SEMESTER -1

Subject Code	Subject	Cr.	Hrs. /Week			Exam Hrs.	Maximum Marks				
			L	T	P		MS1	MS2	TA	Th.	Total
Personality Development Program me for First 15th Days											
THEORY											
1D01	English &Communication Skills	2	2	0	0	3	10	10	20	60	100
1D02	Applied Chemistry-I	3	3	1	0	3	10	10	20	60	100
1D03	Applied Physics-I	3	3	1	0	3	10	10	20	60	100
1D04	Applied Mathematics-I	3	4	1	0	3	10	10	20	60	100
1D05	Computer Fundamental & Information Technology	3	3	1	0	3	10	10	20	60	100
PRACTICALS & SESSIONALS											
Code	**Subject**	**Cr.**	**Hrs. /Week**			**Exam Hrs.**	**IA (60%)**		**EA (40%)**		**Total**
			L	**T**	**P**		**MP1* (30%)**	**MP2* (30%)**	**Pr. W (30%)**	**Viva (10%)**	
1D06	Applied Chemistry Lab-I	2	0	0	2	2	30	30	30	10	100
1D07	Applied Physics Lab-I	2	0	0	2	2	30	30	30	10	100
1D08	Computer Fundamental & IT Lab I	2	0	0	2	2	30	30	30	10	100
1D09	Engineering Drawing	2	0	0	3	3	30	30	30	10	100
1D10	Workshop Practice – I	2	0	0	3	3	30	30	30	10	100
	TOTAL	**24**	**15**	**04**	**12**						**1000**

SEMESTER -2

Subject Code	Subject	Cr.	Hrs. /Week			Exam Hrs.	Maximum Marks				
			L	T	P		MS1	MS2	TA	Th.	Total
THEORY											
2D01	Applied Chemistry-II	3	3	1	0	3	10	10	20	60	100
2D02	Applied Physics-II	3	3	1	0	3	10	10	20	60	100
2D03	Applied Mathematics-II	3	4	1	0	3	10	10	20	60	100
2D04	Electrical & Electronics Technology	3	3	1	0	3	10	10	20	60	100
2D05	Applied Mechanics	3	3	1	0	3	10	10	20	60	100
PRACTICALS & SESSIONALS											
Code	**Subject**	**Cr.**	**Hrs. /Week**			**Exam Hrs.**	**IA (60%)**		**EA (40%)**		**Total**
			L	**T**	**P**		**MP1* (30%)**	**MP2* (30%)**	**Pr.W (30%)**	**Viva (10%)**	
2D06	Applied Chemistry Lab-II	2	0	0	2	2	30	30	30	10	100
2D07	Applied Physics Lab-II	2	0	0	2	2	30	30	30	10	100
2D08	Electrical & Electronics Workshop	2	0	0	2	2	30	30	30	10	100
2D09	Workshop Practices-II	2	0	0	2	3	30	30	30	10	100
2D10	Computer Fundamental & IT Lab-II	2	0	0	2	2	30	30	30	10	100
	TOTAL	**25**	**16**	**05**	**10**						**1000**

SEMESTER -3

Subject Code	Subject	Cr.	Hrs. /Week			Exam Hrs.	Maximum Marks				
			L	T	P		MS1	MS2	TA	Th.	Total
THEORY											
3DCS01	Programming & Problem solving through "C"	3	3	1	0	3	10	10	20	60	100
3DCS02	Basic of Digital electronics	***3***	***4***	***0***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
3DCS03	Data Base Management System	3	4	0	0	3	10	10	20	60	100
3DCS04	Data Communication	3	3	1	0	3	10	10	20	60	100
3DCS05	PC Maintenance and Trouble Shootings	***3***	***3***	***1***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
PRACTICALS & SESSIONALS											
Code	**Subject**	**Cr.**	**Hrs. /Week**			**Exam Hrs.**	**IA (60%)**		**EA (40%)**		**Total**
			L	**T**	**P**		**MP1* (30%)**	**MP2* (30%)**	**Pr.W (30%)**	**Viva (10%)**	
3DCS06	Programming & Problem solving through "C"Lab	2	0	0	2	2	30	30	30	10	100
3DCS07	Basic of Digital electronics LAb	***2***	***0***	***0***	***2***	***2***	***30***	***30***	***30***	***10***	***100***
3DCS08	PC Maintenance and Trouble Shootings Lab	2	0	0	2	2	30	30	30	10	100
3DCS09	Networking Lab	2	0	0	2	2	30	30	30	10	100
3DCS10	Data Base Management System Lab	***2***	***0***	***0***	***2***	***2***	***30***	***30***	***30***	***10***	***100***
	Total	**25**	**17**	**3**	**10**						**1000**

SEMESTER -4

Subject Code	Subject	Cr.	Hrs. /Week			Exam Hrs.	Maximum Marks				
			L	T	P		MS1	MS2	TA	Th.	Total
THEORY											
4DCS01	Data Structure & Algorithm	3	3	1	0	3	10	10	20	60	100
4DCS02	Computer Graphics	3	4	0	0	3	10	10	20	60	100
4DCS03	Internet & Web Technologies	3	4	0	0	3	10	10	20	60	100
4DCS04	Object Oriented Programming Through C++	3	3	1	0	3	10	10	20	60	100
4DCS05	Basic of Electronics Devices & Circuit	3	3	0	0	3	10	10	20	60	100
PRACTICALS & SESSIONALS											
Code	**Subject**	**Cr.**	**Hrs. /Week**			**Exam Hrs.**	**IA (60%)**		**EA (40%)**		**Total**
			L	**T**	**P**		**MP1* (30%)**	**MP2* (30%)**	**Pr.W (30%)**	**Viva (10%)**	
4DCS06	Data Structure & Algo Lab	2	0	0	2	2	30	30	30	10	100
4DCS07	Computer Graphics Lab	2	0	0	2	2	30	30	30	10	100
4DCS08	Internet & Web Technologies Lab	2	0	0	2	2	30	30	30	10	100
4DCS09	**Object Oriented programming Through C++ Lab**	2	0	0	2	2	30	30	30	10	100
4DCS10	***Technical Seminar- I***	***2***	***0***	***0***	***2***						***100***
	TOTAL	**25**	**17**	**2**	**10**						**1000**

Industrial Training - After examination of 4th Semester, the students shall go for training in a relevant industry/field organization for a minimum period of 6 weeks and shall prepare a diary. It shall be evaluated during 5th semester by his/her teacher. The students shall also prepare a report at the end of training and shall present it in a seminar, which will be evaluated. This evaluation will be done by HOD and lecturer in charge – training in the presence of one representative from training organizations

SEMESTER -5

Subject Code	Subject	Cr.	Hrs. /Week			Exam Hrs.	Maximum Marks				
			L	T	P		MS1	MS2	TA	Th.	Total
THEORY											
5DCS01	Dot Net Technology	3	3	1	0	3	10	10	20	60	100
5DCS02	Computer System Architecture	3	3	1	0	3	10	10	20	60	100
5DCS03	JAVA Tools	3	4	0	0	3	10	10	20	60	100
5DCS04	Micro Processor & Interfacing	3	3	1	0	3	10	10	20	60	100
5DCS05	***Unix ,Shell programming and Administration***	***3***	***3***	***0***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
PRACTICALS & SESSIONALS											
Code	**Subject**	**Cr.**	**Hrs. /Week**			**Exam Hrs.**	**IA (60%)**		**EA (40%)**		**Total**
			L	**T**	**P**		**MP1* (30%)**	**MP2* (30%)**	**Pr.W (30%)**	**Viva (10%)**	
5DCS06	***Unix ,Shell programming Lab***	***2***	***0***	***0***	***2***	***2***	***30***	***30***	***30***	***10***	***100***
5DCS07	JAVA Tools Lab	2	0	0	2	2	30	30	30	10	100
5DCS08	Micro Processor Lab	2	0	0	2	2	30	30	30	10	100
5DCS09	**.Net Technology LAB**	**2**	**0**	**0**	**2**	**2**	**30**	**30**	**30**	**10**	**100**
5DCS10	***Practical Training Seminar***	***2***	***0***	***0***	***2***						***100***
	Total	**25**	**16**	**3**	**10**						**1000**

SEMESTER -6

Subject Code	Subject	Cr.	Hrs. /Week			Exam Hrs.	Maximum Marks				
			L	T	P		MS1	MS2	TA	Th.	Total
THEORY											
6DCS01	Computer Network	3	3	1	0	3	10	10	20	60	100
6DCS02	***Software Engineering***	***3***	***4***	***0***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
6DCS03	***Data warehouse and Mining***	***3***	***3***	***1***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
6DCS04	***PHP & MY SQL***	***3***	***4***	***0***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
6DCS05	***Introduction to Network security and Cryptography***	***3***	***4***	***0***	***0***	***3***	***10***	***10***	***20***	***60***	***100***
PRACTICALS & SESSIONALS											
Code	**Subject**	**Cr.**	**Hrs. /Week**			**Exam Hrs.**	**IA (60%)**		**EA (40%)**		**Total**
			L	**T**	**P**		**MP1* (30%)**	**MP2* (30%)**	**Pr.W (30%)**	**Viva (10%)**	
6DCS06	***Software Engineering Lab***	4	0	0	2	2	30	30	30	10	100
6DCS07	***Advance Database Lab***	***2***	***0***	***0***	***2***	***2***	***30***	***30***	***30***	***10***	***100***
6DCS08	***PHP & MY SQL LAB***	***2***	***0***	***0***	***2***	***2***	***30***	***30***	***30***	***10***	***100***
6DCS09	***Project***										***200***
	Total	**25**	**14**	**2**	**10**						**1000**
	GRAND TOTAL										**6000**

Semester-I

1D01: English Communication & Skils-I **(Cr, L:T:P:-2,2:0:0)**

Objective: English communication encompasses written, oral, visual and digital communication within a workplace context. This discipline blends together pedagogical principles of rhetoric, technology, and software to improve communication in a variety of settings ranging from technical writing to usability and digital media design.

Unit	Topic	28hrs
Unit – I	Narration, Voice, Basic Sentence Patterns. (Nine basic sentence patterns) Tenses, Common errors (Noun, Pronoun, Articles, Adverb, Punctuation, Preposition etc.) Transformation of Sentences, Determiners, Preposition	**6**
Unit – II	Modals in Conversational Usage, Prefix, Suffix, Idioms & Phrasal verbs : **Modals** Can, Could, Should,Will, Would, May, Might, Must, Need not, Dare not, Ought to, Used to. **Phrases** At all; Instead of; In Spite of; As well as; Set up; Upset; Look up; Call off; Call out; Come across; Set right; Look other. **Idioms** Work up (excite); Break down; Stand up for; Turn down; Pass away; Pass on; Back up; Back out; Carry out; Done for (ruined); Bring about; Go through; Ran over; Look up (improve); Pick out (selected).	**6**
Unit – III	Composition - . Unseen Passage, Précis Writing Letter Writing : Letter to the editor of a magazine, newspaper, business letters, letters to relatives, friends, government officers. Report Writing Paragraph Writing, Essay Writing - Essays on general and local topics related to environmental problems	**6**
Unit – IV	**Listening:** For improving listening skills the following steps are recommended, Listen to Prerecorded Tapes, Reproduce Vocally what has been heard, Reproduce in Written form. Summaries the text heard, Suggest Substitution of Words and Sentences, Answer Questions related to the taped text, Summaries in Writing **Vocabulary:** Synonyms. Homonyms. Antonyms and Homophones**,** Words often confused, as for example, I-me; your-yours; its-it's; comprehensible-comprehensive; complement-compliment] Context-based meanings of the words, for example, man[N] man[vb]; step[|N| ,step[vb]	**5**

	conflict_____Israel Palestinian conflict Emotional conflict, Ideas conflict learn ——— learn at this school I learnt from the morning news **Group Discussion :** Developing skill to initiate a discussion [How to open] Snatching initiative from others [Watch for weak points, etc.]	
Unit – V	**Speaking:** Introducing English consonant-sounds and vowel-sounds.**,** Remedial exercises where necessary**,** Knowing Word stress**,** Shifting word stress in poly-syllabic words [For pronunciation practice read aloud a Para or page regularly while others monitor] **Delivering Short Discourses:** About one self Describing a Place, Person, Object Describing a Picture, Photo. **Expand a topic-sentence into 4-5 sentence narrative.** **Note :** 1. The Medium of teaching and examination will be English. 2. The Question on Essay Writing (Unit-7) will be compulsory. The student will have to attempt one essay out of two, touching the given points on general/ local topic related to environmental problems. 3. At least on question will be set from each unit. 4. No theory question will be set from syllabus of practicals.	**5**
	Text Books : 1. Intermediate English Grammar Raymond Murphy,Pub: Foundation Books,New Delhi 2. Eng. Grammar, usage & Composition Tickoo & Subramanian Pub: S.Chand and Co. 3. Living Eng. Structure Stannard Alien. Pub: Longman 4. A Practical Eng. Grammar Thomson and Martinet. (and its Exercise Books) Pub : ELBS 5. High School English Grammar Wren & Martin. and Composition **Reference Book :** 1. Communicative Skills for Engineers and Scientists by Sangita Sharma and Binod Sharma, New Delhi : Pearson. 2. English for Engineers by Abidi & Ritu, New Delhi : Cengage Learning.	

1D02: Applied Chemistry-I **(Cr, L:T:P:-3,3:1:0)**

Objective	**Chemistry** is the science of matter, especially its chemical reactions, but also its composition, structure and properties. Chemistry is concerned with atoms and their interactions with other atoms, and particularly with the properties of chemical bonds.	

	Topic	38 Hours
Unit – I	**Atomic Structure**: Constituents of the Atom, Bohr's Model of the Atom, Quantum Number and Electronic Energy Levels , Aufbau's Principle, Pauli's Exclusion Principle, Hund's Rule, $n + l$ Rule ,Electronic Configuration of Elements (s,p,d Block Elements) **Development of Periodic Table:** Modern Periodic Law, Long form of Periodic Table. Study of Periodicity in Physical and Chemical Properties with, special reference to Atomic and Ionic Radii, Ionisation, Potential. Electron Affinity. Electro negativity. Variation of Effective Nuclear Charge in a Period. Metallic Character.	**8**
Unit – II	**Electro Chemistry:** Ionization, Degree of Ionization, Factors which Influence Degree of Ionization . Hydrolysis – Degree of Hydrolysis, Hydrolysis Constant., pH Value, Buffer Solution Electrolysis, Faraday's Laws of Electrolysis	**8**
Unit – III	**Kinetic Theory of Gases:** Postulates of kinetic Theory**,** Ideal Gas Equation, Pressure and Volume Corrections, Vender**.** Walls Equations**,** Liquefaction of Gases, Critical Pressure and Critical Temperature**,** for Liquefaction.**,** Liquefaction of Gases by Joule – Thomson Effect,Claude's Method and Linde's Method **Carbon Chemistry:** Definition of Organic Chemistry. Difference between Organic and Inorganic Compounds. Classification and Nomenclature - Open Chain and Closed Chain Compounds, IUPAC System of Nomenclature. (upto C5).	**8**
Unit – IV	**Metals and Alloys:** General Principles and Terms listed in Metallurgy, Metallurgy of Iron and Steel, Different forms of Iron, Effect of Impurities on Iron and Steel 6.5 Effect of Alloying Elements in Steel **Pollution:** Water Pollution, Causes and Effects, Treatment of Industrial Water Discharges - Screening, Skimming and Sedimentation Tanks, Coagulation, Reductions, Chlorination, Biological Methods. Air Pollution Causes and Effects Control Methods – Electrostatic Precipitator, Scrubbers, Gravitational Setting Methods, by Plants. Awareness on	**8**
Unit – V	**Water:** Sources of Water**,** Hardness of Water.**,** Degree of Hardness, Estimation of Hardness by EDTA method, Problems on Calculation of Hardness**,**Disadvantages of Hardness**,** Softening Methods**,** Lime-Soda Method**,** Permutite Method**,** Ion -Exchange Method Problems on Softening of Water**,** Drinking Water, its Requisites, Purification and Sterilization of Water.	**6**
	Text Books: **1.** Engineering Chemistry II (Hindi) Mathur and Agarwal **2.** Chemistry of Engineering Materials C.V. Agarwal **3.** Engineering Chemistry P.C. Jain and Monika **4.** Chemistry M.M. Uppal **5.** Applied Chemistry (Hndi) V.P.Mehta Jain Bros. Jodhpur **Reference Books:** 1 Instrumental methods of Chemical analysis, MERITT & WILLARD (EAST – WEST press) 2 Physical Chemistry , P.W Atkin (ELBS, OXFORD Press) 3 Physical Chemistry W.J.Moore (Orient Longman)	

1D03: Applied Physics-I **(Cr, L:T:P:-3,3:1:0)**

Objective: physics employs mathematical models and abstractions of physics to rationalize, explain and predict natural phenomena. This is in contrast to experimental physics, which uses experimental tools to probe these phenomena.

