers, New Delhi

REFERENCE BOOKS

1. Singh Gurupkar, *Object Oriented Programming using C ++*.
2. John R. Hubbard, *Schaum's Outline of Programming with C++*.

Communication Technique
Fifth Semester

Course Code: DIP 501	L	T	P	C
	3	0	0	3

Course Content:

Unit I

Oral Communication: Principles of effective Oral Communication, Vitals of Communication, Interpersonal Communication, persuasive Communication. **(8 hours)**

Practical (oral): Practice of oral Communication. **(2 hours)**

Unit II

Presentation Strategies: Purpose, Audience & Locale, Audio-visual aids, Body Language, Voice dynamics. **(8 hours)**

Practical (oral): Making students develop presentation skills. **(2 hours)**

Unit III

Speaking Skills: Improving voice & speech, Art of public speaking, Dealing with the Boss, Dealing with subordinates. **(8 hours)**

Practical (oral): Making the students speak on topic. **(2 hours)**

Unit IV

Group Discussion: Tips & Style. **(8 hours)**

Practical (Oral): To make students participate in G.D. **(2 hours)**

Recommended Books:

1. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi.
2. Mitra Barun K.-Effective Technical Communication –O.U. P N.Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

SOCIAL, PSYCHOLOGICAL AND ECONOMICS FACTORS*
Fifth Semester

Course Code: DIP 502/603	L	T	P	C
	3	-	-	3

Course Content:

Unit-I

Introduction to Industrial Psychology – definition, scope and importance

Unit-II

Motivation: Meaning, factors, motivation theories (Maslow, Herzberg and McGregor); understanding stress and its consequences, causes of stress, managing stress; group dynamics: features of group, group cohesiveness

Unit-III

Work Environment: Design of work place; fatigue: causes and prevention, work place boredom, accidents and safety.

Conflict: Concept, sources and types

Unit –IV

Constituents of Indian economy: - Agriculture, Industry and Service;

Innovation and Entrepreneurship: Industrial growth in India, role and challenges of small scale industries, sources of funding for small scale industries, industrial sickness

Unit –V

Privatization and globalization in India

Problems of industry- technology, waste disposal, industrial law and dispute

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

References:

1. Miner J.B. (1992) Industrial/Organizational Psychology. McGraw Hill.
2. Blum & Naylor (1982) Industrial Psychology. Its Theoretical & Social Foundations CBS Publication.
3. Aswathappa K. (2008). Human Resource Management, New Delhi: Tata McGraw Hill.
4. Ramnath Sharma and S. S Chandra Advanced Industrial Psychology: Atlantic publishers, New Delhi
5. Vasant Desai, Small Scale Industries and Entrepreneurship, Himalaya publications
6. Ruddar Dutt and K.P.M. Sundaram, Indian Economy, S. Chand Publications
6. Samuelson, Economics, Tata McGraw Hill

COMPUTER GRAPHICS LAB

Fifth Semester

	L	T	P	C
Course Code: DCS 551	**-**	**-**	**4**	**2**

Write the following programs in C:

1. Write a program to draw a pixel.
2. Write a program to draw a line using DDA algorithm.
3. Write a program to draw a line using Bresenham's algorithm.
4. Write a program to draw a circle using Bresenham's algorithm.
5. Write a program to draw ellipsoid.
6. Write a program to rotate a triangle, line & a rectangle.
7. Write a program to shearing triangle, line & a rectangle.
8. Write a program to translate triangle, line & a rectangle.

Evaluation of Practical Examination:- As per Annexure – A

JAVA PROGRAMMING LAB

	L	T	P	C
Course Code: DCS 552	**-**	**-**	**4**	**2**

LIST OF PRACTICAL:

1. Write a program in Java for illustrating, overloading.
2. Write a program in Java for illustrating overriding.
3. Write a program in Java for illustrating various forms of inheritance.
4. Write a program to create packages and multiple threads in Java.
5. Write a program in Java using Layout manager create different applications.
6. Write programs in Java to create and manipulate Text Area, Canvas, Scroll Bars, Frames and Menus using swing/AWT.
7. Using Java create Applets.
8. Use Java Language for Client Server Interaction with stream socket connections.

