J. S. University, Shikohabad

Diploma

THREE YEAR DIPLOMA COURSE IN
Computer Science & Engineering
&
Information Technology

Scheme
&
Syllabus

STUDY AND EVALUATION SCHEME FOR
THREE YEAR DIPLOMA COURSE IN
COMPUTER SCIENCE ENGG &
INFORMATION TECHNOLOGY.

SEMESTER - FIRST

S.No.	Subject Code	Name of Subject	Periods Per Week				Evaluation Scheme			Duration
			L	T	P	D	Sessional	End Exam	Total	
THEORY SUBJECT										
1	DAS-11	Professional Communication	4	1	-	-	20	50	70	2.5
2	DAS-12	Applied Mathematics-I	4	1	-	-	20	50	70	2.5
3	DAS-13	Applied Physics-I	4	1	-	-	20	50	70	2.5
4	DAS-14	Applied Chemistry	4	1	-	-	20	50	70	2.5
5	DCS-11	Components Of Information Technology.	4	1	-	-	20	50	70	2.5
PRACTICA/DRAWING SUBJECTS										
6	DAS-11P	Professional Communication	-	-	4		20	40	60	3
7	DAS-14P	Applied Chemistry	-	-	4		20	40	60	3
8	DGD-10	Games//Social and Cultural Activities + Discipline (15 + 10)							25	
								Grand Total	495	

NOTE:- (1) Each period will be 50 minutes duration.

(2) Each session will be of 16 weeks.

(3) Effective teaching will be at least 14 weeks.

(4) Remaining periods will be utilised for revision etc.

COMPUTER SCIENCE ENGG & INFORMATION TECHNOLOGY.

SEMESTER - Second

S.No.	Subject Code	Name of Subject	L	T	P	D	Sessional	End Exam	Total	Duration
			\multicolumn{4}{c}{Periods Per Week}	\multicolumn{4}{c}{Evaluation Scheme}			
**THEORY SUBJECT**										
1	DAS-22	Applied Mathematics-II	4	1	-	-	20	50	70	2.5
2	DAS-23	Applied Physics-II	4	1	-	-	20	50	70	2.5
3	DEE-22	Electrical Engineering-I	4	1	-	-	20	50	70	2.5
4	DME-24	Engineering Mechanics and Material	4	1	-	-	20	50	70	2.5
5	DCS-21	Operating system	4	1	-	-	20	50	70	2.5
6	DEC-22	Fundamental of Electronic Devices	4	1	-	-	20	50	70	2.5
**PRACTICA/DRAWING SUBJECTS**										
7	DAS-23P	Applied Physics-II Lab	-	-	4	-	20	40	60	3
8	DEE-22P	Electrical Engineering-I Lab	-	-	4	-	20	30	50	3
9	DME-24P	Applied Mechanics Lab	-	-	4	-	20	40	60	3
10	DEC-22P	Fundamental of Electronic Devices Lab	-	-	4	-	30	60	90	3
11	DGD-20	Games//Social and Cultural Activities + Discipline (15 + 10)							25	
								Grand Total	705	

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STUDY AND EVALUATION SCHEME FOR
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COMPUTER SCIENCE ENGG &
INFORMATION TECHNOLOGY.

SEMESTER - THIRD

S.No.	Subject Code	Name of Subject	Periods Per Week				Evaluation Scheme			Duration
			L	T	P	D	Sessional	End Exam	Total	
THEORY SUBJECT										
1	DAS-31	Applied Mathematics-III	4	1	-	-	20	50	70	2.5
2	DCS-32	Programming in C & C++	4	1	-	-	20	50	70	2.5
3	DCS-33	Computer Hardware And Maintenance.	4	1	-	-	20	50	70	2.5
4	DCS-34	Electronic Instruments And Measurement	4	1	-	-	20	50	70	2.5
PRACTICA/DRAWING SUBJECTS										
5	DCS-32P	Programming in C & C++ Lab	-	-	10	-	30	40	70	3
6	DCS-33P	Computer Hardware And Maintenance Lab	-	-	4	-	30	40	70	3
7	DCS-34P	Electronic Instruments And Measurement Lab	-	-	4	-	30	40	70	3
9	DGD-30	Games//Social and Cultural Activities + Discipline (15 + 10)							25	
								Grand Total	515	

NOTE:- (1) Each period will be 50 minutes duration.

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(3) Effective teaching will be at least 14 weeks.

(4) Remaining periods will be utilised for revision etc.

STUDY AND EVALUATION SCHEME FOR
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SEMESTER - FOURTH

S.No.	Subject Code	Name of Subject	Periods Per Week				Evaluation Scheme			Duration
			L	T	P	D	Sessional	End Exam	Total	
THEORY SUBJECT										
1	DCS-41	Data Communication & Computer Network	4	1	-	-	20	50	70	2.5
2	DCS-42	Office Tools	4	1	-	-	20	50	70	3
3	DCS-43	Dot(.) Net Technology	4	1	-	-	20	50	70	2.5
4	DCS-44	Microprocessor & Its Application	4	1	-	-	20	50	70	2.5
PRACTICA/DRAWING SUBJECTS										
5	DCS-41P	Data Communication & Computer Network Lab	-	-	4	-	30	40	70	3
6	DCS-42P	Office Tools Lab	-	-	4	-	30	40	70	3
7	DCS-43P	Dot(.) Net Lab	-	-	4	-	30	40	70	3
8	DCS-44P	Microprocessor Lab	-	-	4	-	30	40	70	3
9	DGD-40	Games//Social and Cultural Activities + Discipline (15 + 10)							25	
								Grand Total	585	

NOTE:- (1) Each period will be 50 minutes duration.

(2) Each session will be of 16 weeks.

(3) Effective teaching will be at least 14 weeks.

(4) Remaining periods will be utilised for revision etc.

COMPUTER SCIENCE & ENGG. (C.S.)
OR
INFORMATION TECHNOLOGY (I.T.)

SEMESTER - FIFTH

S.No.	Subject Code	Name of Subject	Periods Per Week				Evaluation Scheme			Duration
			L	T	P	D	Sessional	End Exam	Total	
THEORY SUBJECT										
1	DIM-51	Industrial Management & Entrepreneurship development	4	1	-	-	20	50	70	2.5
2	DCS-51	Data structure using C	4	1	-	-	20	50	70	2.5
3	DCS-52	RDBMS	4	1	-	-	20	50	70	2.5
4	DCS-53	Java Programming	4	1	-	-	20	50	70	2.5
5	DCS-54	E-commerce and ERP	4	1	-	-	20	50	70	2.5
PRACTICA/DRAWING SUBJECTS										
5	DCS-51P	Data structure using C	-	-	4	-	20	40	60	3
6	DCS-52P	RDBMS	-	-	4		20	40	60	3
7	DCS-53P	Java programming Lab			4		20	50	70	3
8	DFE-51P	Field Exposure					20	50	70	3
9	DGD-50	Games//Social and Cultural Activities + Discipline (15 + 10)							25	
								Grand Total	635	

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(3) Effective teaching will be at least 14 weeks.

(4) Remaining periods will be utilised for revision etc.

STUDY AND EVALUATION SCHEME FOR
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OR
INFORMATION TECHNOLOGY (I.T.)