Unit	Topic	36 Hours
Unit – I	**Units and Dimensions :** Idea of various systems of units, SI units Basic, Supplementary and Derived Units, Prefixes & Symbols, Dimensions and Dimensional Formulae, Principle of Homogeneity of Dimensions, Dimensional Analysis, Applications and Limitations **Elasticity :** Elasticity, Stress and Strain, Elastic Limit & Hooke's law, Young's Modulus,Bulk Modules & Modulus of Rigidity,Poisson's Ratio	**8**
Unit – II	**Properties of Liquids:** Surface Tension & Surface Energy, Cohesive & Adhesive Force,Angle of Contact, Capillarity & Expression for Surface Tension , Streamline & Turbulent Flow, Reynold Number,Viscosity & Coefficient of Viscosity. Stoke's law & Terminal Velocity	**8**
Unit – III	**Sound Waves:** Velocity of Sound Waves: Newton's Formula , Laplace Correction ,Factors affecting Velocity of Sound Waves Propagation of Progressive Wave, Displacement, Velocity and ,Acceleration of a particle during propagation of wave Superposition of Waves: Stationary Waves (without mathematical analysis) Resonance tube	**8**
Unit – IV	**Gravitation & Satellites:** Newton's law of Gravitation, Acceleration due to Gravity Kepler's laws of Planetary Motion (statement only), Artificial Satellite (simple idea), Geo-Stationary Satellites, Escape Velocity.Velocity & Time Period of an Artificial Satellite. **Transfer of Heat:** Modes of Transmission of Heat - Idea of Conduction, Convection & Radiation, Thermal Conductivity & Coefficient of Thermal Conductivity Black Body,Kirchoff's Laws & Stefan Boltzmann Law (statement only), Newton's Law of Cooling & its Derivation from Stefan's Law	**6**
Unit – V	**Electrostatics:** Coulomb's Law, Intensity of Electric Field, Intensity due to a Point Charge, Electric Lines of Forces & Electric Flux, Electric Potential, Electric Potential due to a Point Charge **D.C. Circuits :** Resistivity, Effect of Temperature on Resistance , Ohm's Law, Resistance in Series and Parallel and their Combination Kirchoff's Law Wheatstone Bridge Meter Bridge Principle of Potentiometer	**6**

	Suggested Text Books: 1.Engineering Physics Gaur & Gupta (hindi) 2. Applied Physics Vol.-I Hari Harlal, NITTTR 3. Applied Physics Vol.-II Hari Harlal, NITTTR 4,Modern Engineering Physics – A.S. Vasudeva (S. Chand) 5,Solid State Physics : Kittel **Suggested Reference Book:** **1** Solid State Physics: S. O. Pillai, Wiley Eastern Ltd. **2.**Physics Vol-I & II – Resnick & Halliday (Wiley Eastern) 3.A Text Book of Optics – Brij Lal & Subramanyam	

1D04: Applied Mathematics-I **(Cr, L:T:P:-3,4:1:0)**

Objective: We can use of abstraction and logical reasoning, mathematics developed from counting, calculation, measurement, and the systematic study of the shapes and motions of physical objects. Practical mathematics has been a human activity for as far back as written records exist.

Unit	Topic	Hours
Unit – I	**Matrices and Determinants:** Definition and Properties of Determinants**,** Definition and Types of Matrix**,** Transpose of a Matrix, Symmetric, Skew Symmetric Matrices, Orthogonal matrices, Hermitian and Skew Hermitian, Minors and Cofactors, Adjoint and Inverse of a Matrix, Cramer's Rule,Solution of Simultaneous Linear Equations by Inverse Matrix Method.,Characteristic Matrix, Characteristic Equation, Eigen Values & Vectors, Cayley Hamilton Theorem (verification only)	6
Unit – II	**Trigonometry:** Allied Angle(sin (180±A), sin (90±A) etc., Sum and Difference Formula (without proof) and their Application, Product Formula and C-D Formula, T-Ratios of Multiple and Sub-Multiple Angles (2A, 3A, A/2), Solution of Trigonometric Equations : sin X = 0, tan X = 0, cos X = 0, sin X=A, cos X =A & tan x = A	6
Unit – III	**Introduction to Different Types of Expansion:** Factorial Notation, Meaning of C(n, r), P(n, r), Binomial Theorem for Positive Index, any Index, Exponential Theorem, Logarithm Theorem **Complex Number:** Definition of Complex Number**,** Operations on Complex Number (Add., Sub ,Multiplication, Division)**,** Conjugate Complex Number**,** Modulus and Amplitude of a Complex Number, Polar form of a Complex Number	8
Unit – IV	**Two Dimensional Coordinate Geometry:** General Introduction**,** Distance Formula and Ratio Formula ,Co-ordinate of Centroid, In-Centre, Ortho-Centre and Ex-Centre of a Triangle, Area of Triangle, Straight Line, Slope form, Intercept form, Perpendicular form, One Point Slope form, Two Point form & General form, Angle between Two Lines Perpendicular Distance of a Line from a Point	7
Unit-V	**Conic: Circle :** Definition and Standard Equations**,** Equations of Tangent and Normal at a Point (simple problems)	8

	Parabola : Definition and Standard Equations**,** Equations of Tangent and Normal at a Point (Simple problems) **Ellipse and Hyperbola :** Definition and Standard Equations**,** Equations of Tangent and Normal at a Point(simple problems)	
	Text Books: 1. Mathematics XI & XII NCERT, New Delhi 2. Mathematics XI & XII Rajasthan Board, Ajmer(Hindi) 3. Polytechnic Mathematics H. K. Dass 4. Text Book on Differential Calculus Chandrika Prasad **Reference Books:** 1:Advanced Engineering Mathematics, Erwin Kreyszig, Wiley 9th Edition. 2:Higher Engineering Mathematics, B.V.Ramana, Tata McGraw Hill. 3: Thomas Calculus, Maurice D. Weir, Joel Hass and others, Pearson, 11th Edition.	

1D05: Computer Fundamental & Information Technology **(Cr, L:T:P:3,3:1:0)**

Objective: Computer programming (often shortened to programming or coding) is the process of designing, writing, testing, debugging, and maintaining the source code of computer programs. This source code is written in one or more programming languages.

Unit	Topic	37 Hours
Unit – I	**Introduction:** Computer: An Introduction**,** Generation of Computers & Types : PC, PC/XT, PC/AT, Main Frame, Super, LapTop, Pam Top**,** Central Processing Unit (CPU) Memory Unit, Input/ Out Devices : Keyboard, Mouse (Optical), Digitizer, Scanner, Web Camera, Monitor (CRT, TFT) , Printers, Plotters, Bar Code Reader, Secondary Storage Devices : Floppy, Hard Disk, CD, DVD, Flash, Drive, Block Diagram Showing Interconnection of Computer Parts, **Data Representation:** Bit, Nibble, Byte, Word**, Number System** : Decimal, Binary, Hexadecimal & their Conversions, Arithmetic Operations (Addition, Subtraction using Binary Number System) 1s , 2s Compliment, Coding Technique : BCD, EBCDIC, ASCII ,Idea of: Hardware ,Software, Firmware, Free ware, Human ware, Computer Languages and Translators Machine, Assembly,	**6**

	High Level Language, Scripting Language, Object Oriented Language, Platform Independent Language, Translators: Assembler, Interpreter, Compiler	
Unit – II	**Operating System :** Definition of Operating System (OS), Types of OS, Single user, Multi user, Multi Programming, Time Sharing, Multi Processing, **Introduction to Windows XP:** Introduction to Windows Environment, Parts of Windows Screen, Icon, Menu, Start Menu, Minimizing , Maximizing , Closing Windows, Windows Explorer, Recycle Bin, Clipboard, My Computer, My Network Places Control Panel : Adding New Hardware and Software, Display, Font, Multimedia, Mouse, International System Accessories: Paint, Media Player, Scan disk, System Information.	**7**
Unit – III	**Information Concepts and Processing:** Definition of Data, Information, Need of Information, Quality of Information, Concepts of Data Security, Privacy, Protection, Computer Virus and their types, Scanning & Removing Virus **Computer and Communication:** Need of Data Transmission, Data Transmission Media, Baud rate and Bandwidth, Digital and Analog Transmission Serial and Parallel Data Transfer, Protocols, MODEM. Networking of Computers : LAN, WAN, MAN, Blue tooth 6.6 LAN Topologies: Bus, Star, Ring, Hybrid Introduction to Ports : RS232, IEEE 488, PS2, USB, UTP	**8**
Unit – IV	**Information Processing:** Word processor, Introduction to MS-Word, Starting MS-Word Special Features of MS-Word, Using Help, Opening Document, Typing and Editing, Copying, Inserting, Moving, Deleting, Copying from One Document to Others , Undo, Redo, Spell Check, Find and Replace, Formatting, Characters and Fonts ,Spacing Removing Characters Formatting, Inserting Symbols, Paragraphs, Page Setting, Header and Footer, Page Breaks, Borders and Shading, Print Preview and Printing, Tables and Columns, Mail Merge. Auto Text and Auto correct, Introduction to Macro, Electronic Spread Sheet, Introduction to MS-Excel, Working with Spread Sheet, Editing the Worksheet, Worksheet Formatting, Formula Entering, Function Wizard, Saving and Printing Work Book, Analysis Tools **Data Tools** Charts Linking Work Sheets, Report Wizard, Data Base Application, Data Base Components, Working with Database, Creating Excel Database, Adding Records using Data Form, Deleting Records using Menu Command, Deleting Records using Data Form, Editing Records, Finding Records based on Criteria	**8**
Unit – V	**Internet:** Introduction to Internet, Bridges, Routers, Switch, Gate way, www, Web Site, URL, e-mail, e-Commerce, Web browsing, Web page, Introduction to Hyper text & HTML, Introduction to http & ftp Protocol. **Power Point:** Introduction to Power Point, Creating a Presentation/Slide, Adding Animation in Slide, Running a Slide Show	**8**
	Suggested Text Books: 1. Computer Fundamental V.K. Jain, Standard Pub.& Distributors 2. PC Software for Windows made simple R.K. Taxali, TMH 3. Mastering Windows XP TMH 4. BPB Computer Course BPB Editorial Board, 5.**1.** Computer Fundamental V.K. Jain, (hindi Edition) **Suggested Reference Books:** 1. Introduction to Networking NANCE, PHI 2. First Course in Computer Science Sanjeev Saxena, Vikas Publishing House First Look Microsoft Office 2003 Murray, Phi 3.Web Based Application Development Ivan Beyross, TMHusing HTML, DHTML, Java script Pearl/ CGI	

1D07: Applied Physics Lab-I		
Objective: : An experiment or test can be carried out using the scientific method to answer a question or investigate a problem. he results are analyzed, a conclusion is drawn, sometimes a theory is formed, and results are communicated through research papers.		
	List of Experiments	
	1. To Measure Internal Dia, External Dia and Depth of a Calorimeter using Vernier Callipers. 2. To Measure Density of a Wire using Screwgauge 3. To Measure Radius of Curvature of a Lens, Mirror using Spherometer. 4. To Determine Refractive Index of Glass using Prism. 5. To Determine the Refractive Index of Glass using Travelling Microscope 6. To Determine Focal Length of a Convex Lens by Displacement Method. 7. To Determine the Velocity of Sound at O0c using Resonance Tube. 8. To Determine Young's Modulus of Elasticity using Searle's Apparatus.9. To Determine Acceleration due to Gravity using simple pendulum. 10. To verify Newton's law of cooling.	
	Text Book: 1. Advanced Practical Physics – B.L. Worshnop and H.T. Flint (KPH) 2. Practical Physics – S.L.Gupta&V.Kumar (PragatiPrakashan). **Reference Books:** 1.. Advanced Practical Physics Vol.I& II – Chauhan& Singh (PragatiPrakashan)	
1D08: Computer Fundamental & IT Lab- I		
Objective: The choice of language used is subject to many considerations, such as company policy, suitability to task, availability of third-party packages, or individual preference. Ideally, the programming language best suited for the task at hand will be selected.		
	List of Experiments	
	1. Study of Computer Components 2. Practice of Computer Booting Process in XP 3. Demonstration of Windows Environment 4. Practice of using My Computer, Windows Explorer 5. Practice of using Control Panel 6. Practice of My Network Places 7. Practice of CD and DVD Writing	

	8. Practice of Paint 9. Installation of Windows XP by using NTFS File System. 10. Demonstration of Network	
	Suggested Text Books: 1. Yadav DS, Foundations of IT, New Age, Delhi. 2. Curtin, Information Technology: Breaking News, Tata Mo Grew Hill. **Suggested Reference Books:** 1. Nelson, Data Compression, BPB.	

1D09: Engineering Drawing

Objective: In order to produce a good product, a neat drawing is a must. Therefore students must be well acquainted with the knowledge of Engineering drawing. Engineering drawing is the universal language of engineers and student must be made familiar with all the relevant aspect topics of machine drawing.

	List of Experiments	
	1. Preparation of following on Imperial Size Drawing Sheet :- 1.1 Lines, Letters and Scales 1.2 Geometrical Constructions and Engineering Curves. 1.3 Projection of Lines 1.4 Projection of Planes 1.5 Projection of Solids 1.6 Orthographic Projections of Simple objects 1.7 Section and Development of Surfaces of Solids i.e. Cone, Cylinder, Sphere etc. 1.8 Section and Development of Surfaces of Prism and Pyramids 1.9 Isometric Projections 1.10 Riveted Joints. 1.11 Screw Threads and Fasteners 1.12 Pulleys 1.13 Couplings 1.14 Bearing 1.15 Building Drawing **2. Preparation of following Drawings in Sketch Book (Home Assignment)** 2.1 Lettering (On Graph Sheet) 2.2 Projection of Points In Different Quadrants 2.3 Isometric Projection of Various Planes 2.4 Various Types of Rivet Heads 2.5 Section and Conventions 2.6 Set Screws 2.7 Machine Screws 2.8 Foundation Bolts, Keys	
	Text Books:	

	1. Engineering Drawing N D Bhatt 2. Machine Drawing N D Bhatt 3. Engineering Graphics V. Laxmi Narayan 4. Machine Drawing V. Laxmi Narayan 5. Engineering Drawing P S Gill 6. Machine Drawing M L Mathur **Reference Books:** 1. A Text Book of Machine Drawing Laxmi Narayana and Mathur, M/s. Jain Brothers, New Delhi.	

1D10 Workshop Practice – I

Objective: This subject is designed to give basic knowledge of carpentry shop , fitting shop , welding shop & sheet metal shop with practical exposer

	List of Experiments	
	Carpentry Shop 1. Preparation of Cross-Half Lap Joint. 2. Preparation of Dovetail Joint 3. Preparation of Bridle Joint 4. Preparation of Mortise and Tenon Joint 5. Preparation of Mitre Joint 6. Demonstration of Job on Wooden Polishing Work **Welding** 7. Preparation of a Butt Joint by Gas Welding. 8. Preparation of Lap Joint by Electric arc Welding. 9. Preparation of T-Joint by Electric arc Welding. 10. Demonstration on Brazing by the Instructor. 11. Demonstration on Soldering. 12. Demonstration on Gas Cutting.	

Suggested Text Books :

1. Workshop Technology Gupta & Malani
2. Workshop Technology Kumar & Mittal
3. Workshop Technology Hajra, Chaudhary

Suggested Reference Books:

1 Work shop Manual - P.Kannaiah/ K.L.Narayana/ Scitech Publishers.

Semester-II

2D01: Applied Chemistry-II **(Cr, L:T:P:-3,3:1:0)**

Objective: The reactions & synthesis procedures of materials like water analysis, chemical kinetics, corrosion and basic chemistry (IUPAC) behind them will makes interesting the topic & improve the research ability with their wide ideas.