Evaluation of Practical Examination:- As per Annexure – A

MULTIMEDIA LAB

Fifth Semester

	L	T	P	C
Course Code: DCS 553	**-**	**-**	**2**	**1**

LIST OF PRACTICAL

1. Configuring multimedia devices to PC (Personal computer)

2. Installing and use of various multimedia devices

- **i.** Scanner
- **ii.** Digital camera, web camera
- **iii.** Mike and speakers
- **iv.** Touch screen
- **v.** Plotter and printers
- **vi.** DVD
- **vii.** Audio CD and Video CD
- **viii.** Reading and writing of different format on a frame CD
- **ix.** Transporting audio and video files
- **x.** Using various features of Director
- **xi.** Using various features of Flash
- **xii.** Using various features of Photo-shop
- **xiii.** Making multimedia presentations combining Director, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations

Evaluation of Practical Examination:- As per Annexure – A

OBJECT ORIENTED PROGRAMMING IN C++ LAB

Fifth Semester

	L	T	P	C
Course Code: DCS 554	**-**	**-**	**4**	**2**

Write programs in C++ for the following:

1. Program illustrating overloading of various operators.
2. Program illustrating use of Friend, Inline, default arguments.
3. Program illustrating use of constructor and various types of constructor.
4. Program illustrating various forms of Inheritance.
5. Program illustrating use of virtual functions, virtual Base Class.
6. Program illustrating use of function overloading.

Evaluation of Practical Examination:- As per Annexure – A

INDUSTRIAL TRAINING
Fifth Semester

Course Code: DCS555

L	T	P	C
0	0	0	4

Students will attend Industrial training of four week in any industry or reputed organization after the IV semester examination in summer vacation. The evaluation of this training shall be included in the V semester evaluation.

The student will be assigned a faculty guide who would be the supervisor of the student. The faculty would be identified before the end of the IV semester and shall be the nodal officer for coordination of the training.

Students will also be required to prepare an exhaustive technical report of the training during the V semester which will be duly signed by the officer under whom training was taken in the industry/ organization. The covering format shall be signed by the concerned office in-charge of the training in the industry. The officer-in-charge of the trainee would also give his rating of the student in the standard University format in a sealed envelope to the Principal of the Polytechnic. (Annexure – II)

The student at the end of the V semester will present his report (Annexure – I) about the training before a committee constituted by the Principal of the Polytechnic which would be comprised of at least three members comprising of the Department Coordinator, Class Coordinator and a nominee of the Principal. The students guide would be a special invitee to the presentation. The seminar session shall be an open house session. The internal marks would be the average of the marks given by each member of the committee separately in a sealed envelope to the Principal.

The marks by the external examiner would be based on the report submitted by the student which shall be evaluated by the external examiner and cross examination done of the student concerned.

Not more than three students would form a group for such industrial training/ project submission.

The marking shall be as follows.

Internal: 50 marks
By the Faculty Guide - 25 marks
By Committee appointed by the Principal – 25 marks

External: 50 marks
By Officer-in-charge trainee in industry – 25 marks
By External examiner appointed by the University – 25 marks

WEB TECHNOLOGY
Sixth Semester

	L	T	P	C
Course Code: DCS 601	**3**	**2**	**-**	**5**

Course Contents:

Unit-1

Internet Basics Specification and technical details for establishing Internet. Types and functions of modems, IP addressing, internet domains, domain name server, TCP/IP protocols, Internet service providers, Intranets, Internet Connectivity. **(8 Lectures)**

Unit-2

World Wide Web (www):- World Wide Web and its evolution, web page, web server, HTTP protocol. Examples of web servers. Navigation Tools: Netscape and Internet Explorer to surf Internet, Uniform Resource Locator (URL). Hypertext, hyperlinks and hypermedia, URL, its registration, browsers, search engines, proxy servers. **(8 Lectures)**

