Program Syllabus Booklet

Diploma in Computer Science & Engineering

(Code-121)

Session: 2019-20

	GURU KASHI UNIVERSITY

GURU KASHI UNIVERSITY

Guru Gobind Singh College of Engineering & Technology (Code:1)

Diploma in Computer Science & Engineering
(Code: 121)

Study Scheme

Semester: 1st

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week) L	T	P	No. of Credits	Internal Marks	External Marks	Total Marks
1	120101	Applied Chemistry – I	T	4	0	0	4	50	50	100
2	120102	Applied Mathematics - I	T	5	0	0	5	50	50	100
3	120103	Applied Physics – I	T	4	0	0	4	50	50	100
4	120104	English and Communication Skills – I	T	3	0	0	3	50	50	100
5	123101	Engineering Drawing – I	T/P	2	0	6	5	50	50	100
6	120105	Applied Chemistry – I Lab	P	0	0	2	1	50	50	100
7	120106	Applied Physics – I Lab	P	0	0	2	1	50	50	100
8	120107	English and Communication Skills – I Lab	P	0	0	2	1	50	50	100
9	120108	General Workshop Practice – I	P	0	0	6	3	50	50	100
10	121202	# Basics of Information Technology Lab	P	0	0	4	2	50	50	100
		Total No. of Credits					29			

* Common Course with all other diploma programmes.
 # Common course with IT & 2nd Semester of ME, EE, ECE & Civil Engg.

			Semester: 2nd							
Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week) L	T	P	No. of Credits	Internal Marks	External Marks	Total Marks
1	120201	*English and Communication Skills –II	T	4	0	0	4	50	50	100
2	120202	*Applied Mathematics -II	T	5	0	0	5	50	50	100
3	120203	*Applied Physics-II	T	4	0	0	4	50	50	100
4	125201	***Basic Electrical Engineering	T	4	0	0	4	50	50	100
5	122201	***Basic Electronics	T	4	0	0	4	50	50	100
6	120205	*English and Communication Skills –II Lab	P	0	0	2	1	50	50	100
7	120206	*Applied Physics-II Lab	P	0	0	2	1	50	50	100
8	125202	***Basic Electrical Engineering Lab	P	0	0	2	1	50	50	100
9	122202	***Basic Electronics Lab	P	0	0	2	1	50	50	100
10	121201	**DTP fundamentals Lab	P	0	0	2	1	50	50	100
11	120208	*General Workshop Practice –II	P	0	0	6	3	50	50	100
		Total No. of Credits					29			

*Common Course with other diploma programmes
** Common course with diploma program in IT
*** Common course with diploma programs in ECE & IT.

GURU KASHI UNIVERSITY
Guru Gobind Singh College of Engineering & Technology (Code:1)
Diploma in Computer Science & Engineering
(Code: 121)
Study Scheme
Semester: 3rd

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	122303	**Digital Electronics	T	4	0	0	4	50	50	100
2	121301	*Computer Programming Using C	T	4	0	0	4	50	50	100
3	121302	*System Analysis and Design	T	4	0	0	4	50	50	100
4	121304	*Relational Database Management System	T	4	0	0	4	50	50	100
5	121305	*Multimedia and Applications	T	3	0	0	3	50	50	100
6	122307	**Digital Electronics Lab	P	0	0	4	2	50	50	100
7	121306	*Computer Programming Using C Lab	P	0	0	4	2	50	50	100
8	121307	*Relational Database Management System Lab	P	0	0	4	2	50	50	100
9	121308	*Multimedia and Applications Lab	P	0	0	4	2	50	50	100
10	121309	*Computer Workshop	P	0	0	4	2	50	50	
		Total No. of Credits					29			

** Common course with diploma program in ECE & IT.

* Common course with diploma program in IT.

	Semester: 4th									
Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	120401	*Generic Skills and Entrepreneurship Development	T	4	0	0	4	50	50	100
2	121401	**Data Structures Using C	T	3	0	0	3	50	50	100
3	121402	** Object Oriented Programming Using C++	T	3	0	0	3	50	50	100
4	121403	**Computer Architecture	T	4	0	0	4	50	50	100
5	122404	***Microprocessors	T	4	0	0	4	50	50	100
6	127401	** Internet and Web Technologies	T	4	0	0	4	50	50	100
7	121404	**Data Structures Using C Lab	P	0	0	4	2	50	50	100
8	121405	** Object Oriented Programming Using C++ Lab	P	0	0	4	2	50	50	100
9	122409	***Microprocessors Lab	P	0	0	4	2	50	50	100
10	127402	** Internet and Web Technologies Lab	P	0	0	4	2	50	50	100
		Total No. of Credits					30			

** Common Course with diploma program in IT
*** Common Course with diploma programs in IT & ECE
*Common Course with diploma programs in IT, ME, ECE, EE & 5th sem of Civil Engg.

GURU KASHI UNIVERSITY
Guru Gobind Singh College of Engineering & Technology (Code:1)
Diploma in Computer Science & Engineering
(Code: 121)
Study Scheme
Semester: 5th

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	121501	Computer Peripherals and Interface	T	3	0	0	3	50	50	100
2	121502	*Operating Systems	T	3	0	0	3	50	50	100
3	121503	**Computer Networks	T	4	0	0	4	50	50	100
4	127501	*Visual Programming (using VB.NET)	T	3	0	0	3	50	50	100
5		*Elective-I	T	3	0	0	3	50	50	100
6	121504	Computer Peripherals and Interface Lab	P	0	0	4	2	50	50	100
7	121505	*Operating Systems Lab	P	0	0	4	2	50	50	100
8	121506	*Computer Networks Lab	P	0	0	4	2	50	50	100
9	127504	*Visual Programming (using VB.NET) Lab	P	0	0	4	2	50	50	100
10		*Elective-I Lab	P	0	0	4	2	50	50	100
11	121507	Minor Project	P	0	0	4	2	50	50	100
12	121508	Industrial Training /Internship (4 Weeks)	NA	NA	NA	NA	4	50	50	100
		Total No. of Credits					32			

Choose any one Elective from the following:

Elective-I	
127502	Open Source Technologies*
127503	Java Programming*
127505	Open Source Technologies Lab *
127506	Java Programming Lab*

*Common Course with diploma programs in IT
** Common Course with diploma programs in IT & 6th sem of ECE
There will be compulsory industrial / educational tour for one week
during this semester or after the semester

Semester: 6th

Sr.	Subject Code	Subject Name	Type of Subject T/P	(Hours Per Week)			No. of Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1	120601	* Basics of Management	T	4	0	0	4	50	50	100
2	121601	** Network Security	T	3	0	0	3	50	50	100
3	121602	** Computer Graphics	T	3	0	0	3	50	50	100
4	121603	** Installation, Maintenance and Troubleshooting of Computer Networks	T	3	0	0	3	50	50	100
5		Elective – II	T	3	0	0	3	50	50	100
6	121604	** Computer Graphics Lab	P	0	0	4	2	50	50	100
7	121605	** Installation, Maintenance and Troubleshooting of Computer Networks Lab	P	0	0	4	2	50	50	100
8		Elective – II Lab	P	0	0	4	2	50	50	100
9	121606	Major Project	P	0	0	8	4	50	50	100
		Total No. of Credits					26			

Choose any one Elective from the following:

Elective-II	
127601	Multimedia System Design **
127602	.Net Technologies (Using ASP.NET) **
127603	Multimedia System Design Lab**
127604	.Net Technologies (Using ASP.NET) Lab **

**Common with diploma programs in IT.

*Common with diploma programs in IT, CSE, ECE, ME

Credits- 04   **L T P**
                                                               4 0 0

OBJECTIVE:

Every branch of engineering is expanding greatly. The contributions of chemicals and chemical products are playing important role in the field of engineering, biotechnology, agriculture and pharmacology etc. The numbers of such chemical products are exponentially increasing each successive year. This results in enhancing the responsibility of engineers while choosing engineering materials for converting them into finished products. Now a days, choosing engineering material is not only based conventional qualitative and quantitative testing of their chemical composition and behavior under service conditions, but also based on environmental and eco-friendly factors. To achieve such objectives it is essential to apply applied aspects of chemistry. In order to educate and train Engineers and skilled work force applied chemistry syllabus for diploma students in various engineering and technology courses is designed to develop scientific temper and appreciate physical and chemical properties of engineering materials, which are used in their professional career. Best efforts should be made to teach and train the skilled engineers and work force by imparting essential knowledge required from this subject through demonstrations, and minor projects.

COURSE CONTENT:

Basic Concepts of Chemistry: Units and Dimensions, dimensional formulas- dimensional analysis principle of homogeneity of dimensions and their limitations, derived units (with special reference to pressure, volume, temperature, density, specific gravity, surface tension, viscosity and conductivity, thermodynamic parameters-significance and applications), Matter, element, compound and mixtures, atoms, molecules, ions, symbols and formulae, Atomic mass (A), atomic number (Z) isotopes, isobars, isotone (recapitulation only), Mole concept, solution, standard solution, methods to express concentration of solution molar mass, molar volume of gases, strength of solutions in grams per liter, molarity (M), molality (m), mass and volume percentages and mole fraction, Chemical equations, thermo-chemical equations, balancing of chemical equations and simple stoichiometric calculations. Numerical problems based on mole concept and molarity.

Atomic Structure, Periodic Table and Chemical Bonding: Fundamental particles- electrons, protons and neutrons, Bohr's model of atom and its limitations (qualitative treatment only). Wave particle duality and Heisenberg's uncertainty principle (elementary idea only), Modern concept of atom, definition of orbit and orbitals, shapes of s and p orbitals only, quantum numbers (significance only), electronic configuration of elements up to atomic number 30 on the basis of Aufbau Principle, Pauli's Principle and Hund's Rule, Modern periodic law and periodic table, groups and periods. Classification of elements into s, p, d, and f blocks (periodicity in properties are excluded), Chemical bond and cause of bonding. Ionic bond, valence bond approach of covalent

bond, hybridization (sp3, sp2 and sp) sigma (σ) and pi (π) bonds. Metallic bonding – electric, magnetic and dielectric properties based on Band model.

Water: Sources of water, impurities in water (dissolved –gases, salts and suspended), Hardness of water, types of hardness, degree of hardness, units of hardness-ppm, ^{o}Cl, ^{o}Fr – numerical problems. Disadvantages of using hard water in domestic and in industries: Laundry work (action of soap on water), paper, textile and beverage industries. Boiler feed water and its quality - causes and prevention of Scale and sludge formation, Priming and foaming, Boiler corrosion, Caustic embitterment, Softening of hard water by Ion exchange process- dematerialized water advantages and limitations of this method, Desalting of sea water by reverse osmosis (RO) method, Calgon process, Characteristics of drinking water and ICMR, ISI –quality criteria, Water analysis: Quantitative analysis of hardness by EDTA method, alkalinity, and estimation of total dissolved solids (TDS)-numerical problems, Enlist applications of various kinds of water in engineering and chemical industry.

Gas laws, Terminology of Thermodynamics and Equilibrium: Definition of gas and perfect gas, gas laws- Boyle's Law, Charles law & Avagadro's law, Gas constant (R), Terminology of Thermodynamics- thermodynamic system, surroundings, types of systems, extensive and intensive properties, state of a system, state functions, isothermal, adiabatic reversible, irreversible spontaneous and non spontaneous processes, meaning of ΔE, ΔH, ΔS and ΔG, free energy of spontaneous and non spontaneous processes (mathematical derivations are excluded), Elementary idea of zeroth, 1st, 2nd, and 3rd laws of thermodynamics (without mathematical derivation), Applications of free energy change (ΔG) criteria (in metallurgy and electric work without any mathematical derivation), Equilibrium state and its significance statement of Le-Chatelier's principle, equilibrium constant (K) and its applications, Electrolytes, non electrolytes, ionization in aqueous solutions, degree of ionization, ionic product of water (Kw), Concept of pH, pH- scale and industrial applications of pH, Definitions - acids, bases, neutralization and acid base titrations, indicators and choice of indicators for acid base titration., Buffer (acidic, basic and neutral) solutions, enlist applications of buffer solution, Simple numerical problems (only on 4.1, 4.5. 4.6 and 4.7 sections)

Electrochemistry: Electronic concept of oxidation and reduction, redox reactions, Electrolytes, non-electrolytes and electrolysis, Faraday's Laws of electrolysis and applications in electrometallurgy and electroplating in automobile, Standard reduction potential (SRP), activity series, electrochemical cell and their e.m.f. , Chemistry of commercial electrochemical cells, primary cells - Daniel cell and dry cell, secondary cell - lead acid storage cell, Wetson-cadmium cell, nicad battery, LiI battery, Hg – button cell and Ag- button cell, Fuel cells, Simple numerical problems related (to only 5.1, 5.3 and 5.4 sections)., secondary cell - lead acid storage cell, Wetson-cadmium cell, nicad battery, LiI battery, Hg – button cell and Ag- button cell, Fuel cells, Simple numerical problems related (to only 5.1, 5.3 and 5.4 sections).

Organic Chemistry: Tetra covalency of carbon in carbon compounds, catenation (definition only), Classification of organic compounds on the bases of functional group, IUPAC nomenclature of simple organic compounds (containing one functional group only) and their common names (if any)

TEXT BOOKS:

1. Chemistry in Engineering by J.C. Kuricose and J. Rajaram, Tata McGraw Hill, Publishing Company Limited, New Delhi.
2. Engineering Chemistry by P.C.Jain and Monika Jain, Dhanapat Rai Publishing Company, New Delhi.
3. Engineering Chemistry by Shashi Chawla.
4. Progressive Applied Chemistry – I by Dr. G.H. Hugar Eagle Prakashan, Jalandhar
5. Engineering Chemistry – A text Book by H. K. Chopra and A Parmer- Narosa Publishing House New Delhi.
6. Applied Chemistry-I by Dr.P.K. Vij & Shiksha Vij, Lords Publications, Jalandhar
7. Engineering Chemistry by Dr. Himanshu Pandey, Goel Publishing House, a unit of Krishna Prakashan Pvt. Ltd. Meerut, India, (year 2008)
8. Rapid Chemistry for peak performance by Anil Ahlawat, MTE books, 503, Taj Apartments, Ring Road, New Delhi (year 2008)
9. Applied Chemistry (Theory and Practice) by Vermani OP and Narula A.K., Cengage International Pvt. Ltd. New Delhi (year 2008)
10. Engineering Chemistry by Shelli Oberoi and Monica Malik, Cengage International Pvt. Ltd. New Delhi (year 2008)

DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)
APPLIED MATHEMATICS -I (120102)

Credits- 05   **L T P**
                                                                                             5 0 0

OBJECTIVES:

Applied Mathematics forms the backbone of engineering students. Basic elements of algebra, trigonometry, and coordinate geometry have been included in the curriculum as foundation course. This course will develop analytical abilities to make exact calculations and will provide continuing educational base to the students.

COURSE CONTENTS:

Algebra: Complex Numbers: Complex number, representation, modulus and amplitude. De-movier's theorem, its application in solving algebric equation. Basics and properties of logarithms and its applications in solving problems related to basic logarithmic formulas. Geometrical progression, its nth term and sum of n terms and to infinity. Application of Arithmetic progression and Geometrical progression to Engineering problem such as maximum possible output of the machine, vibration of the spring, finding out capacity of tank etc. Partial fractions (linear factors, repeated linear factors, non-reducible quadratic factors excluding repeated factors) Permutations and Combinations: Value of ^np_r ^nc_r. Simple problems of formulation of words from given alphabets (with and without repetition), circular permutations etc. Binomial theorem (without proof) for positive integral index (expansion and general form); binomial theorem for any index (expansion without proof) first and second binomial approximation with applications to engineering problems.

Trigonometry: Concept of angles, measurement of angles in degrees, grades and radians and their conversions. Applications of angles such as angle subtended by an arc, diameter of moon etc. T-Ratios of Allied angles (without proof), Sum, difference formulae and their applications (without proof). Product formulae (Transformation of product to sum, difference and vice versa). T-Ratios of multiple angles, sub-multiple angles (2A, 3A, A/2). Graphs of Sin x, Cos x, Tan x and ex. Applications of Trigonometric terms in engineering problems such as to find an angle of elevation , height, distance etc.

Co-ordinate Geometry: Cartesian and Polar coordinates (two dimensional), conversion from cartesian to polar coordinates and vice-versa, distance between two points (cartesian co-ordinates), section formulae. Area of triangle when its vertices are given, co-ordinates of centroid, in center of a triangle when the vertices are given, simple problems on locus. Equation of straight line in various standard forms (without proof), inter section of two straight lines, angle between two lines. Parallel and perpendicular lines, perpendicular

distance formula. General equation of a circle and its characteristics. To find the equation of a circle, given: Centre and radius, three points lying on it, Coordinates of end points of a diameter. Equation(s) of a straight line, circle, and conics (ellipse, parabola and hyperbola) and their application in solving engineering problems.

REFERENCE/TEXT BOOKS:

1. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi.
2. Engineering Mathematics by Vol. I & II by S Kohli, IPH, Jalandhar.
3. Applied Mathematics by RD Sharma.
4. Applied Mathematics, Vol. I & II by SS Sabharwal & Sunita Jain, Eagle Parkashan, Jalandhar.
5. Comprehensive Mathematics, Vol. I & II by Luxmi Publications.
6. Engineering Mathematics by Dass Gupta.
7. Engineering Mathematics by C Dass Chawla, Asian Publishers, New Delhi
8. Engineering Mathematics, Vol I, II & III by V Sundaram et al, Vikas Publishing House (P) Ltd., New Delhi.
9. Engineering Mathematics by S.N Iyengar et.al, Vikas Publishing House (P) Ltd., New Delhi.
10. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.,
11. Engineering Mathematics, Vol I & II by AK Gupta, MacMillan India Ltd., New Delhi
12. Applied Mathematics I, Archana Sharma, Lords Publications, Jalandhar
13. Advanced Engineering Mathematics by Peter V.Oneil, University of Albama, 2007 edition, Cengage Learning India Pvt. Ltd. Patparganj, New Delhi

APPLIED PHYSICS-I (120103)

Credits- 04   **L T P**
                                                                                                                    4 0 0

OBJECTIVES:

Applied physics includes the study of a large number of diverse topics all related to things that go on in the world around us. It aims to give an understanding of this world both by observation and by prediction of the way in which objects will behave. Concrete use of physical principles and analysis in various fields of engineering and technology are given prominence in the course content.

COURSE CONTENTS:

Units and Dimensions: Physical quantities, Units - fundamental and derived units, systems of units (FPS, CGS, MKS and SI units), Dimensions and dimensional formulae of physical quantities, Dimensional equations and principle of homogeneity, applications to conversion from one system of units to another, checking the correctness of physical relations and derivation of simple physical relations, limitations of dimensional analysis, Error in measurement, random and systematic errors, Application of units and dimensions in measuring length, diameter, Circumference, volume, surface area etc. of metallic and non metallic blocks, wires, pipes etc (at least two each).

Force and Motion: Scalar and vector quantities – examples, addition and multiplication (scalar product and vector product) of vectors, Force, resolution and composition of forces: resultant, parallelogram law of forces, equilibrium of forces, Newton's Laws of motion: concept of momentum, Newton's laws of motion and their engineering applications, derivation of force equation from Newton's second law of motion; conservation of momentum, impulse. Simple numerical problems, Circular motion: angular displacement, angular velocity and angular acceleration, Relation between linear and angular variables (velocity and acceleration), Centripetal force (derivation) and centrifugal force with its application such as banking of roads, bending of cyclist, motion in vertical circle etc, Application of various forces in lifts, cranes, large steam engines and turbines.

Waves and Vibrations: Wave motion: transverse and longitudinal wave motion with examples, sound and light waves, velocity, frequency and wave length of a wave (relationship $v = n\lambda$) and their applications, Wave equation, $y = r$ sine t, phase, phase difference, superposition of waves and their applications, Simple Harmonic Motion(SHM): definition, expression for displacement, velocity, acceleration, time period, frequency in S.H.M., Free, forced and resonant vibrations with examples,

Acoustics of buildings – reverberation, reverberation time, echo, noise, coefficient of absorption of sound, methods to control reverberation time and their applications, Ultrasonics – production (magnetostriction and piezoelectric methods) and their engineering and medical applications.