Unit	Topic	36 Hours
Unit – I	**Fuels:** Definition, Classification, Calorific Value (HCV and LCV) and Numerical Problems on Calorific Value, Combustion of Fuels, Numerical Problems on Combustion **Solid Fuels:** Coal and Coke **Liquid Fuels:** Petroleum and its Distillation Cracking, Octane and Cetane Values of Liquid Fuels Synthetic Petrol, Power AlcoholBio-Gas, Nuclear Fuels – Introduction to Fission and Fusion Reactions.	**9**
Unit – II	**Corrosion:** Definition **Theories ff Corrosion:** Acid Theory (Rusting) **,** Direct Chemical Corrosion or Dry Corrosion**,** Wet Corrosion or Electro-Chemical Corrosion(Galvanic and Concentration Cell Corrosion)Various Methods for Protection from Corrosion	**9**
Unit – III	**Polymers:** Definition **Plastics:** Classification, Constituents**,** Preparation, Properties and Uses of Polythene, Bakelite Terylene and Nylon. **Rubber:** Natural Rubber, Vulcanisalion **,**Synthetic Rubbers - Buna - N, Buna-S, Butyl and Neoprene	**9**
Unit – IV	**Cement and Glass:** Manufacturing of Portland Cement**,** Chemistry of Setting and Hardening of Cement**,** Glass : Preparation, Varieties and Uses. **Lubricants:** Definition, Classification Properties of Lubricants : Viscosity, Oiliness, Flash Point, Fire Point, Acid Value, Saponificatin, Emulsification, Cloud and Pour Point.,Artificial Lubricants	**9**
Unit-V	**Miscellaneous Materials:** Refractories : Definition, Classification and Properties Abrasives : Natural and Synthetic Abrasives**,** Paint and Varnish : Definition and Function of Constituents**,** Soap and Detergents : Definition, Properties and Uses**15. _ew Engineering Materials: (Brief Idea of Following)** Superconductors, Organic Electronic Materials Fullerences Optical Fibres	**6**

Text Books1. Practical Chemistry for Engineers Virendra Singh (Hindi)

2. Hand book of Technical Analysis Bannerji Jain Bros.Jodhpur

3. Engineering Chemistry-I(Hindi) Mathur & Agrawal.

4.. Inorganic Chemistry Shivhare & Lavania

Suggested Reference Books:

1 Engineering Chemistry, Jain & Jain, Dhanpat Rai

2 Engineering Chemistry, M.M. Uppal

2D02: Applied Physics-II **(Cr, L:T:P:-3,3:1:0)**

Objective: physics is combined with problem solving and engineering skills, which then has broad applications. Career paths for Engineering physics is usually (broadly) "engineering, applied science or applied physics through research, teaching or entrepreneurial engineering".

Unit	Topic	38 Hours
Unit – I	**A.C. Circuits:** Faraday's Laws of Electro Magnetic Induction, Lenz's Law Self and Mutual Inductance Alternating Current, Phase & Phase Difference**,** Instantaneous, Average and rms value of AC, Behaviour of Resistance, Capacitance and Inductance in an AC Circuit, AC Circuits Containing, R-L, R-C and LCR in Series ,Power in AC Circuit and Power Factor,Choke Coil	**9**
Unit – II	**Semi Conductor Physics:** Energy Bands in Conductor, Semi Conductor & Insulator**,** Chemical Bonds in Semiconductor**,** Intrinsic and Extrinsic Semiconductors**,**PN-Junction Diode, Working, Biasing and Characteristics Curves**,**Zener Diode and Voltage Regulation using it**,** Half Wave & Full Wave Rectifiers (only working, no derivations),Junction Transistors, Working, Biasing and Characteristic Curves, Brief Idea of Using Transistors as an Amplifier (without mathematical analysis)	**10**
Unit – III	**Modern Physics:** Photo Electric Effect**,** Einstein's Equation**,** Photo Cells**,** **Lasers:** Stimulated Emission and Population Inversion, Types of Laser - Helium Neon and Ruby Laser, Application of Lasers (brief idea only),Material Processing, Lasers in Communication Medical Applications	**10**
Unit – IV	**Nuclear Physics:** Idea of Nuclear Force**,** Mass - Defect and Binding Energy**,** Nuclear Reactions, Natural and Artificial Radioactivity **,** Law of Radioactive Disintegration Half Life & Mean Life, Idea of Nuclear Fission and Fusion. Chain Reaction,Nuclear Reactor	**9**
Unit -V	**Pollution and its control:** Introduction to Pollution – Water, Air, Soil , Noise, Nuclear and mental pollution, Types of Pollution , Brief idea about Noise Pollution and its Control, Nuclear Hazards, Nuclear Waste Management	**7**

Suggested Text :

1.A Text Book of Applied Physics N.S. Kumar (Hindi)

2.Principles of Physics Brijlal, Subhramanyam

3.Applied Physics Vol.-II Hari Harlal, NITTTR

Reference Books:

1. A Text Book of Applied Physics N.S. Kumar
2. Principles of Physics Brijlal, Subhramanyam

2D03: Applied Mathematics-II **(Cr, L:T:P:-3,4:1:0)**

Objective: Engineering mathematics is a branch of mathematics that concerns itself with mathematical methods that are typically used in science, engineering, business, and industry. Thus, "applied mathematics" is a mathematical science with specialized knowledge.

Unit	Topic	38 Hours
Unit – I	**Limits:** Concept of Limit, L.H.L., R.H.L., Limit of Standard Functions , Concept of Continuity and Differentiability at a Point (simple Problems) **Function:** Definition of Function, Range and Domain of Function, Types of Function, Absolute Value Function, Exponential value Function, Identity Function, Reciprocal Function, Rational and Irrational Function, Increasing and decreasing Function	**10**
Unit – II	**Differential Calculus :** Standard Formulae (Except Hyperbolic Function), Derivative of Sum, difference, Multiplication and Division of two Functions, Differentiation of Function of a Function, Logarithmic Differentiation, Differentiation of Implicit Functions, Differentiation of Parametric Functions, Differentiation by Trigonometric Transformations, Differentiation of a Function w.r.t. Another Function, Second Order Derivative **Applications of Differential Calculus:** Geometrical meaning of dy / dx . Tangents and Normals , Angle of Intersection between two Curves, Derivative as a Rate Measurer, Errors and Approximations, Maxima and Minima of Function with one Variable	**10**
Unit – III	**Integral Calculus:** General Introduction of Integral Calculus, Integration of Sum and difference of Functions, Integration by Simplification, Integration by Substitution Integration by Parts, Integration of Rational and Irrational Functions, Additional standard **C**formulae, Integration of Trigonometric Functions, Definite Integral and its Properties.	**6** **10**
Unit – IV	C**OORDINATE GEOMETRY Straight Lines: Differential Equations:** Definition of differential Equation. Order, Degree and Solution of a differential Equation. Solution of a differential Equation of First Order and First Degree using, Variable Separable Method, Homogenous Form, Reducible to Homogenous Form, Linear differential Equation Bernoulli's Equation, Exact differential Equation, Substitution Method, Solution of Linear Differential Equation of Higher order with Constant Coefficients Applications of Differential Equations to L-R, L-C, L-C-R ,Circuits of Standard Forms	**8**
Unit-V	**Vector Algebra:** Definition, Addition and Subtraction of Vectors Scalar and Vector Product of two Vectors Scalar Triple Product and Vector Triple Product , Applications of Vectors in Engineering Problems **Numerical Integration :** Trapezoidal Rule, Simpson's 1/3 Rule, Simpson's 3/8 Rule, Newton - Raphson Rule	**5**

Suggested Text

1. Text Book on Differential Calculus Chandrika Prasad (Hindi)
2. Text Book on Integral Calculus Chandrika Prasad
3. Differential Calculus M. Ray, S. S. Seth, & G. C. Sharma
4. Integral Calculus M. Ray, S. S. Seth, & G. C. Sharma

Reference Books:

1. Integral Calculus, M.Ray, S.S.Seth&G.C.sharma.
2. Vector Calculus, R.Kumar.

2D04:Electrical & Electronics Technology (Cr, L:T:P:-3,3:1:0)

Objective: At the end of the course the student will be able to gauge various fundamentals aspects of Basic Electrical and Electronics engineering covering networks theory, single and three phase circuits, transformers and dc machines. Also it will impart knowledge about transistors and thyristor.

Unit	Topic	36 Hours
Unit – I	**DC Networks :** Resistance, inductance, capacitance, current, voltage, power, Ohms law**,** Kirchhoff's Laws, Node Voltage and Mesh Current Analysis; Delta-Star and Star-Delta Transformation, Source Conversion. Classification of Network Elements, Superposition Theorem, Thevenin's Theorem.	**10**
Unit – II	**Single Phase AC Circuits :** Generation of Single Phase AC Voltage, EMF Equation, Average, RMS and Effective Values. RLC Series, Parallel and Series- Parallel Circuits, Complex Representation of Impedances. Phasor Diagram, Power and Power Factor. **Three Phase A.C. Circuits :** Generation of Three-Phase AC Voltage, Delta and Star-Connection, Line & Phase Quantities, 3-Phase Balanced Circuits, Measurement of Power in Three Phase Balanced Circuits.	**10**
Unit – III	**Transformer :** Faraday's Law of Electromagnetic Induction, Construction and Operation of Single Phase Transformer, EMF Equation, Voltage & Current Relationship and Phasor Diagram of Ideal Transformer.	**8**
Unit – IV	**Transistor:** Bipolar Junction Transistor, Transistor Current Components, Characteristics of CE, CB and CC Transistor Amplifiers. **Thyristors:** Diode and VI characteristic, four layer diode, Bi-directional thyristors.	**8**

Suggested Text /:

1. Sahdev – Basic Electrical and Electonics Engg.

J.B.Gupta – Basic Electrical and Electronics Engg.(Hindi)

2.

3. B.L. Thareja- Electrical Technology-Vol I

Reference Readings

1.H.P. Tiwari – Electrical and Electronics Engg.

2. Basic Electrical and Electonics Engg, Tata Mcgraw Hill

2D05: Applied Mechanics (Cr, L:T:P:-3,3:1:0)

Objective: This subject is design to give the basic knowledge of equilibrium of forces, center of gravity, centroid, moment of inertia and concept and application of work power energy.

Unit	Topic	38 Hours
Unit – I	**Force:** Definition, Units, Different Types of Forces. **Coplanar Forces:** Resolution of Forces, Law of Parallelogram of Forces, Resultant of two or more Forces, Basic Conditions of Equilibrium, Lami's Theorem (No Proof), Jib Crane, Law of Polygon of Forces (Only Statement)**Moment:** Definition, Units & Sign Convention., Principle of Moments, Application of Equilibrium Conditions for non-concurrent Forces	**10**
Unit – II	**Application of Principles of Forces & Moments:** Levers & their Types., Reactions of Simply Supported Beams (Graphical & Analytical Method), Steel Yard .,Lever Safety Valve Foundry Crane **Centre of Gravity:** Concept, Centroid, Calculation of C.G. of Regular Bodies, Calculation of C.G. of Plain Geometrical Figures **Friction:** Types of Friction, Laws of Friction, Angle of Friction, Angle of Repose, Friction on Horizontal and Inclined Plains, Application of.	**10**
Unit – III	**Simple Machines:** Basic Concepts, Loss in Friction, Inclined Plane, Simple & Differential Wheel and Axle (Neglecting Rope thickness) Screw Jack Lifting Crabs Systems of Pulleys, Worm and Worm Wheel **Rectilinear Motion:** Concept, Motion under Constant Velocity, Motion under Constant Acceleration, Velocity-time graph and its uses **Motion under Gravity:** Concept, Vertical Motion, Smooth Inclined Plane **Projectiles:** Concept	**10**
Unit – IV	**Simple Machines:** Basic Concepts, Loss in Friction, Inclined Plane, Simple & Differential Wheel and Axle (Neglecting Rope thickness), Screw Jack, Lifting Crabs Systems of Pulleys, Worm and Worm Wheel **Rectilinear Motion:** Concept, Motion under Constant Velocity, Motion under Constant Acceleration, Velocity-time graph and its uses	**8**
Unit-V	**Motion under Gravity:** Concept, Vertical Motion, Smooth Inclined Plane **Projectiles:** Concept, Range, Maximum Height and Time of Flight, Equation of Trajectory Calculation of Velocity of Projectile at Certain Height, And at Certain instant **Newton's Laws of Motion:** Definitions, Momentum and it's Unit,Application of Second Law of Motion	**5**

Suggested Text Books

1. Engineering Mechanics by, RK Rajpoot (Hindi)
2. Engineering Mechanics by, RS Khurmi
3. Engineering Mechanics By Chitranjan Aggarwal

Suggested Reference Books

1. **Engineering Mechanics by Nelson , Tata Mcgraw Hill**
2. **Engineering Mechanics by Shailesh Kumar**

2D06:Applied Chemistry Lab-II (Cr, L:T:P:-2,0:0:2)

Objective: Develop the ability of students to carry out experiments, collect and interpret data, and critically report results through "hands-on" laboratory experiences.

	List of Experiments	
	1. Determination of the Strength of Copper Sulphate Solution using a Standard Solution of thio Sulphate. 2. Determination of pH Values of Given Samples. 3.Determination of Hardness of Water by EDTA Method. 4. Estimation of Free Chlorine in Water. 5.Determination of Acid Value of an Oil. 6. Preparation of Soap. 7.To determine the Viscosity & Viscosity Index of a given lubricating oil by Redwood Viscometer No. 1	

Text Books:

1.Engineering Chemistry , Mathur and Aggarwal

2. A text Book of Engineering Chemistry , S.K. Jain & K.D. Gupta

Reference Books:

1.Practical Chemistry For Engineers , Dr. Renu Gupta & Dr. Sapna Dubey

2D07: Applied Physics Lab-II (Cr, L:T:P:-2,0:0:2)

Objective: This lab is to help the student to understand the concept of Diode, PN junctions,Half deflection method and the concept of cells **.**

	List of Experiments	
	1. To Determine Acceleration due to Gravity using Simple Pendulum. 2. To Verify Newton's Law of Cooling. 3.. To Verify Law of Resistances. 4. To Determine Specific Resistance of Material using Meter Bridge. 5. To Determine Internal Resistance of a Primary Cell using Potentiometer. 6. To Compare emf of two Primary Cells using a Potentiometer. 7. To Draw Characteristic Curves of PN Diode and Determine its Static and Dynamic Resistance. 8. To Draw Characteristic Curves of a PNP/NPN Transistor in CB/CE Configuration. 9.. To Measure Resistance of a Galvanometer by Half-Deflection Metho	

Text Book:

1. Advanced Practical Physics – B.L. Worshnop and H.T. Flint (KPH)
2. Practical Physics – S.L.Gupta&V.Kumar (PragatiPrakashan).

Reference Books:

1.. Advanced Practical Physics Vol.I& II – Chauhan& Singh (PragatiPrakashan)

2D08: Electrical & Electronics Workshop **(Cr, L:T:P:-2,0:0:2)**

Objective: this lab will help the students learn about key and basic electrical devices and apparatus used in day-to-day life. Also this will be useful in gaining knowledge about house hold electrical circuits.

List of Experiments

1. Study of Symbol, Specification and Approximate Cost of Common Electrical Accessories, Tools and Wires & Cables Required for Domestic Installation.

Study of :

2.1 Basic Electricity Rules for a Domestic Consumer

2.2 Safety Precautions & use of Fire Fighting Equipments

3. Use of series of Phase Tester, Series Test Lamp, Tong Tester and Megger in Testing of Electrical Installation.

4. 4.1 Prepare a Potential Divider and Measure Resistance of a Filament Lamp Using Voltmeter and Ammeter.