SEMESTER - SIXTH

S.No.	Subject Code	Name of Subject	Periods Per Week				Evaluation Scheme			Duration
			L	T	P	D	Sessional	End Exam	Total	
THEORY SUBJECT										
1	DDM-61	Environment Education & Disaster Management	4	1	-	-	20	50	70	2.5
2	DCS-61	Internet & Web Technology	4	1	-	-	20	50	70	2.5
3	DCS-62	Computer Graphics	4	1	-	-	20	50	70	2.5
PRACTICA/DRAWING SUBJECTS										
	DCS-61P	Project					50	100	150	-
5	DCS-62P	Computer Graphics Lab	-	-	4	-	30	60	90	3
6	DCS-63P	Internet & Web Technology Lab	-	-	4	-	30	60	90	3
9	DGD-60	Games//Social and Cultural Activities + Discipline (15 + 10)							25	
								Grand Total	565	

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(3) Effective teaching will be at least 14 weeks.

(4) Remaining periods will be utilised for revision etc.

SEMESTER-I

[DAS-11]Professional Communication

1. PART I : COMMUNICATION IN ENGLISH

1.1 Concept of communication, importance of effectivecommunication, types of communication, formal, informal, verbal and nonverbal, spoken and written. Techniques ofcommunication, Listening, reading, writing and speaking, Barriers in communication, Modern tools of communication-Fax, e-mail, Telephone, telegram, etc.

1.2 Technical communication Vs. General Communication :Development of comprehension and knowledge of Englishthrough the study of text material and language exercises based on the prescribed text book of English.

1.3 Development of expression through:

1.3.1 Paragraph writing, Essay writing, Proposal writing.

1.3.2 Business and personal correspondence (Letters) :Kinds of letters:-Official, demi-official, unofficial , for reply or inreply, quotation, tender and order giving letters.Application for a job, Resume.

1.3.3 Report writing and Note making and minutes writing.

1.4 Functional Grammar : Study of sentences and parts of speech(word class), Preposition, Verb, Articles, Abbreviations.

1.5 Vocabulary Building: Homophones, One word substitution,Idioms and Phrases.

1.6 Composition on narrative, descriptive, imaginative,argumentative, discussion and factual topics.

2. PART II : COMMUNICATION IN HINDI

2.1 Development of comprehension and knowledge of Hindi usagethrough rapid reading and language exercises based onprescribed text material developed by IRDT.

2.2 Development of expression through ;Letter writing in Hindi:Kinds of letters:-Official, demi-offical, unofficial , for reply or inreply, quotation, tender and order giving letters,Application for a job, Press release in Hindi, Reportwriting.

Note: Paper should be in two parts, part I - English and part II -Hindi.

REFERENCE BOOKS

1. Bookshelf worksheet of Professional Communication, New Delhi: Bookshelf 2008

2. Functional Skills in language and literature by R. P. Singh,New Delhi : Oxford University Press.

3. Oxford Engilsh Hindi English Dictionary, New Delhi : Oxford2008

[DAS-11P]Professional Communication Lab

For the practice/exercise the following is suggested :-

1.A. Phonetic transcription

  B. Stress and intonation :

(At least 10 word for writting and 10 word for pronunciation)

2. ASSIGNMENT : (Written Communication)

Two assignment of approximately 400 word each decided by the teacher concerned.

THE FOLLOWING MODEL IS PROPOSED :

1. a picture/photograph

2. an opening sentence or phrase

3. a newspaper/magzine clipping or report

4. factualwritting which should be informative or argumentative.

(The students may refer to "Bookshelf worksheet" for technical communication)

3. Oral Conversation:

1. Short speeches/declamation : Bid farewell, Felicitate somebody, Celebrate a public event, Offer condolences

2. Debate on current problems/topics

3. MockInterview : Preparation, Unfolding of personality and Expressing ideas effectively

4. Group discussion on current topics/problems

5. Role Play/ general conversation : Making polite enquiries at Railway Station, Post Office, Banks and other Public places, Replying to such enquiries, enquiring about various goods sold in the market and discussing their prices. Complaining about service at Hotel, restaurant, Offering apologies in reply to such complaints, complain to a company about a defective product you have brought, reply to such complaints.

6. Presentation skill, Use of OHP and LCD.

7. Through drilling of model words involving different phonetic symbols (Vowels, Consonants, Difthongs).

4. Aural : Listening to conversation/talk/reading of short passage and then writting down the relevant or main points in the specified number of words and answering the given questions The assignments/project work are to be evaluated by the internal/ external examiner. The distribution of 30 marks e.g.

10 marks for assignment (Given by subject teacher as sessional marks)

10 marks for conversation and viva-voce

10 marks for phonetic transcription

[DAS-12]   APPLIED MATHEMATICS - I

Unit -1: Algebra-I

1. Arithmetic Mean: nth term, sum ,Mean
2. Geometric Mean: nth term, sum ,Mean
3. Binomial Theorem for positive, negative and fractional index (without proof)
4. Determinants: Elementary properties of determinants of order 2 and 3, system of linear
    equations and solution , Cramer`s Rule

. **Unit -2: Algebra-II**

1. Vector Algebra: Dot and cross product , Scalar and vector triplet product
2. Complex Numbers: Representation , Modulus and Amplitude , De-Moivre theorem
application in solving algebraic equations.

Unit -3: Trigonometry

1. Relation between sides and angles of a triangle : Statement of various formula showing
Relationship between sides and angles of a trangle.
2. Inverse Circular Funtions

Unit -4: Differential Calculus-I
1. Functions, limits, continuity , elementary methods of finding limit(right and left)
2. Differentiability, method of finding derivatives, functions of a function, Logarithmic
    Differentiation, Differentiation of Implicit functions.

Unit -5: Differential Calculus-II
1. Higher order derivatives
2. Derivatives of Special Functions (Exponential , Logarithmic , and Inverse circular functions)
3. Application : Finding Tangent, Rate Measure , Velocity and Acceleration

[DAS-13]   APPLIED PHYSICS-I

Topic Wise Distribution

S.no.	Topics	Marks Distribution
1	Unit &Dimensions	4
2	Errors & Measurement	4
3	Heat & Thermodynamics	5
4	Friction	4
5	Circular Motion	5
6	Motion of Planets & satellites	5
7	Dynamic of Rigid Body	6
8	Fluid Mechanics	6
9	Harmonic Motion	6
10	Acoustics	5
	Total	**50**

Detailed Contents

UNIT AND DIMENSION

Physical quantity and its types, Unit and its types, Definition of SI units, Dimensions of physical quantities, Dimensional formula and dimensional equation, Principle of homogeneity and its applications, Limitations of dimensional analysis

ERRORS AND MEASUREMENTS

Errors, Accuracy and Precision, Types of errors in measurement, Combination of errors, Significant figures, Rounding off

HEAT AND THERMODYNAMICS

Modes of heat transfer, Coefficient of thermal conductivity, Conduction through compound medium, Isothermal and Adiabatic process, Zeroth and First law of thermodynamics

FRICTION

Introduction, Physical significance of friction, Advantage and disadvantage of friction and its role in daily life, Coefficient of static and dynamic friction and their measurement, Angle of friction, Angle of repose, Motion of a body on a inclined plane

CIRCULAR MOTION

Uniform circular motion, Angular velocity and acceleration, Centripetal acceleration, Relation between linear and angular velocity and acceleration, Centripetal and centrifugal forces, Practical applications of centripetal forces

MOTION OF PLANETS AND SATELLITES

Gravitational force, Acceleration due to gravity and its variation with respect to height and depth from earth, Kapler's law, Escape and orbital velocity, Time period of satellite, Geo-stationary satellite

DYNAMIC OF RIGID BODY

Rigid body, Rotational motion, Moment of inertia, Theorems (parallel and perpendicular) of moment of inertia, Expression of M.I. of regular bodies (lamina ,disc, sphere, cylindrical), Radius of gyration, Angular momentum, Conservation of angular momentum, Torque, Rotational kinetic energy, Rolling of sphere on the slant plane

FLUID MECHANICS

Surface tension, Capillary action and determination of surface tension from capillary rise method, Equation of continuity, Bernoulli's theorem and its application, Stream line and Turbulent flow, Viscosity, Stokes law, Reynold's number

HARMONIC MOTION

Periodic function, Characteristics of SMH, Equation of SMH and determination of velocity and acceleration, Simple pendulum and derivation of its periodic time, Spring-mass system, Energy conservation of SHM, Concept of phase, Definition of free, forced, damped and undamped vibrations, Resonance and its application, Q-factor

ACOUSTICS

Definition of pitch, loudness ,quality and intensity of Sound waves, Echo, Reverberation and reverberation time, Sabine's formula without derivation, Acoustics of building defects and remedy.