Rotational Motion: Concept of translatory and rotating motion with examples, Definitions of torque, angular momentum and their relationship, Conservation of angular momentum (qualitative) and its examples, Moment of inertia and its physical significance, radius of gyration, Theorems of parallel and perpendicular axes (statements), Moment of inertia of rod, disc, ring and sphere (Formulae only), Application of rotational motions in transport vehicles, trains and aero plane turbine/engine.

Work, Power and Energy: Work: definition and its SI units, Work done in moving an object on horizontal and inclined plane (incorporating frictional forces) with its application, Power: definition and its SI units, calculation of power with numerical problems, Energy: Definition and its SI units: Kinetic energy and Potential energy with examples and their derivation, Principle of conservation of mechanical energy (for freely falling bodies), transformation of energy from one form to another with its application, Friction: concept, types and its engineering applications, Application of Friction in brake system of moving vehicles, trains, aero planes and other objects.

Properties of Matter: Elasticity: definition of stress and strain, different types of modulus of elasticity, stress – strain diagram, Hooke's law with its applications, Pressure: definition, its units, atmospheric pressure, gauge pressure, absolute pressure, U-tube, manometers and barometer gauges and their applications, Surface tension: concept, its units, angle of contact, measurement of surface tension by capillary tube method, applications of surface tension, effect of temperature and impurity on surface tension, Fluid motion, stream line and turbulent flow, Equation of Continuity, Bernauli's Theorem and their applications. Viscosity and coefficient of viscosity: Buoyant force, buoyancy, Stoke's Law and derivation of terminal velocity, effect of temperature on viscosity and its application in hydraulic systems.

Thermometry: Difference between heat and temperature on the basis of K.E. of molecules, Principles of measurement of temperature and different scales of temperature and their Relationship, Resistance thermometers and Pyrometers with their field applications such as Thermocouple, Bi-metallic thermometer, Expansion of solids, liquids and gases, coefficient of linear, surface and cubical expansions and relation amongst them, Modes of transfer of heat (Conduction, convection and radiation with examples), Co-efficient of thermal conductivity, determination of thermal conductivity of good conductor (Searle's method) and bad conductor (Lee's disc method), Application of

various systems of thermometry in refrigeration and air-conditioning etc.

REFERENCE/TEXT BOOKS:

1. Text Book of Physics for Class XI (Part-I, Part-II) N.C.E.R.T
2. Text Book of Physics for Class XII (Part-I, Part-II) N.C.E.R.T
3. Applied Physics Vol. I and Vol. II, TTTI Publications, Tata McGraw Hill, New Delhi
4. Concepts in Physics by HC Verma, Vol. I & II, Bharti Bhawan Ltd. New Delhi
5. Fundamentals of Physics by Resnick and Halliday & Walker, Asian Book Pvt. Ltd., New Delhi
6. Berkeley Physics Course, Vol. I, II &III, Tata McGraw Hill, Delhi .
7. The Feynman Lectures on Physics by Feynman, Leighton and Sands, Vol. I & II, Narosa Publishing House, Delhi
8. Comprehensive Practical Physics, Vol. I & II, JN Jaiswal, Laxmi Publishers
9. Engineering Physics by PV Naik, Pearson Education Pvt. Ltd, New Delhi
10. Applied Physics I & II by RA Banwait & R Dogra, Eagle Parkashan, Jalandhar
11. Applied Physics by Jasmer Kaur and Bhupinder Singh, Lords Publications, Jalandhar City
12. Physics by Nelcon and Parker Publishers UK.
13. Engineering Physics by Vanchna Singh and Sheeetal Kumar, Cengage Learning India Pvt. Ltd. Patparganj, Delhi (year 2008)

ENGLISH AND COMMUNICATION SKILLS -I (120104)

Credits- 04   **L T P**
                                                                     4 0 0

OBJECTIVES:

The curriculum aims to develop the use of English for three major purposes social interaction, academic achievement and professional use. Listening, speaking, reading, and writing skills can not be thought of as independent skills. They are generally perceived as interdependent where one skill often activates the other skills as well as the paralinguistic skills required for the achievement of effective communication. It is believed that the most effective way to achieve these purposes is through the adoption of a thematic, integrated, content-based approach to teaching and learning.

COURSE CONTENTS:

Introduction : Definition, Introduction and Process of Communication, Objectives of Communication, Essentials of Communication, Media and Modes of Communication, Channels of Communication, Barriers to Communication, Body language, Humour in Communication, Silence in Communication

Listening: Significance, Essentials, barriers and effectiveness of Listening.

Speaking: Significance, essentials, barriers and effectiveness of Speaking, Introduction to phonetics (Dictionary: meaning and pronunciation of words as given in the standard dictionary using symbols of phonetics)

Reading: Techniques of reading: Skimming, Scanning, Intensive and Extensive Reading, Comprehension, Vocabulary enrichment and grammar exercises based on the following selective readings. **Section-I:** Homecoming – R.N. Tagore, the Selfish Giant - Oscar Wilde, the Stick – Justice Surinder Singh. **Section-II:** I Have a Dream – Martin Luther King, My struggle for An Education- Booker T Washington, Life Sketch of Sir Mokshagundam Visvesvarayya. **Section-III:** Ozymandias – P.B. Shelley, Daffodils – William Wordsworth, Stopping by Woods on a Snowy Evening – Robert Frost.
Comprehension exercises on unseen passages, Exercises on interpretation of tables, charts, graphs, signs and pictures etc.

Writing: Significance, essentials and effectiveness of writing, Paragraph of 100-120 words.

Vocabulary: Vocabulary of commonly used words, Pair of words (Words commonly confused and misused).

Grammar: Identification of parts of speech, using a word as different parts of speech, Correction of in-correct sentences, Tenses, Voice.

REFERENCE/TEXT BOOKS:

1. Spoken English (2nd Edition) by V Sasikumar & PV Dhamija; Published by Tata MC Graw
   Hills, New Delhi.
2. Spoken English by MC Sreevalsan; Published by M/S Vikas Publishing House Pvt. Ltd;
   New Delhi.
3. Spoken English –A foundation course (Part-I & Part-II) By Kamlesh Sdanand & Susheela
   Punitha; Published by Orient BlackSwan, Hyderabad
4. Practical Course in English Pronunciation by J Sethi, Kamlesh Sadanand & DV Jindal;
   Published by PHI Learning Pvt. Ltd; New Delhi.
5. A Practical Course in Spoken English by JK Gangal; Published by PHI Learning Pvt. Ltd; New
   Delhi.
6. English Grammar, Composition and Usage by NK Aggarwal and FT Wood; Published by
   Macmillan Publishers India Ltd; New Delhi.
7. Business Correspondence & Report writing (4th Edition) by RC Sharma and Krishna Mohan;
   Published by Tata MC Graw Hills, New Delhi.
8. Business Communication by Urmila Rani & SM Rai; Published by Himalaya Publishing House,
   Mumbai.
9. Business Communication Skills by Varinder Kumar, Bodh Raj & NP Manocha; Published by
   Kalyani Publisher, New Delhi.
10. Professional Communication by Kavita Tyagi & Padma Misra; Published by PHI Learning Pvt.
    Ltd; New Delhi.
11. Business Communication and Personality Development by Bsiwajit Das and Ipseeta Satpathy;
    Published by Excel Books, Delhi
12. Succeeding Through Communication by Subhash Jagota; Published by Excel Books, Delhi
13. Communication Skills for professionals by Nira Konar; Published by PHI Learning Pvt. Ltd;
    New Delhi.
14. Developing Communication Skills (2nd Edition) by Krishna Mohan & Meera Banerji; Published
    by Macmillan Publishers India Ltd; New Delhi.
15. Effective Technical Communication By M .Ashraf Rizwi; Published by Tata MC Graw Hills,
    New Delhi.
16. Basic Communication Skills for Technology by Andrea J Rutherfoord; Published by Pearson
    Education, New Delhi
17. English & Communication Skills for students of Science & Engineering by SP

Dhanavel;
    Published by Orient BlackSwan, Hyderabad.
18. Technical Communication- Principles & Practices by Meenakshi Raman & Sangeetha Sharma;
    Published by Oxford University Press, New Delhi.
19. Technical English by S. Devaki Reddy & Shreesh Chaudhary; Published by Macmillan
    Publishers India Ltd; New Delhi.
20. Advanced Technical Communication, by Kavita Tyagi & Padma Misra; Published by PHI
    Learning Pvt. Ltd; New Delhi.
21. Communication Skills for Engineer & Scientist by Sangeeta Sharma & Binod Mishra; Published
    by PHI Learning Pvt. Ltd; New Delhi.

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)
ENGINEERING DRAWING - I (123101)

Credits- 05
L T P
2 0 6

OBJECTIVES:

Drawing is the language of engineers and technicians. Reading and interpreting engineering drawing is their day to day responsibility. The subject is aimed at developing basic graphic skills in the students so as to enable them to use these skills in preparation of engineering drawings, their reading and interpretation. The emphasis, while imparting instructions, should be to develop conceptual skills in the students following BIS SP 46 – 1988.

Note:
1. First angle projection is to be followed
2. Minimum of 16 sheets to be prepared
3. Instructions relevant to various drawings may be given along with appropriate demonstrations, before assigning drawing practice to students

COURSE CONTENTS:

Introduction to Engineering Drawing: Introduction to drawing instruments, materials and layout of drawing sheets.

Free Hand Sketching and Lettering: Different types of lines in Engineering drawing as per BIS specifications, Practice of vertical, horizontal and inclined lines, geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagonal, pentagon with the help of drawing instruments. Practice of vertical, horizontal and inclined lines, geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagonal, pentagon with the help of drawing instruments. Free hand lettering (Alphabet and numerals) – lower case and upper case, single stroke, vertical and inclined at 75 degree in different standards, series of 3,5,8 and 12 mm heights in the ratio of 7:4

Dimensioning Technique: Necessity of dimensioning, method and principles of dimensioning (mainly theoretical instructions), Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, equally spaced on P.C.D., counter sink holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches.

Scales: Scales - their need and importance (Theoretical instructions), Drawing of plain and diagonal scales.

Projection: Theory of projections (Elaborate theoretical instructions), Projection of Points: Production of a point in the first quadrant, Projection of a point in the third quadrant. Projection of Straight Line: Line parallel to both the planes, Line perpendicular to any one of the reference plane, Line inclined to any one of the reference plane. Drawing 3 views of given objects (Non-symmetrical objects may be selected for this exercise). Drawing 6 views of given objects (Non-symmetrical objects may be selected

for this exercise). Identification of surfaces on drawn views and objects drawn, Exercises on missing lines and views.

Note: At least one sheet in third angle projection.

Sections: Importance and salient features, Methods of representing sections, conventional sections of various materials, classification of sections, conventions in sectioning. Drawing of full section, half section, partial or broken out sections, Offset sections, revolved sections and removed sections. Drawing of different conventions for materials in section, conventional breaks for shafts, pipes, rectangular, square, angle, channel, rolled sections, Exercises on sectional views of different objects.

Isometric Views: Fundamentals of isometric projections (Theoretical instructions), Isometric views of combination of regular solids like cylinder, cone, cube and prism.

REFERENCE/TEXT BOOKS:

1.   A Text Book of Engineering Drawing by Surjit Singh, Dhanpat Rai & Co., Delhi.

2.   Engineering Drawing by PS Gill, SK Kataria & Sons, New Delhi.

3.   Elementary Engineering Drawing in First Angle Projection by ND Bhatt, Charotar Publishing House.

4.   Engineering Drawing I & II by JS Layall, Eagle Parkashan, Jalandhar.

Credits- 01   **L T P**
                                                                                                      0 0 2

List of Practical's

1.   Introduction to volumetric analysis, apparatus used in volumetric analysis and molarity based calculations.

2.   Preparation of standard solution of oxalic acid {(COOH)2.2H2O} or potassium permanganate (KMnO4) or potassium dichromate (K2Cr2O7)

3.   To verify the physical (state, colour, odour solubility, boiling and melting points) properties and few chemical properties of ionic (e.g. NaCl) and covalent (kerosene oil or any other such compound may be given) compounds.

4.   To determine strength of given solution of sodium hydroxide by titrating against standard solution of oxalic acid using phenolphthalein indicator.

5.   To determine total acid number of given oil volumetrically

6.   To prepare cuprammonium {Cu(NH3)4SO4} and estimate cupric ion in the given solution of copper sulphate solution by spectrophotometeric method..

7.   To distinguish between aldehyde and ketone by Tollen's reagent (benzaldehyde and acetone may be used)

8.   To verify the first law of electrolysis. (Electrolysis of copper sulphate solution using copper electrode).

9.   To prepare iodoform from ethanol or acetone

10. To prepare bakelite

11. To prepare the Mohr's salt from ferrous sulphate and ammonium sulphate.

12. Estimation of hardness of water by EDTA method.

13. Estimation of total alkalinity in the given sample of water by titrating against standard solution of sulfuric acid

14. Determination of pH of given solution using pH meter.

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)
APPLIED PHYSICS-I LAB (120106)

Credits- 01 **L T P**
0 0 2

List of Practical's

1.   To find the diameter of wire using a screw gauge

2.   To find volume of solid cylinder and hollow cylinder using a vernier calipers

3.   To determine the thickness of glass strip and radius of curvature using a spherometer

4.   To verify parallelogram law of forces

5.   To find the time period of a simple pendulum and determine the length of second's pendulum.

6.   To find the frequency of a tuning fork by a sonometer

7.   To find the velocity of sound by using resonance apparatus at room temperature.

8.   To find the Moment of Inertia of a flywheel about its axis of rotation

9.   To find the surface tension of a liquid by capillary rise method

10.   To determine the atmospheric pressure at a place using Fortin's Barometer

11.   To determine the viscosity of glycerin by Stoke's method

12.   To determine the coefficient of linear expansion of a metal rod

13.   To find the coefficient of thermal conductivity of Bakelite sheet (bad conductor) by Lee's Disc Method

14.   To determine the coefficient of thermal conductivity of a copper strip using Searle's Thermal Conductivity apparatus.

DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)
ENGLISH AND COMMUNICATION SKILLS –I LAB   (120107)

Credits- 01   **L T P**
                                                                   0 0 2

List of Practical's
1.   LISTENING
- ✓ Using pre-recorded CDs/DVDs with pre-listening exercise to prepare students about what they are going to hear and comprehension based on the audio
- ✓ Note-taking
- ✓ Listening for the main ideas
- ✓ Assessing listening proficiency

2.   SPEAKING
- ✓ Exercises on pronunciation of common words as given in the standard dictionary using symbols of phonetics
- ✓ Greetings for different occasions
- ✓ Introducing oneself, others and leave taking(talking about yourself)
- ✓ Just a minute (JAM) sessions: Speaking extempore for one minute on given topics
- ✓ Paper reading before an audience (reading unseen passages)
- ✓ Situational Conversation/role-playing with feedback, preferably through video recording
- ✓ Reading aloud of Newspaper headlines and important articles
- ✓ Improving pronunciation through tongue twisters

3.   READING
- ✓ Paper reading
- ✓ Poetry recitation
- ✓ Reading newspaper headlines

4.   WRITING
- ✓ Exercises on spellings
- ✓ Group exercises on writing paragraphs on given topics

5.   VOCABULARY
1. To look up words in a Dictionary: meaning and pronunciation of words as given in the standard dictionary using symbols of phonetics
2. To seek information from an Encyclopedia

GENERAL WORKSHOP PRACTICE -I (120108)

Credits- 03   **L T P**
                                                          0 0 6

OBJECTIVES:

In order to have a balanced overall development of diploma engineers, it is necessary to integrate theory with practice. General workshop practices are included in the curriculum in order to provide hand on experience about use of different tools and basic manufacturing practices.

This course aims at developing general manual and machining skills in the students. Besides above, the development of dignity of labour, precision, safety at work place, team working and development of right attitude are the other objectives.

COURSE CONTENTS:

The following shops are included in the syllabus:

1.   Carpentry and Painting Shop
2.   Fitting Shop
3.   Electric Shop

The contents of various shops prescribed under workshop Practice –I are same as that of General Workshop Practice-I which is common for most of engineering diploma programmes except for Computer Engineering and Information Technology.

The instructor is to first explain the introductory part given at the beginning under each shop followed by demonstration and practice by students.

1.   Carpentry and Painting Shop

    1.1   Introduction to various types of wood such as Deodar, Kail, Partal, Teak, Hollack, Sheesham, Champ, etc. (Demonstration and their identification).
    1.2   Demonstration, function and use of commonly used hand tools. Care, maintenance of tools and safety measures to be observed.
            Job I   Marking, **sawing, planning and chiseling & their practice**.
    1.3   Introduction to various types of wooden joints, their relative advantages and uses. **Job II Preparation of half lap joint**.
            Job III Preparation of Mortise and Tenon Joint.
    1.4   Demonstration of various methods of painting wooden items.
            Job IV Preparation of surface before painting including primer coat.
            Job V   Painting Practice by brush/roller/spray.

2.   Fitting Shop

2.1 Introduction to fitting shop tools, common materials used in fitting shop, Identification of materials. (e.g. Steel, Brass, Copper, Aluminium etc.). Identification of various sections of steel viz. Flat, Angle, Tee, Channel, Bar Girder, Square, Z-Section, etc.

2.2 Description and demonstration of various types of work benches. Holding devices and files. Precautions while doing filing work.

Job I **Marking of job, use of marking tools and measuring instruments.**
Job II **Filing a dimensioned rectangular or square piece of an accuracy of 0.25mm**
Job III **Filing practice (Production of flat surfaces) Checking by straight edge.**

2.3 Description and demonstration of simple operation of hack-sawing, demonstration and description of various types of blades and their specifications, uses and method of fitting the blade.
Job IV **Making a cutout from a square piece of MS Flat using Hand hacksaw**.

3. **Electric Shop**

3.1 Study, demonstration and identification of common electrical materials such as wires, cables, switches, fuses, ceiling roses, battens, cleats and allied items, tools and accessories.

3.2 Study of electrical safety measures and demonstration about use of protective devices.
Job I Identification of phase, neutral and earth of domestic appliances and their connection to two pin/three pin, plugs.
Job II Preparation of a house wiring circuit using fuse, switches socket, holder, ceiling rose etc. by batten wiring and PV casing and capping.

3.3 Study of common electrical appliances such as electric iron, electric kettle, ceiling fan, table fan, electric mixer, electric Geyser, desert cooler etc.

3.4 Introduction to the construction of a Lead-acid battery and its working.

Job III Installation of a battery and to connect two or more batteries in series and in parallel.
Job IV Charging of a battery and testing it with the help of hydrometer and Cell Tester.

RECOMMENDED BOOKS

1. Workshop Technology I, II, III, by S K Hajra, Choudhary and A K Chaoudhary. Media Promoters and Publishers Pvt. Ltd., Bombay

2. Workshop Technology by Manchanda Vol. I, II, III India Publishing House, Jalandhar.
3. Manual on Workshop Practice by K Venkata Reddy, KL Narayana et al; MacMillan India Ltd. New Delhi
4. Basic Workshop Practice Manual by T Jeyapoovan; Vikas Publishing House (P) Ltd., New Delhi
5. Workshop Technology by B.S. Raghuwanshi, Dhanpat Rai and Co., New Delhi
6. Workshop Technology by HS Bawa, Tata McGraw Hill Publishers, New Delhi

Credits- 02   **L T P**
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OBJECTIVES:

Information technology has great influence on all aspects of life. Primary purpose of using computer is to make the life easier. Almost all work places and living environment are being computerized. The subject introduces the fundamentals of computer system for using various hardware and software components. In order to prepare diploma holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concept of information technology and its scope; operating a computer; use of various tools of MS office; using internet etc. form the broad competency profile of diploma holders. This exposure will enable the students to enter their professions with confidence, live in a harmonious way and contribute to the productivity.

COURSE CONTENTS:

Note:

Explanation of Introductory part should be dovetailed with practical work. Following topics may be explained in the laboratory along with the practical exercises. There will not be any theory examination.