4.2 Measurement of Power and Energy Consumption by an Electric Heater using Watt Meter and Energy Meter.

5. Preparation of Wiring Diagram, Wiring, Testing, Fault Finding & Costing for :

5.1 Control of one Lamp by one Switch (using Batten and Tumbler Switch)

5.2 Control of Stair Case Wiring (using Casing Capping, CFL and Flush Type Switches)

5.3 Control of one Bell Buzzer and Indicator by one Switch (using Conduit and Flush type Switch)

6. Prepare one Switch Board as per Institutional Requirement (using Flush type Switches, Sockets, MCB, ELCB, Etc.)

7. Study, Connecting, Testing and Fault Finding of

7.1 Fluorescent Tube and its Accessories

7.2 Ceiling Fan with resistance type and Electronic Regulator

8. Study, Functioning, Fault Finding & Repairing of following Domestic Appliances -

8.1 Automatic Electric Iron

8.2 Air Cooler

8.3 Electric Water Pump

9. Design, Draw and Estimate the Material required for Installation For a small Residential Building/ Office/ Hall.

Identification of following Resistors and finding their Values:

1.1 Carbon and Metal Film

1.2 Variable Resistance Log and Linear

1.3 Semi Variable Preset of One Turn & Multiturn

2. Identification of following Capacitor and finding their Values:

2.1 Mica

2.2 Ceramic

2.3 Polysterene

2.4 Electrolytic

2.5 Tantalum

3. Identification of following Switches and Study of their Working Mechanism:

3.1 Toggel

3.2 Bandswiteh

3.3 Rotary

3.4 Push to on and off

	3.5 Press to on and off **4. Identification and Testing of following type of Connectors:** 4.1 Rack and Panel 4.2 Printed Circuit Edge 4.3 Coaxial 4.4 Tape & Ribbon 4.5 Plate **5. Study of Different Relays and their Contacts.** **6. Study of following Tools used in Electronic Workshop:** 6.1 Component Lead Cutter 6.2 Wire Strippers 6.3 Soldering Iron & Soldering Station 6.4 De-Solder Pump **7. Measurement of Voltage, Current and Resistance using Analog & Digital Millimeter.** **8. Testing of Electronic, Component such as Capacitor, Inductor, Diode and Transistor.** **9. Measurement of Amplitude & Frequency of a Signal using CRO.** **10. Verification of Ohm's law using Resistive Circuit and Analog Meters.** **11. Soldering of different passive component combination on general purpose PCB.** **12. Sketching of different Electronic Components Symbol on Drawing**	

Text Books :

Electrical Workshop M.L. Gupta
2. Domestic Devices & Appliances K.B. Bhatia
3. Electrical Workshop S.L. Uppal
4. Electrical Component & Shop Practice K.R. Nahar
5. Maintenance of Electrical Equipments K. S. Janwal
6. Hand Book of Philips Component

Reference Books:

1.Electrical Components and Shop Practice ,K.R. Nahar

2D09: Workshop Practice -II

(Cr, L:T:P:-2,0:0:2)

Objective: This Lab is design to give practical exposure of engineering workshop in different shop like smithy shop, machine shop, foundry shop, and student should be able to understand different types of tool, material and measuring instrument and their application.

	List of Experiments	
	Sheet Metal Shop: Preparation of following utility Jobs Involving Various Sheet MetalJoints (Single and Double Hem Joints, Wired Edge, Lap Joint Grooved Seam Joint, Single and Double Seam Joint) and Exercises (Soldering and Riveting Joints) 1 Preparation of a Soap Tray &Mug 2. Preparation of Funnel	

	Fitting and Plumbing Shop 1. Marking Filing & Hack Sawing Practice. 2. Production of Utility Job involving Marking, Filling and Hack Sawing. 3. Production of Utility Job involving Marking, Filling andHack Sawing Drilling and Tapping. 4. Cutting and Threading on G.I. Pipe 5. Exercise on PVC Pipe Fitting. 6. Repair of Taps and Cocks.	

Suggested Text Books :

1 Workshop Technology B.S. Raghhuwanshi
2. Workshop Technology (Hindi) Tahil Maghnani
3. Workshop Technology (Hindi) Vinay Kumar
4. Domestic Devices and Appliances K.B. Bhatia

Suggested Reference Books:

1. Work shop Manual - P.Kannaiah/ K.L.Narayana/ Scitech Publishers

2D10 : Computer Fundamental & IT Lab-II

(Cr, L:T:P:-2,0:0:2)

Objective: This lab is designed so that the better presentations and documents could be made by the students. It comprises the M.S. Excel, M.S. and powerpoint presentations.

	List of Experiments	
	1. Visit to Internet Site 2. Creating e-mail Account , Sending and Receiving e-mails. 3. Sending e-mail with Attachment & Signature 4. Searching Web Page/ Site using Search Engine (eg. google.com, yahoo.com, altavista.com etc.) 5. Exercise Based on MS-Word: 5.1 Document Preparation 5.2 Printing Document 5.3 Mail Merge usage 5.4 Draw Table 6. Exercise Based on Ms-Excel : 6.1 Work Book Preparation 6.2 Printing Workbook 6.3 Data-base usage 6.4 Draw Charts 7. Exercise Based on Power Point : 7.1 Creating Slide 7.2 Adding, Animations in Slide 7.3 Running Slide 8. Creating Simple Web Page using HTML.	

Suggested Text Books:

1. Yadav DS, Foundations of IT, New Age, Delhi.
2. Curtin, Information Technology: Breaking News, Tata Mo Grew Hill.

Suggested Reference Books:

1.Nelson, Data Compression, BPB.

Semester-III

Sunrise University
Diploma in Computer Science

3DCS01: Programming & Problem solving through "C" **(Cr, L:T:P:-3,3:1:0)**

Objective: For solution of different problems, C is a very powerful high level language. It is widely used in research and engineering problems. A software technician must be aware of this language for working in computer environment.

Unit	Topic	No of Hours
Unit – I	**Introduction :** Scope of 'C' Language**,** Distinction and similarities with other HLLs**,** Special features and Application areas **Elements of 'C' :** Character set**,** Key words**,** Data types**,** Constants and Variables**,** Operators: unary, binary, ternary**,** Operator precedence **Console Input-Output :** Types of I-O **,** Console I-O**,** Unformatted console I-O: getchar() ,putchar(), gets(), puts(), getch(), getche() Formatted I-O: scanf(), printf() **Control Flow :** Statements and blocks**,** if**,** switch**,** Loops: for, while, do-while**,** goto and labels**,** break, continue, exit**,** Nesting control statements.	**7**
Unit – II	**Arrays :**Basic concepts**,** Memory representation**,** One dimensional array**,** Two dimensional array**,** Three dimensional array. **Functions :** Basic concepts**,** Declaration and prototypes**,** Calling**,** Arguments**,** Scope rule Recursion **,**Storage classes types Library of functions: math, string, system	**8**
Unit – III	**Pointers :** Basic concepts**,** &, * operator**,** Pointer expression: assignment, arithmetic, comparison**,** Dynamic memory allocation**,** Pointer v/s Arrays**,** Array of pointers Pointer v/s Functions	**7**
Unit – IV	**Structure, Union and Enumerated Data Types :** Basic concepts, Declaration and memory map, Elements of structures, Structure v/s array, Structure v/s function, Union, Enumerated data types : typedef, enum, Self-referential structures, Low Level Bitwise Operators: & , | , ^.	**13**
Unit-V	**File Handling :** Types of files, File organization, Opening, reading, writing, closing,Text and binary file. **Numerical Methods :** Numerical Integration:, Simpson's 1/3 rule, Simpson's 3/8 rule,Matrix Operation Matrix Inverse by Gauss – Elimination Method, Matrix Inverse by Gauss – Jordan Method Matrix Addition, Subtraction, Multiplication	**5**

Suggested Text Books:

1. Application Programming in C R.S. Salaria, Khanna Pub. House.
2. Programming with 'C' Schaum's Series, TMH
3. 'C' Programming E.Balguru Swami, TMH
4. 'C' Programming Kernighan & Ritchie, TMH
5. Let us 'C' Yashwant Kanetkar, BPB

Suggested Reference Books:

1. Elements of C by MH Lewin, Khanna Publishers, New Delhi
2. Programming in C by kris A Jansa, Galgotia Publictions Pvt.Ltd., Daryaganj,
3. Programming in C by BP Mahapatra, Khanna Publishers, New Delhi

Sunrise University

Diploma in Computer Science

3DCS02: Basic of Digital electronics **(Cr, L:T:P:-3,3:1:0)**

Objective: ***This subject is basically designed to introduce the students with various components of digital circuits. It also develops the skill of designing the circuits.***

Unit	Topic	No of Hours
Unit – I	**Introduction :** Digital signal and its representation**,** Advantages of digital techniques **Number System :** Decimal, binary, octal and hexa-decimal number system**,** Conversion of a number from one system to another system**,** Binary addition, subtraction and multiplication**,** Representation of positive and negative numbers**,**1's complement and 2's complement**,** Subtraction using 2's complement**,** Parity bit**,** Binary codes (Gray, Excess -3, Hamming codes), ASCII code**,** Floating point number	**8**
Unit – II	**Logic Gates & Families :** Introduction, Symbol and truth table of NOT, AND, OR, NAND, NOR, EX-OR and EX-NOR gates, Universal gates, Positve, negative and tristate logic, Classification of digital ICs., Characteristics of digital ICs. **Boolean Algebra:** Historical review - logical statements, logical constants and variables, truth table**,** Boolean operators**,** Postulates of Boolean algebra**,** Laws of Boolean algebra Duality theorem, De' Morgan's theorem , Simplification of Boolean expressions Verification of Boolean expressions using truth table	**6**
Unit – III	**Minimization Techniques (K-Mapping) :** Representation of Boolean expression - min. and max. Term SOP, POS, Conversion of truth tables in POS and SOP form, Karnaugh map upto 4 variables - implication of logic function with and without don't care conditions,Realization of logic diagrams using NAND/NAND, NOR/NOR gate .	**7**
Unit – IV	**Combinational Logic Design :** Binary half and full adder**,**Binary half and full subtractor Binary serial, parallel and BCD adder, Parity bit generator and checker, Binary comparator, Multiplexer, 4 to 1 multiplexer, 16 to 1 multiplexer, Demultiplexer,1 to 4 Demultiplexer,1 to 16 Demultiplexer, Encoder Decimal to BCD, Decoder, BCD to Decimal, BCD to seven segment **Module 1**	**8**
Unit – V	**Sequential Systems:** Introduction**,** Symbol, logic circuit, truth table of R-S, J-K, M/S J-K,D,T flip-flops, Edge and level triggering**,** Shift registers**,** Left, right and bi-direction**,** Series and parallel**,** Universal shift register**,** Asynchronous and synchronous counters - up, down and up-down**,** Mod counters - Mod 5, Mod 9, decade counter Ring counters, Johnson counter, Programmable countersUse of shift register for simple binary multiplication and division.	**6**

Suggested Text Books:

1. Digital Principles & Applications Malvino Leach., TMH
2. Integrated Electronics Millman & Halkias, M. Hill
3. Digital Electronics T.C. Bartee
4. Digital Electronics Practice Using IC's R.P. Jain. TMH
5. Modern Digital Electronics R.P. Jain,TMH
6. Digital Circuit & Design S. Salivahanan, Vikash

Suggested Reference Books:

1. Digital Logic Applications & Design / M. Yarbrough / Vikash Publishing House
2. Digital Computer Electronics / Malvino & Brown / Tata McGraw-Hill
3. Fundamental of Digital Circuits / A. Anand Kumar / Prentice Hall of India, N. Delhi

3DCS03: Data base management system (Cr, L:T:P:-3,4:1:0)

Objective: Relational Database management system is the modern technique of managing data. The knowledge of DBMS is very useful & effective in preparation of different types of application software like Inventory, Financial & Accounting system etc. The student equiped with knowledge of this subject will be useful in the areas of the computer application.

Unit	Topic	No of Hours
Unit – I	An overview of database management system: Need for DBMS, Components of DBMS, Applications of DBMS, Advantage of DBMS, Database system versus file system, Disadvantages of DBMS. Database System Concepts and Architecture, Application Architecture of DBMS, Two-Tier Architecture, Three-Tier Architecture .Database Models Hierarchical Database Model, .2 Network Database Model, Relational Database Model Object-Oriented Database Model, Schema and Instances, Data Independence, Physical Data Independence ,Logical Data Independence,Database Language and Interface, Overall Database Structure	**8**
Unit – II	**Data Modeling Using the E-R Model :** E-R Model concepts**,** Notations of E-R Diagram**,** Mapping Constraints**,** One-to-one**,** One-to-Many**,** Many-to-One**,** Many-to-many Keys, Super key, Candidate Key, Primary key, Composite key, Foreign key, Alternate key Secondary key, Examples of E-R Diagrams **Relational Data Model and Language :** Introduction**,** Properties of Relational Tables Differences between DBMS and RDBMS, Codd's Rules of RDBMS, Integrity Constraints Entity Integrity Constraints, Referential Integrity Constraints, Domain Integrity Constraits Query Language, Relational Algebra, Relational Calculus	**11**
Unit – III	**Normalization :** Normalization Concepts**,** Functional Dependencies**,** Lossless/Lossy Join Decomposition**,** Normal Forms**,** First Normal Form (1NF)**,** Second Normal Form (2NF) Third Normal Form (3NF), Boyce-Codd Normal Form (BCNF)Multi-valued Dependency & Fourth normal Form	**10**
Unit – IV	**Transaction Processing Concepts :** Transaction System, Properties of Transaction Atomicity, Consistency, Isolation,Transaction States,Transaction Processing System Recovery from Transaction Failures, Cascading Rollback, Recoverable Schedule Log Based Recovery, Check Points, Backup Mechanism, Shadow Paging, Distributed Database, Homogeneous Distributed Database, Heterogeneous Distributed Database The major Advantages of Distributed DBMS (DDBMS)	**7**
Unit-V	**Deadlock Handling :** Introduction, Deadlock Detection, Recovery from Deadlock **Concurrency Control Techniques :** Concurrency Control**,** Locking Techniques for Concurrency Control**,** Mode of Locking**,** Shared Lock**,** Exclusive Lock**,** The Two-phase Locking Protocol**,** Static	**7**

	(or Conservative) Two-phase Locking, Dynamic Two-phase Locking, Strict Two-phase Locking, Stamping Protocol for Concurrency Control	

Suggested Text Books:

1. Database management System P.K. Yadav, S.K. Kataria & Sons, Delhi
2. An Introduction to Database System Bipin C. Desai, Galgotia Publications
3. Fundamentals of Database Systems R. Elmastri, S.B. Navathe, Pearson Education
4. An Introduction to Database management System (A-level) Satish jain, BPB Publication
5. Database Ssytems: Concepts, Design & Applications" S.K. Singh, Pearson Education

Suggested Reference Books:

1. ***William Stallings, "High Speed Networks & Internets", 2nd ed., Pearson Education.***
2. ***William Stallings, "Data and Computer Communications", 7th ed., Pearson Education.***
3. ***S.Kesav, "An Engineering approach to Computer Networking", 1st ed., Pearson Education***

3DCS04: Data Communication (Cr, L:T:P:-3,3:1:0)

Objective: ***On successful completion of this course, a student will:***

(i) be able to know how internetworking works,
(ii) get idea of different media,
(iii) have knowledge about different types of networking,
(iv) get idea of different types of protocols and standards,
(v) gain knowledge of network security

Unit	Topic	No of Hours
Unit – I	**Introduction :** Data Communication : Model and Components, Computer Networks Line Configurations, Topology, Transmission modes, Communication Protocol: Layered Architecture, Reference Models : OSI and TCP/IP	**9**
Unit – II	**Signals and Transmission :**Analog and Digital Forms, Analog Signals : Amplitude, Period and Frequency, Phase, Spectrum and bandwidth, Digital Signals : Bit Interval and Bit Rate, Digital Data Transmission : Parallel and Serial, Asynchronous and Synchronous Modems	**7**
Unit – III	**Multiplexing and Communication Hardware :** FDM and TDM, Transmission Media: Guided & Unguided media, Performance factors, Network devices: Repeaters, Bridges, Switches, Routers and Gateways	**9**
Unit – IV	**Data Link Layer :** Introduction, Flow control & Error control, Types of errors : Single bit & burst error, Error Detection & Correction,1 VRC, LRC, CRC, Checksum, Hamming Code, Flow control & error control protocols : Stop & Wait, Sliding window, ARQ, HDLC Local Area Networks : Introduction to Ethernet, Token bus, Token Ring & FDDI.	**9**
Unit-V	**Switching and Frame Relay :** Circuit Switching, Packet Switching : Datagram & Virtual Circuit approach, Introduction to Frame relay : Its role, advantages & disadvantages. Frame relay operation, Congestion Control : BECN, FECN, Leaky Bucket Algorithm.	**6**

Suggested Text Books:

1. Data Communications & Networking Behrouz A. Forouzan, TMH
2. Data & Computer Communication William Stallings, PHI
3. Data Communication & Computer N/W Sanjay Pahuja, Std. Publication
4. Data Communication and Networks Godbole, TMH

5. Database Ssytems: Concepts, Design & Applications" S.K. Singh, Pearson Education

Suggested Reference Books:

4. ***William Stallings, "High Speed Networks & Internets", 2nd ed., Pearson Education.***
5. ***William Stallings, "Data and Computer Communications", 7th ed., Pearson Education.***
6. ***S.Kesav, "An Engineering approach to Computer Networking", 1st ed., Pearson Education***

3DCS05: PC Maintenance and Trouble Shootings (Cr, L:T:P:-3,3:1:0)

Objective The objective of this course is to introduce the students to the concepts of personal computer hardware its function and external interface methods by both theoretical and practical sessions. After the completion of the concept ideas, the student will be achieving the practical interfacing techniques and design methods of various devices to the personal computers. The students will achieve full competence of need of interfacing devices to the personal computers system and trouble shooting of the failure of devices.