[DAS-14]   APPLIED CHEMISTRY

1. ATOMIC STRUCTURE :

Basic concept of atomic structure, Matter wave concept, Quantum number, Haisenberg's Uncertainty Principle, Shaples of orbitals.

2. CHEMICAL BONDING :

Covalent bond, Ionic & Co-ordinate, Hydrogen bonding, Valence bond theory, Hybridisation, VSEPR theory, Molecular orbital theory.

3. CLASSIFICATION OF ELEMENTS :

Modern classification of elements (s,p,d and f block elements), Periodic properties : Ionisation potential electro negativity, Electron affinity.

4. ELECTRO CHEMISTRY-I:

Arrhenius Theory of electrolytic dissociation, Transport number, Electrolytic conductance, Ostwald dilution law. Concept of Acid and bases :Bronsted, Arrhenius and Lewis theory. Concept of pH and numericals. Buffer solutions,

Indicators, Solubility product, Common ion effect with their application,

5. ELECTRO CHEMISTRY-II:

Redox reactions, Electrode potential(Nernst Equation), Electro-chemical cell (Galvanic and Electrolytic). EMF of a cell and free energy change.Standard electrode potential, Electro chemical series and its application.Chemical and Electrochemical theory of corrosion, Galvenic Series. Prevention of corrosion by various method.

6. CHEMICAL KINETICS :

Law of mass action, order and molecularity of rection. Activation energy, rate constants, Ist order reactions and 2nd order reactions.

7. CATALYSIS :

Definition Characteristics of catalytic reactions, Catalytic promotors and poison , Autocatalysis and Negative catalysis, Theory of catalysis, Application.

8. SOLID STATE :

Types of solids (Amorphous and Crystalline), Classification (Molecular, Ionic, Covalent, Metallic), Band theory of solids (Conductors, Semiconductors and Insulators), types of Crystals, FCC, BCC, Crystal imperfection.

9. FUELS :

Definition, its classification, high & low Calorific value.Determination of calorific value of solid and liquid fuels by Bomb calorimeter.Liquid fuel - Petroleum and its refining, distillate of petroleum (Kerosene oil, Disel and Petrol), Benzol and Power alchol. Knocking, Anti-knocking agents, Octane number and Cetane number. Cracking and its type, Gasoling from hydrogenation of coal (Bergius process and Fischer tropsch's process) Gaseous Fuel - Coal gas, Oil gas, Water gas, Producer gas, Bio gas, LPG and CNG. Numerical Problems based on topics

10. WATER TREATMENT :

Hardness of water, Its limits and determination of hardness of water by EDTA method. Softening methods (Only Sods lime, Zeolote and Ion exchange resin process). Disadvantage of hard water in different industries, scale and sludge

formation, Corrosion, Caustic embritlement, primming and foarming in biolers. Disinfecting of Water By Chloramine-T, Ozone and Chlorine. Advantage and disadvantage of chlorinational, Industrial waste and sewage, Municipality waste water treatment, Definition of BOD and COD. Numerical Problems based on topics.

11. COLLOIDAL STATE OF MATTER :

Concept of collidal and its types, Different system of colloids, Dispersed phase and dispersion medium.Methods of preparation of colloidal solutions, Dialysis and electrodialysis. Properties of colloidal solution with special reference to absorption, Brownian Movement, tyndal effect, Electro phoresis and coagulation. relative stability of hydrophillic and hydrophobie colloids. Protection and protective colloids. Emulsion, Types, preparation,properties and uses. Application of colloids chemistry in different industries.

12. LUBRICANTS :

Definition, classification, Necessasity and various kinds of lubricants. Function and mechanism of action of lubricants

and examples. Properties of lubricants, Importance of additive compunds in lubricants, Synthetic lubricants and

cutting fluids. Industrial application, its function in bearing.

13. HYDROCARBONS:

A. Classification and IUPAC nomeuclature of organic compounds hamologous series (Functional Group)

B. Preparation, properties and uses of Ethane, Ethene, Ethyne (Acetylene), Benzene and Toluene.

14. ORGANIC REACTIONS & MECHANISM:

1. Fundamental auspects -

A. Electrophiles and nucleophiles, Reaction Intermediates, Free radical, Carbocation, Carbanion

B. Inductive effect, Mesomeric effect, Electromeric effect.

2.A. Mechanism of addition reaction (Markonicove's Rule, Cyanohydrin and Peroxide effect),

B. Mechanism of Substitution reactions; (Nucleophillic) hydrolysis of alkyle halide, electrophillic substitution

halogenation, Sulphonation, Niration and friedel-Craft reaction.

C. Mechanism of Elimination reaction - Dehydration of primary alcohol, Dehyrohalogenation of primary alkyl halide.

15. POLYMERS :

1. Polymers and their classification. Average degree of polymerisation, Average molecular weight, Free radical polymerisation (Mechanisms)

2. Thermosetting and Thermoplastic resen -

A. Addition polymers and their industrial application-Polystyrene, PVA, PVC, PAN, PMMA, Buna-S, Buna-N, Teflon.

B. Condensation polymer and their industrial application : Nylon 6, Nylon 6,6, Bakelite, Melamine formaldehyde,

Urea formaldehyde, Terylene or Decron, Polyurethanes.

3. General concept of Bio polymers, Biodegradable polymers and inorganic polymers (Silicon).

16. SYNETHETIC MATERIALS :

A. Introduction - Fats and Oils

B. Saponification of fats and oils , Manufacturing of soap.

C. Synthetic detergents, types of detergents and its manufacturing.

3. EXPLOSIVES: TNT, RDX, Dynamite.

    4. Paint and Varnish

[DAS-14P]   LIST OF PRACTICALS

1. To analyse inorganic mixture for two acid and basic radicals from following radicals:

A. Basic Radicals : NH_4^+, Pb^{++}, Cu^{++}, Bi^{+++}, Cd^{++}, As^{+++}, Sb^{+++}, Sn^{++}, Al^{+++}, Fe^{+++}, Cr^{+++}, Mn^{++}, Zn^{++}, Co^{++} Ni^{++}, Ba^{++}, Sr^{++}, Ca^{++}, Mg^{++}

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

2. To determine the percentage of available Chlorine in the supplied sample of Bleaching powder.

3. To determine the total hardness of water sample in terms of CaCO3 by EDTA titration method using Eriochroma black-T indicator.

4. To determine the strength of given HCl solution by titration against NaOH solution using Phenolphthalium as indicator.

5. To determine the Chloride content in supplied water sample by using Mohr's methods.

6. Determination of temporary hard ness of water sample by OHener's method.

[DCS-11]Components of Information Technology

1. **Intoduction of Information Technology**
   Definition Of Information, difference betwwen data and information,need for information, qualities of information,value of information, categories of information,level of Information. Use of Information Technology in Office Automation, Computers & Its Types

2.**Components of Information Technology:**

   Components Hardware & its Functioning - Input Unit, Control Processing Unit, Output Unit, Types   of Input Units & Output 54 | Page Units Computer Software - Types of Software, System Software, Application Software.