Unit-3

Internet Security: Basics of authentication and authorization. Introduction to firewall, various techniques of encryption and decryption, SSL (Secure Socket Layer). **(8 Lectures)**

Unit-4

Internet Applications: E-mail, Telnet, FTP, IRC, NNTP, Video conferencing, e-commerce. Basic structure of HTML, designing a web page, inserting links images, horizontal rules, comments. Formatting text, title, headings, colours, fonts, sizes, simple tables and forms. HTML tags, hyperlinks. Adding graphics and images, image maps, image files. Using tables, forms, style sheets and frames. **(8 Lectures)**

Unit-5

Using Front Page:-Front page editor, Front page explorer Client-side Scripting:- Using Java Script, Server-side Scripting: - Java Server Pages (JSP) Web Page designing using database as a Back and JSP as front end. **(8 Lectures)**

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

TEXT BOOKS:

1. Kraynak and Habraken, *Internet 6-in-1*, Prentice Hall of India Pvt. Ltd., New Delhi.
2. Kasser, *Using the Internet IV edition*, Prentice Hall of India Pvt. Ltd., New Delhi.
3. Wall, *Using the World Wide Web, (IInd edition)*, Prentice Hall of India Pvt. Ltd., New Delhi.
4. Leon Alexis and Leon Mathews, *Internet for Everyone*; Vikas Publishing House Pvt. Ltd., New Delhi.
5. AB Tiwana, *Practical Guide and Internet*; Galgotia Publications Pvt. Ltd., New Delhi.
6. *HTML – 4 for World Wide Web*, Castro Addison Wesley (Singapore) Pvt. Ltd., New Delhi.
7. *Principles of Web Designing Joel Sklar, Web Warrior Series Available* with Vikas Publishing House Pvt. Ltd., New Delhi.
8. Chopra Ashish, *Internet & web designing*, Ishan Publication. Rick Dranell, *HTML 4.0 Unleashed*; Tech Media Publications, Delhi.
9. Arora Vipan, *Internet & Web page Technologies*; Eagle Parkashan Jalandhar.

REFERENCE BOOKS:

1. *Teach Yourself HTML 4.0 with XML, DHTML and Java Script* by Stephanie, Cottrell, Bryant; IDG Books India Pvt. Ltd., New Delhi.
2. *Using Active Server Pages* by Johnson et.al. Prentice Hall of India, New Delhi.
3. Chapman, *Web Development with Visual Basic with CD ROM*; Prentice Hall of India, New Delhi.

E – COMMERCE
Sixth Semester

	L	T	P	C
Course Code: DCS 602	**3**	**2**	**-**	**5**

Course Contents:

UNIT I
Introduction, Forces behind E-Commerce Industry Framework, Brief history of Ecommerce, Inter Organizational E-Commerce, Intra Organizational E-Commerce, Network Infrastructure for E-Commerce, Global Information Distribution Network. **(8 Lectures)**

UNIT-II
Introduction to Mobile Commerce, Mobile Information Devices, Introduction to Web security, Firewalls & Transaction Security, Client Server Network, Network Security. **(8 Lectures)**

UNIT-III
World Wide Web & Security, Encryption, Secret Key Encryption, Public Key Encryption, Virtual Private Network (VPN), Implementation Management Issues. **(8 Lectures)**

UNIT - IV
Overview of Electronic payments, Digital Token based Electronic payment System(EPS), Smart Cards, Credit Card , Debit Card based EPS, Home Banking, Online Banking. **(8 Lectures)**

UNIT-V
Net Commerce EDA, EDI Application in Business, Legal requirement in E - Commerce, Introduction to supply Chain Management, CRM, issues in Customer Relationship Management. **(8 Lectures)**

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work
A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

References:

1. Greenstein and Feinman, *"E-Commerce"*, TMH, Delhi.
2. Ravi Kalakota, Andrew Whinston, *"Frontiers of Electronic Commerce"*, Addision Wesley, Delhi.
3. Denieal Amor, *" The E-Business Revolution"*, Addision Wesley, Delhi.
4. Diwan, Sharma, *"E-Commerce"* Excel
5. Bajaj & Nag, *"E-Commerce: The Cutting Edge of Business"*, TMH, Delhi.