Unit	Topic	No of Hours
Unit – I	**Computer Installation :** Site Preparation ,Air-Conditioning Requirements False-Ceiling and False-flooring Fire-Protection system, Electrical Earthling Power Supply Requirements, Clean Power Supply, Power Supply Problems, Power Conditioning Power Protection equipments-Spike Suppressor, CVT, UPS (Online and Off-line), SMPS	**5**
Unit – II	**Safety and Security Measures :** Safety from Natural calamities, Theft and Fire Hazards, Data Security, Security from unauthorized users, Virus Protection Techniques Firewalls, Folder Locking	**5**
Unit – III	**Working Principles of peripheral devices:** Keyboard: Wired and wireless Optical Mouse: Wired and Wireless, Scanner, OCR, OMR, MICR and BCR (Bar Code Reader), Printers: Dot-Matrix Printer (DMP), Inkjet Printer, Laser Printer, Modem: Dialup, Wired Broadband, Wireless Broadband, Digital Camera , Web-cam and Microphone (MIC), USB Flash memory (Pen drive)	**7**
Unit – IV	**Display Technologies-Thin Displays:** Cathode Ray tube (CRT) Display, Liquid Crystal Display (LCD), Plasma Display **Optical Storage Devices:** Optical Storage Media, CD-Drive-Installation and Operation Digital Versatile Disc (DVD)-Technology **I/O Ports :** Serial Port, Parallel Port, Game Port, USB Port, HDMI Port	**8**
Unit – V	**Hard Disk Drive (HDD):** Working Principle, HDD Controller, HDD Interface types: SCSI, IDE, and SATA, USB External Hard disk **Windows Components and Tools:** Windows Registry, Scandisk and Disk Defragmenter, Disk management, File Systems-FAT16, FAT32, and NTFS **Memory :** RAM, SDRAM, DDR, ROM	**8**

Suggested Text Books:

1. Computer Installation and Servicing D Balasubramanian, TMH
2. The Complete Reference PC Hardware Craig Zacker, John Rourke, TMH
3. IBM PC and Clones B. Govidarajalu, TMH
4. The Complete PC Upgrade and Maintenance Guide Mark Minasi, Wiley-India

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Suggested Reference Books:

1. Graham, Knuth, Pratshnik : Concrete Mathematics.
2. Grimaldi: Discrete Mathematical Structures.
3. Ross KA & Wright CRB, Discrete Mathematics, Prentice-Hall 1999

Programming & Problem solving through "C"Lab

3CDS06: Programming & Problem solving through "C"Lab **(Cr, L:T:P:-2,0:0:2)**

Objective: ***On satisfactory completion of the course, the students should be in a position to develop the skills complementary to the knowledge acquired in the theoretical subject PROGRAMMING IN C.***

	List of Experiments	No of Hours
	.Basic of C Programming **a.** To execute a sample C program to study the basic structure of C program. **b.** To be familiar with keywords and identifiers through some program. **c.** To apply constant, variables and different types of data types. **.Operators & Expressions** **a.** To write program using Arithmetic, Relational, Logical and Assignment operators**.** **b.** To write program to implement increment & decrement operators and to find the greatest between two numbers using conditional operator. **c.** To evaluate an expression to study operator precedence and associativity and to write a program using casting a value. **.Decision Making** **a.** To use formatted scanf( ) and printf( ) functions for different types of data. **b.** To find the roots of a quadratic equation. Find the greatest of three numbers using IF –ELSE and IF -ELSE IF statements. **c.** To test whether the given character is vowel or not, using nested if –else statement and Switch-case statement. **d.** To find sum of first n natural number using 'GOTO' statement **e.** To find the sum of all Fibonacci numbers in between 1 to n using 'for' loop. **f.** To find G.C.D and L.C.M of two numbers using 'WHILE' loop. **g.** To find the sum of the digits of an integer using DO –WHILE loop structure.	

	h. To solve other problems for the implementation of different loop structure. . 4. Problems based on arithmetic expression, fixed mode arithmetic 5. Problems based on conditional statements and control structures. 6. Problems based on arrays (1-D, 2-D), functions, pointers, files 7. Problems based on string and character manipulation. 8. Problems based on Numerical Methods using 'C' language	

3DCS07: Basic of Digital electronics Lab **(Cr, L:T:P:-2,0:0:2)**

Objective: ***On satisfactory completion of the course, the students should be in a position to develop the skills corresponding to the knowledge acquired in the theoretical subject DIGITAL LOGIC DESIGN.***

	List of Experiments	**No of Hours**
	1. Verify the truth tables of NOT, AND, OR, NAND, NOR, EX-OR, EX-NOR gates 2. Design a NOT, AND, OR, EX-OR, EX-NOR gates using universal gates 3. Design a binary half and full adder 4. Design a binary half and full subtractor 5. Study of BCD to 7 segment decoder 6. Verify the truth table of RS, D, J-K, M/S J-K,D,T flip-flops. 7. Study of asynchronous binary ripple up, down and up-down and different mod counters 8. Study of synchronous counters 9. Study of decade counter 11. Study of programmable counter 12. Study of a shift register using flip flops 13. Study of ring counter using flip flops	

3DCS08: PC Maintenance and Trouble Shootings Lab **(Cr, L:T:P:-2,0:0:2)**

Objective: ***The student will acquire the knowledge of using different software packages by this laboratory oriented subject***

	List of Experiments	**No of Hours**
	1. Study and Identify of various parts of a PC 2. Creating Disk Partitions and formatting them. 3. Installation of Windows Operating System. 4. Installation of Linux Operating system. 5. Installation of Operating Systems using VMWARE utility 6. Installation of Network Interface Card (NIC) or LAN card 7. Installation of Local Printer 8. Installation of Network Printer 9. Installation of Scanner 10. Use PING command to verify the TCP/IP connection between two nodes.	

	11. To login to remote Desktop using TeamViewer utility. 12. To prepare a Straight cable using standard color coding. 13. To prepare a Crossover cable using standard color coding. 14. To connect two PCs using Crossover cable without using a Switch or Router. 15. To use CD writing Software for Copying Files and Disc-to-Disc Copying.	

Suggested Text/Reference Books:

1. PC Hardware Complete Reference – Craig Zacker & John Rourke, Tata McGraw Hill
2. The Indispensable PC Hardware Book- Messmer, Pearson Education
3. Troubleshooting and Repairing Your PC – Coery Candler, Wiley
4. Upgrading and repairing PC‟s (4th edition)- Scoot Mueller, Pearson Education
5. IBM PC Assembly Language Programming – Abel, PHI
6. "The Complete PC Upgrade & Maintenance Guide" by Mark Minasi, Eight Edition, BPB.
7. " Peter Norton‟s Inside the PC" by Peter Norton, (8th Edition)
8. "Upgrading & Fixing PCs for Dummies" by Andy Rathbone.
9. PC Upgrading Maintenance & Trouble shooting guide- Dr. S.K. Chauhan, Kataria

3DCS09: Networking Lab

(Cr, L:T:P:-2,0:0:2)

Objective: T***his is a required course for the computer engineering major. The goal of the course is to teach students how to configure network devices and how the computer network is built. Students will also learn how to troubleshoot computer networks and how to control network access.***

	List of Experiments	No of Hours
	1. To connect computers in different ways in a LAN (Topologies-star, ring, bus, tree) **2.** To connect and understand different network devices used in LAN- Hubs, Switches, Routers, Bridges, Repeaters, Gateways, Modems. **3.** To study the constructional details of transmission media- co-axial cables, twisted pair cables, optical fibre cable. **4.** To create network cable using RJ 45 connectors. **5.** Connections of two hubs by creating cross over connections. **6.** To install a network interface card (NIC) **7.** To install TC/IP protocol and configure its advance property. **8.** To locate MAC address of computer. **9.** To Install network printer.	

10. Installing IIS, making web server, web directory, connection via remote desktop, to know browsers.
11. To identify different problems of network exm- no network, card problem, cable problem, IIS problem.

3DCS10:Data Base Management System Lab (Cr, L:T:P:-2,0:0:2)

Objective: ***On Satisfactory completion of the course, the students should be in a position to develop skills corresponding to the knowledge acquired in the theoretical subject DATABASE MANAGEMENT SYSTEM.***

List of Experiments

Student can use MySql (preferred open source DBMS) or any other Commercial DBMS tool (MSAccess / ORACLE) at backend and C++ (preferred) VB/JAVA at front end.

1 Database creation/ deletion, table creation/ deletion.

a) Write a program to take a string as input from user. Create a database of same name. Now ask user to input two more string, create two tables of these names in above database.

b) Write a program, which ask user to enter database name and table name to delete. If database exist and table exist then delete that table.

2. Write a program, which ask user to enter a valid SQL query and display the result of that query.

3. Write a program in C++ to parse the user entered query and check the validity of query.

(Only SELECT query with WHERE clause)

4 - 5. Create a database db1, having two tables t1 (id, name, age) and t2 (id, subject, marks).

a) Write a query to display name and age of given id (id should be asked as input).

b) Write a query to display average age of all students.

c) Write a query to display mark-sheet of any student (whose id is given as input).

d) Display list of all students sorted by the total marks in all subjects.

6 - 7. Design a Loan Approval and Repayment System to handle Customer's Application for Loan and handle loan repayments by depositing installments and reducing balances.

1.8 -9. Design a Video Library Management System for managing issue and return of Video tapes/CD and manage customer's queriesoperator etc. – Introductory problem on virtual function & friend function.

Semester-IV

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4DCS01: Data Structure And Algorithm **(Cr, L:T:P:-3,3:1:0)**

Objective: ***The study of data structure is an essential part of computer science. This subject develops the concept of storage structure of data and helps to write efficient application program***

Unit	Topic	No of Hours
Unit – I	**Introduction to Data Structures and Algorithms :**Introduction to data representation**,** Review of data structures- Array, Pointer, Structure, Lists, Trees, and Graphs**,** What is an Algorithm**,** Designing Algorithms**,**Analyzing Algorithm,Mathematical Notation and Functions**,**Asymptotic Notation (O,$\backslash$,_) Performance Measurement **Algorithm on Linked List :** Linear Linked List and Operations**,** Circular Liked List and Operations**,** Doubly Linked List and Operations**,** Applications of Linked list**:** Polynomial representation**,** Multiple-Precision Arithmetic	**9**
Unit – II	**Algorithms on Stack :** Representation using array and linked list: Operation and Example, Push and Pop Operation, Representation of expressions: Infix, Postfix, Prefix, Inter conversion of the expressions, Evaluation of the expression ,Recursion: Tower of Hanoi, Recursive functions	**8**
Unit – III	**Algorithms on Queue :** Representation using array and linked list, Insertion and Deletion Operation, Circular Queue, Double Ended Queue, Priority Queue, Multiple Queues **Non-Linear Data Structure: Tree** General Concept**,** Sequential and Linked List Representation of Tree**,** Binary Tree**,** Conversion of General Trees to Binary Trees , Binary Tree Traversal Algorithms: Recursive and Non-recursive, Preorder Traversal, Inorder Traversal, Postorder Traversal, Backward Inorder, Binary Search Tree, Applications of Trees	**9**
Unit – IV	**Non-Linear Data Structure: Graph :** Properties of Graphs**,** Representation of Graphs Adjacency Matrix, Adjacency List, Traversal Algorithms- Depth First Search, Breadth First Search, Minimum Cost Spanning Tree, Prims Algorithm, Kruskal's Algorithm Shortest Path Algorithms, Dijkastra's Algorithm, Bellman-Ford Algorithm, Warshal Algorithm, Applications of Graphs	**9**
Unit-V	**Sorting and Searching Algorithms and their Analysis:** Internal and External Sorting Sorting Problems: Selection sort, Bubble sort, Insertion Sort, Merge sort, Quick Sort, Heap sort, Sequential Search, Binary Search, Hashing: Hashing Functions Collision Resolution Techniques	**5**

Suggested Text Readings:

1. A practical approach to Data Structures and Algorithms Sanjay Pahuja, New Age International
2. Data Structure Tenenbaum. TMH
3. Data Structure and Program Design Robert L. Kruse, PHI
4. Data Structure using C Y. Kanitkar, BPB
5. Data Sructure Schaums series, TMH
6. Data Structure and Algorithms Horowith sahani, PHI

Suggested Reference Readings:

1. Kruse R.L., Data Structure and Program Design, PHI.
2. Sartaj Sahni, Data Structures, Algorithms, and Applications in C++

3. Mark Allen Weiss, Data Structures and Algorithm Analysis in C++ (2nd Edition)

4DCS 02:Computer Graphic

(Cr, L:T:P:-3,4:1:0)

Objective:

- ***This course is designed to provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends.***
- ***A thorough introduction to computer graphics techniques, focusing on 3D modeling, image synthesis, and rendering. Topics cover: geometric transformations, geometric algorithms, software systems (OpenGL, shaders), 3D object models (surface, volume and implicit), visible surface algorithms, image synthesis, shading and mapping, ray tracing, radiosity, global illumination, photon mapping, and anti-aliasing.***
- ***The interdisciplinary nature of computer graphics is emphasized in the wide variety of examples and applications.***

Unit	Topic	No of Hours
Unit – I	**INTRODUCTION:** Origins of computer Graphics, Display Device - General purpose Graphics Software, display of solids object.	**8**
Unit – II	**DISPLAY TECHNIQUES AND DEVICES**: Display Techniques and Devices: Point Plotting Techniques Coordinate systems and incremental methods, line-Drawing. Algorithms, circle Generators, Display Devices, CRT, Inherit Memory Devices.	**9**
Unit – III	**GRAPHIC PACKAGES AND DISPLAY FILES:** A Simple Graphics package Segments, Functions for Segmenting the Display files, Segment naming schemes, Appending the Segment display file structure. Geometric Models. Defining symbols procedures, Display procedure.	**10**
Unit – IV	**TWO DIMENSIONAL TRANFORMATION :** Principles, concatenation Matrix representation. A line clipping Algorithm, Midpoint, division, Clipping other Graphics Entities, Polygon Clipping, Viewing Transformation. The windowing Transformation.	**9**

Suggested Text Books:

1. ***D. Hearn and Baker: Computer Graphics, PHI***
2. ***J. Foley, A. Van Dam, S. Feiner, J. Hughes: Computer Graphics Principles and Practice, Addison Wesley.***
3. ***D. Rogers and Adams: Mathematical Elements of Computer Graphics, Mc Graw Hill***

Suggested Reference Books:

1. ***.D. Rogers : Procedural Elements of Computer Graphics, McGraw Hill***
2. ***Amrendra N Sinha and Arun D Udai," Computer Graphics", 1st ed., Tata Mc Graw Hill,***
3. ***Neuman and sproul , "Principle of interactive computer graphics" , 1st ed., Tata Mc Graw Hill***

4DCS 03: Internet & Web Technologies

(Cr, L:T:P:-3,4:1:0)

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Objective: ***The course covers client side scripting like HTML, JavaScript and server side scripting like servlets, JSPs. and also XML and web servers and database interfacing.***