3.**DataResentation :**

   Binary Number System, Conversion from Decimal to Binary, Conversion from Binary to Decimal, Hexadecimal and Octadecimal No.System, Memory Addressing and its Importantance, ASCII and EBCDIC coding System.

4.**Emerging Trends in Information Technology** –

Concepts of Networking and Local Area Networking, Advanced Input/Output Devices and their use(MICR,OCR,Scanners, Light pen,Plotters, Microfilms, Rewritable, CD-ROMS ,Multimedia, Video Conferencing, Tele Comferencing .

5.**Components of computer**

Types of PC e.g. Desktops, Labtops, Notebooks, Palmtops, Memory System of a PC, Primary Memory,RAM(Ramdom Access Memory, ROM(read only Memory), Secondary Memory, Types of Secondary Storage, Acces Mechanism of storage Devices, PC setup and ROM-BIOS, Elemantary Trouble shooting.

6. **MOBILE COMPUTING :** I

ntroduction, Personnel Communication Services (PCS), Gobal System Mobile Communication (GSM), GPRS, Mobile Data Communication, WAP, 3G Mobile service.

[DAS-22] - Mathematics - II

Unit -1:Integral Calculus-I

Methods of finding indefinite integral
1. Integration by substitution
2. Integration by parts
3. Integration by partial fraction
4. Integration of special functions

Unit-2:Integral Calculus-II

1.Definite integral: definition and properties, Evaluation of integrals
2. Applications of definite integrals: Finding areas bounded by simple curves, Length of simple curves, Volume of solids of revolution,
3.Numerical Integration: Trapezoidal rule, Simpson`s 1/3rd rule and Simpson`s 3/8 th rule

Unit-3:Coordinate Geometry-I

1.Circle : Equation of circle in standard form, centre –radius form , diameter form and two intercept form.
2. Standard form of curves and their simple properties:
   Parabola
   Ellipse
   Hyperbola

Unit-4: Coordinate Geometry-II

1.Distance between two points in space , direction cosines and direction ratios, Finding equation of a straight line and shortest distance between two lines.
2. Sphere

SEMESTER-II

[DAS-23]Applied Physics-II

1. Optics
Nature of light, Laws of Reflection and Refraction, Snell's Law, Interference (Constructive and Deotructive),
Diffraction and Polarization (Concept Only), Law of Mallus and Polaroids.
2. Introduction To Fibre Optics :

Critical angle, Total internal reflection, Principle of fibre optics, Optical fibre, Pulse dispersion in step-index fibres, Graded index fibre, Single mode fibre, Optical sensor.

3. Lasers and its Applications

Absorbtion and Emission of energy by atom, Spontaneous and Stimulated Emission, Poluation inversion, Main component of laser and types of laser- Ruby Laser, He-Ne laser and their applications. Introduction to MASER.

4. Electrostatics :

Coutomb's Law, Electric field, Electric potential, Potentialenergy, Capacator, Energy of a charged capacitor, Effect of dielectric on capacators.

5. D.C. Circuits

Ohm's Law, Kirchoff's Law and their simple application, Principle of Wheat Stone bridge and application of this principle in measurement of resistance (Meter bridge and Post Office Box); Carey Foster's bridge, potentiometer.

6. Magnetic Materials and Their Properties:

Dia, Para and Ferro-magnetism, Ferrites, Magnatic Hysteresis Curve and its utility. Basic idea of super conductivity, Meissner's effect.

7. Semiconductor Physics

Concept of Energy bands in soldis, classification of solids into conductors, insulators and semiconductors on the basis of energy band structure. Intrinsic and extrinsic semiconductors, Electrons and holes as charge carriers in semiconductors, P-type and N-type semiconductors.

8. Junction Diode and Transister :

Majority and Minority charge carriers,P-N junction formation, barrier voltage, Forward and reverse biasing of a junction diode, P-N junction device characteristics, Formation of transistor, transistor-action, Base, emitter and collector currents and their relationship LED's.

9. Introduction To Digital Electronics :

Concept of binary numbers, Interconversion from binary to decimal and decimal to binary. Concepts of Gates (AND, NOT,OR).

10. Non-conventional energy sources:

(a) Wind energy : Introduction, scope and significance, measurement of wind velocty by anemometer, general principle of wind mill.

(b) Solar energy: Solar radiation and potentiality of solar radiation in India, uses of solar energy: Solar Cooker, solar water heater, solar photovoltaic cells, solar energy collector.

[DAS-23P]Applied Physics-II Lab

Note: Any 5 experiments are to be performed.
1. Determination of coefficient of friction on a horizontal plane.
2. Determination of 'g' by plotting a graph T2 verses l and using the formula g=4n2/Slope of the graph line
3. Determine the force connstant of combinationof springs incase of 1. Series 2. Parallel.
4. To verify the series and parallel combination of Resistances with the help of meter bridge.
5. To determine the velocity of sound with the help of resonance tube.
6. Determination of viscosity coefficient of a lubricant by Stoke's law.
7. Determination of E1/E2 of cells by potentio meter.
8. Determination of specific resistance by Carry Foster bridge.
9. Determination of resitivity by P.O.Box.
10. Verification of Kirchoff's Law.
11. To draw Characteristics of p-n Junction diode.

[DEE-22] ELECTRICAL ENGINEERING-I

1. CLASSIFICATION: Classification of materials into Conducting materials,Insulating materials, Semi-conducting materials withreference to their atomic structure.

2. Conducting Materials:A. Resistivity and factors affecting resistivity suchas temperature, alloying and mechanical stressing.B. Classification of conducting materials into lowresistivity and high resistivity materials. Someexamples of each and their typical applications.

3. Insulating Materials: A. Electrical Properties: Volume resistivity, Sarface resistance, Dielectricloss, Dielectric strength (Break down valtage) andDieclectric constant. B. Chemical Properties: Solubility, Chemical resistance,

Weather ability. C. Physical Properties: Hygroscopicity, tensile and Compressive strength,Abrassive resistance, Brittleness. D. Thermal Properties: Heat resistance, classification according topermissible temperature rise, Effect of electricaloverloading on the life of an electrical appliance. E. Plastic Insulating Materials: Classification into thermoplastic and thermosettingcatagories, examples of each and their typicalapplications.

4. MAGNETIC MATERIALS: A. Ferromagnetism, domains, permeability, hysteresis loop-(including coerrecive force and residual magnetism) andmagnetic saturation. B. Soft and Hard magnetic materials, their examples andtypical applications.

5. SEMI CONDUCTOR AND SPECIAL PURPOSE MATERIALS: N-type and P-type materials, application of semi-conductormaterials, materials used in transistor and I.C.manufacture.

6. D.C. CIRCUITS: (i) Ohm's law, resistivity, effect of temperature onresistances, heating effect of electric current,conversion of mechanical units into electircal units. (ii) Kirchoff's laws, application of Kirchoff's laws tosolve, simple d.c. circuits. (iii)Thevenins theorem, maximum power trasfer theorem,Norton's theorem and super position theorem, simplenumerical problems.

7. ELECTROSTATICS: (i) Capacitance and capacitor, definition, various types.(ii) Charging and discharging of a capacitor, growth anddecay of current in a capacitive circuit.(iii) Energy stored in a capacitor.(iv) Capacitance in terms of dimensions of parallel platecapacitor.(v) Dielectric constant of material, Break down voltage ofa capacitor.
(vi) Series and parallel connection of capacitors.