TO BE EXPLAINED THROUGH DEMONSTRATION

1.   Information Technology – its concept and scope, applications of IT, impact of computer and IT in society.
2.   Computers for information storage, information seeking, information processing and information transmission
3.   Computer Application in office, book publishing, data analysis, accounting, investment, inventory control, graphics, Air and Railway Ticket reservation, robotics, Military, banks, Insurance financial transactions and many more
4.   Elements of computer system, computer hardware and software; data types – numeric data, alpha numeric data; contents of a program, processing
5.   Computer organization, block diagram of a computer, CPU, memory
6.   Input devices; keyboard, Scanner, mouse etc; output devices; VDU and Printer, Plotter
7.   Electrical requirements, inter-connections between units, connectors and cables
8.   Secondary storage; magnetic disks – tracks and sectors, optical disk (CD, CD-RW and DVD), primary and secondary memory: RAM, ROM, PROM etc., Capacity; device controllers, serial port, parallel port, system bus
9.   Installation concept and precautions to be observed while installing the system and software
10.   Introduction about Operating Systems such as MS DOS, Windows, Windows NT

etc. as an interface to Computer System

11. Special features, various commands of MS word and MS-Excel, MS PowerPoint

12. About the internet – server types, connectivity (TCP/IP, shell); applications of internet like:

e-mail and browsing Various Browsers like Internet explorer, Mozilla Firefox, WWW

(World wide web); hyperlinks; HTTP (Hyper Text Transfer Protocol); FTP (File Transfer

Protocol)

13. Basics of Networking – LAN, WAN, Topologies

14. Ethics and information Technology

15. Future with information Technology

LIST OF PRACTICALS

1. Given a PC, name its various components and peripherals. List their functions

2. Practice in installing a computer system by giving connection and loading the system software and application software

3. Exercises on entering text and data (Typing Practice)

4. Installation of operating System viz. Windows XP, Windows 2007 etc.. Features of Windows as an operating system
    - Start
    - Shutdown and restore
    - Creating and operating on the icons
    - Opening closing and sizing the windows
    - Using elementary job commands like– creating, saving, modifying, renaming, finding and deleting a file
    - Creating and operating on a folder
    - Changing setting like, date, time, colour (back ground and fore ground)
    - Using short cuts
    - Using on line help

5. MS-Word
    - File Management:
    - Opening, creating and saving a document, locating files, copying contents in some different file(s), protecting files, Giving password protection for a file
    - Page Set up:
    - Setting margins, tab setting, ruler, indenting
    - Editing a document:
    - Entering text, Cut, copy, paste using tool- bars

- Formatting a document:

- Using different fonts, changing font size and colour, changing the appearance through bold/ italic/ underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods

- Aligning of text in a document, justification of document ,Inserting bullets and numbering

- Formatting paragraph, inserting page breaks and column breaks, line spacing

- Use of headers, footers: Inserting footnote, end note, use of comments

- Inserting date, time, special symbols, importing graphic images, drawing tools

- Tables and Borders:

- Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table

- Print preview, zoom, page set up, printing options

- Using Find, Replace options

- Using Tools like:

- Spell checker, help, use of macros, mail merge, thesaurus word content and statistics, printing envelops and labels.

- Using shapes and drawing toolbar,

- Working with more than one window in MS Word,

- How to change the version of the document from one window OS to another

- Conversion between different text editors, software and MS word

6. MS-Excel

- Starting excel, open worksheet, enter, edit, data, formulae to calculate values, format data, create chart, printing chart, save worksheet, switching between different spread sheets

- Menu commands:
  o Create, format charts, organize, manage data, solving problem by analyzing data, exchange with other applications. Programming with MS-Excel, getting information while working

- Work books:
  o Managing workbooks (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations, working with arrays

- Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows, columns, find and replace text, numbers of cells, formatting worksheet

- Creating a chart:
  o Working with chart types, changing data in chart, formatting a chart, use chart to analyze data

- Using a list to organize data, sorting and filtering data in list

- Retrieve data with query: Create a pivot table, customizing a pivot table. Statistical analysis of data

- Exchange data with other application: embedding objects, linking to other applications, import, export document.

7.   MS PowerPoint

    a)   Introduction to PowerPoint

- How to start PowerPoint

- Working environment: concept of toolbars, slide layout, templates etc.

- Opening a new/existing presentation

- Different views for viewing slides in a presentation: normal, slide sorter etc.

    b)   Addition, deletion and saving of slides

    c)   Insertion of multimedia elements

- Adding text boxes

- Adding/importing pictures

- Adding movies and sound

- Adding tables and charts etc.

- Adding organizational chart

    d)   Formatting slides

- Using slide master

- Text formatting

- Changing slide layout

- Changing slide color scheme

- Changing background

- Applying design template

    e)   How to view the slide show?

- Viewing the presentation using slide navigator

- Slide transition

- Animation effects etc.

8.   Working with MS Access

    a)   Understanding different data types

    b)   Creation of table

    c)   Entering data in a table and modify it.

    d)   Creating simple Queries

9.   Internet and its Applications

a)   Log-in to internet

b)   Navigation for information seeking on internet

c)   Browsing and down loading of information from internet

d)   Sending and receiving e-mail

-   Creating a message

-   Creating an address book

-   Attaching a file with e-mail message

-   Receiving a message

-   Deleting a message

RECOMMENDED BOOKS

1) Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi

2) Information Technology for Management by Henery Lucas, 7th edition, Tata Mc Graw Hills, New Delhi

3) Computers Fundamentals Architecture and Organisation by B Ram, revised Edition, New Age International Publishers, New Delhi

4) Computers Today by SK Basandara, Galgotia publication Pvt ltd. Daryaganj, New Delhi.

5) MS-Office 2000 for Everyone by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., New Delhi

6) Internet for Every One by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi

7) A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi

8) Mastering Windows 97, BPB Publication, New Delhi

9) Computer Fundamentals by PK Sinha; BPB Publication, New Delhi

10) Fundamentals of Information Technology by Leon and Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi

11) On Your Marks - Net…Set…Go… Surviving in an e-world by Anushka Wirasinha, Prentice Hall of India Pvt. Ltd., New Delhi

12) Learning MS Office XP by Ramesh Bangia, Khanna Book Publishing Co. (P) Ltd., New Delhi.

13) Fundamentals of Information Technology by Vipin Arora, Eagle Parkashan, Jalandhar

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)
ENGLISH AND COMMUNICATION SKILLS - II (120201)

Credits- 04   **L T P**
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OBJECTIVES:

The curriculum aims to develop the use of English for three major purposes social interaction, academic achievement and professional use. Listening, speaking, reading, and writing skills can not be thought of as independent skills. They are generally perceived as interdependent where one skill often activates the other skills as well as the paralinguistic skills required for the achievement of effective communication. It is believed that the most effective way to achieve these purposes is through the adoption of a thematic, integrated, content-based approach to teaching and learning.

COURSE CONTENTS:

Reading: Comprehension, Vocabulary enrichment and grammar exercises based on the following selective readings: **Section-I:** The Portrait of a Lady - Khushwant Singh, The Lost Child by Mulk Raj Anand, The Refugees – Pearl S. Buck. **Section-II:** Life Sketch of Dr. Abdul Kalam, Abraham Lincoln's letter to his son's Headmaster. **Section-III:** All The World's A Stage – W. Shakespeare, Say Not, The Struggle Nought Availeth – A.H. Clough, Pipa's Song – Robert Browning, A Viewpoint – RP Chaddah. Comprehension exercises on unseen passages

Writing: The Art of Précis Writing, Correspondence: Business and Official, Drafting: Report Writing: Progress report and Project report, Inspection Notes, Notices: Lost and found; Obituary; Auction, Memos and Circular, Notices, Agenda and Minutes of Meetings, Use of internet and E-Mails, Press Release, Applying for a Job: Resume writing; forwarding letter and follow-up. Writing Telephonic messages, Filling-up different forms such as Banks and on-line forms for Placement etc.

Vocabulary: Vocabulary of commonly used words, Glossary of Administrative Terms (English and Hindi), One word substitution, Idioms and Phrases, Prefixes and Suffixes, Punctuation, Narration, Forms of verbs: Regular and irregular.

Employable skills: Importance of developing employable and soft skills; List and tips for developing of employable skills.

REFERENCE/TEXT BOOKS:

1. Spoken English (2nd Edition) by V Sasikumar & PV Dhamija; Published by Tata MC Graw Hills, New Delhi.
2. Spoken English by MC Sreevalsan; Published by M/S Vikas Publishing House Pvt. Ltd; New Delhi.
3. Spoken English –A foundation course (Part-I & Part-II) By Kamlesh Sdanand & Susheela Punitha; Published by Orient BlackSwan, Hyderabad
4. Practical Course in English Pronunciation by J Sethi, Kamlesh Sadanand & DV Jindal; Published by PHI Learning Pvt. Ltd; New Delhi.

5. A Practical Course in Spoken English by JK Gangal; Published by PHI Learning Pvt. Ltd; New Delhi.
6. English Grammar, Composition and Usage by NK Aggarwal and FT Wood; Published by Macmillan Publishers India Ltd; New Delhi.
7. Business Correspondence & Report writing (4th Edition) by RC Sharma and Krishna Mohan; Published by Tata MC Graw Hills, New Delhi.
8. Business Communication by Urmila Rani & SM Rai; Published by Himalaya Publishing House, Mumbai.
9. Business Communication Skills by Varinder Kumar, Bodh Raj & NP Manocha; Published by Kalyani Publisher, New Delhi.
10. Professional Communication by Kavita Tyagi & Padma Misra; Published by PHI Learning Pvt. Ltd; New Delhi.
11. Business Communication and Personality Development by Bsiwajit Das and Ipseeta Satpathy; Published by Excel Books, Delhi
12. Succeeding Through Communication by Subhash Jagota; Published by Excel Books, Delhi
13. Communication Skills for professionals by Nira Konar; Published by PHI Learning Pvt. Ltd; New Delhi.
14. Developing Communication Skills (2nd Edition) by Krishna Mohan & Meera Banerji; Published by Macmillan Publishers India Ltd; New Delhi.
15. Effective Technical Communication By M .Ashraf Rizwi; Published by Tata MC Graw Hills, New Delhi.
16. Basic Communication Skills for Technology by Andrea J Rutherfoord; Published by Pearson Education, New Delhi
17. English & Communication Skills for students of Science & Engineering by SP Dhanavel; Published by Orient BlackSwan, Hyderabad.
18. Technical Communication- Principles & Practices by Meenakshi Raman & Sangeetha Sharma; Published by Oxford University Press, New Delhi.
19. Technical English by S. Devaki Reddy & Shreesh Chaudhary; Published by Macmillan Publishers India Ltd; New Delhi.
20. Advanced Technical Communication, by Kavita Tyagi & Padma Misra; Published by PHI Learning Pvt. Ltd; New Delhi.
21. Communication Skills for Engineer & Scientist by Sangeeta Sharma & Binod Mishra; Published by PHI Learning Pvt. Ltd; New Delhi.

Credits- 05   **L T P**
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OBJECTIVES:

Applied mathematics forms the backbone of engineering students. Basic elements of Differential calculus and integral calculus and statistics have been included in this course. This will develop analytical abilities to apply in engineering field and will provide continuing educational base to the students.

COURSE CONTENTS:

Algebra: Determinants: Elementary properties of determinants up to 3rd order, consistency of equations, Crammer's rule. Matrix: Algebra of matrices, Inverse of a matrix, matrix inverse method to solve a system of linear equations in 3 variables. Application of Matrix in computer programming.

Differential Calculus: Definition of function; Concept of limits.

Four standard limits $\lim_{x \to a} \dfrac{x^n - a^n}{x - a}$,

$\lim_{x \to 0} \dfrac{\sin x}{x}$, $\lim_{x \to 0} \dfrac{a^x - 1}{x}$, $\lim_{x \to 0} (1+x)^{1/x}$

Differentiation of x^n, sin x, cos x, tan x, e^x, $\log_a x$ (Please take one example of differentiation by definition), Differentiation of sum, product and quotient of functions. Differentiation of function of a function, Differentiation of trigonometric inverse functions. Logarithmic differentiation. Exponential differentiation, Successive differentiation (excluding nth order), Application of differential calculus in:: Rate Measures, Errors and increments, Maxima and minima, Equation of tangent and normal to a curve (for explicit functions only).

Integral: Integration as inverse operation of differentiation with simple examples. Simple integration by substitution, by parts and by partial fractions (for linear factors only). Evaluation of definite integrals (simple problems)-

Evaluation of $\int_{0}^{\pi/2} \sin^n x \, dx$, $\int_{0}^{\pi/2} \cos^n x \, dx$, $\int_{0}^{\pi/2} \sin^m x \cos^n x \, dx$

using formulae without proof (m and n being positive integers only)

Applications of integration for: Simple problem on evaluation of area bounded by a curve and axes. Calculation of volume of a solid formed by revolution of an area about axes. (Simple problems). To calculate average and root mean square value of a function and Area by Trapezoidal Rule and Simpson's Rule.

Statistics and Probability: Measures of Central Tendency: Mean, Median, Mode with example of daily life, Measures of Dispersion: Mean deviation, Standard deviation. Probability definition and addition law of probability, theorem and simple numerical problems, General view of normal probability curve (No numericals), Explanation of different sampling techniques (No numericals).

Differential Equations: Solution of first order and first degree differential equation by variable separation method (simple problems). Differential equations of homogeneous equation.

REFERENCE/TEXT BOOKS:
1. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi.
2. Engineering Mathematics by Vol. I & II by S Kohli, IPH, Jalandhar
3. Applied Mathematics by Dr. RD Sharma
4. Applied Mathematics, Vol. I & II by SS Sabharwal & Sunita Jain, Eagle Parkashan, Jalandhar
5. Comprehensive Mathematics, Vol. I & II by Laxmi Publications
6. Engineering Mathematics by Dass Gupta
7. Engineering Mathematics by C Dass Chawla, Asian Publishers, New Delhi
8. Engineering Mathematics, Vol I, II & III by V Sundaram et.al, Vikas Publishing House (P) Ltd., New Delhi
9. Engineering Mathematics by N.Ch.S.N Iyengar et.al, Vikas Publishing House (P) Ltd., New Delhi
10. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.,
11. Engineering Mathematics, Vol I & II by AK Gupta, Macmillan India Ltd., New Delhi
12. Applied Mathematics-II, Archana Sharma, Lords Publications, Jalandhar
13. Advanced Engineering Mathematics by Peter V.O,neil, University of Albama 2007 edition, Cengage Learning India Pvt. Ltd. Patparganl, New Delhi.

Credits- 04   **L T P**
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OBJECTIVES:

Applied physics includes the study of a large number of diverse topics all related to things that go on in the world around us. It aims to give an understanding of this world both by observation and by prediction of the way in which objects will behave. Concrete use of physical principles and analysis in various fields of engineering and technology are given prominence in the course content.

COURSE CONTENTS:

Optics: Review of basic optics laws: Reflection and Refraction, Refractive index and magnification, image formation in lenses, lens formulae (thin lens only),power of lens, total internal reflection and their applications, Simple concepts of interference, diffraction, Polarization and their applications like Commercial equipment, optic glasses and its manufacturing and use of Polarimeter in sugarcane industry and distilleries (No explanation required), Simple and compound microscope, astronomical telescope, magnifying power and its calculation (in each case) and their applications.

Electrostatics: Coulombs law, unit charge and electric lines of force, Electric flux and Gauss's Law, Electric field intensity and electric potential, Electric field due to point charge, straight charged conductor, plane charged sheet and charged sphere (Inside and outside the sphere), Capacitance, types of capacitors, capacitance of parallel plate capacitor, series and parallel combination of capacitors, Dielectric and its effect on capacitance, and dielectric break down, Pollution, different types of pollution and polluting agents, Use of Electronics in reducing Air and Water pollution e.g. precipitation of microbes and moisture reparation from air and gases in industry (small explanation only).

DC Circuits: Concept of electricity, various applications of electricity, Current, voltage, resistance, potential difference and e.m.f, power, electrical energy and their units, advantages of electrical energy over other forms of energy and Alternating Current and Direct Current, Ohm's law and its applications, specific resistance, effect of temperature on resistance, co-efficient of resistance, series and parallel combination of resistors an Resistance, Definitions of Conductance and Super Conducter's, Kirchhoff's laws, Wheatstone bridge principle and its applications, Heating effect of current and concept of electric power, energy and their units, related numerical problems and their applications, Examples of DC Circuits e.g. Various electrical and electronic equipment CRO, T.V., Audio system, Computers (Only examples, no explanations).

Electromagnetism: Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and their units, Permeability and susceptibility and their applications. Electromagnetic Induction, Lanz's law and its uses like dynomo, Right hand and left hand rules, Magnetic lines of force due to straight conductor, Solenoid and Circular coil. Force on a current carrying rectangular coil placed in magnetic field and its uses in moving coil galvanometer, electric motor (Concept only). Lorentz force, Force on a current carrying conductor (straight and rectangular), Moving coil galvanometer its principle, construction and working.

Semiconductor physics: Energy bands, intrinsic and extrinsic semiconductors, p-n junction diode and its characteristics, Diode as rectifier – half wave and full wave rectifier, semiconductor transistor pnp and npn (concept only).

Modern Physics: Lasers: concept of energy levels, ionizations and excitation potentials; spontaneous and stimulated emission; lasers and its characteristics, population inversion, types of lasers, Helium- Neon and ruby lasers their engineering and medical applications, Fibre optics: introduction to optical fiber materials, types, light propagation and applications in communication.

REFERENCE/TEXT BOOKS:

1. Text Book of Physics for Class XI (Part-I, Part-II) N.C.E.R.T
2. Applied Physics, Vol. I and Vol. II, TTTI Publications, Tata McGraw Hill, Delhi
3. Concepts in Physics by HC Verma, Vol. I & II, Bharti Bhawan Ltd. New Delhi
4. Fundamentals of Physics by Resnick, Halliday and Walker, Asian Book Pvt. Ltd., New Delhi.
5. Fundamentals of Optics by Francis A. Jenkins & Harvey E White, McGraw Hill International Editions, Physics Series
6. A Text Book of Optics, Subramanian and Brij Lal, S Chand & Co., New Delhi
7. Comprehensive Practical Physics, Vol, I & II, JN Jaiswal, Laxmi Publishers
8. Engineering Physics by PV Naik, Pearson Education Pvt. Ltd, New Delhi
9. Applied Physics I & II by RA Banwait & R Dogra, Eagle Parkashan, Jalandhar
10. Applied Physics Vol II by Jasmer Kaur and Bhupinder Singh, Lords Publications, Jalandhar
11. Basic Electronics and Linear Circuits by NN Bhargava et al Tata Mc Graw Hill Publishers, New Delhi
12. Principles of Electronics by SK Sahdev, Dhanpat Rai and Co, New Delhi
13. Engineering Physics by Vanchna Singh and Sheeetal Kumar, Cengage Learning India Pvt. Ltd. Patparganj, Delhi (year 2008)

Credits- 04   **L T P**
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OBJECTIVE:

A diploma holder may be involved in various jobs ranging from preventive maintenance of electrical installation to fault location. In addition, he/she may be working in testing laboratories where he/she uses measuring instruments. To carry out these and similar jobs effectively, knowledge of basic concepts, principles and their applications is very essential. This course will enable the students to understand the basic concepts and principles of dc and ac fundamental, ac circuits, batteries, electromagnetic induction, voltage and current sources etc.

COURSE CONTENT:

Overview of DC Circuits: Simple problems on series and parallel combination of resistors with their wattage consideration, Application of Kirchhoff's current law and Kirchhoff's voltage law to simple circuits. Star – Delta connections and their conversion.

DC Circuit Theorems: Thevenin's theorem, Norton's theorem, application of network theorems in solving d.c circuit problems.

Electro Magnetic Induction: Concept of electro-magnetic field produced by flow of electric current, magnetic circuit, concept of magneto-motive force (MMF), flux, reluctance, permeability, analogy between electric and magnetic circuit. Faraday's laws of electro-magnetic induction, principles of self and mutual induction, self and mutually induced e.m.f, simple numerical problems. Concept of current growth, decay and time constant in an inductive (RL) circuit. Energy stored in an inductor, series and parallel combination of inductors.

Batteries: Basic idea of primary and secondary cells, Construction, working principle and applications of Lead-Acid, Nickel-Cadmium and Silver-Oxide batteries, Charging methods used for lead-acid battery (accumulator), Care and maintenance of lead-acid battery, Series and parallel connections of batteries, General idea of solar cells, solar panels and their applications, Introduction to maintenance free batteries.