Unit	Topic	No of Hours
Unit – I	**1. Internet Basics :** Concept**,** Establishing Connectivity on Internet**,** Email: POP, SMTP**,** www, File Transfer, Telnet**,** IP Address**,** Brief overview of TCP/IP **2. HTML :** File Creation, Web Server, Web Client, Introduction to HTML, HTML Tags, Structure of HTML Programs, Heading, Titles and Footers, Text Formatting, Text Styles, Text Effects, Color and Backgrounds, Lists, Adding Graphics, Tables, Linking Documents, Frames **DHTML :**Introduction to DHTML**,** Cascading Style sheets (CSS)**,** Font Attributes	**10**
Unit – II	**3. Java Script :** Java script in web pages**,** Advantages of JavaScript**,** Writing JavaScript into HTML**,** Programming**,** Data types and Literals**,** Type casting**,** Variables**,** Arrays**,** Operators and Expressions**,**Conditional and Iterative Loops**,** Functions**,** Dialog Boxes**,** Cookies	**9**
Unit – III	**DHTML :**Introduction to DHTML**,** Cascading Style sheets (CSS)**,** Font Attributes Color, Background, Text and Border, List Attributes, Class, The <SPAN> … </SPAN> Tag, Java Script Style Sheet, The <DIV> … </DIV> Tag	**9**
Unit – IV	**CGI:** Use of CGI, Working of CGI, Methods of Data Submission (GET and POST), Environment Variables, Process Form Information in CGI Program	**8**
Unit- V	**Perl :** Basics of Perl**,** Strings, Scalar variables**,** Arrays, Hash Array**,** Arithmetic and Comparison Operators**,** Control Program Flow**,** Functions: String, Array, Mathematical and Time**,** File Handling**,** STDIN & STDOUT**,** Concept of Files and Directories**,** Open and Close Files**,** Reading and Writing Files	

Suggested Text Books

1. Web Enabled Commercial Application Development Using HTML, DHTML, Java Script Ivan Bayross, BPB
2. Internet and Web Technology Xavier, TMH
3. Web 101, Making the Network for you Wendy Lehnert, PEA
4. Java Script Flamange, (ORA/SPD)
5. Dynamic HTML Goodman, (ORA/SPD)

Suggested Reference Books

1. ***Dietel and Nieto, "Internet and World Wide Web-How to program", 4th ed., PHI/Pearson Education Asia, 2007.***
2. ***Hans Bergsten, "Java Server Pages", 1st ed., O' REILLY Publications, 2000.***
3. ***Firuza Aibara, "HTML for Beginners", 2nd ed., SPD O'REILLY Publications, 2010.***

4DCS 04: Object Oriented programming through C++ **(Cr, L:T:P:-3,3:1:0)**

Objective: oday whole application software is developed using object-oriented technology. It helps in reusability of the code, sharing of various resources. The user works in real world environment. This paper give knowledge of object oriented technology. C++ cover the practical implementation of OOPs. Various features like inheritance, encapsulation etc. are covered.

Unit	Topic	No of Hours

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Unit – I	**An Overview of Object Oriented Programming :** The need of object oriented programming, Characteristics of OOPs: Objects, Classes, Inheritance, Reusability, New data types, Polymorphism and overloading, Benefits of OOPs **Object Oriented Programming Using C++ :** An overview of C++ Programming, Data Types, Operators, Manipulators, "**cin**" and "**cout**" usages, Statements : Comments, Assignments, if, switch and loops, Functions and its default arguments, Inline functions	**8**
Unit – II	**Objects and Classes :**Class and its members, Access Specifier : **public, private, protected,** Static data member and static functions, Array of objects, Object as function arguments, Constructors and Destructors, Friend function, Copy constructor **Overloading of Functions and Operators :**Function overloading, Defining operators over loading, Rules of overloading operators, Overloading unary operators, Overloading binary operators, Operator overloading using friend functions	**10**
Unit – III	**Inheritance and Polymorphism :** Inheritance: Using public, private and protected access specifiers, Types of inheritance, Virtual base classes, Virtual and pure virtual functions, Abstract classes, Reusability considerations	**9**
Unit – IV	**7. Managing Console I/O and File I/O :** C++ streams and stream classes, Unformatted I/O operations, Formatted console I/O operations, Managing output with manipulators, Classes for file stream operations, Opening and closing a file, File modes and file pointers, Put ( ), get ( ), read ( ), and write ( ) functions	**8**
Unit-V	**Templates and Exception Handling :** Generic functions, Generic classes, Basics of exception handling, Exception handling mechanism, Throwing and catching mechanism, Rethrowing an exception	**7**

Suggested Text Books:

1. Programming in C++ E. Balaguruswamy, TMH
2. Oriented Programming TURBO C++ Robert Lafore, Galgotia Pub.
3. The Complete Reference C++ Herbert Schildt, TMH
4. The C++ Programming Language B. Stroustrup, Addison wesley/Pearson

Suggested Reference Books:

5. Let us C++ Y. Kanetkar, BPB
6. Object Oriented Programming and C++ R.Rajaram, New Age

4DCS 05: Basic of Electronics & Devices Circuit

(Cr, L:T:P:-3,3:0:0)

Objective: Today is the day of electronics. This subject covers the basic concept of electronics for engineers, this subject is foundation of electronics which helps the student to study the other subject.

Unit	Topic	No of Hours
Unit – I	**Semiconductor and PN Junction :** Metal, non metals and semiconductors and their Energy Band Diagram., Intrinsic and Extrinsic Semiconductors., Effect of temperature on extrinsic	**6**

	semiconductor, Energy band diagram of extrinsic semiconductor, Drift and diffusion current, Hall Effect, P-N Junction Diode, Space charge region, Barrier potential and effect of temperature, Energy band diagram, Biasing of diode., V-I characteristics Static and dynamic resistance, Transition and diffusion capacitance, Zenner and Avalanche breakdown, Working, characteristics and application of, Zener diode, Varactor diode, Photo diode, Light emitting diode (LED), Photo conductors, Cds photo conductive cells and photo voltaic cell.	
Unit – II	**Bipolar Junction Transistor (BJT) :** Constructional details of PNP and NPN transistors Working of a transistor, Charge transport phenomenon, Transistor amplifying action, Relation between different currents in a transistor, Simple problems Configuration of transistor (CB, CE and CC), Behavior of BJT in Active, Cut off and Saturation regions, Transistor as a switch, Transistor as an amplifier	**6**
Unit – III	**Transistor Biasing and Bias Stability :** D.C. and A.C. Load line., Operating point and its stability, Factors affecting bias stability, Stability factors, Bias stabilization, Calculation of operating point and stability factor for, Fixed Bias Circuit., Collector to base biasing., Voltage Divider biasing (Self bias), Bias Compensation techniques using Diode., Thermistor and Sensistor., Thermal stability and Thermal runaway	**7**
Unit – IV	**Rectifiers :** Working of rectifiers, Half wave rectifier, Centre tape full wave rectifier Bridge rectifier, Analysis of rectifiers (for all type), Calculations for average and RMS values. PIV of diodes, Ripple factor, Regulation and efficiency, Calculation of ripple factor and working of following filters: Capacitance filter, Inductance filter, L-C and □ (Pie) filters Voltage Multipliers	**5**
Unit – V	**Field Effect Transistor:** Construction, operation and characteristics of JFET , E and D MOSFET, Biasing of FET, Small signal model of JFET, Terminology used with JFET Precaution for handling of MOSFETs **Power Supplies & Sensors :** SMPS, UPS, Inverter, Thermocouple, Pressure Gauge, Strain Gauge, Displacement Sensor (LVDT, RVDT)	**8**

Text Books :

1. Electronic Devices & Circuits Millman & Halkias, MH
2. Electronic Devices & Circuits V. K. Mehta, S. Chand
3. Electronic Devices & Circuits A.Mottershed PHI
4. Industrial Electronics A.K. Khatri, CBH, Jaipur

Reference Book :

5. Electronic Devices & Circuits Sanjeev Gupta, Dhanpat Rai,
6. Electronic Devices & Circuits Floyd, Pearson Education
7. Electronic Devices & Circuits Boylestad, Pearson Education
8. Electronic Devices & Circuits J.P. Gupta, Kataria & Sons

4DCS 06:Data Structure Lab

(Cr, L:T:P:-2,0:0:2)

Objective*: Data Structures are commonly used in many program designs. Here following programs are based on the C language and the following exercises include developing algorithms, writing code, entering the program, compiling and debugging the program, giving test data and executing the program.*

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	List of Experiments	No of Hours
	1. Programs based on linked list. 2. Programs based on stacks and queue. 3. Programs based on tree traversal. 4. Programs based on Graphs 5. Programs based on sorting 6. Programs based on searching.. 7 To write a program to insert an element in the queue and delete an element from the queue using pointer. 8 To create a circular queue and add an element and delete an element from a circular queue. 9To write a program of a structure containing an item name along with the unit price. The user enters the item name and quantity to be purchased. Program print outs total price of item with name using pointer in a structure or array in a structure. 10 To create a single linked list and — (a) insert a node in the list (before header node, in between two nodes, end of the list); (b0 delete a node from the list (1st node, last node, in between two nodes); (c) Concatenate two lists. 11 To create a doubly linked list and — (a) insert a node in the list (before header node, in between two nodes, end of the list); (b0 delete a node from the list (1st node, last node, in between two nodes); (c) Concatenate two lists. 12 To create a circular linked list and insert & delete an element from the list. 13 To write a program to calculate the binomial co-efficient of ${}_nC^r$ of two numbers using recursive function. Also write the same program using function in non-recursive way. 14 To write a program to generate Fibonacci Series using recursive function. Also write the same program using function in non-recursive way. 15 To write a program to sort a list of numbers using — (i) Heap Sort, (b) Quick Sort, (c) Bubble Sort. 16 To write a program to sort a list of numbers using — (i) Insertion Sort, (b) Merge Sort, (c) Radix Sort. 17 To write a program to create a binary tree and traverse it in pre-order and post-order form. 18 To write a program to create a binary search tree and — (a) insert a new node in the BST, (b) search a node in the BST, (c) delete a node from the BST. 19 To write a program to create a file, read the file, update the file, insert into the file, and, delete from the file. (The file contains, say for example, student first name, middle name, surname, address, phone no., roll no., branch etc.)	

4DCS 07: Computer Graphic Lab (Cr, L:T:P:-2,0:0:2)

Objective: ***Computer graphics is used in diverse applications from the visualization of complex scientific data to the special effects in movies and the animated characters in computer games. The objective of this course is to introduce the programming principles of computer graphics, including fundamental data-structures and algorithms for rendering and modelling.***

	List of Experiments	No of Hours
	1. To practice point plotting, line and regular figure algorithms. **2.** Raster scan line and circle drawing algorithm. **3.** To practice clipping and windowing algorithms for points, lines and polygons. **4.** To practice 2-D / 3-D transformations. **5.** Simple fractal representation. **6.** To practice filling algorithms. **7.** To create animation using Flash	

4DCS 08: Internet & Web Technologies Lab (Cr, L:T:P:-2,0:0:2)

Objective: after ***The course covers theortical sutdent can write the client side scripting like HTML, JavaScript and server side scripting like servlets, JSPs. and also XML and web servers and database interfacing.***

	List of Experiments	No of Hours
	1. INTERNET BASICS **a.** Familiarity with internet browser(MS-Explorer, Netscape) **b.** Working with browser window tool bar , menu bar **c.** Browsing a given web site address, Searching a particular topic **d.** through search engines. **e.** Familiarity with E-Mail, sending viewing printing e-mail message. **f.** Use of mailbox (inbox, outbox) in outlook express. Use of attachment facility available in e-mailing. **2. WEB SERVER** Familiarity with web server – IIS, PWS etc. – Configuring web server – Creating virtual directory.	

	3. INTERNET SERVICES: Concept and familiarity of various internet services (www, http, ftp, chat etc). **4. HTML / APPLET:** **a.** Creating simple HTML file, place it in web server and access it from client Browser. **5.** Installation of Web server and Web browser **6.** Practice for creating web pages/sites using HTML **7.** Practice for creating web pages/sites using JavaScript **8.** Practice for creating web pages/sites using DHTML **9.** Practice for creating web pages/sites using CGI **10.** Practice for creating web pages/sites using Perl	

4DCS 09: Object Oriented programming through C++ **(Cr, L:T:P:-2,0:0:2)**

Objective: ***On satisfactory completion of the course, the students should be in a position to develop the skills complementary to the knowledge acquired in the theoretical subject PROGRAMMING IN C++.***

	List of Experiments	**No of Hours**

4DCS 10:Technical Seminar-I **(Cr, L:T:P:-2,0:0:2)**

Objective

	List of Experiments	**No of Hours**
	The topics selection covering the latest and relevant topics related to the emerging areas. Ideally, some recent reputed journal papers abstraction and presentation shall be encouraged for presentation. The evaluation shall be continuous and through components evaluation viz. content, coverage, depth, presentation, response to the queries, and seminar report.	

Semester-V

5DCS01: Dot Net Technology **(Cr, L:T:P:-3,3:1:0)**

Objective: NET has evolved as an important framework in the recent times for developing windows, web and enterprise applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

Unit	**Topic**	**No of Hours**

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Unit – I	**1. Introduction to NET Framework and Development Environment :** Introduction to .NET**,** Comparison between .NET and Java**,** Architecture and Advantages of .NET framework**,** Namespaces**,** Object Oriented Features**,** Visual Studio.NET Integrated Development**,** Elements of IDE**,** Writing a Simple Application using .NET **2. Visual Basic._ET :**Introduction to and Features of VB.NET**,** Similarities and Differences between Visual Basic and VB.NET**,** Data types supported in VB.NET**,** Variables, Scope of Variables**,** Access Control: Public, Private, Protected, Friend, Protected Friend**,** Various Operators: Arithmetic, Comparison, Assignment, Logical Operators, Concatenation Operators,Operator Precedence	**10**
Unit – II	**Programming Concepts of VB._ET :**Control Structures: Decision Making Statements, Looping Statements, Other Statements**,** Arrays: Static, Dynamic Arrays, Array Functions**,** Procedures and Functions**,** Parameter Passing: Pass-by-Value, Pass-by-Reference, Optional and Named Agruments**,** Predefined Functions: MsgBox(), InputBox(), and other functions. **Object Oriented Features of VB._ET :**Introduction to OOP Features: Class, Objects, Overloading, Overriding, Structure**,** Structure: Similarities and Differences with Class**,** Overloading the Methods**,** Shared Members**,** Inheritance**,** Abstract Base Class Interfaces: Differences between Interface and Class	**8**
Unit – III	**Windows FORMS and Controls:** Introduction**,** Windows Forms: Properties and Methods, Events, MDI Forms**,** Properties and Methods Controls: Label, TextBox, LinkLabel, Button, Radio Button, CheckBox, ListBox, ComboBox, Timer control, Scroll bars, Menus**,** Exception Handling	**9**
Unit – IV	**Database Connectivity using ADO._ET :** Evolution and Features of ADO.NET**,** ADO versus ADO.NET**,** ADO.NET Object Model**,** Overview of Data Provider, Provider Objects: Connection, Command, Data Adapter, Data Reader**,** Overview of DataSet, Types of Data Sets**,** Data Object Model and Data Object Model**,** Namespaces in ADO.NET**,** Using Command Objects**,** Data Binding : Simple Binding, Complex Binding	**6**
Unit-V	**ASP._ET :**Introduction**,** Differences and Similarities between ASP and ASP.NET**,** Characteristics of ASP.NET**,** Architecture of ASP.NET**,** Server Controls**,** HTML Server Controls**,** Types of Web Controls**,** Working with Web Controls & their Properties**,** Validation Web Server Control**,** ASP.NET Event Handling**,** User Controls**,** Data Access through ASP.NET**,** Session and Application Objects in ASP.NET**,** Cookies: properties and limitations	**6**

Suggested Text Books:

1. Jeffrey A.Hoffer, Joey F. George, Joseph S.Valacich, "Modern System Analysis and Design", Third Edition, Pearson Education, Asia, 2002.

2. Elias M. Awad, "System Analysis and Design," Galgotia Publications Pvt.LTd., eleventh Edition, 1991.

3. Lee, "Introducing System Analysis and Design", Volumes 1&11, Galgotia Book Source, 1995.

4. Rajaraman, V, "Analysis and Design of Information System," PHI Pvt.Ltd., 1991 5. Perry Edwards, "System Analysis and Design", McGraw International Edition, 1993.

Suggested Reference Books:

1. Booch Grady, "Object Oriented Analysis and Design", Addisson Wesley, fifth Edition, 1997.
2. Rumbaugh et al, "Succeeding with Booch and Rambaugh Methods", Addisson Wesley, second Edition, 1998.
3. Viswanadham, N and Narahari, Y, "Performance modeling of automated system," Prentice Hall, 1996.