8. ELECTRO MAGNETISM:
(i) Concept of mmf, flux, reluctance and permeability. (ii) Energy stored in a magnetic field and an inductor.
(iii) Solution of problems on magnetic circuits. (iv) Faraday's laws of electromagnetic induction, Lenz'slaw, Physical explanation of self and mutualinductance. (v) B-H curve, Hysterisis, Eddy currents elementary ideasand significance.
(vi) Growth and decay of current in an inductive circuit. (vii) Force between two parallel current carrying conductorsand its significance. (viii) Current carrying conductor in a magnetic field andits significance.

9. A.C. THEORY:
(i) Concept of alternating voltage and current, differencebetween A.C and D.C. (ii) Generation of alternating voltage, equation ofsinusoidal waveform. (iii)Definition and concept of cycle, frequency, Timeperiod, amplitude, instantaneous value, average value,RMS value, peak value, form factor, Peak factor. (iv) Phase and phase difference, representation ofalternating quantities by phasor, addition andsubtraction of alternating quantities.

10. BATTERIES:
(i) Construction of lead acid and nickel cadmium batteries. (ii) Charging and maintenance of batteries.
(iii) Rating of batteries. (iv) Back up batteries (Lithium & Silver Oxide batteries)
(v) Shelf life of batteries.

11. TRANSIENTS & HARMONICS:
Introduction, Types of transients, Important differentialequations, First and Second order equations, Transients inR-L series circuits (D.C.), Short circuit current, Timeconstant, Transients in R-L series circuits (A.C.),Transients in R-C series circuits (D.C.), Transients in R-Cseries circuits (A.C), Double energy transients.Fundamental wave and harmonics, Different complex waveforms,General equation of complex wave, R.M.S. value of a complexwave, Power supplied by complex wave, Harmonics in singlephase a.c. circuits, Selective resonance due to harmonics,
Effect of harmonics on measurement of inductance and Capacitance.

[DEE-22P]   ELECTRICAL ENGINEERING-I LAB:

LIST OF PRACTICALS:
1. Ohm's law verification.
2. To verify the laws of series and parallel connections ofresistances i.e. to verify:-
(i) The total resistance in series connections.

$$R_T = R_1 + R_2 + R_3 ....$$

Where RT is the total resistance and R1,R2,R3etc.arethe resistances connected in series.
(ii) The total resistance in parallel connections.

$$\frac{1}{RT} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3} + \cdots$$

Where RT is the total resistance and R1,R2,R3 etc. arethe resistances connected in parallel. Also to concludethat the total resistance value of a parallel circuitis less than the any individual resistance.
3. To verify Kirchoff's following laws:-
(i) The algebric sum of the currents at a junction is zero.

(ii) The algebric sum of the e.m.f. in any closed circuit isequal to the algebric sum of IR products (drops)in that circuit.

4. To measure the resistance of an ammeter and a voltmeter andto conclude that ammeter has very low resistance whereasvoltmeter has very high resistance.

5. To verify Thevenin's and maximum power transfer theorems.

6. To find the ratio of inductance values of a coil having aircore and iron core respectively and thus see that by theintroduction of a magnetic material inside the coil,theinductance value of the coil is substantially increased.

7. To verify the relation:-

$$C_T = \frac{C1 * C2}{C1 + C2}$$

and
$$C_T = C_1 + C_2$$

For two capacitors,connected in series and parallelrespectively.

8. To test a battery for charged and discharged conditions andto make connections for its charging.

9. To show that the range of an ammeter (d.c. and a.c.) and avoltmeter (d.c. and a.c.) can be extended with the use ofshunts and multiplier.

10. To convert the given galvanometer into a voltmeter and an ammeter.

[DME-24] ENGINEERING MECHANICS AND MATERIALS

1. Introduction:
Mechanics and its utility.Concept of scaler and vectorquantities.Effect of a force.Tension & compression.Rigidbody.Principle of physical independence of force.Principleof transmissibility of a force.

2. Forces Analysis:
Concept of coplaner and non-coplaner forces includingparallel forces. Concurrent and non-concurrent forces.Resultant force.Equilibrium of forces.Law of parallelogramof forces.Law of triangle of forces and its converse.Lawof polygon of forces.Solution of simple engineeringproblems by analytical and graphical methods such as simplewall crane, jib crane and other structures. Determination ofresultant of any number of forces in one plane acting upon apraticle,conditions of equilibrium of coplaner concurrentforce system.

3. General Condition of Equilibrium:
General condition of equilibrium of a rigid body underthe action of coplaner forces, statement of force lawof equilibrium, moment law of equilibrium, applicationof above on body.

4. Stresses and strains:
Concept of stress and strain. Concept of various types ofstresses and strains .Definitions of tension, compressionshear, bending, torsion.Concept of volumetric and lateralstrains, Poisson's ratio.Mechanical properties of MS, SS, CIAl and etc.

5. Beams & Trusses:
Definition of statically determinate and indeterminatetrusses.Types of supports.Concept of tie & strut,calculation of reaction at the support of cantilever andsimply supported beams and trusses. (simple problems only)

6.A. MATERIALS & CONCEPT USED IN ELECTRONICS :
Soldering materials - Type, chemical composition andproperties, Soldering alloys - Tin lead, Tin antimony, Tinsilver, Lead silver, Tin zinc, Different types of flux andtheir properties, Properties of plastics materials, Epoxymaterials for PCB (Single and multi layer board), Emulsion

parameters, Film emulsion, Type of laminates (Phenolic,Epoxy, Polyster, Silicon, Melamine, Polymide), Properties ofcopper clad laminates, Material (Filler, Resin, Copper Foil)Photo printing basic for double side PCB, Photo resinmaterials coating process materials, Screen printing and itsmaterials Etching agent, Film processing and used materials.

(B) Soldering & Brazing:
For black Galvanised and Tincoated Iron sheet, brassand copper sheets only.

(1) Its concept, comparison with welding as joiningmethod and classification, electric soldering andforge soldering.

(2) Soldering operation- edge preparation of joints,Pickling and degreasing, Fluxing, Tinning andSoldering. Wave soldering, solder mask, Dip
soldering, Drag soldering,

(3) Materials Used-Common fluxes, soft and hardsolder, solder wire (Plain and Resin core) andsticks, spelters and their specifications and
discription (For Identification Only), forgesoldering bits.

(4) Electric soldering iron, other soldering tools.

(5) Common defects likely to occurs during and aftersoldering.
(6) Safety of Personnel, Equipment & Tools to beobserved.

[DCS-21]   OPERATING SYSTEM

1**. Introduction:**

 Operating System and Function, Evolution of Operating System, Batch, Interactive, Time Sharing and Real Time System.

 2**. File System :**

File concepts,Accessmethods,Allocationmethods,Directory System.

3**. C.P.U.&Disk,Drum Scheduling:**

Scheduling concepts,SchedulingAlgorithm,Multiprocessor,FCFSSchedulin,Shortest Seek-time first,Scan.

4. **Memory Management :**

Swapping,Multiplepartitions,Paging,Segmentation,Demandpaging,page replacement.

5. **Deadlock :**

 Introduction to Deadlock, Necessary Condition for Deadlock, Method For Handling Deadlock, Brier overview of Deadlock Prevention, Deadlock Avoidance (Banker Algorithm); Deadlock Detection & Recovery.

List OfPracticals

1. Excercise on Widows Latest Version. LIST OF BOOKS 1.Milenekovie - Operating System Concept - McGraw Hill

2. Petersons - Operating System - Addision Wesley

 3. Dietal - An Introduction To Operating System- Addision Wesley

 4. Tannenbaum - Operating System Design adn Implementation -PHI

5. Gary Nutt- Operating System, A Modern Perspective- Addision Wesley

6. Stalling, Willium - Operating System - Maxwell Macmillan

7. Silveschatza, Peterson J - Operating System Comcpts - Willey 8. Crowley - Operating System – TMH

[DEC-22] FUNDAMENTALS OF ELECTRONICS DEVICES.