AC Fundamentals: Concept of alternating quantities, Difference between ac and dc, Concepts of: cycle, frequency, time period, amplitude, instantaneous value, average value, r.m.s. value, maximum value, form factor and peak factor, Representation of sinusoidal quantities by phasor diagrams, Equation of sinusoidal wave form for an alternating quantity and its derivation, Effect of alternating voltage applied to a pure resistance, pure inductance and pure capacitance.

AC Circuits: Concept of inductive and capacitive reactance, Alternating voltage applied to resistance and inductance in series, Alternating voltage applied to resistance and capacitance in series, Impedance triangle and phase angle, Solutions and phasor diagrams for simple RLC circuits (series and parallel), Introduction to series and parallel resonance and its conditions, Power in pure resistance, inductance and capacitance, power in combined RLC circuits. Power factor, active and reactive power and their significance, definition and significance of power factor, j-notation and its application in solving series and parallel ac circuits, Definition of conductance, susceptance, admittance, impedance and their units.

Various Types of Power Plants: Brief explanation of principle of power generation practices in thermal, hydro and nuclear power stations and their comparative study. A Visit to a nearby Power Station(s) may be organized for better understanding and exposure, Elementary block diagram of above mentioned power stations.

TEXT BOOKS:

1. Electrical Technology, Fifth Edition by Edward Hughes, Longman Publishers.
2. Basic Electrical and Electronics Engineering by SK Sahdev; Dhanpat Rai and Co, New Delhi.
3. Experiments in Basic Electrical Engineering by SK Bhattacharya, KM Rastogi; New Age International (P) Ltd.; Publishers New Delhi.
4. Electrical Science by Choudhury S.; Narosa Publishing House Pvt Ltd, Darya ganj, New Delhi.
5. Basic Electrical and Electronics Engineering by Kumar KM, Vikas Publishing House Pvt Ltd, Jang pura, New Delhi.
6. Electrical Technology by BL Theraja, S Chand and Co, New Delhi.
7. Basic Electricity by BR Sharma; Satya Prakashan; New Delhi.
8. Principles of Electrical Engineering by BR Gupta, S Chand and Co, New Delhi.
9. Basic Electrical Engineering by PS Dhogal, Tata Mc Graw-Hill publishing Company Ltd., New Delhi.
10. Basic Electrical Engineering by JB Gupta; SK Kataria and Sons, New Delhi.
11. Experiments in Basic Electrical Engineering by GP Chhalhotra, Khanna Publishers, New Delhi.
12. Basic Electrical Engineering by J.S. Katre, Technical Max. Publication, Pune.

Credits- 04   **L T P**
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OBJECTIVE:

This subject gives the knowledge of fundamental concepts and principles of basic electronics and aims at providing the students with basic understanding of various types of materials such as conductors, semiconductors and insulators, extrinsic and intrinsic semi-conductors, p-n junction, need of rectifiers, significance and use of filters in rectifiers, basic structure and working principle of tunnel diodes, LEDs, varactor diodes, LCD; working of transistors in various configurations; fundamental knowledge of FETs and MOSFETs etc. and their applications. The teacher should give emphasis on understanding of concepts by explaining the various terms used in the subject. Practical exercises have been included in order to reinforce various concepts. Industrial/field exposure must be given by organizing industrial visit.

COURSE CONTENT:

Semi conductor physics: Review of basic atomic structure and energy levels, concept of insulators, conductors and semi conductors, atomic structure of Germanium (Ge) and Silicon (Si), covalent bonds, Concept of intrinsic and extrinsic semi conductor, process of doping, Energy level diagram of conductors, insulators and semi conductors; minority and majority charge carriers, P and N type semiconductors and their conductivity, effect of temperature on conductivity of intrinsic semi conductors.

Semi conductor diode: PN junction diode, mechanism of current flow in PN junction, forward and reverse biased PN junction, potential barrier, drift and diffusion currents, depletion layer, concept of junction capacitance in forward and reverse biased condition, V-I characteristics, static and dynamic resistance and their value calculation from the characteristics, Application of diode as half-wave, full wave and bridge rectifiers. PIV, rectification efficiencies and ripple factor calculations, shunt capacitor filter, series inductor filter, LC and RC filters, Types of diodes, characteristics and applications of Zener diodes. Zener and avalanche breakdown.

Introduction to Bipolar-transistors: Concept of a bipolar transistor, its structure, PNP and NPN transistors, their symbols and mechanism of current flow; Current relations in a transistor; concept of leakage current; CB, CE, CC configurations of a transistor; Input and output characteristics in CB and CE configurations; input and output dynamic resistance in CB and CE configurations; Current amplification factors. Comparison of CB, CE and CC Configurations; Transistor as an amplifier in CE Configuration; concept of dc load line and calculation of current gain and voltage gain using dc load line.

Transistor biasing Circuits: Concept of transistor biasing and selection of operating point. Need for stabilization of operating point. Different types of biasing circuits.

Single stage transistor amplifier: Single stage transistor amplifier circuit, ac load line and its use in calculation of current and voltage, gain of a single stage amplifier circuit. Explanation of phase reversal of output voltage with respect to input voltage. H-parameters and their significance.

Field effect Transistors: Construction, operation and characteristics of FETs and their applications. Construction, operation and characteristics of a MOSFET in depletion and enhancement modes and its applications. C MOS - advantages and applications, Comparison of JFET, MOSFET and BJT. FET amplifier circuit and its working principle. (Excluding Analysis)

TEXT BOOKS:

1. Basic Electronics and Linear Circuit by NN Bhargava, Kulshreshta and SC Gupta, Tata McGraw Hill Publishing Company Pvt Ltd, New Delhi.
2. Principles of Electrical and Electronics Engineering by VK Mehta; S Chand and Co., New Delhi
3. Electronic Components and Materials by SM Dhir, Tata McGraw Hill Publishing Company Pvt Ltd, New Delhi.
4. Electronics Devices and Circuits by Millman and Halkias; McGraw Hill.
5. Principles of Electronics by Albert Paul Malvino; Tata McGraw Hill Publishing Company Pvt Ltd, New Delhi.
6. Basic Electronics by J.S. Katre, Sandeep Bajaj, Tech. Max. Publications, Pune.

ENGLISH AND COMMUNICATION SKILLS –II LAB   (120205)

Credits- 01   **L T P**
                                                                      0 0 2

List of Practical's

1. **LISTENING**
   - ✓ Pre-recorded CDs of famous speeches and dialogues: Comprehension exercises based on the audio
   - ✓ Note-taking
   - ✓ Drawing inferences
   - ✓ Summarizing

2. **SPEAKING**
   - ✓ Voice Modulation: Horizons (pitch, tone, volume, modulation)
   - ✓ Word stress, rhythm, weak and strong form, pauses, group-sense, falling and rising tones, fluency, pace of delivery, dealing with problem sounds, accent, influence of mother tongue etc.
   - ✓ Situational Conversation/role-playing with feedback, preferably through video
       recording
   - ✓ Telephonic Conversation: Types of calls, agreeing and disagreeing, making
       and changing appointments, reminding, making complaints and handling complaints, general etiquettes,
   - ✓ A small formal and informal speech
   - ✓ Seminar
   - ✓ Debate

3. **VOCABULARY**
   - ✓ Vocabulary of commonly used words, Glossary of Administrative Terms (English and Hindi),
   - ✓ One word substitution,
   - ✓ Idioms and Phrases
   - ✓ Prefixes and Suffixes
   - ✓ Punctuation
   - ✓ Narration
   - ✓ Forms of verbs: Regular and irregular

4. **EMPLOYABLE SKILLS**
   - ✓ Group discussions
   - ✓ Presentations, using audio-visual aids (including power-point)
   - ✓ Interview techniques: Telephonic interviews, Group interviews, face to face
       interviews.
   - ✓ Mannerism and etiquette etc.

APPLIED PHYSICS-II LAB (120206)

Credits- 01   **L T P**
                                                                          0 0 2

List of Practical's

1. To find the focal length of convex lens by displacement method.
2. To determine the magnifying power of an astronomical telescope
3. To verify ohm's laws by drawing a graph between voltage and current.
4. To verify laws of resistances in series and in parallel connection.
5. To find resistance of galvanometer by half deflection method
6. To measure very low resistance and very high resistance using Wheat Stone bridge.
7. To determine the capacity of a parallel plate capacitor by discharging through a voltmeter and also find out the tine constant of the given capacitor.
8. To draw characteristics of a pn junction diode and determine knee and break down voltages.
9. To find wave length of He Ne semiconductor LASER.
10. Use of CRO in plotting AC/DC

BASIC ELECTRICAL ENGINEERING LAB (125202)

Credits- 01   **L T P**
                                                                          0 0 2

List of Practical's

1. Familiarization of measuring instruments viz voltmeter, ammeter, CRO, Wattmeter, multi-meter and other accessories.
2. Determination of voltage-current relationship in a dc circuit under specific physical conditions and to draw conclusion.
3. Measurement of resistance of an ammeter and a voltmeter
4. Verification of dc circuits: a.. Thevenin's theorem, b. Norton's theorem
5. Observation of change in resistance of a bulb in hot and cold conditions, using voltmeter and ammeter.
6. Verification of Kirchhoff's Current and Voltage Laws in a dc circuit
7. To find the ratio of inductance of a coil having air-core and iron-core respectively and to observe the effect of introduction of a magnetic core on coil inductance.
8. Computation of the voltage current relationship in single phase R-L and R-C series circuits, drawing of their impedance triangles and determination of the power factor in each case.
9. Charging and testing of a lead - acid storage battery.
10. Measurement of power and power factor in a single phase R-.L-.C. Circuit and calculation of active and reactive powers in the circuit.
11. Visit to a nearby Power Station(s) may be arranged.

Basic Electronics LAB (122202)

Credits- 01   **L T P**
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List of Practical's

1.   Familiarization with operation and use of the following instruments.

       Multi-meter, CRO, Signal generator, LCR meter, Regulated Power Supply by way of taking readings of relevant quantities with their help.
2.   Plotting of V-I characteristics of a PN junction diode
3.   Plotting of V-I characteristics of a Zener diode
4.   Measurement of the voltage gain, input and output impedance in a single state CE amplifier circuit.
5.   Fabrication of:
       a. Half-wave rectifier circuit using one diode
       b. Full-wave rectifier circuit using two diodes
       c. Bridge-rectifier circuit using four diodes
6.   Observation of the wave shapes for the following rectifier circuit
       d. Half-wave rectifier
       e. Full-wave rectifier
       f. Bridge-rectifier
7.   Plotting of the wave shape of full wave rectifier with
       a. Shunt capacitor filter
       b. Series inductor filter
       c. RC filter
8.   Plotting of input and output characteristics and calculation of parameters of transistors in CE configuration.
9.   Plotting of input and output characteristics and calculation of parameters of transistors in CB configuration.
10.   Plotting of V-I characteristics of a FET based amplifier.
11.   Measurement of the Q-point and observation of variation of Q-point by:
       a. By increasing the base resistance in fixed bias circuit.
       b. By changing out of bias resistance in potential divider circuit.
12.   Measurement of voltage gain, input and output impedance in a single state CE amplifier circuit.

DTP FUNDAMENTALS LAB (121201)

Credits- 01
L T P
0 0 2

OBJECTIVES:

This course will enable the students to familiarize with the features and use of application packages such as Page Maker, Corel Draw or any other equivalent latest package(s). They will develop skills in handling the software.

TOPICS TO BE EXPLAINED THROUGH DEMONSTRATION

Introduction: Overview of Desk Top Publishing (DTP), Introduction of various keys in the keyboard and their functions.

Page Maker: Document needs, creating a document, editing and formatting a document, saving and printing a document, inserting text and graphics, inserting columns, fonts and styles, integrating images and graphics from a drawing package in the document, making transparencies, elements, frame option, arrange text, image control, expert tracking, indent/tabs, styles, type styles, layout, tool bar (page setting).

Corel Draw:
1. Introduction, exploring Corel Draw screen, using dialog boxes, using roll ups, create/open file, save file, import/export files, print file:
   ✓ Use of ribbon bar, use of tool box, select object, shaping objects using zoom tool, filling objects, outline objects, use of line tool
   ✓ Setting up new drawing, setting multi-page document, undo/redo mistakes, repeat, cut, copy, paste, delete, duplicate, clone
   ✓ Insert object, paste special, copy attributes from select all, drawing objects, selecting objects
   ✓ Page setup, insert/delete page, use of layers, roll up, grid and scale set up, guideline set up

2. Formatting objects:
   ✓ Arranging objects: align, order, group, ungroup
   ✓ Arranging objects: combine, break apart, weld, intersection, trim, separate
   ✓ Mode edit: to line, to curve, stretch, rotate, align, convert to curves

3. Creating special effects: Transform roll up, clear transformation, add perspective, envelope roll up
4. Creating special effects: blend roll-up, extrude roll up, counter roll up, power line, power-clip clear effects
5. Working with text: Character, paragraph text, frame, setting of tabs, indents, bullets, spacing in paragraph text

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)

LIST OF PRACTICALS

1. Using windows explorer and other windows elements
2. Creating and opening a document in page maker
3. Formatting and editing a document
4. Saving and printing a given document
5. Insertion of text and graphics in a given document from external source
6. Using columns utility, to give the document column look
7. Using various fonts and styles to make a document more beautiful
8. Use of page maker to make transparencies
9. Saving and printing a file that has been created
10. Formatting a given file by using undo/redo, repeat, cut, copy, paste, delete, duplicate and clone utilities
11. Inserting objects in the drawing, aligning, ordering, grouping and ungrouping of those objects
12. Use of combine, break apart, weld, intersection, trim and separate tools in a given drawing
13. Use of mode edit tools i.e. to line, to curve, to stretch, and rotate
14. Creating special effects i.e. transform roll-up, envelop roll up, add perspective, extrude roll up, contour roll up, power line, power clip, clear effects
15. To insert character and paragraph text in a drawing and frame, setting of tabs, indents, bullets and spacing in paragraph text
16. Filling of text to a given path, aligning it to base line, straighten text and edit text
17. Using tools such as spell checker, and thesaurus
18. Using find and replace text utility and type assist
19. Adding various symbols to a drawing and creating different pattern

REFERENCE/TEXT BOOKS:

1. Desk Top Publishing From A to Z by Bill Grout and Osborne; McGraw Hill
2. DTP (Desk Top Publishing) for PC user by Houghton; Galgotia Publishing House Pvt. Ltd., Daryaganj, New Delhi

Credits- 03   **L T P**
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OBJECTIVES:

In order to have a balanced overall development of diploma engineers, it is necessary to integrate theory with practice. General workshop practices are included in the curriculum in order to provide hand on experience about use of different tools and basic manufacturing practices.

This course aims at developing general manual and machining skills in the students. Besides above, the development of dignity of labour, precision, safety at work place, team working and development of right attitude are the other objectives.

COURSE CONTENTS:

The following shops are included in the syllabus:

1. Welding Shop
2. Electronic Shop
3. Sheet Metal Shop

1. Welding Shop

1.1 Introduction to welding and its importance in engineering practice; types of welding; common materials that can be welded, introduction to welding equipment e.g. a.c. welding set, d.c. rectifier, Electrode holder, electrodes and their specifications, welding screens and other welding related equipment and accessories.

1.2 Electric arc welding, (ac. and dc.) precautions while using electric arc welding, Practice in setting current and voltage for striking proper arc.
  ➢ **Job I** Practice of striking arc while using electric arc welding set.
  ➢ **Job II** Welding practice on electric arc welding for making uniform and Straight weld beads

1.3 Various types of joints and end preparation.

  ➢ **Job III**   Preparation of butt joint by electric arc welding.
  ➢ **Job IV**   Preparation of lap joint by electric arc welding.
  ➢ **Job V**   Preparation of corner joint by using electric arc welding.
  ➢ **Job VI**   Preparation of Tee joint by electric arc welding.

2. Electronic Shop
2.1 Identification and familiarization with the following tools used in electronic shop: Tweezers, Screw drivers (different sizes), Insulated Pliers, Cutter, Sniper, Philips Screw Driver (Star Screw Driver), L- Keys, Soldering Iron and their demonstration and uses.
2.2 Identification and familiarization with the following electronic instruments:

a. Multimeter analog and digital (Three and half digit)
b. Single beam simple CRO, Signal Generator and Function Generator; function of every knob on the front panel
c. Audio-oscillator having sine and square wave output
d. Regulated Power supply -- fixed voltage and variable voltage, single output as well as dual output.

Job I Practice in the use of above-mentioned equipment. For this small experimental as set up may be done.

2.3   Various types of protective devices such as : Wire fuse, cartridge fuse etc.
2.4   Identification and familiarization with ear phone speaker connector, telephone
        jacks and similar male and female connectors.
2.5   Safety precautions to be observed in the electronic shop

Job II Cut, strip, join and insulate two lengths of wires/ cables (repeat with different types of cables/wires)

Job III Cut, strip, connect/solder/crimp different kinds of wires/ cables (including co-axial and shielded cable) to different types of power/general purpose/Audio Video/Telephone plugs, sockets, jacks, terminals, binding posts, terminal strips, connectors. The tasks should include making complete recording/ playback/ antenna/ speaker leads for common electronic products such as Radio, TV, CD Players, VCD/DVD Players, Cassette Recorder and Players, Hi-Fi equipment, Hand- set, microphone

Job IV Cut, bend, tin component, Leeds, inserts and solder components (resistor, capacitor, diodes, transistors, FETs, IFT coils, ICs etc.) on a PCB

3. **Sheet Metal Shop**

Introduction to sheet metal shop, use of hand tools and accessories e.g. different types of hammers, hard and soft mallet, sheet and wire gauge, necessary allowance required during job fabrication, selection of material.

3.1   Introduction and demonstration of hand tools used in sheet metal shop.
3.2   Introduction and demonstration of various machines and equipment used in sheet metal shop e.g. Shearing Machine, Bar Folder, Burring Machine, Turning Machine, Wiring Machine, Setting down Machine, Forming Machine, Brake etc.
3.3   Introduction and demonstration of various raw materials used in sheet metal shop e.g. black-plain sheet, galvanized-iron plain sheet, galvanized corrugated sheet, aluminum sheets etc.
3.4   Study of various types of Nuts, Bolts, Rivets, Steel Screws etc. Job I Shearing practice on a sheet using hand shears.
        a. Practice on making Single riveted lap joint/Double riveted lap Joint.
        b. Practice on making Single cover plate chain type, zig-zag type and single rivetted Butt Joint

RECOMMENDED BOOKS

1. Workshop Technology I, II, III, by S K Hajra, Choudhary and A K Chaoudhary. Media Promoters and Publishers Pvt. Ltd., Bombay
2. Workshop Technology by Manchanda Vol. I, II, III India Publishing House, Jalandhar.
3. Manual on Workshop Practice by K Venkata Reddy, KL Narayana et al; MacMillan India Ltd. New Delhi
4. Basic Workshop Practice Manual by T Jeyapoovan; Vikas Publishing House (P) Ltd., New Delhi
5. Workshop Technoogy by B.S. Raghuwanshi, Dhanpat Rai and Co., New Delhi
6. Workshop Technology by HS Bawa, Tata McGraw Hill Publishers, New Delhi

Credits- 04   **L T P**
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OBJECTIVES:

This syllabus has been designed to make the students know about the fundamental principles of digital electronics and gain familiarity with the available IC chips. This subject aims to give a background in the broad field of digital systems design and microprocessors.

COURSE CONTENTS:

Introduction: Distinction between analog and digital signal, Applications and advantages of digital signals.

Number System: Binary, octal and hexadecimal number system: conversion from decimal and hexadecimal to binary and vice-versa. Binary addition, subtraction, multiplication and division including binary points. 1's and 2's complement method of addition/subtraction, sign magnitude method of representation, floating point representation

Codes and Parity: Concept of code, weighted and non-weighted codes, examples of 8421, BCD, excess-3 and Gray code. Concept of parity, single and double parity and error detection, Alpha numeric codes: ASCII and EBCDIC.

Logic Gates and Families: Concept of negative and positive logic, Definition, symbols and truth tables of NOT, AND, OR, NAND, NOR, EXOR Gates, NAND and NOR as universal gates, Logic family classification: Definition of SSI, MSI, LSI, VLSI, TTL and C MOS families and their sub classification. Characteristics of TTL and C MOS digital gates. Delay, speed, noise margin, logic levels, power dissipation, fan-in, power supply requirement and comparison between TTL and C MOS families.