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5DCS 02: Computer System Architecture (Cr, L:T:P:-3,3:1:0)

Objective : The aim of this course is to provide adequate knowledge about computer hardware. In this course student are taughtabout evolution of the computer (how computer technology developed from the early days) CPU (Central processing unit)architecture, Memory management, File organization, and other peripherals.
By acquiring adequate knowledge of this subject student may be able to understand the hardware functioning of the computer and also get an over all idea of the computer system organization. After completing this course, the student will beable to undertake maintenance and repair tasks of computer hardware at IC level.

Unit	Topic	No of Hours
Unit – I	**Overview of Computer Organization:** Evolution of computer, Von Neumann architecture,, Computer generations,, Microprocessors and micro-computers design methodology **Register and Micro -Operations:** Register, Register transfer, Arithmetic micro operation, Logic micro operations, Shift micro operations, Control functions.	7
Unit – II	**Basic Computer Organization :** Instruction codes, Computer Instructions, Timing and Control, Execution of instructions, I/O and interrupt **Central Processor Organization :**Processor Bus organization, ALU : Simple and floating point, Stack Organisation, Instruction formats modes. Addressing schemes, Data transfer and manipulation, Program control	6
Unit – III	**Arithmetic Processor Organization:** Comparison and subtraction of unsigned binary numbers, Addition and subtraction Algorithm, Multiplication and division Algorithms, Floating point operations. **Input / Output Organization :** Peripheral devices, I/O processors, DMA, Interrupt handling, Data communication, Multiprocessor organizations	8
Unit – IV	**Memory Organization:** Concept of primary and secondary memory, Memory hierarchy Cache memory, Associative memory (CAM), Virtual memory concept, Memory management unit	9
Unit- V	**Introduction to Parallel Processing:** Flynn's Classification, Pipelining, Vector Processor, Parallel Processors	6

Suggested Text Books:

1. Computer System Architecture Morris Mano, PHI
2. Structured Computer Organization Tanenbaum (PHI)
3. Computer Organization and Architecture Stallings (PHI)
4. Computer Architecture and Organisation John P. Hayes

Suggested Reference Books:

5. Advanced Computer Architecture Rajeev Chopra, Vikas Pub. House
6. Computer Organization and Design Pal Choudhary (PHI)
7. Introduction to Digital Computer Design V. Rajaraman

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5DCS 03: JAVA Tools

(Cr, L:T:P:-3,4:1:0)

Objective: ***On Completion of this course, the student. Will be able to program Java classes using a subset of data types, Control statements etc. Will be able to construct simple Java user interfaces and identify the data structures in those user interfaces.***

Unit	Topic	No of Hours
Unit – I	**Java Fundamentals :**Introduction**,** Features of Java**,** Types of Java programs**,** Application programs**,** Applets**,** Sevlets, Java architecture**,** JDK tools **Applet :** Basics of applet**,** Applet life cycle**,** Applet tag**,** Paint( ), Update( ), Repaint( ), Set Background( ), SetForeground( ), ShowStatus ( )**,** Different between applet and application programs	**6**
Unit – II	**Graphics :** Drawing lines, Arc**,** Drawing rectangles, oval**,** Drawing ploggon, Polyline**,** Clipping **AWT and Event Handling:**Component**,** Frame**,** Button class**,** Layout managers**,** Label**,** Text field, text area**,** Check box, check box group**,** Choice, list, menu**,** Event handling**,** Adaptor class	**7**
Unit – III	**Swing :** Introduction to JFC**,** JApplets, JToolTip class**,** JLabel, JButton**,** Text components**,** JList, JCombobox**,** JTable, JScrollPane**,** JCheck box, JTtext area	**8**
Unit – IV	**JDBC :**Database connectivity**,** JDBC application architecture**,** Obtaining connection**,** Statement Object**,** Working with Result Set**,** Prepared statements**,** Query Prepared Statement	**8**
Unit-V	**Servlet :**Java servlet, Servlet container, Servlet life cycle, Servlet interface, Generic servlet, Http servlet class, HttpServletRequest, HttpServletResponse interface, getOutputStream, setHeader methods, Parameter passing to servlet	**7**

Suggested Text Readings:

1. Internet and Java Programing R.Krishnamurthy,S. Prabhu New age
2. The Complete Reference Java 2 Herbert Schildt, (TMH)
3. Thinking in Java Bruce Eckel, President Mind View Inc
4. Java 2.0 Programming E.Balaguruswami, (TMH)

Suggested Reference Readings:

1. U.K. Chakraborty and D.G. Dastidar: Software and Systems – An Introduction, Wheeler Publishing, Delhi.
2. Joseph O'Neil and Herb Schildt: Teach Yourself JAVA, TMH, Delhi

5DCS 04:Microprocessor & its Application

(Cr, L:T:P:-3,3:1:0)

Objective: ***On successful completion of this course, the students can enhance their knowledge regarding Microprocessors, Assembly language programming and Interfacing.***

Unit	Topic	No of Hours
Unit – I	**Introduction :** Microprocessor concept**,** Historical review of microprocessor development Organization of a micro computer **The 8085 Architecture :**Internal block diagram**,** 8085 signals and their functions**,** Demultiplexing of buses**,** Pin configuration and logical diagram.	**10**

Unit – II	**8085 Instructions and Programming :**Instruction format**,** Mnemonics**,** Opcode and operand**,** Instruction length**,** Classification of instruction**,** Data transfer**,** Arithmetic**,** Logical Branching**,** Machine control**,** Different interrupts of 8085 Microprocessor**,** Addressing modes**,** Stack operation and related instructions**,** Subroutine and related instructions Machine and assembly language**,** Assembly language programming**,** Debugging of programs	**8**
Unit – III	**Memory and I/O System :** Memory types**,** Memory organization**,** Basic concept of memory interfacing and I/O interfacing**,** Difference between peripheral I/O and memory mapped I/O	**8**
Unit – IV	**Instruction Execution and Timings:**Instruction cycle - machine cycle, T-states Fetch cycle, Memory read and writes cycle, I/O read and write cycle, Interrupt acknowledge cycle, Bus idle cycle, DMA cycle, Machine cycle with wait states., Programs using delays and counters	**8**
Unit-V	**Interfacing With 8085 :** Decoder & Encoder**,** Memory (RAM & ROM)**,** PPI (8255)**,** PIC (8259)**,** USART (8251) **Introduction to x 86 Family (8086) :** Segment register**,** Instruction Pointer**,** Index Register**,** Stack pointer**,,** Flags**,** Programmable Registers (8/16 bit)**,**Even & Odd Addressing Techniques	**8**

Suggested Text Books:

1. Microprocessor Architecture, Programming & Application Gaonkar
2. Fundamentals of Microprocessors & MicroComputers B.Ram
3. Assembly Language Programming A.Leventhal, Osborn
4. Theory & Problems of Microprocessor Fundamentals Tokhein

Suggested Reference Books:

5. Microprocessor & Peripheral Hand book INTEL
6. Computer Architecture & org. J.P Hayes
7. Digital Computer Fundamentals T.C.Bartee
8. An Introduction to Microprocessors A.P.Mathur**.**

5DCS 05: *Unix ,Shell programming and Administration* **(Cr, L:T:P:-3,3:1:0)**

Objective: The popularity of UNIX at educational, research and govt. institutions, and eventually in commercial world is due toits early advantages. UNIX operating is written in high level language is distributed in source form, and provides powerfuloperating system primitives on an inexpensive platform. The subject is intended to explore the features like file system,commands, vi editor, features of shell, shell programming and essential system administration.

Unit	Topic	No of Hours
Unit – I	**UNIX An Introduction :** Unix Architecture**,** Features of UNIX**,** Command structure and usage **File System :** Basics of file**,** Structure of file systems**,** File permission**,** File ownership Inodes, Partition	**8**
Unit – II	**UNIX Commands :** File management commands : **ls, cat, rm, mv, cp, chmod,cmp,diff, comm** Directory management commands **: mkdir, rmdir, cd, pwd** General purpose utilities : **more, ps, wc, printf or echo, lp, banner, bc , cal, date, time, who, man, kill**	**7**

	vi Editor : Three modes**,** Input mode, Adding and replacing text**,** Saving text and quitting – The ex mode**,** The repeat factor**,** Command mode**,** Using operators in deleting and copying text**,** Navigation**,** Pattern search**,** Joining lines**,** Undo, Repeating the last command**,** Moving text from one file to another file**,** Search and replace	
Unit – III	**UNIX Shell :**Different types of UNIX shell**,** Shell interpretive cycle**,** Command line structure**,** Meta character, Pattern matching**,** Escaping , quoting**,** I/O Redirection Command arguments and parameters, Command substitution, Shell variables	**6**
Unit – IV	**Shell Programming :** Shell Script**,** Dot command**,** Interactive execution (read)**,** Command line arguments ($1, $2 etc)**,** The && and | | operators**,** Conditional statements : if , case**,** Loops : for, while, until**,** Shell function**,** Interrupt handling (trap)	**7**
Unit – V	**Essential System Administration :**System Administration jobs**,** Finding files**,** Mounting file system**,** File system checking**,** Compressing files**,** Backing up files (tar, cpio) User management (add user, modify user ,remove user and change password) Understanding /etc/passwd, /etc/shadow, /etc/inittab	**8**

Suggested Text Books:

1. UNIX Concepts & Applications Sumitabha Das, TMH
2. The UNIX Programming Environments Kernighnan , Pike, PHI
3. Design of UNIX Operating System Bach , PHI
4. Unix shell programming: A level Satish Jain, BPB

Suggested Reference Books:

5. Essential System Administration Eleen Frisch, O'Reilly
6. UNIX Shell Programming Yashwant Kanitker

5DCS 06: *Unix ,Shell programming and Administration* LAB

(Cr, L:T:P:-2,0:0:2)

Objective: The subject is intended to explore the features like file system,commands, vi editor, features of shell, shell programming and essential system administration.

	List of Experiments	No of Hours
	_ote : Following practicals are perform by using U_IX / LI_UX operating system. 1. Installing UNIX/LINUX operating system 2. Practice for login, logout, and shutdown operations 3. Practice for Unix commands 4. Practice for **vi** editor 5. Practice for shell programs using conditional, looping instructions and shell features 6. Practice for finding files 7. Practice for user management 8. Practice for file system checking 9. Practice for Compressing file 10. Practice for user authentication and access rights	

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5DCS 07:Java Tool Lab (Cr, L:T:P:-2,0:0:2)

Objective: ***At the end of the semester, the students should have clearly understood and implemented the following:***

	List of Experiments	No of Hours
	1. Practice programs on applets **2.** Practice programs on graphics **3.** Practice programs on awt and event handling **4.** Practice programs on swing **5.** Practice programs on servlets **6.** Practice programs on JDBCWrite a Java Program that reads a line of integers, and then displays each integers, and the sum of all the integers (use string to kenizer class) **7.**Write a Java program that reads on file name from the user then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes. **8.**Write a Java program that reads a file and displays a file and displays the file on the screen, with a line number before each line. **9.**Write a Java program that displays the number of characters, lines and words in a text file.	

5DCS 08: Microprocessor Lab (Cr, L:T:P:-2,0:0:2)

Objective: ***On satisfactory completion of the course, the students should be in a position to develop the skills corresponding to the knowledge acquired in the theoretical subject MICROPROCESSOR & ITS INTERFACING.***

	List of Experiments	No of Hours
	1. Study of 8085 microprocessor kit 2. Addition of two 8 bit numbers with and without carry 3. Subtraction of two 8 bit numbers with and without borrow 4. Multiplication of two 8 bit number using successive addition and resistor shifting method 5. Program to find out square of a number. 6. Programs involving data arrays 6.1 Generating odd numbers. 6.2 Data transfer schemes 6.3 Sorting of odd/even numbers. 6.5 Finding largest and smallest numbers. 6.6 Arrange data array in ascending / descending order 7. Programs using stack 8. Programs using subroutine. 9. Debugging of programs using single stepping on kit 10. Interfacing various Chips with 8085	

5DCS 09: Dot Net TechnologyLab (Cr, L:T:P:-2,0:0:2)

Objective: NET has evolved as an important framework in the recent times for developing windows, web and enterprise

applications. The objective of the subject is to introduce .NET technology which provides a multi-language environment to develop windows based software. The main focus is on .NET framework, development environment as VB.NET, ASP.NET.

	List of Experiments	No of Hours
	1. Practice programs on VB.NET using variables and operators. 2. Practice programs on VB.NET using conditional and control structures. 3. Practice programs on VB.NET using Arrays. 4. Practice programs on VB.NET using Inheritance property. 5. Practice programs on VB.NET using Forms and Controls. 6. Practice programs on Database connectivity using ADO.NET. 7. Practice programs on Data Access through ASP.NET 8. Practice programs on ASP.NET using web controls. 9. Practice programs on ASP.NET using Event-handling. 10. Practice programs on ASP.NET using Cookies.	

5DCS 10: Practical Training Seminar (Cr, L:T:P:-2,0:0:2)

Semester-VI

6DCS 01: Computer Network (Cr, L:T:P:-3,3:1:0)

Objective: Computer networks have global utilities in certain fields. It is used in inter linking libraries, Air Lines, Railway Station for reservations. The knowledge of subject and related software will enable the students to work in organization having such types of facilities. Today most uses of computer network in Internet for transferring files, email, audio-video

- conferencing movies, chatting at remote places.

Unit	Topic	No of Hours
Unit –I	**Data Link Layer and Local Area Networks :** Data Link Layer Design Issues, Framing,Error Detection and Correcting Code Error Control, LAN Protocols, Ethernet and IEEE 802.3 Standard CSMA/CD, IEEE 802.5 LAN Token Ring, PPP : Point to Point Protocol, FDDI : Fiber Distributed Data Interconnect	**8**
Unit – II	**Network Layer and Routing :**Network Layer Design Issues**,** Routing Algorithms**,** Shortest Path Routing**,** Flooding**,** Distance Vector Routing Hierarchical Routing**,** Multicast Routing**,** Internet Protocol**,** IPv4 Header**,** IPv4 Address**,** Subnetting , Internet Control Protocols, IPv6, IPv6 Header, IPv6 Extension Headers. IPv6 Addresses, Routers	**9**
Unit – III	**Transport Layer :**Transport Layer Services**,** Transport Protocol Mechanisms**,** Addressing**,** Multiplexing**,** Establishment a Connection**,** Releasing a Connection**,** Reliable Delivery**,** Flow Control and Buffering**,** Connectionless Transport Protocol : UDP Connection - Oriented Transport	**10**

	Protocol : TCP, TCP Header format, TCP Connection Management, TCP Congestion Control, TCP Timer Management	
Unit – IV	**Application Layer :** Principles of Application Layer Protocols, Domain Name System: DNS,The File transfer Protocol : FTP, Electronics Mail in the Internet : POP, HTTP, IMAP WWW and HTTP, Network Management SNMP	**10**
Unit-V	**Wireless Networking :**Wireless LANs, IEEE 802.11, BlueTooth, WiMAX IEEE 802.16, Building a Network	**9**

Suggested Text Books:

1. Data Communication and Computer Networks Sanjay Pahuja Standard Publishers
2. Data Communication and Computer Networks B. Froujan TMH
3. Computer Networks Andrew S. Tanenbaum, PHI
4. Computer Networks Peterson & Davie
5. Wireless Communications W. Stallings PHI
7. Computer Networks Black, PH

Suggested Reference Books:

4. Computer Networks Peterson & Davie
5. Wireless Communications W. Stallings PHI
7. Computer Networks Black, PH

6DCS 02:Software Engineering

(Cr, L:T:P:-3,3:1:0)

Objective: The evolving role of Software – An industry perspective and Software competitiveness, Software Crisis – Problems and Causes, Generic Process Model – Linear Life Cycle Model, Spiral Model, Prototype Model, Iterative Model.