1. INTRODUCTION:
1.1 Application of electronics in different fields.
1.2 Electronic devices in computer system. e.g. power supply,micro processor and other ICs, amplifiers, clock & othersignal generators.
1.3 Advancements in electronics technology and its impact oncomputers size reduction, capacity expansion, increase inreliability, cost reduction)
2. SEMICONDUCTOR PHYSICS:
2.1 Analyzing conductivity of elements, Types of conductors.
2.2 Pure(Intrinsic) semiconductors-Silicon, Germenium:ThermalGeneration(formation of charge carrier-Positive & Negativecharge carriers i.e. electron-hole pair), Recombination,Displacement of hole, mobility of free electron and movinghole, effect of variation in temperature, behavior of
instrinsic semiconductors at 0 K. 2.3 Doping the Intrinsic semiconductors with a pentravalent/tri-valent element(i.e. doner and accepter type
impurity) in small amount, effect of doping on strength ofcharge carrirs(formation of immobile ions and majority andminority carriers), P,N Junction.
2.4 Effect of doping a crystal parity 'P' type and parity:

concepts of diffusion & drift, formation of depletion layer(potential barrier)i.e. formation of P-N Junction.

3. SEMICONDUCTORS DIODES:

3.1 Effect of applying electrical potential across a P-NJunction in the following ways:

(a) Positive of the source to 'P' type terminal & Negativeto the 'N' type terminal

(b) Positive of the source to 'N' type terminal & Negativeto the 'P' type terminal.

3.2 Analyzing the flow of current in both the directions, causeof the difference in magnitudes of current in the twodirections.

3.3 Characteristics of a P-N Junction diode in forward/reversebiasing.

3.4 Concepts of unidirectional and bi-directional flow ofcurrents. Effect of putting in diode in series with a loadconnected across an ac source.

3.5 Half wave rectifier, Full wave rectifier9 using C.T.transformer, using bridge circuits)

3.6 Special purpose diodes:Zener diode, Vractordiode,PhotoDiode,Lightemiiting Diode (LED), their chractersitics anduses.

4. TRANSISTOR:

4.1 Growing a Crystal having two P-N Junction back to back(i.e.PNP& NPN); Junction transistor structure; acton oftransistor in FF,RR,FR and RF biasing; working of atranistor; relation between different currents in atransistor;

4.2 Various configurations of transistor (CB,CE,CC);relation between.Transistor action in three configuration; Comparisonbetween the three configuration of transistor;

4.3 Input and Output characteristics of a transistor;

4.4 Field - effect transistor (JFET,IGFET,MOSFET);

5. TRANSISTOR AS AN AMPLIFIER: 5.1 Transistor biasing: DC Operating: need of biasing & biasstablization in a transistor circuit; various biasingcircuits(Fixed, Collector to base, emitter, and potentialdevider.);

5.2 DC and AC load lines in a typical CE amplifier circuit;

5.3 Need of using multi- stages; how to couple two stages ;

various coupling arrangements(R-C coupling,Transformercoupling, Direct coupling):

5.4 Effect of coupling arrangement on the requency response of atwo stage amplifieer; frequency response curve of a RCcoupled amplifier; a transformer coupled amplifier; bandwith of an amplfier.

6. OPERATIONAL AMPLIFIERS:

6.1 Specifications of ideal operational amplifier and its blockdiagram.

6.2 Definition of inverting and noninverting inputs,differential voltage gain and input and output off set,voltage input offset current, input bias current, commonmode rejection ratio (CMMR), power supply rejection ratio(PSRR) and slew rate.

6.3 Method of offset null adjustments, use of op-amp. as aninverter scale changer, adder, subtractor, differentialamplifier, buffer amplifier, differentiator, integrator,comparator, Schmitt Trigger, Generation of Square andTriangular Waveform, log and anti-log amplifiers, PLL and

itsappliation and IC power amplifier.

7. FEED BACK IN AMPLIFIER:

7.1 Concept of Feedback;

7.2 Types of feedback(Positive, Negative); differentarrangement of feedback(series voltage, series- current,shunt - voltage, shunt current);

7.3 Voltage gain of feedback amplifier;(A'=A/(a) +A)

7.4 Analysis of Negative feedback arrangement on (Gain,Stability, Noise, Input/output impedances, Band width);Amplifier circuits with negative feedback;

7.5 Positive feedback; condition for infinite gain(AB=1 inPositive feedback)

7.6 Oscillator as an infinite gain feedback.

8. TRANSISTOR AS A SWITCH:

8.1 Control action of base current on the colector current in a transitorcircuit .

8.2 Large singal amplifier (input changing from cut-off tosaturation).

8.3 Remote control of a realy - opertated lamp employingamplifier .

8.4 Requirements of a transistor - switch .

9. MULTIVIBRATORS:

9.1 Regeneration: relaxation oscllators;

9.2 Simple astable MV circuit arrangement for its self starting;

9.3 Study and analysis of BI - STABLE MULTIVIBRATOR;

9.4 Study and analysis of mono stable multivabrator;

9.5 Triggering requirements;

9.6 Schmittrigger circuit;

10. INTEGRATED CIRCUITS:

10.1 Introduction;
10.2 Manufacturing process;
10.3 SSI, MSI, LSI, VLSI, ICs;
10.4 Linear and Digital ICs;
10.5 Switching and Gating ICs;
10.6 DTL, TTL, ICs;

[DEC-22P] Fundamental of Electronic Devices Lab

LIST OF PRACTICALS

1. To Identify electronic devices and common passivecomponents: such as Diodes (Rectifier, Zeners, SignalDiodes, Varacter diode, etc.); LED's; Transistors; Ics;Resistors, Capacitors, (Colour code for them); Inductors,Transformers.
2. To Plot characteristics (FB/RB) of Semiconductor rectifierdiode.
3. To Plot characteristics (FB/RB) of a zener diode.
4. Observe the output wave of a Half wave rectifier circuitwith/without shunt capacitor filter.
5. Observe the O/P wave of a full wave (C.T.) Rectifiercircuit with/without Shunt capacitor filter.
6. Observe the O/P wave of a Bridge Rectifiercircuit with/without shunt capacitor filter.
7. To Plot input/output characteristics of a Transistor in CB.
8. To Plot input/output characteristics of a Transistor in CE.
9. To Plot input/output characteristics of a FET.
10. To measure Voltage gain of a transistor amplifier at 1 KHzsignal, at different load.
11. To measure over all Voltage gain of a 2 stage RC coupledtransistor amplifier a 1 KHz signal.
12. To plot frequency response of a RC coupled amplifier at 1KHz signal.
13. To measure input and output impedance of a negative feedbackamplifier.
14. To fabricate a transistor switch and verify its working.
15. To observe the output of an Astablemultivibrator.
16. To observe the output of a Bi-stable multivibrator.
17. To observe the output of anMonostablemultivibrator.
18. Use OP-AMP as inverting and non-inverting amplifier, Use asAdder, Subtractor, Intergator and differentator.