Logic Simplification: Postulates of Boolean algebra, De Morgan's Theorems. Various identities. Formulation of truth table and Boolean equation for simple problem. Implementation of Boolean (logic) equation with gates, Karnaugh map (upto 4 variables) and simple application in developing combinational logic circuits**.**

Arithmetic circuits: Half adder and Full adder circuit, design and implementation. Half and Full subtracter circuit, design and implementation. 4 bit adder/subtracter. Adder and Subtractor IC (7484).

Decoders, Multiplexeres and De Multiplexeres: Four bit decoder circuits for 7 segment display and decoder/driver ICs. Multiplexers and De-Multiplexers, Basic functions and block diagram of MUX and DEMUX. Different types and ICs.

Latches and flip flops: Concept and types of latch with their working and applications, Operation using waveforms and truth tables of RS, T, D, Master/Slave JK flip flops. Difference between a latch and a flip flop, Flip flop ICs.

Counters: Introduction to Asynchronous and Synchronous counters, Binary counters, Divide by N ripple counters, Decade counter, Pre settable and programmable counters, Up/down counter, Ring counter with timing diagram, Counter ICs.

Shift Register: Introduction and basic concepts including shift left and shift right, Serial in parallel out, serial in serial out, parallel in serial out, parallel in parallel out. Universal shift register, Buffer register, Tristate Buffer register, IC 7495.

A/D and D/A Converters: Working principle of A/D and D/A converters, Brief idea about different techniques A/D conversion and study of: Stair step Ramp A/D converter, Dual Slope A/D converter, Successive Approximation A/D Converter. Detail study of: Binary Weighted D/A converter R/2R ladder D/A converter, Performance characteristics of A/D and D/A converter. Applications of A/D and D/A converter.

REFERENCE/TEXT BOOKS:

1.   Digital Electronics and Applications by Malvino Leach, Tata McGraw Hill Education Pvt. Ltd, New Delhi.
2.   Digital Logic Designs by Morris Mano, Prentice Hall of India, New Delhi.
3.   Digital Electronics by Soumitra Kumar Mandal, Tata McGraw Hill Education Pvt. Ltd.
4.   Digital Electronics by V K Sangar , Raj Publishers, Jalandhar.
5.   Digital Electronics by Tokheim, Tata McGraw Hill Education Pvt. Ltd.
6.   Digital Fundamentals by Thomas Floyds, Universal Book Stall.
7.   Digital Electronics by RP Jain, Tata McGraw Hill Education Pvt. Ltd, New Delhi.
8.   Digital Electronics by KS Jamwal, Dhanpat Rai and Co., New Delhi.
9.   Digital Electronics by Rajiv Sapra, Ishan Publication, Ambala.
10.   Digital Electronics by BR Gupta, Dhanpat Rai & Co., New Delhi.
11.   Digital Systems: Principles and Applications by RJ Tocci, Prentice Hall of India, New Delhi.
12.   Digital Electronics by Rajaraman V., Prentice Hall of India, New Delhi.
13.   Fundamentals of Digital Electronics by Naresh Gupta, Jain Brothers, New Delhi.

Credits- 04
L T P
4 0 0

OBJECTIVES:

Computers play a vital role in present day life, more so, in the professional life of technician engineers. People working in the field of computer industry, use computers in solving problems more easily and effectively. In order to enable the students use the computers effectively in problem solving, this course offers the modern programming language C along with exposition to various applications of computers. The knowledge of C language will be reinforced by the practical exercises.

COURSE CONTENTS:

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

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.

Arrays: Introduction to Arrays, Array Declaration and Initialization, Single and Multidimensional Array. Arrays of characters.

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

Structures and Unions: Declaration of structures, Accessing structure members, Structure Initialization, Arrays of structures, Unions.

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.

REFERENCE/TEXT BOOKS:

1. Programming in ANSI C by E Balaguruswami, , Tata McGraw Hill Education Pvt Ltd , New Delhi

2. Application Programming in C by RS Salaria, Khanna Book Publishing Co(P) Ltd. New Delhi
3. Programming in C by Gottfried, Schaum Series, , Tata McGraw Hill Education Pvt Ltd , New Delhi
4. Exploring C by Yashwant Kanetkar – BPB Publications, New Delhi
5. Programming in C by Stefin G. Coachin
6. Programming in C by R Subburaj, Vikas Publishing House Pvt. Ltd., Jangpura, New Delhi
7. Elements of C by M.H. Lewin, Khanna Publishers, New Delhi
8. Programming in C by Stephen G Kochan
9. Programming in C by BP Mahapatra, Khanna Publishers, New Delhi

Credits- 04   **L T P**
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OBJECTIVES:

The system analysis and design is backbone of Application software development. After studying the subject the students will be able to develop and design the system according to given requirements. It involves various steps in analysis and design of the system. It includes the knowledge of preparing a project systematically. It is important to know about various aspects of system analysis and design so that the students will be able to understand the responsibilities while designing and implementing the project.

COURSE CONTENTS:

Introduction: Concept of system. Types of systems Open and Closed, Static and dynamic with examples.

Overview of System Analysis and Design: Systems Development life cycle, brief Introduction to feasibility, design implementation and testing and maintenance.

Preliminary Investigations: Project selection, scope definition and preliminary investigation.

Feasibility Study: Technical and economic and operational feasibility, cost and benefit analysis.

Requirement Specifications and Analysis: Fact finding techniques, data flow diagrams, data dictionaries, decision trees and tables.

Detailed Design: Module specification, file design, data base design.

Testing and Quality Assurance: Maintenance, unit and integration testing techniques, design objectives, quality factors such as reliability etc.

REFERENCE/TEXT BOOKS:

1) Structured System Analysis and Design by ISRD Group, Tata McGraw Hill Education Pvt Ltd, New Delhi
2) System Analysis and Design by Awad, Galgotia Publications, New Delhi
3) System Analysis and Design Vol. I & II by Lee, Galgotia Publications
4) System Analysis and Design with Case Tools by Len Fertuck WCB Publications 1992.
5) Introducing System Analysis by Skidmore, BPB Publication, New Delhi.
6) Introducing System Design by Skidmore, BPB Publication, New Delhi
7) System Analysis and Design by Jefery L Whitten, Tata McGraw Hill Education Pvt Ltd, New Delhi.

8) System Analysis and Design by Perry Edward
9) Analysis and design of Information System by V Rajaraman, Prentice Hall of India, New Delhi.
10) Practical System Design by Daniels, Galgotia Publications, New Delhi.

Credits- 04   **L T P**
                                                                   4 0 0

OBJECTIVES:

Database and database systems have become an essential component of everyday life in modern society. This course will acquaint the students with the knowledge of fundamental concepts of DBMS and its application in different areas, storage, manipulation and retrieval of data using query languages. Oracle/My SQL/SQL Server can be use as package to explain concepts.

COURSE CONTENTS:

Introduction: Database Systems; Database and its purpose, Characteristics of the database approach, Advantages and disadvantages of database systems. Classification of DBMS Users; Actors on the scene, Database Administrators, Database Designers, End Users, System Analysts and Application Programmers, Workers behind the scene (DBMS system designers and implementers, tool developers, operator and maintenance personnel).

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. Classification of Database Management Systems.

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.

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.

Normalization: Non-loss decomposition and functional dependencies, First, Second and Third normal forms, Boyce/Codd normal form**.**

Database Access and Security: Database security, process controls, database protection, 2-phase command protocols, 2-phase working protocols, grant and revoke.

MYSQL/SQL (Structured Query Language): SQL * Plus. DDL (Data Definition Languages): Creating Tables, Creating a table with data from another table, Inserting values into a table, updating columns of aTable, Deleting Rows, Dropping a Table. DML (Data Manipulation Language): Database Security and Privileges, Grant and Revoke Command, Maintaing Database Objects, Commit and Rollback, various types of select commands, various types of join.

PL/SQL: Introduction to PL/SQL, Advantage of PL/SQL, PL/SQL Block Structure, PL/SQL Architecture, Fundamentals of PL/SQL, PL/SQL Data types, Variables and constants, scope of variables, Assignment & expression, operators, operator precedence.

REFERENCE/TEXT BOOKS:

1) Fundamentals of Database Management Systems by Dr Renu Vig and Ekta Walia, - an ISTE, Publication, New Delhi.
2) Database Management Systems by arun K Majumdar and P Bhattacharya, Tata McGraw Hill Education Pvt Ltd, New Delhi.
3) Introduction to DBMS by ISRD Group, Tata McGraw Hill Education Pvt Ltd, New Delhi.
4) Database Management Systems by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., New Delhi.
5) An introduction to database systems by Date C.J. Adison Wesley.
6) Fundamentals of Database Systems by Elmasri/Navathe/Adison Wesley.
7) An Introduction to Database Systems by Bipin C. Desai, Galgotia Publications Pvt. Ltd., Daryaganj, New Delhi 110 002.
8) SQL Unleashed by Hans Ladanyi Techmedia Publications, New Delhi.

Credits- 03   **L T P**
                                                                                3 0 0

OBJECTIVES:

Multimedia is being widely used in web pages, motion pictures and interactive presentations, animation etc. Multimedia has made a significant impact in training/education, business presentations, public information access etc. This course intends to introduce and expose multimedia technology and various factors and features of authoring software. It will also help in making the internet application richer in content and presentation.

COURSE CONTENTS:

Introduction: Introduction to multimedia, hypertext, hypergraphics, animation, application in education and training, science and technology, kiosks, business and games.

Multimedia Hardware: Multimedia PC configuration, features and specifications of sound and video interfaces, OCR, touch-screen, scanners, digital cameras, speakers, printers, plotters, optical disks and drives as CDROM and DVD. multimedia networks.

Multimedia Software: Image and sound file formats, multimedia file formats, compression, standards and techniques, features of software to read and write such files. Video file formats & compression standards, multimedia operating systems.

Using Image Processing Tools: Photo-shop workshop, image editing tools, specifying and adjusting colors, using gradient tools, selection and move tools, transforming path drawing and editing tools, using channels, layers, filters and actions.

Multimedia Authoring Tools: Types of Authoring programmes – Icon based, Time based, Story boarding/scripting and object oriented working in macromedia flash, exploring interface using selection pf 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.

REFERENCE/TEXT BOOKS:

1.   Principles of Multimedia by Parikh, Tata McGraw Hill Education Pvt Ltd , New Delhi
2.   Multimedia Technologies by Banerji,Tata McGraw Hill Education Pvt Ltd , New Delhi
3.   Multimedia An Introduction by Villam Casanova and Molina; Prentice Hall of India, New Delhi
4.   Multimedia Bible by Win Rosch
5.   Multimedia Making it work by Vaughan, Tay
6.   Photo-shop for Windows Bible by Deke Maclelland IDG Books India Pvt. Ltd.,

New Delhi
7. Multimedia Technology and Application by Hillman, Galgotia Publications, New Delhi
8. Flash 5 Bible by Rein Hardit, IDG Books India Pvt. Ltd.
9. Flash 5 in easy steps by Vandome IDG Books India Pvt. Ltd.
10. Fundamentals of Multimedia by Li and Drew, Pearson Publications

DIGITAL ELECTRONICS LAB (122307)

Credits- 02   **L T P**
                                                                                   0 0 4

List of Practical's

1. Verification and interpretation of truth tables for AND, OR, NOT NAND, NOR and Exclusive OR (EXOR) and Exclusive NOR(EXNOR) gates.
2. Realization of logic functions with the help of NAND or NOR gates - Design of a NOR gate latch and verification of its operation.
3. To design a half adder using XOR and NAND gates and verification of its operation Construction of a full adder circuit using XOR and NAND gates and verify its operation.
4. 4 bit adder, 2's complement subtractor circuit using an 4 bit adder IC and an XOR IC and verify the operation of the circuit.
5. To design a NOR Gate Latch and verification of its operation.
6. Verification of truth table for positive edge triggered, negative edge triggered, level triggered IC flip-flops (At least one IC each of D latch, D flip-flop, JK flip-flops).
7. Verification of truth table for encoder and decoder ICs, Mux and DeMux.
8. To design a 4 bit SISO, SIPO, PISO, PIPO shift registers using JK/D flip flops and verification of their operation.
9. To design a 4 bit ring counter and verify its operation.
10. Asynchronous Counter ICs: Verification of truth table for any one universal shift register IC
Use of IC 7490 or equivalent TTL: (a) divide by 2 (b) divide by 10 Counter
                                        Or
Use of IC 7493 or equivalent TTL: a) divide by 2 (b) divide by 8 Counter (c) divide by 16 Counter.

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)
COMPUTER PROGRAMMING USING C LAB (121306)

Credits- 02   **L T P**
                                                                                0 0 4

List of Practical's

1. Programming exercises on executing and editing a C program.

2. Programming exercises on defining variables and assigning values to variables.

3. Programming exercises on arithmetic and relational operators.

4. Programming exercises on arithmetic expressions and their evaluation.

5. Programming exercises on formatting input/output using printf and scanf.

6. Programming exercises using if statement.

7. Programming exercises using if – Else.

8. Programming exercises on switch statement.

9. Programming exercises on do – while statements.

10. Programming exercises on for – statement.

11. Programs on one-dimensional array.

12. Programs on two-dimensional array.

13. (i) Programs for putting two strings together.

(ii)   Programs for comparing two strings.

14. Simple programs using structures.

15. Simple programs using pointers.

16. Simple programs for reading from a file and writing into a file.

RDBMS LAB (121307)

Credits- 02   **L T P**
                                                                                                             0 0 4

List of Practical's

1.   Exercises on creation and modification of structure of tables.
2.   Exercises on inserting and deleting values from tables.
3.   Exercises on querying the table (using select command).
4.   Exercises on using various types of joins.
5.   Exercises on using functions provided by database package.
6.   Exercises on commands like Grant, Revoke, Commit and Rollback etc.
7.   Introductory exercises on PL/SQL.
8.   Design of database for any application using oracle.

MULTIMEDIA AND APPLICATIONS LAB (121308)

Credits- 02   **L T P**
                                                                             0 0 4

List of Practical's

1.   Installation of various multimedia software like Photoshop, Flash, Director or any open source software.
2.   Installing and use of various multimedia devices:
      ➢ Scanner
      ➢ Digital camera, web camera
      ➢ Mike and speakers
      ➢ Touch screen
      ➢ Plotter and printers
      ➢ DVD
      ➢ Audio CD and Video CD
3.   Reading and writing of different format on CD/DVD.
4.   Transporting audio and video files.
5.   Using various features of Flash.
6.   Using various features of Photo-shop.
7.   Making multimedia presentations combining, Flash, Photo-shop, such as department profile, lesson presentation, games and project presentations.

COMPUTER WORKSHOP (121309)

Credits- 02   **L T P**
                                                                                        0 0 4

List of Practical's

Part-A (Hardware)

1. Familiarization with various components and parts of personal computers, mother board details, hard disk drive, floppy disk drive. CD Rom drive, DVD, keyboard, display devices, various chips (memory chips and CPU); serial and parallel ports, inkjet, USB Ports, Fire wire, Bluetooth, Dot matrix and Laser printers, Modems, connectors and cables.
2. Assembly and Dissembling of PCs: Power supply, linear power supply and switch mode power supply, trouble shooting of SMPS.
3. Setting up of basic infrastructure for computers (including power layout, air conditioning, earthing etc.

Part-B (Software)

4. Installation of various operating systems, LINUX/ windows latest versions. Familiarization of their features with practical demonstrations. Installation and configuration of device drivers. Disk management.
5. Installation of latest version of application software like MS-Office/open office, Adobe Photoshop, Corel Draw, Macromedia Flash etc.
6. Installation and configuration of latest version of database software like Oracle, MySQL/ SQL Server etc.
7. Introduction to Virus/Spyware/Worm/Trojan Horse, their detection, prevention and cure.
8. Installation, uninstallation and use of Antivirus software.
9. Visit to computer manufacturing industry.

RECOMMENDED BOOKS

1) PC Upgrade and Maintenance Guide by Mark Minasi, BPB Publication.
2) Hardware Bible by Winn Rosch, Techmedia Publications.
3) IBM PC and Clones by B Govinda Rajalu. Tata McGraw Hill Education Pvt Ltd , New Delhi.
4) Electronic Instrumentation and Measurement Techniques by WD Cooper and Adhelfrics. Prentice Hall of India, New Delhi.
5) Common Computer Circuits and Faults Vol. 1 by M. Lotia, BPB Publications, New Delhi.
6) Monitor and Fault Diagnosis Vol. 1 and II. M. Lotia, BPB Publications, New Delhi.
7) Unix System Administration by Unleashed. Tech. Media Publications, New Delhi.
8) Understanding Unix Tech Media Publications, New Delhi.
9) Linux Unleashed Tech Media Publications, New Delhi.

10) Unix Configuration and Installation DPB Publications, New Delhi.
11) Teach Yourself Unix BPB Publications, New Delhi.
12) Study Guide Windows Server and Workstation 4 Tech Media Publications, New Delhi.
13) Complete Guide to Window and Workstation by Peter Norton. Tech Media Publications, New Delhi.
14) Complete Guide to Windows by Peter Norton. Tech. Media Publications, New Delhi.
15) Training Guide for Windows by MCSE, Tech Media Publications, New Delhi.

GENERIC SKILLS AND ENTREPRENEURSHIP DEVELOPMENT (120401)

Credits- 04   **L T P**
                                                                     4 0 0

OBJECTIVES:

Generic Skills and Entrepreneurship Development is one of the courses from "Human Science" subject area. Generic skills have emerged as an important component of employability skills, which enable an individual to become and remain employable over lifetime and to lead happy and prosperous life. Entrepreneurship development aim at developing conceptual understanding for setting-up one's own business venture/enterprise. This aspect of Human Resource Development has become equally important in the era, when wage employment prospects have become meager. Both the subject areas are supplementary to each other and soft skills are required to be developed in diploma pass outs for enhancing their employability and self confidence.

COURSE CONTENTS:

Introduction to Generic Skills: Importance of Generic Skill Development (GSD), Global and Local Scenario of GSD, Life Long Learning (LLL) and associated importance of GSD.

Managing Self: Knowing Self for Self Development- Self-concept, personality, traits, multiple intelligence such as language intelligence, numerical intelligence, psychological intelligence etc., Managing Self – Physical- Personal grooming, Health, Hygiene, Time Management, Managing Self – Intellectual development -Information Search: Sources of information, Reading: Purpose of reading, different styles of reading, techniques of systematic reading, Note Taking: Importance of note taking, techniques of note taking, Writing: Writing a rough draft, review and final draft. Managing Self – Psychological, Stress, Emotions, Anxiety-concepts and significance, Techniques to manage the above.

Managing in Team: Team - definition, hierarchy, team dynamics, Team related skills-sympathy, empathy, co-operation, concern, lead and negotiate, work well with people from culturally diverse background, Communication in group - conversation and listening skills.

Task Management: Task Initiation, Task Planning, Task execution, Task close out, Exercises/case studies on task planning towards development of skills for task management

Problem Solving: Prerequisites of problem solving- meaningful learning, ability to apply knowledge in problem solving, Different approaches for problem solving. Steps followed in problem solving. Exercises/case studies on problem solving.

Entrepreneurship: Introduction , Concept/Meaning and its need, Competencies/qualities of an entrepreneur, Entrepreneurial Support System e.g., District Industry Centres (DICs), Commercial Banks, State Financial Corporations, Small Industries Service Institute (SISIs), Small Industries Development Bank of India (SIDBI),

National Bank of Agriculture and Rural Development (NABARD), National Small Industries Corporation (NSIC) and other relevant institutions/organizations at State/National level. Market Survey and Opportunity Identification (Business Planning)- How to start a small scale industry, Procedures for registration of small-scale industry, List of items reserved for exclusive manufacture in small-scale industry, Assessment of demand and supply in potential areas of growth, Understanding business opportunity, Considerations in product selection, Data collection for setting up small ventures. Project Report Preparation- Preliminary Project Report, Techno-Economic Feasibility Report, Exercises regarding "Project Report Writing" for small projects.