VISUAL BASIC. NET
Sixth Semester

	L	T	P	C
Course Code: DCS 603	**3**	**2**	**-**	**5**

Course Contents:

Unit I

Introduction, Common Language Runtime, Common Type System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language, Just-in-Time compilation, garbage collection, Application installation & Assemblies. **(8 Lectures)**

Unit II

The start page, Menu and Tool Bar, Toolbox, Solution Explorer, Class View Window, Properties Window, Task List and Output Window, Server Explorer, Keywords, Statements, variables, Data types, Operators, Decisions with if, switch statements, Using Loops, Arrays. **(8 Lectures)**

Unit III

Procedures, Class and Objects, Error Handling, Working with Textbox, Buttons, Labels, Checkbox, Radio Buttons, List box, Combo Box, Picture Box, Menu. **(8 Lectures)**

Unit IV

ADO.NET Data Namespaces, SqlConnection, SqlCommand, SqlData Adapter, Dataset Class, Data Binding, Data View. **(8 Lectures)**

Unit V

Windows Services, Web Services, Web Forms. **(8 Lectures)**

The question paper shall have weightage to case study 80% and to theoretical 20%.

Project work

A project work will be assigned to the students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Richard Blair and Jonathan Crossland, *"Beginning VB.NET (2 Edition)"*, WROX

2. Steven Holzner, *"Visual Basic .NET 2003"*, Pearson Education Shouish Chavan, *"Visual Basic .NET"*, Pearson Education

3. Richard Blair and Jonathan Crossland, *"Professional VB.NET (2 Edition)"*, Willy

Reference Books:

1. Jeffrey Richter, *"Applied Microsoft .Net Framework Programming"*, (Microsoft)

INDUSTRIAL ECONOMICS AND PRINCIPLES OF MANAGEMENT

Sixth Semester

	L	T	P	C
Course Code: DIP 602	**3**	**2**	**-**	**5**

Course Contents

Unit I

Nature and significance of Economics. Meaning of Science, Engineering and Technology and their relationship with economic development. **(Lectures 08)**

Unit II

The concept of demand and supply. Elasticity of Demand and Supply. Indifference Curve Analysis, Price Effect, Income Effect and Substitution Effect. **(Lectures 08)**

Unit III

Money and Banking: Functions of Money, Value of Money, Inflation and measures to control it. Brief idea of functions of banking system, viz., Commercial and central banking, Business fluctuations. **(Lectures 08)**

Unit IV

Nature and Significance of Management. Evaluation of Management thought, Contributions of Max Weber, Taylor and Fayola. **(Lectures 08)**

Unit V

Human Behavior: Factors of Individual Behavior, Perception, Learning and Personality Development, Interpersonal Relationship and Group Behavior. **(Lectures 08)**

The question paper shall have weightage to case study 10% and to theoretical 90%.

Project work

A project work will be assigned to students by the subject faculty. It will be of 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty and students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

Text Books:

1. Dewett K.K., "*Modern Economic Theory* S.Chand & Co., Delhi.

Reference Books:

1. Stonier A.W. & D.C. Horgne, "*A Text Book of Economic Theory*", Oxford Publishing House Pvt. Ltd, Delhi.

Corporate Communication
Sixth Semester

Course Code: DIP 601	L	T	P	C
	4	0	0	4

Course Content:

Unit I

Corporate Behaviour: Corporate expectation, office etiquettes, Telephonic Conversation & etiquette. **(8 hours)**

Practical (oral): To make the students aware of Corporate life & culture & also to teach them about telephone courtesy etc. **(2 hours)**