SECOND YEAR

SEMESTER-III

[DAS-31] APPLIED MATHEMATICS III

1. MATRICES :
1.1 Algebra of Matrices, Inverse :Addition, Multiplication of matrices, Null matrix and a unitmatrix, Square matrix, Symmetric, Skew symmetric, Hermitian,Skew hermition, Orthogonal, Unitary, diagonal and Triangularmatrix, Determinant of a matrix.Definition and Computation of inverse of a matrix.
1.2 Elementry Row/Column Transformation :Meaning and use in computing inverse and rank of a matrix.
1.3 Linear Dependence, Rank of a Matrix :Linear dependence/independence of vectors, Definition andcomputation of a rank of matrix. Computing rank throughdeterminants, Elementary row transformation and through theconcept of a set of independent vectors,Consistency ofequations.
1.4 Eigen Pairs, Cayley-Hamilton Theorem : Definition and evaluation of eign values and eign vectors ofa matrix of order two and three, Cayley-Hamilton theorem(without Proof) and its verification, Use in finding inverseand powers of a matrix.
2. DIFFERENTIAL CALCULUS :
2.1 Function of two variables, identification of surfaces inspace, conicoids
2.2 Partial Differentiation :Directional derivative, Gradient, Use of gradient f, Partialderivatives, Chain rule, Higher order derivatives, Eulenstheorem for homogeneous functions, Jacobians.
2.3 Vector Calculus :Vector function, Introduction to double and triple integral,differentiation and integration of vector functions,gradient, divergence and curl, differential derivatives.

3. DIFFERENTIAL EQUATION :

3.1 Formation, Order, Degree, Types, Solution :Formation of differential equations through physical,geometrical, mechanical and electrical considerations,Order, Degree of a differential equation, Linear, Nonlinearequation.

3.2 First Order Equations :Variable seperable, equations reducible to seperable forms,Homogeneous equtions, equtions reducible to homogeneousforms, Linear and Bernoulli form exact equation and theirsolutions.

3.3 Higher Order Linear Equation :Property of solution, Linear differential equation withconstant coefficients (PI for X=eax, Sin ax, Cos ax, Xn,eaxV, XV.

3.4 Simple Applications :LCR circuit, Motion under gravity, Newton's law of cooling,radioactive decay, Population growth, Force vibration ofa mass point attached to spring with and without dampingeffect. Equivalence of electrical and mechanical system

4. INTEGRAL CALCULUS - II:

4.1 Beta and Gamma Functions :Definition, Use, Relation between the two, their use inevaluating integrals.

4.2 Fourier Series :Fourier series of f(x),-n<x<n, Odd and even function,Halfrange series.

4.3 Laplace Transform :Definition, Basic theorem and properties, Unit step andPeriodic functions, inverse laplace transform, Solution ofordinary differential equations.

5. PROBABILITY AND STATISTICS :

5.1 Probability :Introduction, Addition and Multiplication theorem and simpleproblem.

5.2 Distribution :Discrete and continuous distribution, Bionimal Distribution,Poisson Distribution, Normal Distribution.

[DCS-32]PROGRAMMING IN C & C++

1. CONCEPT OF PROGRAMMING:

Concept of Flowcharing, algorithm,programming, StructuredProgramming Various techniques of programming, Use ofprogramming.

2. Programming in C:Data Types, Operators and Expressions;Input& Output printf,scanf, clibrary Control Statement: IF- ELSE, While, For, Do-While, Switch; Functions and modular programming; Scope ofvariables, parameter passing, recursion, block structure;preprocessor statements; pointers and arrays; structures andunions; File handling.

3.CLASSES& OBJECT:What is a class,what is an object,constructors,types ofobject(external,automatic static, Dynamic objects)Metaclass,role of meta class.Scope of classes, array ofobjects, objects as a function argument.

4.Programming in C++

What is object-orientation, area of object technology,C++,getting to grips with C++(data types,escape sequence,characters,variables, operator, notation, Arrays,Function conditionalstatements.call by value,call by reference.Pointer : C++memory map, dynamic allocation pointers,pointers with arrays.Structure,structure with arrays,passing, structure offunction.Enumerated data types, Inheritance, apolymorphism &Overloading.

[DCS-32P]   PROGRAMMING IN C & C++

List of Experiments
1. Exercises involving output and input format controls inPascal.
2. Exercises involving control transfer statements in C & C++
3. Exercises with arrays & Pointers in C & C++.
4. Exercises with functions in C & C++.
5. Exercises with files in C & C++.

[DCS-33] COMPUTER HARDWARE & MAINTENANCE

1. Component and peripheral devices, Connected with computer.

2. Mother Board : BUS, Mother board components, Battery,Connections on the Mother Board, Keeping CPU cool, Motherboard trouble shooting.
3. Key Board : Switches, Keyboard organization, Key board typetrouble shooting.
4. Mouse : Mouse type, Connecting Mouse, Trouble shootingMouse.
5. HDD : Magnetic recording, Data Encoding Method, HDD feature,Head barking, HDD trouble shooting.
6. Compact Disc Drive : CD-R, CD-W, CD-RW, DVD-R, DVD-RW, BlueRay. Working and Maintenance.
7. Printers : Image formation method, Printing mechanism, DMP,Ink Jet, Laser Printer, Multi-functional printer. Howprinter works and Trouble shooting.
8. Network Devices: Hub, Switch, Router, Bridge, Gateway,Ethernet Card.
9. Scanner- Flat Bed.
10. External Devices- Pen Drive, Flash Drive, External HardDisk.
11. Power Supply : Operating charactersics, Types andmaintenance.

[DCS-33P] COMPUTER HARDWARE & MAINTENANCELAB

List OfPracticals
(I) Study of devices on motherboard
(II) Study of Key board & Keyboard decoder
(III) Study of Video Adopter & display controllers
(IV) Study of Floppy Drive, CD Drive and Hard Disk.
(V) Study of Multifunction Input/Output controllers
2. Troubleshooting & repair of following equipment
(I) Dot Matrix Printer, Laser, Inkjet Printer.
(II) Digital Plotter
(III) C. P. U.
(IV) Disk Drive
3. Study and Trouble Shooting of
(I) Network
(II) Power Supplies.

[DCS-34] ELECTRONIC INSTRUMENTS AND MEASUREMENTS

1. INTRODUCTION TO THE PROCESS OF MEASUREMENTS:
1.1 Review of the terms, accuracy, precision, sensitivity rangeand errors, difference between accuracy, precision and resolution.
1.2 Precaution against high frequency noise pick up andremedies, shielding and grounding (two terminal and three terminals).
1.3 Concept of selective wide band measurements.
2. MULTIMETERS:
2.1 Principle of measurement of D.C. voltage and D.C. current,A.C. voltage and A.C. current and resistance in amultimeter.
2.2 Specifications of a multimeter and their significance.
2.3 Limitations with regards to frequency and impedance.
3. ELECTRONIC MULTIMETER:
3.1 Advantage over conventional multimeter for voltagemeasurement with respect to input impedance and sensitivity, principles of voltage, current and resistance measurements.
3.2 Specification of electronic multimeter and theirsignificance.
4. A. C. MILLIVOLTMETER:
4.1 Types of AC millivoltmeters: Amplifier-rectifier andrectifier amplifier, block diagram and explanation of the above types of A.C. milli voltmeter.
4.2 Typical specifications and their significance.
5. CATHODE RAY OSCILLOSCOPE:
5.1 Construction of CRT, Electron gun, Electrostatic focussingand acceleration (Explanation only-no mathematicaltreatment) Deflection sensitivity, Brief mention of screenphospher for CRT. Internal Block Diagram of CRO.
5.2 Explanation of time base operation and need for blankingduring flyback, synchronisation.