REFERENCE/TEXT BOOKS:

1. Generic skill Development Manual, MSBTE, Mumbai.
2. Lifelong learning, Policy Brief (www.oecd.orf).
3. Lifelong learning in Global Knowledge Economy, Challenge for Developing Countries – World Bank Publication
4. Towards Knowledge Society, UNESCO Paris Publication
5. Your Personal Pinnacle of Success by DD Sharma, Sultan Chand and Sons, New Delhi
6. Human Learning, Ormrod
7. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
8. Entrepreneurship Development by CB Gupta and P Srinivasan, Sultan Chand and Sons, New Delhi
9. Handbook of Small Scale Industry by PM Bhandari.

Credits- 03   **L T P**
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OBJECTIVES:

Data structures are the techniques of designing the basic algorithms for real-life projects. Understanding of data structures is essential and this facilitates the understanding of the language. The practice and assimilation of data structure techniques is essential for programming. The knowledge of 'C' language and data structures will be reinforced by practical exercises during the course of study. The course will help students to develop the capability of selecting a particular data structure.

COURSE CONTENTS:

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.

Arrays: Concept of Arrays, Single dimensional array, Two dimensional array storage strategy of multidimensional arrays, Operations on arrays with Algorithms (searching, traversing, inserting, deleting).

Linked Lists: Introduction to linked list and double linked list, Representation of linked lists in Memory, Traversing a linked list, Searching linked list, Insertion and deletion into linked list, Application of linked lists, Doubly linked lists, Traversing a doubly linked lists, Insertion and deletion into doubly linked lists.

Stacks, Queues and Recursion: 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.

Trees: Concept of Trees, Concept of representation of Binary tree, Binary search trees Traversing, Binary Trees (Pre order, Post order and In order), Searching, inserting and deleting binary search trees.

Sorting and Searching: Introduction, Search algorithm (Linear and Binary), Concept of sorting, Sorting algorithms (Bubble Sort, Insertion Sort, Quick Sort, Selection Sort, Merge Sort, Heap Sort) and their comparisons.

REFERENCE/TEXT BOOKS:
1. Data Structure using C by Manoj Kumar Jambla, Eagle Publishing House, Jalandhar.
2. Data Structures and Algorithm Using C by RS Salaria, Khanna Book Publishing Co. (P) Ltd. New Delhi.
3. Data Structure using C by ISRD Group, Tata McGraw Hills Education Pvt Ltd , New Delhi.
4. Data Structures by Sanjiv Sofat, Khanna Publishers, New Delhi.
5. Expert Data Structures with C by R.B. Patel – Khanna Publishers, New Delhi.
6. Data structures – Schaum's Outline Series – by Lipschutz, McGraw Hill

Education Pvt Ltd , New Delhi.

7. Data structures – O.G. Kakde and U.A. Deshpande.
8. Data Structures by Kruse.
9. Data Structure using Pascal by Tenenbaum, Prentice Hall of India.
10. Data Structure using C by Robert Kruse, Prentice Hall of India.
11. Data Structure through C by Yashwant Kanekar, BPB Publications.
12. Data Structure through C in depth by SK Srivastava, Deepali Srivastava, BPB Publications.
13. Introduction to Data Structure and Algorithm with C++ by Glenn W. Rowe, Prentice Hall of India.
14. Data Structure through "C" Language by Sameeran Chattopadhyay, Matangini Chottopadhyay, BPB Publications.
15. Data Structure through "C" Language by DOEACC, BPB Publications.
16. Data Structure using "C" Lab Workbook by Shukla, BPB Publications.

OBJECT ORIENTED PROGRAMMING USING C++ (121402)

Credits- 03   **L T P**
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OBJECTIVES:

Object orientation is a new approach to understand the complexities of the real world. In contrast to the earlier approaches like procedural etc., object orientation helps to formulate the problems in a better way giving high reliability, adaptability and extensibility to the applications. The students are already familiar with this concept of programming in C which is the basic for C++. This course offers the modern programming language C++ that shall help the students to implement the various concept of object orientation practically. The students will be able to programme in the object oriented technology with the usage of C++.

COURSE CONTENTS:

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, dynamic binding, message passing, data hiding.

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, arrays, structure, unions, functions, pointers; preprocessor directives.

Classes and Objects: Creation, accessing class members, Private Vs Public, Constructor and Destructor Objects.

Member Functions: Method definition, Inline functions implementation, Constant member functions, Friend Functions and Friend Classes, Static functions.

Overloading Member Functions: Need of operator overloading, operator overloading, instream / outstream operator overloading function overloading, constructor overloading.

Inheritance: Definition of inheritance, protected data, private data, public data, inheriting constructors, and destructors, constructor for virtual base classes, constructors and destructors of derived classes, and virtual functions, size of a derived class, order of invocation, types of inheritance, single inheritance, hierarchical inheritance, multiple inheritance, hybrid inheritance, multilevel inheritance.

Polymorphism and Virtual Functions: Importance of virtual function, function call binding, virtual functions, implementing late binding, need for virtual functions, abstract base classes and pure virtual functions, virtual destructors.

File and Streams : Components of a file, different operation of the file, communication in files, creation of file streams, stream classes, header files, updating of file, opening and closing a file, file pointers and their manipulations, functions manipulation of file pointers, detecting end-of- file.

Introduction to Standard Template Library (STL).

REFERENCE/TEXT BOOKS:

1. Mastering C++ by KR Venugopal and Rajkumar, T Ravishankar; Tata McGraw Hill Education Pvt Ltd , New Delhi.
2. Object Oriented Programming in C++ by E. Balaguruswamy, Tata McGraw Hill Education Pvt Ltd , New Delhi.
3. C++ by Robert Lafore, Galgotia Publications Pvt. Ltd., Daryaganj, New Delhi.
4. Object Oriented Programming and C++ by R Rajaram; New Age International (P) Ltd., Publishers, New Delhi.
5. Schaum's Outline of Programming with C++ by John R. Hubbard.

COMPUTER ARCHITECTURE (121403)

Credits- 04   **L T P**
                                                                                                                        4 0 0

OBJECTIVES:

The subject provides the students with the knowledge of detailed organization of currently available personal computers in order to understand their functioning and maintenance. The students will also get familiar with different types of mother boards, architecture and bus standards.

COURSE CONTENTS:

Data Representation: Data Types-Number System, 1's Complement, 2's Complement, BCD Code, Gray Code.

Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Introduction to RISC, CISC architecture, Pipeline processing.

Arithmetic Operations: Introduction, Addition, Subtraction, Multiplication and Division algorithm.

Input-Output Organisation: Input-output interface, I/O bus and interface for module, I/ O vs memory bus. Isolated Vs memory mapped, IP modes of data transfer, first in first out buffer, priority interrupt, daisy chaining priority, parallel priority interrupt priority encoder, interrupt cycle, direct memory access DMA controller, DMA transfer.

Memory Organisation: Memory hierarchy; main memory, memory address, map, RAM and ROM chips, memory connection to CPU, auxiliary memory, associative memory, read and write operation, cache memory, associative mapping, virtual memory, memory management hardware, memory segmentation.

REFERENCE/TEXT BOOKS:
1. Computer Architecture by Rafiquzzaman, M; Prentice Hall of India, New Delhi.
2. Computer Architecture by Carter, SOS: Tata McGraw Hill Education Pvt Ltd , New Delhi
3. Fairhead – 80386/80486 BPB Publication, New Delhi
4. Hardware and Software of Personal Computers by Bose, SK; Willey Eastern Ltd., New Delhi
5. Structured Computer Organisation by Tanenbaum, Andrew S.; Prentice Hall of India, New Delhi.
6. Upgrading and Preparing PCs by Scott Muller, Techmedia Publications.
7. Computer Organization and Architecture by Linda Labur, Narosa Publishing House Pvt. Ltd., Darya Ganj, New Delhi.
8. Computer system Architecture by Morris Mano.

MICROPROCESSORS (122404)

Credits- 04   **L T P**
                                                                     4 0 0

OBJECTIVES:

The study of microprocessors in terms of architecture, software and interfacing techniques leads to the understanding of working of CPU in a microcomputer. The development in microprocessors of 32 bit architecture brings them face-to-face with mainframe finding employment in R&D, assembly, repair and maintenance of hardware of microprocessors and computers.

Microprocessors find application in process control industry. They also form a part of the electronic switching system between source and destination in long distance telecommunications. Thus the microprocessor is an area of specialization. Students of electronics and related engineering branches often use microprocessors to introduce programmable control in their projects, in industrial training.

COURSE CONTENTS:

Evolution of Microprocessor: Typical organization of a microcomputer system and functions of its various blocks. Microprocessor, its evolution, function and impact on modern society

Architecture of a Microprocessor (With reference to 8085 microprocessor): Concept of Bus, bus organization of 8085, Functional block diagram of 8085 and function of each block, Pin details of 8085 and related signals, Demultiplexing of address/data bus generation of read/write control signals, Steps to execute a stored programme.

Memories and I/O interfacing: Memory organization, Concept of memory mapping, partitioning of total memory space. Address decoding, concept of I/O mapped I/O and memory mapped I/O. Interfacing of memory mapped I/O devices. Concept of stack and its function. Basic RAM Cell, N X M bit RAM, Expansion of word length and capacity, static and dynamic RAM, basic idea of ROM, PROM, EPROM and EEPROM.

Programming (with respect to 8085 microprocessor): Brief idea of machine and assembly languages, Machines and Mnemonic codes. Instruction format and addressing mode. Identification of instructions as to which addressing mode they belong. Concept of Instruction set. Explanation of the instructions of the following groups of instruction set. Data transfer group, Arithmetic Group, Logic Group, Stack, I/O and Machine Control Group. Programming exercises in assembly language. (Examples can be taken from the list of experiments).

Instruction Timing and Cycles: Instruction cycle, machine cycle and T-states, Fetch and execute cycle.

Interrupts: Concept of interrupt, Maskable and non-maskable, Edge triggered and level triggered interrupts, Software interrupt, Restart interrupts and its use, Various hardware interrupts of 8085, Servicing interrupts, extending interrupt system

Data transfer techniques: Concept of programmed I/O operations, sync data transfer, async data transfer (hand shaking), Interrupt driven data transfer, DMA, Serial output data, Serial input data.

Peripheral devices: 8255 PPI and 8253 PIT, 8257 DMA controller, 8279 Programmable KB/Display Interface, 8251 Communication Interface Adapter, 8155/8156.

REFERENCE/TEXT BOOKS:
1. Digital Electronics and Applications by Malvino Leach; Publishers McGraw Hills, New Delhi
2. Digital Logic and Computer Design by Mano, M Morris; Prentice Hall of India, New Delhi
3. Digital Integrated Electronics by Herbert Taub and Donals Sachilling; Prentice Hall of India Ltd., New Delhi
4. Digital Electronics by Rajaraman; Prentice Hall of India Ltd., New Delhi
5. Microprocessor Architecture, Programming and Applications with 8080/8085 by Ramesh S Gaonker, Willey Eastern Ltd. New Delhi
6. Microprocessor and Applications by B Ram
7. Microprocessor and Microcontrollers by Dr BP Singh, Galgotia Publications, New Delhi
8. Introduction to Microprocessors by Mathur, Tata McGraw Hill, New Delhi
9. Microprocessor and Microcomputers by Refiquzzaman, Prentice Hall of India Ltd., New Delhi.

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)

INTERNET AND WEB TECHNOLOGIES (127401)

Credits- 04   **L T P**
                                                                   4 0 0

OBJECTIVES:

This course will enable the students to understand the basics of internet and various application of internet like e-mail, FTP, Telnet, Newsgroups and video conferencing In addition, this course develops competency amongst the students to design professional web sites and interactive web pages. They will have overview of different technologies like of HTML, DHTML, XML, CGI, ASP, JSP, Java Scripts, and VB Scripts.

COURSE CONTENTS:

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, E-mail, Telnet, FTP, IRC, NNTP, Video conferencing, e- commerce.

Internet Connectivity: Telephone line, cable, leased line, ISDN, VSAT, RF link.

World Wide Web (WWW): World Wide Web and its evolution, web page, web server, HTTP protocol. Examples of web servers. Navigation Tools: Mozilla Firefox, Google Chrome, Internet Explorer, Uniform Resource Locator (URL). Hypertext, hyperlinks and hypermedia, URL, its registration, browsers, search engines, proxy servers.

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

Developing Portals Using HTML: Introduction to HTML-5 and CSS-3 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.

Client-side Scripting: Using Java Script, Java Script Event Modeling, Document Object Model (DOM), Validating Forms using Java script.

Server-side Scripting: PHP: GET POST Method, Control Structures.

Dream weaver: Basic features of Dreamweaver.

REFERENCE/TEXT BOOKS:

1. Internet and Web Technologies by Rajkamal, Tata McGraw Hill Education Pvt Ltd , New

Delhi.

2. Internet 6-in-1 by Kraynak and Habraken, Prentice Hall of India Pvt. Ltd., New Delhi.
3. Using the Internet IV edition by Kasser, Prentice Hall of India Pvt. Ltd., New Delhi.
4. Using the World Wide Web, (IInd edition) by Wall, Prentice Hall of India Pvt. Ltd., New Delhi.
5. Internet for Everyone by Alexis Leon and Mathews Leon; Vikas Publishing House Pvt. Ltd., New Delhi.
6. Practical Guide and Internet by AB Tiwana; Galgotia Publications Pvt. Ltd., New Delhi.
7. HTML – 4 for World Wide Web by Castro Addison Wesley (Singapore) Pvt. Ltd., New Delhi.
8. Principles of Web Designing Joel Sklar, Web Warrior Series Available with Vikas Publishing House Pvt. Ltd., New Delhi.
9. HTML 4.0 Unleashed by Rick Dranell; Tech Media Publications.
10. Teach Yourself HTML 4.0 with XML, DHTML and Java Script by Stephanie, Cottrell, Bryant; IDG Books India Pvt. Ltd., New Delhi.
11. Dynamic Web Publishing – Unleashed Tech Media.
12. Using Active Server Pages by Johnson et.al. Prentice Hall of India, New Delhi.
13. Web Development with Visual Basic with CD ROM by Chapman; Prentice Hall of India, New Delhi.
14. Java Server Pages (JSP) by Pekowsky Addison Wesley (Singapore) Pvt. Ltd., New Delhi.
15. Active Server Pages (ASP) by Keith Morneau Jill Batistick Web Warrier Series Available with Vikas Publishing House Pvt. Ltd., New Delhi.
16. ASP Unleashed Tech Media Publication.
17. JSP O'Reilly SPD Publishers Hans Bergsten.
18. Java Script in 24 hrs Tech Media Publications.
19. Java Servlets by O'Reilly SPB Publishers.

DATA STRUCTURES USING C LAB (121404)

Credits- 02   **L T P**
                                                                                               0 0 4

List of Practical's:

Write programmes in C to implement.

1) Inserting and deleting elements in an array
2) Insertion and deletion of elements in linked list
3) Insertion and deletion of elements in double linked list
4) Stack implementation using arrays
5) Stack implementation using pointers
6) Queue implementation using arrays
7) Queue implementation using pointers
8) Linear search in a given list
9) Binary search in a given list
10) Implementation of binary search tree
11) Implementation of bubble sort algorithm
12) Implementation of insertion sort algorithm
13) Implementation of quick sort algorithm
14) Implementation of selection sort algorithm
15) Conversion from infix and post-fix notation
16) Implementation of factorial of a number using recursion
17) Implementation of Fibonacci series using recursions

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OBJECT ORIENTED PROGRAMMING USING C++ LAB (121405)

Credits- 02   **L T P**
                                                                                               0 0 4

List of Practical's:

1)   Programming exercises on control flow statements in C++
2)   Programming exercises on arrays, strings, function and pointers in C++
3)   Writing programs to construct classes and deriving objects
4)   Writing programs for constructors, destructors, using public and private access
      specifies
5)   Programming exercises on operator overloading, type conversions and inheritance.
6)   Programming exercises on functional overloading
7)   Writing programs on steam computation and life operations
8)   Implementation of a mini project in C++
9)   Introduction to latest ANSI C++ Compiler and elaboration of short comings of Turbo
      C++ Compiler

MICROPROCESSORS LAB (122409)

Credits- 02   **L T P**
                                                                    0 0 4

List of Practical's:

1. Familiarization of different keys of 8085 microprocessor kit and its memory map
2. Steps to enter, modify data/program and to execute a programme on 8085 kit
3. Writing and execution of ALP for addition and sub station of two 8 bit numbers
4. Writing and execution of ALP for multiplication and division of two 8 bit numbers
5. Writing and execution of ALP for arranging 10 numbers in ascending/descending order
6. Writing and execution of ALP for 0 to 9 BCD counters (up/down counter according to choice stored in memory).
7. Interfacing exercise on 8255 like LED display control
8. Interfacing exercise on 8253 programmable interval timer
9. Interfacing exercise on 8279 programmable KB/display interface like to display the hex code of key pressed on display
10. Study and use of interfacing 8 bit A/D card and D/A card in sampling, wave generation, multiplexer, de-multiplexer and counter
11. Use of 8085 emulator for hardware testing.

INTERNET AND WEB TECHNOLOGIES LAB (127402)

Credits- 02   **L T P**
                                                                   0 0 4

List of Practical's:

1. Configuring computer system to access internet
2. Managing social networking profile and e-mail account
3. Using WWW for accessing relevant information
4. To demonstrate the use of TELNET, FTP, IRC
5. Creating Web pages using HTML
6. Creating web pages using Dream Weaver
7. Demonstration of audio-video conferencing
8. Demonstration of e-commerce transaction
9. Validation of user queries and responses in the Forms using Java Script or VB script
10. Create a Homepage with frames, animation, background sound and hyperlinks
11. Develop hitometer for each client i.e. number of visitors. Visit to a site.
12. Designing simple server side program which accept some request from the client and respond
13. Establishing sessions between servers and clients
14. Design fill-out form with text, check box, radio buttons etc and embed Java script to validate users input.
15. Develop simple server side program in Server Script which accept some request from the client and respond.
16. Develop interface with database (MYSQL etc) for online retrieval and storage of data through PHP.

COMPUTER PERIPHERALS AND INTERFACE (121501)

Credits- 03   **L T P**
                                                                                         3 0 0

OBJECTIVES:

A computer engineer should be able to interface and maintain key-board, printer, mouse monitor etc. along with the computer system. The course provides the necessary knowledge and skills regarding working construction and interfacing aspects of peripherals. The students will get to know how various peripherals communicate with central processing unit of the computer system and pattern their respective operations. The student will be able to maintain keyboard, printer, monitors and Power Supplies (CVTs and UPSs) along with computer system. This subject provide the required background of computer installation, maintenance and testing of peripheral with micro computers So a course on Computer Peripherals and Interfacing Devices is required to develop such skills.

COURSE CONTENTS:

Video Display: The basic principle of working of video monitors (CRT, LCD,LED), video display adapters, video modes, Video display EGA/VGA/SVGA/PCI adapters and their architecture, Overview of raster scan, vector graphic, their main difference and relative advantages, Concept of reduction and bandwidth of monitors refreshing of screen.

Hardware Organization of PCs: Types of motherboard and their details (Form Factor, Chipset), types of processors (INTEL, AMD) and their compatibility with motherboards, serial and parallel ports, PS/2, USB Ports, Interconnection between units, connectors and cables.

Storage Devices: Types of Hard Disk Drives- EIDE, SATA, SCSI, SAS External Hard Disk. Constructional features and working of hard disk drive, optical (CD, DVD, Blue Ray) disk drive and Flash Drive, Logical structure of Hard Disk and its organization, boot record.

Input Devices: Detailed working principle and troubleshooting of various input devices such as keyboard, mouse, scanner. Basic principle of touch screen, light pen, digitizers. Drivers for various input devices and their role.

Output Devices: Overview of printer and its classification, impact and non-impact printer, principle and working of desk Jet, dot matrix, line Printer and laser printers (Monochrome and Colour), plotter (Piezoelectric and Thermal), and modems. Software drivers for various output devices and their role.

Power Supplies: Explain the working of SMPS used in computers. On-Line/Off-Line/Line-Interactive/uninterrupted power supplies (UPS), basic principle of working their importance and maintenance.

The Basic Input/Output System: What is BIOS? Function of BIOS, software interrupts, testing and initialization, configuring the system.