Unit	Topic	No of Hours
Unit – I	**Introduction :** Software Engineering evolution and impact, Software Crisis, Program and Software Products, Software Characteristics, Software metrics Emergence of Software Engineering **Software Life Cycle Models :**Why use life cycle mdels? Waterfall model, Prototyping Model, Evolutionary Model, Spiral Model, Comparison of different Life Cycle Model **Requirement Analysis and Specification:** Requirement Gathering Methods and Analysis Feasibility Study, Software Requirement Specification (SRS), Contents of SRS document, Characteristics of good SRS documents, Organization of SRS document Techniques for representing complex logic: Decision Tree, Decision Table **Software Design :**What is good Software design? Cohesion and Coupling, Classification of cohesiveness, Classification of coupling, Software Design Approaches, Function Oriented Design, Object oriented design	**7**
Unit – II	.**SOFTWARE DESIGN:** Design and Software quality; Evolution of software design; Fundamental Design concepts- Abstraction, Refinement, Information hiding, Structure, Modularity, Software architecture, Data structure, Concurrency, Verification; Effective Modular Design – Functional	**10**

	independence, Cohesion, Coupling; Basic concepts of Data Flow-Oriented Design & Object-Oriented Design. **PROGRAMMING LANGUAGES & CODING:** Programming Languages Features – Type checking, separate compilation, User Defined Data types, Data abstraction, Exception handling; Structured Coding Techniques; Coding Styles; Coding Standards and Guidelines; Documentation Guidelines;	
Unit – III	**SOFTWARE TESTING:** Testing Objectives; Testing principles; Testability; Walkthrough, Symbolic Execution & Inspection; Black-Box testing; White-Box testing; Software Testing Strategies – Unit testing, Integration testing, Validation testing, System testing; Debugging approaches.	**8**
Unit – IV	**Function Oriented Design:** Overview of SA/SD Methodology, Structure analysis, Data Flow Diagram (DFD), Primitive Symbols used for constructing DFD, Balancing DFD, Developing DFD Model of a system, Context diagram, Level 1 DFD, Decomposition, Numbering of Bubbles, Common errors constructing DFD, Shortcomings of DFD model, Data Dictionary, Structure Design, Structure Chart, Transformation of DFD model into structure chart, Detailed design **Software Testing :**What is testing?, Verification v/s Validation, Design of Test Cases, Level of Testing, Unit Testing, Black Box Testing, Equivalence Class Partitioning, Boundary Value Analysis, White Box Testing, Statement, Branch coverage, Condition, Path coverage, McCabe`s Cyclomatic Complexity Metric, Integration Testing, System Testing **Software Reliability and Quality Management :**Software Reliability, Hardware v/s Software reliability, Reliability metrics, Software Quality, Software Quality System, ISO 9000, What is ISO 9000 for Software industries?, Why and How to get ISO 9000? ISO 9000 Requirements,, Shortcomings of ISO 9000 certification Capability Maturity Model (SEI CMM), Six Sigma	**10**

Suggested Text Books:

1. Fundamental of Software Engineering Rajib Mall, PHI
2. Software Engineering KK Aggarwal, Yogesh Singh New Age International Pub
3. Software Engineering Ian Sommerville Addison Wesley
4. Fundamental of Software Engineering Carlo Ghezzi et al. PHI

Suggested Reference Books:

5. Software Engineering : A Practitioners approach Roger Pressman, MH
6. An Integrated approach to Software Engineering Pankaj Jalote, Springer

6DCS 03: *Data warehouse and Mining* (Cr, L:T:P:-3,4:1:0)

Objective: This course objective is to expose the student's ability to generate and collect data has been increasing rapidly. Notonly are all of our business, scientific, and government transactions now computerized, but the widespread use of digitalcameras, publication tools, and bar codes also generate data.

Unit	Topic	No of Hours
Unit – I	**Data Mining :** Introduction to Data Mining, How Data Mining Works. Data Mining Tasks Data Mining Elements, Data Mining Architecture, Advantages, Disadvantages	**5**

	Data Pre-Processing : Introduction, Task of Data Pre-processing, Data Cleaning, Data Integration, Transformation., Data Reduction	
Unit – II	**Data Mining Techniques :**Introduction, Decision Tree, Clustering, Genetic Algorithms Artificial Neural Networks **Data Warehouse :**Introduction, Definition, Characteristics, Difference between Data Warehouse and Database System, Advantage and Disadvantages, Relationship between Data Mining and Data Warehousing	**10**
Unit – III	**Data Warehouse Architecture :**, Data Warehouse Architectures, Overall and Typical Architecture, Three-Tier architecture, Problem in Three-Tier architecture, Goal of Data Warehouse Architecture, Frameworks of Data Warehouse,Data Warehouse back-end Tools and Utilities	**10**
Unit – IV	**Components of Data Warehouse :** Components of Data Warehouse, Meta Data, Introduction, Definition, Types of Meta data, Use of Meta Data, Data Marts, Access Tools, Data Warehouse Database	**8**
Unit-V	**On-Line Analytical Processing :** Introduction, Characteristics of OLAP System, Motivation for using OLAP, Multidimensional View and Operations, Guidelines for OLAP Implementation, Difference between OLAP & OLTP, Servers, OLAP, ROLAP, MOLAP	**7**

Suggested Text Books:

1. Data Mining and Data Warehousing, Bharat Bhushan Agarwal, Sumit Prakash Tayal, University Science Press Laxmi Publications
2. Data Mining Data Warehousing and OLAP, Gajendra Sharma, KATSON Books.
3. Data Warehousing & Data Mining & OLAP, Berson: TMH

Suggested Reference Books:

4. Data Mining Concepts & Techniques, Jiawei Han and Micheline Kamber, Elsevier Pub.
5. Data Mining Techniques, University Press. Arun.K.Pujari,

6DCS04:PHP & MY SQL (Cr, L:T:P:-3,3:1:0)

Objective: PHP (Personal Home Page) is a simple yet powerful open-source scripting language for creating dynamic webcontent. The millions of web sites powered by PHP are testament to its popularity and ease of use. PHP is used by bothprogrammers, who appreciate its flexibility and speed, and web designers, who value its accessibility and convenience.Programming in PHP covers everything needed to know to create effective web applications.

Unit	Topic	No of Hours
Unit – I	**Overview of PHP :** Static versus Dynamic Websites, Dynamic Contents from Databases Developing Dynamic Internet Applications, Client-Side scripting versus Server-Side Scripting, Advantages and Capabilities of PHP, PHP versus ASP	**6**
Unit – II	**Basic Scripting, Loop and Conditional Constructs:** PHP Scripting Fundamentals, Primitive Data Types, Defining Constants and Variables, Loop Constructs: While, Do-While, For, Exit &	**7**

	Break, Conditional Constructs: If, Else and ElseIf, Switch/Case Statement, PHP Operators: Logical, Relational, Bitwise, Ternary Operator (?)	
Unit – III	**Arrays in PHP :**Usage of Arrays in PHP, Initializing Arrays, Adding and Removing Items from Arrays, One-dimensional and Multidimensional arrays, Array Functions	**8**
Unit – IV	**Working with Databases and Forms:** Configuring PHP for Database Support, PHP's Database API's, PHP's SQL API, MySQL vs. Acess, MySQL vs. SQL Server, Database Drivers **Using Cookies with PHP :** Purpose of Cookies, Cookies Myths, Setting Cookies,Retrieving, Expiring and Deleting Cookies, Storing Arrays in Cookie	**6**
Unit-V	**MySQL :** Introduction to MySQL, Creating Databases and Tables, Working on Data and Tables, Retrieving and Modifying Data, SQL Functions, SQL Operators, Data Definition Statements, Data Manipulation Statements, Stored Procedures and Functions, Creating Triggers, Creating simple dynamic report using database	**9**

Suggested Text Books:

1. Straight To the Point: PHP, Dinesh Maidasani, Laxmi Publications (Firewall)
2. Straight To the Point: MySQL, Dinesh Maidasani, Laxmi Publications (Firewall)
3. How to Do Everything with PHP & MySQL, Vikram Vaswani, McGraw Hills

Suggested Reference Books:

4. The Complete Reference MySQL, Vikram Vaswani, TMH
5. Web Database Application with PHP & MySQL, Beighley, SPD/O' Reilly

6DCS 05: *Introduction to Network security and Cryptography* (Cr, L:T:P:-3,3:1:0)

Objective: The aim of this course is to provide adequate knowledge about cryptography and network security. In this course student are taught about need and principle of security, different types of attacks, cryptographic techniques, symmetric and asymmetric key cryptography, Internet Security Protocols, E-mail Security, Firewall and VPN.

Unit	Topic	No of Hours
Unit – I	**Computer Security :**Introduction, Need of Security, Security approaches, Principle of Security **Attacks on Computer :** Attacks: A general and technical view, Active and passive attacks, Program that attacks: Virus, Worm, Trojan horse, Applets, ActiveX controls Cookies, Scripts, Preventing Virus, Specific attacks, Sniffing and Spoofing, Phishing Pharming or DNS spoofing	**5**
Unit – II	**Cryptographic : Concepts and Techniques:** Plain and Cipher Text, Substitution techniques, Caesar Cipher, Mono-alphabetic Cipher, Polyalphabetic substitution Cipher Playfair Cipher, Transposition Techniques, Rail Fence Technique, Simple Columnar Transposition Technique, Vernam Cipher (One time pad),Encryption and Decryption	**10**

Unit – III	**Symmetric and Asymmetric Key Cryptography:** Block and stream cipher, Overview of Symmetric Key Cryptography, Overview of Asymmetric Key Cryptography, Digital signature, Concept of message digests	**10**
Unit – IV	**Internet Security Protocols:** Basic concept, Introduction of TCP/IP, Brief Overview of Secure socket layer (SSL),Secure Hyper Text Transfer Protocol (SHTTP), Time stamping Protocol (TSP), Secure Electronic Transaction (SET)	**8**
Unit-V	**E-mail Security:** Introduction, SMTP, Brief Overview of, Privacy Enhanced Mail (PEM) Pretty good privacy (PGP), Secure multipurpose secure Internet mail Extensions (SMIME) **Firewall:** Introduction, Types of firewall, Packet filter, Application gateways, Concepts of DMZ, Limitation of firewall, Virtual Private	**8**

Suggested Text Books:1. Cryptography and Network Security Atul Kahate, TMH

2. Cryptography and Network Security Behrouz Forouzan, TMH / MH
3. Network Security Essentials Stallings W Pearson Education Asia
4. Cryptography and Network Security Stallings W Pearson Education Asia

Suggested Reference Books: 5. Network Security Kaufmann Charlie et al. Pearson Education Asia

6. Network and Internet Security Vijay Ahuja A P Professional

1.

6DCS 06:Software Engineering Lab

(Cr, L:T:P:-2,0:0:2)

Objective: ***The Software Engineering has been developed by keeping in mind the following objectives:***

- ***To impart state-of-the-art knowledge on Software Engineering and UML in an interactive manner through the Web***
- ***Present case studies to demonstrate practical applications of different concepts***
- ***Provide a scope to students where they can solve small, real life problems***

All the while it is intended to present Software Engineering as an interesting subject to the students where learning and fun can go alongside.

	List of Experiments	**No of Hours**
	In this lab first 8 experiments are to practice software engineering techniques. Use any open source CASE tool. Many of them are available at www.sourceforge.net. You can choose any other CASE tool, as per choice. Language : C++ / JAVA Design Approach : Object Oriented	

	These designing can be done on any automation system e.g. library management system, billing system, payroll system, bus reservation system, gas agency management system, book-shop management system, students management system. 1. Do a feasibility study 2. Document all the requirements as specified by customer in Software Requirement Specification 3. Design sequence diagrams for project 4. Design Collaboration diagram 5. Design Data Flow Diagram for the project 6. Design Entity Relation Diagram for the project 7. Design Class diagram 8. Design at least 10 test cases for each module. **9 -10** Code and test the project, which you have designed in last 8 labs	

6DCS 07: Advance Database Lab

(Cr, L:T:P:-2,0:0:2)

Objective: ***On satisfactory completion of this course, the students will be in a position to further their knowledge and skill with regards to DATABASE MANAGEMENT SYSTEM that they had learnt in the sessional course DATABASE MANAGEMENT SYSTEM LAB in the Part – IV First Semester***.

	List of Experiments	No of Hours
	1. WORKING WITH PROCEDURE **a.** Introduction to procedure. **b.** Creating stored procedures using SQL*Plus, Procedure Builder. **c.** Concept of parameters. **d.** Methods for passing parameters. **e.** Server-side procedure **f.** Client-side procedure. **2. WORKING WITH FUNCTIONS** **a)** Introduction to function and stored function. **b)** Creation of functions and stored functions. **c)** Calling a function. **d)** Comparing procedures and functions. **e)** Benefits of stored procedure and functions. **3. WORKING WITH DATABASE TRIGGERS** **a.** Concept of triggers. **b.** Designing triggers. **c.** Components of a trigger.	

	d. Creation of triggers. **e.** Firing sequence of database triggers **f.** Implementation of triggers. **g.** Benefits of database triggers. **4. WORKING WITH FORMS (ADVANCED)** **a.** Introduction of Multiple form application. **b.** Trigger and its components. **c.** Defining triggers. **d.** Using and debugging of triggers. **e.** Query triggers. **f.** Form triggers. **g.** Validation using triggers. **h.** Navigation triggers. **i.** Transaction processing and its characteristics. **.WORKING WITH REPORT (ADVANCED)** **a.** Creating report using wizard. **b.** Creating queries and groups **c.** Creating and using report parameters **d.** Triggers in report	

6DCS 08: PHP & SQL LAB (Cr, L:T:P:-2,0:0:2)

Objective

	List of Experiments	No of Hours
	1. Practice programs for Basic Scripting, Loop and Conditional Constructs. 2. Practice programs for Arrays in PHP. 3. Practice programs for Working with MS-Access Database and Forms. 4. Practice programs for Working with MySQL Database and Forms. 5. Practice programs for Working with Using Cookies with PHP. 6. Practice programs in MySQL for creating Databases and Tables 7. Practice programs in MySQL for Retrieving, Modifying, and Deleting Data 8. Practice programs in MySQL based on stored procedures and functions. 9. Practice programs in MySQL for creating triggers.	

6DCS 09: Project (Cr, L:T:P:-2,0:0:2)

Objective

	List of Experiments	No of Hours
	Project Work is intended to provide opportunity for students to develop understanding of the interrelationship between different courses learnt in the entire diploma programme and to apply the	

	knowledge gained in a way that enables them to develop & demonstrate higher order skills. The basic objective of a project class would be to ignite the potential of students' creative ability by enabling them to develop something which has social relevance, aging, it should provide a taste of real life problem that a diploma-holder may encounter as a professional. It will be appreciated if the polytechnics develop interaction with local industry and local developmental agencies viz. different Panchayet bodies, the municipalities etc. for choosing topics of projects and / or for case study. The course further includes preparation of a Project Report which, among other things, consists of technical description of the project. The Report should be submitted in two copies, one to be retained in the library of the institute. The Report needs to be prepared in computer using Word and CADD software wherever necessary **GENERAL GUIDELINE:** Project Work is conceived as a group work through which the spirit of team building is expected to be developed. Students will be required to carry out their Project Works in groups under supervision of a lecturer of their core discipline who will work as a Project Guide. It is expected that most of the lecturers of the core discipline will act as project guide and each should supervise the work of at least two groups. Number of students per group will vary with the number of lecturers acting as Project Guide and student strength of that particular class	

6DCS 08: Project Stage

(Cr, L:T:P:-2,0:0:2)

Objective

	List of Experiments	No of Hours
	Project Work is intended to provide opportunity for students to develop understanding of the interrelationship between different courses learnt in the entire diploma programme and to apply the knowledge gained in a way that enables them to develop & demonstrate higher order skills. The basic objective of a project class would be to ignite the potential of students' creative ability by enabling them to develop something which has social relevance, aging, it should provide a taste of real life problem that a diploma-holder may encounter as a professional. It will be appreciated if the polytechnics develop interaction with local industry and local developmental agencies viz. different Panchayet bodies, the municipalities etc. for choosing topics of projects and / or for case study. The course further includes preparation of a Project Report which, among other things, consists of technical description of the project. The Report should be submitted in two copies, one to be retained in the library of the institute. The Report needs to be prepared in computer using Word and CADD software wherever necessary **GENERAL GUIDELINE:** Project Work is conceived as a group work through which the spirit of team building is expected to be developed. Students will be required to carry out their Project Works in groups under supervision of a lecturer of their core discipline who will work as a Project Guide. It is expected that most of the lecturers of the core discipline will act as project guide and each should supervise the work of at least two groups. Number of students per group will vary with the number of lecturers acting as Project Guide and student strength of that particular class	