Unit II

Communication: Press Communication, Press note, e-mail, Inviting tenders, Writing advertisements, Writing notices. **(8 hours)**

Practical (oral): To make students develop the understanding of media importance. **(2 hours)**

Unit III

Interview Skills: Concept & Process, Preparing for the Interview, Types of Interview. **(8 hours)**

Practical (oral): Mock Interview Practice. **(2 hours)**

Unit IV

Modern Technology & Communication: Globalization impact, Role of Information Technology, Tele-Communication, Internet, Tele- Conferencing and Video-Conferencing. **(8 hours)**

Practical (oral): To make students speak on I.T./Internet/Tele & Video Conferencing.**(2 hours)**

Recommended Books:

1. Chhabra T.N. – Business Communication Sun India Pub. N.Delhi.
2. Raman Meenakshi & Sharma Sangeeta – Technical Communication – Principles & Practices, - ONP, N. Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Industrial Ecology*

Sixth Semester

Course Code: DIP 502/603	L	T	P	C
	3	-	-	3

Course Content:

Unit-I

Introduction to Industrial Psychology – definition, scope and importance

Unit-II

Motivation: Meaning, factors, motivation theories (Maslow, Herzberg and McGregor); understanding stress and its consequences, causes of stress, managing stress; group dynamics: features of group, group cohesiveness

Unit-III

Work Environment: Design of work place; fatigue: causes and prevention, work place boredom, accidents and safety.

Conflict: Concept, sources and types

Unit –IV

Constituents of Indian economy: - Agriculture, Industry and Service;

Innovation and Entrepreneurship: Industrial growth in India, role and challenges of small scale industries, sources of funding for small scale industries, industrial sickness

Unit –V

Privatization and globalization in India

Problems of industry- technology, waste disposal, industrial law and dispute

Project work

A project work will be assigned to the students by the concerned subject faculty. It will carry 10 marks and will be evaluated by the faculty itself. The topic of the project will be decided by the faculty. The students will work in a group of 3 – 5 on each topic. The topic should be related to the subject taught by the faculty and should have proper utility and importance to enhance his practical skill & knowledge.

References:

1. Miner J.B. (1992) Industrial/Organizational Psychology. McGraw Hill.
2. Blum & Naylor (1982) Industrial Psychology. Its Theoretical & Social Foundations CBS Publication.
3. Aswathappa K. (2008). Human Resource Management, New Delhi: Tata McGraw Hill.
4. Ramnath Sharma and S. S Chandra Advanced Industrial Psychology: Atlantic publishers, New Delhi
5. Vasant Desai, Small Scale Industries and Entrepreneurship, Himalaya publications
6. Ruddar Dutt and K.P.M. Sundaram, Indian Economy, S. Chand Publications
6. Samuelson, Economics, Tata McGraw Hill

WEB TECHNOLOGY LAB
Sixth Semester

	L	T	P	C
Course Code: DCS 651	**-**	**-**	**4**	**2**

LIST OF PRACTICALS:

Write a program in HTML:

1. Using HTML Tags, Paired & Singular Tag,
2. The structure of html program Title and footer,
3. Text formatting,
4. Heading style, Drawing lines,
5. Image tags list (UL, OL, DL).
6. Adding graphics to HTML Document, Tables: cell spacing, cell padding, BGcolor, colspan, rowspan,
7. Linking document, Image Map, Frames.

Evaluation of Practical Examination:- As per Annexure – A

MAJOR PROJECT
Sixth Semester

	L	T	P	C
Course Code: DCS 652	**-**	**-**	**8**	**4**

Students should devote themselves to make a project which preferably should be a working model of their thoughts based on their subject of choice.

The student will be assigned a faculty guide who would be the supervisor of the student. The faculty would be identified before the end of the VI semester.

The project shall be finalized by the students before the start of the VII semester and shall be completed and submitted at least one month before the last working day of the VIII semester, date of which shall be notified in the academic calendar.