Other Technologies: Mobile, digital camera, web camera, smart card, ATMs, CDMA etc., Blue Tooth, infrared, Wi-Fi, WiMax. Some aspects of cost performance analysis while procuring the computer.

REFERENCE/TEXT BOOKS:

1) Hardware Trouble Shooting and Maintenance by B. Govinda Rajalu, IBM PC and Clones, Tata McGraw Hill 1991
2) Computer Peripheral & Interfacing by Gourav Gupta, Eagle Prakashan, Jalandhar.
3) The waite group writing MS DOS Device, Drives byRobert, S Lai: Addison, Wesley Publishing Co. 2nd Ed. 1992.
4) Hardware and Software of Personal Computers by SK Bose; Wiley Eastern Limited, New Delhi.
5) Microprocessors and Interfacing by Hall, Douglas: McGraw Hill
6) Microprocessors and Interfacing by Uffenbeck.
7) Computer Peripherals And Interfacing by Priti Srivastav- Ishan Publication
8) Fundamentals of Computers by Sukhvir Singh; Khanna Publishers, New Delhi
9) Computer Peripherals for Micro Computers, Microprocessor and PC by Levis Hahensteu
10) Inside the PC (Eight Edition) by Peter Norton; Tech Media Publication, New Delhi
11) Upgrading and Praparing PC

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OPERATING SYSTEMS (121502)

Credits- 03
         L T P
         3 0 0

OBJECTIVES:

The course provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working. The students will also get hands-on experience and good working knowledge to work in windows and Linux environments. The aim is to gain proficiency in using various operating systems after undergoing this course. While imparting instructions, the teachers are expected to lay more emphasis on concepts and principles of operating systems, its features and practical utility.

COURSE CONTENTS:

Overview of Operating Systems: Definition of Operating Systems, Types of Operating Systems, Importance of Operating Systems, Memory organization, Linking, loading and executing control program.

Functions of Operating System: Process Management Functions (Principles and Brief Concept); Job Scheduler, Process Scheduler, Process synchronization. Memory Management Function (Principles and Brief Concept); Introduction, Single Process System, Fixed Partition Memory, System Loading, Segmentation, Swapping, Simple Paging System, Virtual Memory. I/O Management Functions (Principles and Brief Concept); Dedicated Devices, Shared Devices, I/o Devices, Storage Devices, Buffering, Spooling. File Management; Principles and Brief Concept, Types of File System; Simple file system, Basic file system, Logical file system, Physical file system. Dead Lock; Condition for Dead lock, Dead Lock Preventions, Dead Lock Avoidance.

Linux Operating System: Introduction, history of Linux and Unix, Linux Overview, Structure of Linux, Linux releases, open linux, system requirements, file structures, processor scheduling and memory management in Unix. Linux Commands and Filters: Shell: concepts of command options, input, output redirecting and network file, process and communication commands like: mkdir, cd, ls, who, whoami, cat, more, tail, head, mv, chmod, grep, wc, sort, kill, write, wall, mail, news.

REFERENCE/TEXT BOOKS:

1) Operating Systems by Achyut S Godbole and Atul Kahate: Tata McGraw Hill Education Pvt Ltd , New Delhi
2) Operating System by Hemant Kapila, Eagle Prakashan, Jalandhar.
3) System Programming by John J Donovan, Tata McGraw Hill Education Pvt Ltd , New Delhi
4) Linux – The Complete Reference by Ruichard Peterson, Tata McGraw Hill, New Delhi
5) Operating Systems by Stallings Tata McGraw Hill.

6) Operating Systems- A Concept Based Approach by Dham Dhare, Tata McGraw Hill Education Pvt Ltd , New Delhi
7) System Programming by Dham Dhare, Tata McGraw Hill Education Pvt Ltd , New Delhi
8) Operating System Concepts by Ekta Walia, Khanna Publishers, New Delhi.
9) Unleashed Linux by Tech Media Publishers, New Delhi
10) Linux – Install and Configuration Black Book by Die Annlebalnc and Issac Yates, IDG Books India Private Ltd., New Delhi.
11) Operating System by Abhishek Sagar- Ishan Publication

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COMPUTER NETWORKS (121503)

Credits- 04   **L T P**
                                                                                  4 0 0

OBJECTIVES:

The future of computer technology is in computer networks. Global connectivity can be achieved through computer networks. A diploma holder in computer engineering should therefore understand the function of networks. Knowledge about hardware and software requirements of networks is essential.

COURSE CONTENTS:

Networks Basics: What is network, Models of network computing, Networking models, Peer-to –peer Network, Server Client Network, LAN, MAN and WAN, Network Services, Topologies, Switching Techniques.

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.

Introduction to TCP/IP: Concept of physical and logical addressing, Different classes of IP addressing, special IP address, Sub netting and super netting, Loop back concept, IPV4 and IPV6 packet Format, Configuring IPV4 and IPV6.

Protocol Suites: Models and Protocols, Network IPX/SPX, Intranet Protocols.

Network Architecture: ARC net specifications, Ethernet Specification and Standardization: 10 Mbps (Traditional Ethernet), 10 Mbps (Fast Ethernet) and 1000 Mbps (Gigabit Ethernet), Introduction to Media Connectivity (Leased lines, ISDN, PSTN, RF, VSAT, Optical and IPLC).

Network Connectivity: Network connectivity Devices, NICs, Hubs, Repeaters, Multiplexers, Modems, Routers and Protocols, Firewall, ATM, VOIP and Net-to-Phone Telephony, Laws and Protocols.

Network Printing: Print Services.

Network Administration / Security: -Client/Server Technology, Server Management, RAID management and mirroring, Huffman codes, Cryptography.

Network Trouble Shooting Techniques: Trouble Shooting process, Trouble Shooting Tools: PING,IPCONFIG, IFCONFIG, NETSTAT, TRACEROOT, Wiresharp/ Dsniffer/ Pcop.

Wireless Networking: Basics of Wireless: Wireless MAN, Networking, Wireless LAN, Wi-Fi, WiMax(Broad-band Wireless) and Blue-Tooth technology.

REFERENCE/TEXT BOOKS:

1. Computer Networks by Tanenbaum, Prentice Hall of India, New Delhi
2. Data Communications and Networking by Forouzan, (Edition 2nd and 4th), Tata McGraw Hill Education Pvt Ltd , New Delhi
3. Data and Computer Communication by William Stallings, Pearson Education, New Delhi
4. Local Area Networks by Peter Hudson
5. Understanding Local Area Network by Neil Jenkins
6. Area Networks by Stan Schatt, Prentice Hall of India, New Delhi
7. Network+ Lab manual,- BPB Publications -by Tami Evanson
8. Networking Essentials – BPB Publications New Delhi
9. Computer Network by Priti Srivastav- Ishan Publication
10. Computer Network and Communications By V.K. Jain and Narija Bajaj, Cyber Tech Publications, New Delhi.
11. Linux – The complete Reference by Richard Peterson, Tata McGraw Hill Education Pvt Ltd, New Delhi.
12. Linux – Install and Configuration Black Book by Dee Annleblanc and Issac Yates, IDG Books India Private Limited, Delhi.
13. Unleashed Linux by TechMedia Publishers, New Delhi
14. Computer Network by J.S. Katre, Tech-Max Publication, Pune

VISUAL PROGRAMMING (USING VB.NET) (127501)

Credits- 03   **L T P**
                                                                               3 0 0

OBJECTIVES:

VB .NET is the visual programming technique based on Object Oriented Concepts. This subject will give the students an in depth understanding the features of VB .NET. The practical exercise of VB.NET during the course of study will reinforce the understanding of the subject.

COURSE CONTENTS:

Introduction to Microsoft. Net Framework: Introduction to client server architecture, Introduction to .NET framework, feature of .Net framework, architecture and component of .Net, elements of .Net. Common Language Runtime (CLR), Common Type System (CTS), Common Language Specifications (CLS), Microsoft Intermediate Language (MSIL), Just In Time Compiler.

VB.NET Integrated Development Environment: VB.NET Development Environment, Creating Applications, Building Projects Using simple components, Running VB .NET applications.

VB.NET Basics: Visual Basic .NET Programming Language-Variables & Data Type, Strings, Arithmetic Operators, Building the project, Common Control Controls, Functions Call and Arguments, Select Case, Loops, Nesting of Loops, Decision Structures, Error handling using Try.. Catch Block.

Windows Applications: Developing Windows Applications: Introduction to Windows Applications, Using Windows Forms, Visual Inheritance, Windows Forms, Text Boxes, Buttons, Labels, Check Boxes, and Radio Buttons, List Boxes, Combo Boxes, Picture Boxes, Scrollbars, Splitters, Timer, Menus, Built-in Dialogs, Image List, Tree Views, List Views, Toolbars, Status Bar and Progress bars.

Database Connectivity: Database Programming with ADO.NET: ADO.NET Object Model, Database: Connections, Data adapters and datasets, Data Reader, Connection to database with server explorer, Multiple Table Connection, Data binding with controls like Text Boxes, List Boxes, Data grid etc. Navigating data source, Data Grid View, Data form wizard, Data validation, Connection Objects, Command Objects, Data Adapters, Dataset Class.

Crystal Reports: Crystal reports, Connection to Database, Table, Queries, Building Report, Modifying Report, Formatting Fields and Object.

REFERENCE/TEXT BOOKS:

1. Visual Basic.NET by C Muthu, Tata McGraw Hill Education Pvt Ltd , New Delhi.
2. Visual Basic.NET Step by Step by Michael Halvorson.
3. Visual Programming by Vipan Arora, Eagle Prakashan, Jalandhar.
4. Applications of .NET Technologies, by ISRD Group, Tata McGraw Hill Education Pvt Ltd , New Delhi.
5. Programming Microsoft visual Basic .NET-Francesco Balena.
6. The complete Reference-Visual Basic. NET- Jefrey R. Shapiro.
7. Visual Programming using VB.NET by Priti Srivastav- Ishan Publication.
8. Murach's VB .NET database programming with ADO.NET-Anne Prince and Doug Lowe.

ELECTIVE-I
OPEN SOURCE TECHNOLOGIES (127502)

Credits- 03   **L T P**
                                                                   3 0 0

OBJECTIVES:

This subject is a step to expose the students towards open source technologies. Linux is a very good example of open source s/w. So Linux is prime focus and other technologies based on matter students should be able to use open source s/w primarily in Linux environment.

COURSE CONTENTS:

Introduction: Introduction to Open Source Technologies like LINUX, Apache, My SQL, PHP, etc. Comparison of open source and proprietry Software, difference between freeware and open source. Concept of GPL (General Public License).

Practice with Linux Commands: CP, rm, chmod, mic, password, Is, grep and restore (egep and grep), sort, cmp, diff, tar, CPio, dump, find, Cron, Crontab, mount, umount, compress, unzip, cat, gzip.

Shell Programming: Introduction to Korn shell, Bourne shell, C shell and their functionality, Mata characters, redirection, file name substitution, pipes, common Built in Commands like Eval, Execc, Umask, etc. and shell programming in context of any of three shells.

Communication Commands (utilities): Telnet, talk write, mail, wall, finger, stp, rcp, rlogin, configuration of DHCP.

Introduction to C/C++ Programming in Linux environment.

Introduction to Apache Server with PHP and My SQL.

REFERENCE/TEXT BOOKS:

1.   www.sourceforge.net
2.   UNIX for programmes, Graham Glow, PHI.
3.   Open Source Technologies by Sugandhi Malhotra, Eagle Prakashan, Jalandhar.
4.   PHP and My SQL Bible
5.   Open Source Technology by Rahul Sahni- Ishan Publication

ELECTIVE-I
JAVA PROGRAMMING (127503)

Credits- 03   **L T P**
                                                                                         3 0 0

OBJECTIVES:

Today, the most likely place you will find Java is on World Wide Web. The web acts as convenient transport mechanism for Java programs and the web's ubiquity has popularized Java as an Internet development tool. Java has shifted the programming paradigm of single machine to distributed network of machines. Any application on World Wide Web can be easily implemented. Internet can have numerous applications and various protocols. This course will enable the students to learn in detail network programming language Java.

COURSE CONTENTS:

Introduction to Java: A brief history, how Java works?, Java Virtual Machine (JVM), Java In Time (JIT) compiler, Java features, using Java with other tools, native code, Java application types, comparison with C and C++**.**

Working with data types, control flow statements, arrays, casting, command line arguments.

Java Classes and Memory Management: Introduction to Classes, inheritance, encapsulation and polymorphism, constructors and finalizers, garbage collection, access specifier.

Interfaces and Packages: Using Java interface, using Java packages.

Exception Handling and Stream Files: Over view of exception handling, method to use exception handling, method available to exceptions (The throw statement, the throws class, finally class), creating your own exception classes.

Threads and Multi-threading: Overview, thread basics – creating and running a thread, the thread control methods, the threads life cycle and synchronization.

Introduction to Applet, Application and JDK: Java applets Vs Java applications, building application with JDK, building applets with JDK, HTML for Java applets, managing input-output stream.

Java Data Base Connectivity (JDBC).

REFERENCE/TEXT BOOKS:

1. Mastering Java by John Zukowski; BPB Publication, New Delhi.
2. The Complete Reference by Patrick Naughton, Tata McGraw Hill Education Pvt Ltd , New Delhi.
3. Java Programming by Balagurusamy, Tata McGraw Hill Education Pvt Ltd , New

Delhi.
4. Java Programming by Anu Roy- Ishan Publication.
5. Set of Books on Java by Sun Microsystems.
6. Java 2 Programming Bible by Aaron Walsh, Justin Couch, Daniel Steinberg, IDG Books India Pvt. Ltd., Netaji Subhash Marg, Darya Ganj, New Delhi.
7. Java 2 Swing, Servlets, JDBC and Java Beans Programming Black Book by steven Holzner, IDG Books India Pvt. Ltd., New Delhi.
8. Java Pogramming- "How to Program Java" by Dietal and Dietel.
9. An Introduction to Java Programming by Y Daniel Liang; Prentice Hall of India.
10. The Complete Reference Java by Herbel Schildt; McGraw Hill, New Delhi.
11. Core Java by Cay S Horseman and Lray Carnell.
12. Introduction to Cryptography with applets by David Bishop, Narosa Publishing House Pvt Ltd, Darya Ganj, New Delhi 110002.

COMPUTER PERIPHERALS AND INTERFACE LAB (121504)

Credits- 02   L T P
                                                                                         0 0 4

List of Practical's:

1) To study the construction and working of CRT, LCD, LED (coloured and black and white monitor) and it's troubleshooting.
2) To Study the components and internal parts, working of hard disk and CDROM, DVD, Flash Drives
3) To study the operations and components and internal parts of Key Board, mouse and their troubleshooting.
4) Study of components and internal parts and working of DMP, Inkjet printer and Laser printer and various installations of printers.
5) To study the SMPS circuit and measure its various voltages. Connecting SMPS to mother-board and other devices.
6) Study the operation and maintenance of UPS.
7) Exercise on assembling a PC with peripherals and testing the same.
8) Setup and configuration of ROM BIOS
9) Visit to nearby industry

OPERATING SYSTEMS LAB (121505)

Credits- 02   **L T P**
                                                                             0 0 4

List of Practical's:

1) Directory commands
2) File commands
3) Process management
4) Using file permission commands
5) Mail commands
6) Editing file system rights in a Linux environment.

- ✓ Interfacing with the network (Ethernet)
- ✓ Preparing of network cables including hubs, connectors etc.
- ✓ Establishment of LAN network for homogeneous systems
- ✓ Establishment of LAN network for heterogeneous systems
- ✓ Use of protocols and gateways in establishing LAN
- ✓ Writing small programs such as file security, file transfer, remote testing
- ✓ Trouble shooting of networks
- ✓ Writing login scripts

COMPUTER NETWORKS LAB (121506)

Credits- 02   **L T P**
                                                                                                                         0 0 4

List of Practical's:

1. Recognize the physical topology and cabling (coaxial, OFC, UTP, STP) of a network.

2. Recognition and use of various types of connectors RJ-45, RJ-11,BNC and SCST

3. Making of cross cable and straight cable

4. Install and configure a network interface card in a workstation.

5. Identify the IP address of a workstation and the class of the address and configure the IP Address on a workstation

6. Managing user accounts in windows and LINUX

7. Study and Demonstration of sub netting of IP address

8. Use of Netstat and its options.

9. Connectivity troubleshooting using PING, IPCONFIG, IFCONFIG

10. Installation of Network Operating System(NOS)

11. Visit to nearby industry for latest networking techniques

Required Software

➢ Windows Server/Linux Server

Required Tools and Supplies
1. Crimping tool, crone Tool, Cable tester,
2. RJ 45 connectors, RJ-11, BNC, SCST
3. Coaxial Cable, UTP, STP, OFC cable
4. Screw Driver Kit
5. Switch/Hub
6. Manageable Switch

VISUAL PROGRAMMING (USING VB.NET) LAB (127504)

Credits- 02   **L T P**
                                                                                                                0 0 4

List of Practical's:
1.   Exercise on opening projects.
2.   Exercise on all the menus of opening window of VB .NET
3.   Exercise on all basic Controls.
4.   Exercise on designing form.
5.   Exercise on Database Connectivity.
6.   Exercise on Creating Crystal reports.

ELECTIVE-I LAB
OPEN SOURCE TECHNOLOGIES LAB (127505)

Credits- 02   **L T P**
                                                                          0 0 4

List of Practical's:
1.   Practice of Linux commands-I
2.   Practice of Linux commands-II
3.   Shell programming-I
4.   Shell programming-II
5.   Experiments with communication commands.
6.   WAP on Text handling in C Programming under Linux environment.
7.   WAP to find Prime numbers in C++/C Programming under Linux environment.
8.   Program related to file handling in C/C++ under Linux environment.
9.   Configuration of DHCP (Dynamic Host Control Protocol)
10. Programming with Arrays in C/C++ under Linux
11. Download and Installation of LAMP (Linux Apache My SQL PHP) Packages.
12. Any Website using PHP My SQL with Apache Web Server.

ELECTIVE-I LAB
JAVA PROGRAMMING LAB (127506)

Credits- 02   **L T P**
                                                                                                    0 0 4

List of Practical's:

1.   Write a program

a) This tells whether a number is even or odd. Take a range from 1 – 50

b) Display the output which is given below:
    a.
    b. *
    c. * *

c) which sorts an array of type integer

d) to determine the sum of the following harmonic series for a given value of n: 1+1/2+1/3………..+1/n the value of n should be given interactively through the keyboard

2   Write a programme to convert the given temperature in Fahrenheit to Celsius using the following conversion formula
     C = F.32/1.8 and display the value in a tabular form

3   Write a programme to find all the numbers and sum of all integers greater than 100 less than 200 that are divisible by 7

4.   Given a list of marks ranging from 0 to 100, write a programme to compute and print the number of student should have obtained marks (a) in the range 81 to 100 (ii) in the range 61 to 80 (c) in the range 41 to 60 (d) in the range 0 to 40. The programme should use a minimum number of if statement

5.   Admission to a professional course is subject to the following conditions:

     Marks in mathematics >=60

     Marks in physics >=50

     Marks in chemistry >=40

     Total in all 3 subjects >=200 (OR)

     Total in mathematics and physics >=150 given the marks in the 3 subjects.
     Write the programme to process the application to list the eligible candidates

6.   The number in the sequence 1 1 2 3 5 8 13 21 ………. Are called Fibonacci numbers.

Write programme using a do ….. while loop to calculate and print the first m ibonacci numbers (Hint: after the first 2 numbers in the series, each number is the sum of the 2 preceding the numbers)

7. Write a programme to evaluate the following investment equation $V=P(1+r)n$ and print the tables which would give the value of V for various combination of the following values of P, r and n.

8. Write a program which will store the students roll no. names and total marks in the database

9. Write a program which will display all those records whose marks are above 75%

10. Write a programme to draw the following using Applet:

11. Exercises on implementing Java Classes.

12. Exercises on exceptional handling

13. Exercises on creating and running threads

14. Exercises on database Connectivity.

MINOR PROJECT (121507)

Credits- 02   **L T P**
                                                                                                   0 0 4

Minor project work aims at exposing the students to the various industries dealing with computers. It is expected from them to get acquainted with computer environment possess desired attitudes. For this purpose student during middle of the course are required to be sent for a period of two to four weeks at a stretch in different establishments. Depending upon the interest of students they are sent for exposure to:

1) Industrial practices in installation and maintenance of computers and computer networks.
2) Fabrication of computers.
3) Fault diagnosis and testing of computers.
4) Industrial practices in respect of documentation and fabrication.
5) A variety of computers and peripherals in assembly organizations.
6) Software package development organizations.
7) Maintenance of database.
8) Write be stored procedure or functions which can be attached as the library objects to the main projects.
9) Write a procedure function to convert number of words.
10) Write a procedure function to convert all data function (create your own) Database connectivity, (SQL server, Oracle, Access), Library classes in C++ (same application)., use of graphics in C++, Encryption decryption program, Active-X controls in VB.

Note: The teachers may guide /help students to identify their minor project work and chalk out their plan of action well in advance.

As a minor project activity each student is supposed to study the operations at site and prepare a detail project report of the observations/processes/activities by him/her. The students should be guided by the respective subject teachers; each teacher may guide a group of 4 to 5 students.

BASICS OF MANAGEMENT (120601)

Credits- 03   L T P
                                                                                                        3 0 0

OBJECTIVES:

The diploma holders are generally expected to take up middle level managerial positions, their exposure to basic management principles is very essential. Topics like Structure of Organization, Leadership, Motivation, Ethics and Values, Customer Relationship Management (CRM), Legal Aspects of Business, Total Quality Management (TQM), Intellectual Property Rights (IPR) etc. have been included in the subject to provide elementary knowledge about these management areas.

COURSE CONTENTS:

Principles of Management: Introduction, definition and importance of management, Functions of Management, Planning, Organizing, Staffing, Coordinating, Directing, Motivating and Controlling. Concept and Structure of an Organization Types of industrial organization: Line organization, Functional organization, Line and Functional organization. Hierarchical Management Structure: Top, middle and lower level management, Departmentalization Introduction and its advantages.

Work Culture: Introduction and importance of Healthy Work Culture in organization, Components of Culture, Importance of attitude, values and behavior, Behavioral Science – Individual and group behavior, Professional ethics – Concept and need of Professional Ethics.

Leadership and Motivation: Leadership: Definition and Need of Leadership, Qualities of a good leader, Manager vs. leader, Motivation: Definition and characteristics of motivation, Factors affecting motivation, Maslow's Need Hierarchy Theory of Motivation, Job Satisfaction.

Legal Aspects of Business: Introduction and Need, Labour Welfare Schemes: Wage payment: Definition and types, Incentives: Definition, need and types, Factory Act 1948, Minimum Wages Act 1948.

Management Scope in different Areas: Human Resource Development: Introduction and objective, Manpower Planning, recruitment and selection, Performance appraisal methods. Material and Store Management: Introduction, functions and objectives of material management, Purchasing: definition and procedure, Just in time (JIT). Marketing and Sales: Introduction, importance and its functions, Difference between marketing and selling, Advertisement- print media and electronic media, Market-Survey and Sales promotion. Financial Management – Introduction: Concept of NPV, IRR, Cost-benefit analysis, Elementary knowledge of Income Tax, Sale Tax, Excise duty, Custom duty, Provident Fund, Maintenance Management , Concept , Preventive Maintenance.

Miscellaneous Topics: Customer Relationship Management (CRM): Definition and Need, Types of CRM, Customer satisfaction. Total Quality Management (TQM): Inspection and Quality Control, Concept of Quality Assurance, TQM. Intellectual Property Rights (IPR): Introduction, definition and its importance, Infringements related to patents, copyright, trade mark.

REFERENCE/TEXT BOOKS:

1. Principles of Management by Philip Kotler TEE Publication
2. Principles and Practice of Management by Shyamal Bannerjee: Oxford and IBM Publishing Co, New Delhi.
3. Financial Management by MY Khan and PK Jain, Tata McGraw Hill Publishing Co., 7, West Patel Nagar , New Delhi.
4. Modern Management Techniques by SL Goel: Deep and Deep Publications Pvt Limited , Rajouri Garden, New Delhi.
5. Management by James AF Stoner, R Edward Freeman and Daniel R Gilbert Jr. : Prentice Hall of India Pvt Ltd, New Delhi.
6. Essentials of Management by H Koontz, C O' Daniel , McGraw Hill Book Company, New Delhi.
7. Marketing Management by Philip Kotler, Prentice Hall of India, New Delhi
8. Total Quality Management by DD Sharma, Sultan Chand and Sons, New Delhi.
9. Intellectual Property Rights and the Law by Dr. GB Reddy.
10. Service Quality Standards, Sales & Marketing Department, Maruti Udyog Ltd.
11. Customer Relationship Management: A step-by-step approach, Mohamed & Sagadevan Oscar Publication, Delhi
12. Customer Relation Management, Sugandhi RK, Oscar Publication, Delhi.

NETWORK SECURITY (121601)

Credits- 03   **L T P**

                                                           3 0 0

OBJECTIVES:

This course has been designed by keeping in view the basic computer users and information system managers. The concepts needed to read through the ripe in the market place and understanding risks and how to deal with them. It is hoped that the student will have a wider perspective on security in general and better understanding of how to reduce and manage the security risks.

COURSE CONTENTS:

Introduction: Need for securing a network; attacks from within and external, introduction to cyber crime, cyber law-Indian Perspective (IT Act 2000), cyber ethics, ethical hacking. What is hacking? Attacker, phreaker etc.

Securing Data over Internet: Introduction to basic encryption and decryption, concept of symmetric and asymmetric key cryptography, overview of DES, RSA and PGP. Introduction to Hashing: MD5, SSL, SSH, HTTPS, Digital Signatures.

Virus, Worms and Trojans: Definitions, preventive measures – access central, checksum verification, process neutering, virus scanners, neuristic scanners, application level virus scanners, deploying virus protection.

Computer Network Attacks: Active Attacks, Passive Attacks, Stealing Passwords, Social Engineering, Bugs and Backdoors, Authentication Failures, Protocol Failures, Information Leakage, Denial-of- Service Attacks, Botnets, Phishing Attacks.

Firewalls: Definition and types of firewalls, defining access control policies, address translation, firewall logging, firewall deployment.

Intrusion Detection System (IDS): Introduction; IDS limitations – teardrop attacks, counter measures; Host based IDS set up.

Virtual Private Network (VPN): Basics, setting of VPN, VPN diagram, configuration of required objects, exchanging keys, modifying security policy.

Disaster and Recovery: Disaster categories; network disasters – cabling, topology, single point of failure, save configuration files; server disasters – UPS, RAID, Clustering, Backups, server recovery.

OS Vulnerabilities: Study of Linux and Windows OS Vulnerabilities. Importance of Original Software (Due to patches for Loopholes, Security Vulnerabilities).

REFERENCE/TEXT BOOKS:

1. Cryptography and Network Security by Forouzon, Tata Mc Graw Hill Education Pvt Ltd, New Delhi
2. Cryptography and Network Security by Atul Kahate, Tata Mc Graw Hill Education Pvt Ltd, New Delhi
3. Mastering Network Security by Christ Breton; BPB Publication, New Delhi
2. Web-sites by Chris Breton, BPB Publication, New Delhi
3. Network Firewalls by Kiranjeet Syan; New Rider Publication
4. Internet Security, New Rider Publication
5. Network Security by Sood & Mahajan; Eagle Prakashan Jalandhar.

COMPUTER GRAPHICS (121602)

Credits- 03   L T P
                                                                                                    3 0 0

OBJECTIVES:

This subject will enable the students to have awareness about fundamental graphics which can be generated through computers using programming language C. He will be able to make picture and introduce motion in them using basic transformation.

COURSE CONTENTS:

Graphic Systems: Display devices, display processors graphics software coordinate representation, graphics functions and standards.

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, Side effects of scan conversion. Graphic primitives in C, Point plotting, line drawing algorithms – DDA algorithms, Bresenham's line algorithms, circle-generating algorithms.

Two-Dimensional Transformations: Basic transformations-translation, scaling, rotation, matrix representations and homogeneous coordinates, composite transformations – scaling relative to a fixed pivot, rotation about a fixed pivot point, general transformation equations, other transformation – reflection and shearing.

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.

Three Dimensional Graphics: Three dimensional transformation, wire frame model, hidden line and hidden surface elimination (z-buffer algorithm), curve fitting and tracing.

Perspective and Transformations: Perspective and Parallel transformations, vanishing points, perspective anomalies.

REFERENCE/TEXT BOOKS:

1.   Principles of Interactive Computer Graphics by WM Newman and RF Spraull
2.   Theory and problems of Computer Graphics by Roy A Plastock and Gordon Kalley. McGraw Hill Publishers, Schaum's Outline series.
3.   Interactive Computer Graphics by Harengton
4.   Computer Graphics Programming Approach by Steven Harrington
5.   Computer Graphics by Donald Hearn and M Pauline Baker
6.   Computer Graphics for Engineers by A Rajaraman, Narosa Publishing House Pvt Ltd Daryaganj, New Delhi 110002
7.   Computer Graphics by Gaurav; Eagle Prakashan Jalandhar.

**INSTALLATION, MAINTENANCE AND
TROUBLESHOOTING OF COMPUTER NETWORKS (121603)**

Credits- 03   **L T P**
                                                                                                3 0 0

OBJECTIVES:

This subject gives the knowledge and competency to diagnose the faults for trouble shooting for systematic repair and maintenance of computers and computer peripherals.

COURSE CONTENTS:

Installation: Environmental requirements of computer system and peripherals. Sight preparation and design of computer rooms. Testing specifications and installation of computer systems and peripherals.

Repair, Servicing and Maintenance Concepts: Introduction to servicing and maintenance concepts. Meantime between failure (MTBF) meantime the repair maintenance policy, factors affecting the performance of computer, potential problems preventive maintenance and corrective maintenance. Preventive maintenance schedule. Circuit tracing techniques. Concept of shielding grounding and power supply requirements and considerations of computers and its peripherals.

Fundamental Trouble Shooting Procedures: Fault location; fault finding aids, service Manuals, test and measuring instruments, special tools.

Networking: LAN failure, cabling connectivity, hub, bridge, switches, managing network services TCP/IP, Address management, DNS, Domain, Work Group.

Trouble shooting of computers, component and peripherals: Managing Network Services: TCP/IP, address Management, DNS, DOMAIN, Workgroup (Create workgroup), Network addresses Management of Gateway, Map Network drive, client-server technology, Network Neighborhood. Installation and troubleshooting of Routers, Access Point, LAN Cards Input/output channels, Hub, Switches,

Sharing of devices on Networks, Installation and management of network sharing tools i.e. squidpoxy, managing IP addresses, 2-Tier, 3-Tier Network Architecture.

Establishment of LAN/WAN: Sub-netting of IP address, Access Point Configuration, Router Configuration, Configuration of manageable switch.

REFERENCE/TEXT BOOKS:
1.   PC Upgrading , Maintenance and Troubleshooting Guide by SK Chauhan, SK Kataria and Sons, New Delhi.
2.   Troubleshooting and Maintenance of electronic Equipment by K. Sudeep Singh: SK Kataria and Sons, New Delhi.

3. Troubleshooting Computer System by Robert C Benner.
4. IBM PC and Clones Govinda Rajalu.
5. Computer Maintenance and Repair – Scholi Muller.
6. Upgrading your PC by Mark Minersi.
7. Installation & Maintenance of Computer Networks by Sood & Mahajan; Eagle Prakashan Jalandhar.

ELECTIVE – II
MULTIMEDIA SYSTEM DESIGN (127601)

Credits- 03   L T P
                                                           3 0 0

OBJECTIVES:

This subject aims to develop a clear understanding of What is multimedia?, and how it can be used for enhancing teaching instruction methodologies, business and personal communications. It will help the students in understanding technical aspects of multimedia content creation, the processes and tools used for designing multimedia systems. This will make the students proficient in designing and developing an multimedia application.

COURSE CONTENTS:

Introduction to Multimedia Systems: What is Multimedia?, History of Multimedia, Quality criteria and specifications of different capturing devices, Communication devices, Storage devices, Display devices, Elements of Multimedia and different multimedia file formats, Applications of multimedia – benefits and problems.

Multimedia Hardware and Software Essentials: Classes of Multimedia Systems, Components of a Multimedia System: Quality Criteria and specifications of different Capturing Devices, Communication Devices, Storage Devices and Display Devices.

Multimedia Project Planning and Design: Planning Steps and Process, Concept development, Goals Definition, Target Audience, Storyboard Creation, Navigation and user interface designing. Example case study.

Content Designing and development: Concept of data compression, Text encoding, Audio encoding techniques, Types of images, Capturing images using camera/scanner, coding techniques for Moving Images, Editing , Editing of images audio, text, video and graphics.

Multimedia Authoring Tools: Types of Authoring Programs - Icon-based, Time-based, Storyboarding / Scripting and object oriented. Example case study.

Multimedia Application Development Using Director: Interface and Working Environment: Using cast window, Score window, Stage, Cast window, Creating Cast members, Using text window, Paint window, Vector Shape window, using the tool palette. Setting movie properties, Control Panel, Property inspector, Behavior inspector, Library Palette, Sprite properties, Frame properties and transitions. Animation techniques: Animation using key-frame and tweening, Cast to time, Space to time. Importing media elements: Adding sound, video and transitions to movie, Inserting markers and adding behavior.

REFERENCE/TEXT BOOKS:
1.   Multimedia making it Work, Tay Vaghan, Tata McGraw Hill Publishing Co, New

Delhi
2. Multimedia Technologies by Ashok Banerji and Ananda Mohan Ghosh, Tata McGraw Hill Education Pvt Ltd , New Delhi
3. T. Hofstetter, Multimedia Literacy, McGraw-Hill, Third Edition. 2001.
4. David Hillman, Multimedia Technology and Applications, Delmar Publishers, 1998, ISBN 082738498X.
5. James E. Shuman, Multimedia in Action, Wordsworth - ITP, 1998, ISBN 0534513700.
6. Special Edition using Macromedia Director 8.5 – By Gary Rosenzweig
7. Director-8 Demystified, Phil Gross, Jason Roberts, Pearson Education Asia.
8. Multimedia System Design by G.P. Singh; Eagle Prakashan Jalandhar

ELECTIVE – II
.NET TECHNOLOGIES (USING ASP.NET) (127602)

Credits- 03   **L T P**
                                                                                                      3 0 0

OBJECTIVES:

This is an upcoming technology. It is based on object oriented approach and is user friendly. It supports various languages viz C++, C# and Visual Basic. So the teacher should take extra effort in making the students conversant with this. The demonstration should be given using .NET software for describing the various features of .NET technology.

COURSE CONTENTS:

.NET in Context: Vision and Goal of .Net, Building Blocks of .Net, Overview of .Net applications, Microsoft SQL Srerver and .Net, Interoperability between .Net and COM+

Overview of the .Net Framework: .Net Evolution, .Net Framework Architecture, Common Type System, Meta Data, Common Language Runtime, .Net Class Framework, Garbage Collection.

Execution under .Net: MSIL, Intermediate Language (IL), JIT Compilation.

Engineering Applications (using language C#): Window forms and the .Net framework and Controls, Web forms, ASP .Net

Working with Data in .Net (with Microsoft SQL Server): System Data, System .Xml using ADO.Net.

Engineering Web Services: Web Services, building blocks of web services, creating web services, consuming web services.

REFERENCE/TEXT BOOKS:

1. Introducing .NET by James Conard, Patrick Rengler, Birn Eranics, Jay Elynn Wron Publications
2. Microsoft Visual C# .Net Step- by-Step, by sharp and Jagger, PHI
3. Introducing Microsoft .Net, 3rd Edition by Platt, PHI
4. Visual Basic .Net by Tony gaddis, Scott Jones Publishers
5. ODP with Microsoft Visual Basic .Net and Microsoft Visual C# .Net Step- by- Step, by Reynolds- Haertle, PHI
6. Professional .Net framework by Kevin Hoffman, Jeff Gabrial, SHROFF Publishers and Distributors Pvt. Ltd.
7. . Net Technologies by G.P. Singh; Eagle Prakashan Jalandhar

GURU KASHI UNIVERSITY
GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)

COMPUTER GRAPHICS LAB (121606)

Credits- 02   **L T P**
                                                                   0 0 4

List of Practical's:

Write programs for following:

1. To draw a line
2. To move a character about a line
3. To move two characters in. opposite direction.
4. To draw a circle
5. To move a character along circumference
6. To move along radius.
7. To use 2-d translation technique,
8. To use 2-d scaling technique
9. To use 2-d rotation technique.
10. To use 2-d reflection technique.

GURU GOBIND SINGH COLLEGE OF ENGINEERING & TECHNOLOGY
DIPLOMA IN COMPUTER SCIENCE & ENGINEERING (CODE:21)

INSTALLATION, MAINTENANCE AND
TROUBLESHOOTING OF COMPUTER NETWORKS LAB (121605)

Credits- 02   **L T P**
                                                                       0 0 4

List of Practical's:
1. Installation of modems and startup a new internet connection in a standalone machine.
2. Sharing of Internet by VPN (Virtual Private Network)
3. Study of troubleshooting and maintenance of computer systems
4. Installation and study of ISDN, PSTN lines, V-sat, RF-link
5. Study of BNC, RJ-45 connectors
6. Study of cables and their connecting structure (i.e simple or cross cable (color coding of cables)
7. Study and management of Network resources,
8. Study and Installation of Firewall in your system
9. Sharing of resources on LAN

ELECTIVE – II LAB
MULTIMEDIA SYSTEM DESIGN LAB (127603)

Credits- 02   **L T P**
                                                                                                                 0 0 4

List of Practical's:
1.   Students are required to use various features of Director through small applications.
2.   Design and develop multimedia presentation of your institute.
3.   Design and develop multimedia lessons useful for teaching various topics in any of the subjects they have already studies.
4.   Design some interactive multimedia application.

ELECTIVE – II LAB
.NET TECHNOLOGIES (USING ASP.NET) LAB (127604)

Credits- 02   **L T P**
                                                                                                          0 0 4

List of Practical's:

1.   Installation of .net
2.   Exploring the various features of .net
3.   Ability to work and start various tasks and features of .net framework.
4   Able to work and develop program in ASP. net
5   To explore in detail

MAJOR PROJECT (121606)

Credits- 04

L T P
0 0 8

Major Project Work aims at developing innovative skills in the students whereby they apply in totality the knowledge and skills gained through the course work in the solution of particular problem or by undertaking a project. The individual students have different aptitudes and strengths. Project work, therefore, should match the strengths of students. For this purpose, students should be asked to identify the type of project work, they would like to execute. It is also essential that the faculty of the respective department may have a brainstorming to identify suitable project assignments for their students. The project assignment can be individual assignment or a group assignment. There should not be more than 3 students if the project work is given to a group. The students should identify themselves or accept the given project assignment at least two to three months in advance. The project work identified in collaboration with industry should be preferred. Each teacher is expected to guide the project work of 5–6 students.

The project assignments may consist of:

1.   Installation of computer systems, peripherals and software
2.   Programming customer based applications
3.   Web page designing including database connectivity
4.   Database applications
5.   Networking (Cabling, Hubs, Switch etc)
6.   Software Development
7.   Fabrication of components/equipment (computer related components)
8.   Fault-diagnosis and rectification of computer systems and peripherals
9.   Bringing improvements in the existing systems/equipment
10. Projects related to Multimedia
11. Projects related to Computer Graphics
12. Web Hosting
13. Configuration of Network Operating System(Windows, Linux)
14. Configuration of servers (Proxy, DNS etc)

Important Notes

1. This criterion must be followed by the internal and external examiner and they should see the daily, weekly and monthly reports while awarding marks as per the above criteria.
2. The criteria for evaluation of the students have been worked out for 100 maximum marks. The internal and external examiners will evaluate students separately and give marks as per the study and evaluation scheme of examination.
3. The external examiner, preferably, a person from industry/organization, who has been

associated with the project-oriented professional training of the students, should evaluate the student's performance as per the above criteria.

4. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific nearby industries are approached for instituting such awards.

The teachers are free to evolve another criterion of assessment, depending upon the type of project work.

The students must submit a project report of not less than 50 pages (excluding coding). The report must follow the steps of Software Engineering Concepts

It is proposed that the institute may organize an annual exhibition of the project work done by the students and invite leading Industrial organizations in such an exhibition. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific industries are approached for instituting such awards.