The assessment of performance of students should be made at least twice in each semester i.e. VII and VIII and each internal assessment shall be for 50 marks. The student shall present the final project live as also using overhead projector or power point presentation on LCD to the internal committee as also the external examiner.

The evaluation committee shall consist of faculty members constituted by the college which would be comprised of at-least three members comprising - the Department Coordinator, Class Coordinator and a nominee of the Principal. The students guide would be a special invitee to the presentation. The seminar session shall be an open house session. The internal marks would be the average of the marks given by each member of the committee separately and submitted to the Principal in a sealed envelope.

Not more than three students would form a group for such industrial training/ project submission.

The marking shall be as follows:

Internal: 100 marks

By the Faculty Guide - 50 marks

By Committee appointed by the Director – 50 marks

External: 100 marks

By External examiner appointed by the University – 100 marks

Evaluation of Practical Examination:- As per Annexure – A

VB. NET LAB
Sixth Semester

	L	T	P	C
Course Code: DCS 653	**-**	**-**	**4**	**2**

Write a program in VB.NET:

1. Using Keywords, Statements, variables.
2. Using Data types, Operators.
3. Using Decisions with if, switch statements.
4. Using Loops, Arrays, Procedures.
5. Using Class and Objects.
6. Working with Textbox, Buttons, Labels, Checkbox, Radio Buttons, List box, Combo Box.
7. Using Picture Box, Menu, ADO.NET Data Namespaces, SqlConnection.
8. Working with Sql Command, Sql Data Adapter.
9. Working with Dataset Class, Data Binding, Data View.

Evaluation of Practical Examination:- As per Annexure – A

Evaluation of Practical Examination:

EVALUATION CRITRIA (INTERNAL)

S. No.	Details	Marks (50)
1	Regularity/Attendance	05
2	Performance of Practical/Skill/Creativity/Innovation	20
3	Knowledge, Findings and Results regarding practical conducted	10
4	File Presentation	05
5	Response to questions during Viva	10
	Total (Out of 50)	

External examiner appointed by University shall conduct the practical along with internal faculty and shall assess out of 50 marks. The student would be required to complete an experiment during the practical examination and write the detail process, findings/ result and conclusions in the examination evaluation copy.

EVALUATION CRITRIA (EXTERNAL)

S. No.	Details	Marks (50)
1	Performance of Experiment/ Practical and Observations taken	20
2	Result/ Conclusion	10
3	Records/ File Presentation	10
4	Viva – Voce	10
	Total (Out of 50)	

Annexure – I

Industrial Training

After IVth semester examination in the summer vacation students will have a four week industrial training in small scale industry/training institute, on different stages of production, testing quality control and assurance, research & development and maintenance etc. They will work and tours their attention on following points to incorporate them in their report.

1-Name and Address of the organization:

2-(a)Date of Joining:
(b) Date of Leaving:

3-Nature of work
(a)Product:
(b)Research & development:
(c) Maintenance:
(d)Working hours:
4-Details of work visted and activities going on-:

5-Details of Machine/Tools used in the section of unit visited-:

6-Work procedure in the section visited-:

7-Specifications of the product of section and materials used-:

8-Work of repair and maintenance cell-:

9-Manner of keeping store items, their receiving &distribution-:

10-Safety measures on work place and working condition in general – comfortable convenient & hygienic-:

Date :-

Student Signature
Name
Class
Branch
Enrollment No.

Annexure – II

Trainee Assessment Format

This institution invites the comments on the training of its students (work and behavior) from their immediate supervisors on the following points.

1. Name of the trainee

2. Date of

    - Joining
    - Leaving

3. i. Regularity & Punctuality
   ii. Sense of responsibility
   iii. Readiness to work/ learn
   iv. Obedience
   v. Skill acquired

4. Name of the works of the Department he attended during his stay.
   His activity/ worth of being there.

5. Any thing specify.

Signature of the Assessor

Date :-

Designation