5.3 Block diagram and explanation of a basic CRO and atriggered sweep oscilloscope, front panel controls.

5.4 Specifications of CRO and their significance.

5.5 Use of CRO for the measurement of voltage (D.C. & A.C.)frequency using Lissagious figure, time period, phase.

5.6 Special features of dual trace, delayed sweep and storageCROs (Brief mention only).

5.7 CRO probes including current probes.

5.8 Working Principle of Spectrum Analyzer.

6. AUDIO POWER METER:

6.1 Block diagram of an audio power meter.

6.2 Principles of working its application and high frequencylimitations.

6.3 Scale conversion from power to db.

7. SIGNAL GENERATORS:

7.1 Block diagram explanation of laboratory type low frequencyand RF signal generators, pulse generator and functiongenerator.

7.2 Specification for low frequency signal generator, RFgenerator,pulse generator and function generator. Brief idea of testing specification for the above instruments.

7.3 Standard signal generator.

8. IMPEDANCE BRIDGES Q METERS:

8.1 D.C. and A.C. Bridges:D.C. bridges- Wheat stone bridge, Kelvins bridges,Sensitivity- Null indicators.A. C. Bridges - Inductance bridges (Maxwell Bridge),Capacitance bridges, Hays bridge, Anderson bridge, Scheringbridge, Wein bridge, Twin network, Storage factor,Dissipation factor and their measurements

8.2 Block diagram explanation and working principle oflaboratory types (balancing type) RLC bridge. Specifications of a RLC bridge, Principle of digital RLC bridge.

8.2 Block diagram and working principles of a Q meter.

9. REGULATED POWER SUPPLY:

9.1 Block diagram of regulated power supply, IC based powersupply.

9.2 Major specifications of regulated power supply, and theirmeasurement (line and load regulation, output ripple and transients).

9.3 Basic working principles of switched mode power supply.

9.4 Concept of floating and grounded power supplies and theirinterconnections to obtain multiple output supplies.

9.5 Basic working principle of uninterrupted power supply

10. DIGITAL INSTRUMENTS:

10.1 Comparison of Analog and Digital instruments,characteristics of digital meter.

10.2 Working principle of Ramp, Dual slope and integrating type ofdigital voltmeter.

10.3 Block diagram and working of a digital multimeter.

10.4 Working principle of time interval frequency and periodmeasurement using universal counter, frequency counter, timebase stability and accuracy and resolution.

List of Books

1. A. K. Sawhney - A course in Electrical & Electronic
Measurement & Instrumentation - Dhanpat Rai & Sons
2. Helfric& Cooper - Modern Electronic Instrumentation and
Measurement Techniques- PHI

[DCS-34P] ELECTRONIC INSTRUMENTS AND MEASUREMENTS LAB

List OfPractical's

1. Loading effect of a multimeter and its limitations tomeasure high frequency voltages.

2. Measurement of Q of a coil and its dependence on frequencyusing a Q meter.

3. Measurement of voltage, frequency, time period, phase angleand delay time using CRO : (use of Lissagious Figures).

4. Measurement of time period, frequency, average period usinguniversal counter frequency counter.

5. To test a power supply for ripple, line and load regulation,Tracing of wave form, To findout operating range of powersupply.

6. Measurement of rise, fall and delay time using a CRO.

7. Measurement of distortion of a LF signal generator usingdistortion factor meter.

8. Measurement of R.L. and C using a LRC bridge/universalbridge.

SEMESTER-IV

[DCS-41] DATA COMMUNICATION AND COMPUTER NETWORKS

DETAILED CONTENTS
1. OVERVIEW OF DATA COMMUNICATION AND NETWORKING :
Introduction; Data Communication; Components, data representation (ASCII, ISO, etc.). Direction of Gata Flow (Simples, Half duplex, Full duplex), Network; Distributed processing, Network criteria, Physical structure (Types of connection, Topology), Categories of network (LAN, MAN,WAN); Internet; Brief history, Internet today; Protocols and standards; Reference models; OSI reference model TCP/IP reference model, their comparative study.
2. PHYSICAL LAYER :
Overview of data (Analog and Digital), Singnal (Analog and Digital), Transmission (Analog and Digital) and Transmission media (Guided and Non-guided); TDM, FDM, WDM; Circuit switching; Time division and space division switch, TDM bus; Telephone network.
3. DATA LINK LAYER :
Types of errors, Framing (Character and bit stuffing), Error detection and Correction methods; Flow control; Protocols Stop and wait ARQ, Go-Back, NARQ, Selective repeat ARQ, HDLC.
Medium Access Sub Layer :
Point to point protocol, LCP, NCP, FDDI, Token bus, Toke ring; Reservation, Polling, Concetration; Multiple access protocols, CSMA,CSMA/CD, FDMA, TDMA, CDMA; Traditional Ethernet, Fast Ethernet.
4. NETWORK LAYER :
Internetworking and devices : Repeaters, Hubs, Bridges, Switches, Router, Gateway; Addressing : Internet address, Classful address, Subnetting; Routing : Techniques, Static vs. dynamic routing, Routing table for glassful address;
Routing algorithms: Shortest path algorithm, Flooding, Distance vector routing, Link state routing; Protocols ARP, RARP, IP, ICMP, IPV6; Unicast and multicast routing protocols.
5. TRANSPORT LAYER :
Process to process delivery; UDP, TCP; Congestion control algorithm; Leaky bucket algorithm, Token bucket algorithm, Choke packets; Qualit of service; Techniques to improve Qos.
6. SESSION LAYER :
Functioning of session layer, OSI primitives.
7. APPLICATION LAYER :
DNS;SMTP;SNMP;FTP; HTTP & WWW; Security; Cryptography, Use authentication, Security protocols in internet Firewalls
8. EMERGING TECHNOLOGIES IN NETWORKING :
ISDN services and ATM; DSK technology, Cable modem, Sonet wireless LAN: IEEE 802.11; Introduction to blue-tooth, VLAN's, Cellular telephony and Satellite network.
Text Books
1. B. A. Forouzan - Data Communication and Networking (3 Ed.) -TMH.
2. A. S. Tanebaum - Computer Networks (4 Ed.) – Pearson Education/ PHI.
3. W. Stallings - Data and Computer Communication (5 Ed.) - Pearson Education/ PHI.

[DCS-41P] Data Communication & Computer Network Lab

LIST OF PRACTICALS
1. Identification of various networks components
- Connection, BNC, RJ-45, I/O box
- Cables, Co-axial, twisted pair, UTP
- NIC (Network Interface Card)
- Switch, Hub
2. Sketch wiring diagram of network cabling considering a computer lab of 20 systems.
3. Interfacing with the network card (Ethernet)
4. Preparing of network cables.
5. Establishment of a LAN
6. Use of protocols in establising LAN
7. Trouble shooting of networks.
8. Installation of network device drivers.

9. Installation of networks (Peer Networking client server interconnection.
10. Use/installation of proxy server.

[DCS-42] Office Tools

DETAILED CONTENTS
1. MS WORD PROCESSING:
File : Open, Close, Save and Find File, Print and Page Setup
Edit : Cut, Copy, Find, Replace
Insert: Page Insert, Page No., Symbol
Font : Paragraph, Tabs, Boder & Shading, Change Case
Tools : Spelling, Mail Merge
Table : Insert Table, Delete Cells, Merge Cell, Sort Text
2. MS Excel:
File : Open, Close, Save and Find File, Print and Page Setup
Edit : Cut, Copy, Find, Replace, Undo, Redo
Insert: Cell, Row, Worksheet, Chart
Format: Data, Sort, Filter, Form, Table
3. POWER POINT
File : New, Open, Close, Save as HTML, Pack and Go, Page setup, Send to ,Properties
Edit : Cut, Copy, Find, Replace, Undo, Redo, Duplicate.
View : Slide_Outline,Slide_sorter,Notepage,Slideshow,Master, Black & white slide,Toolbars,Ruler ,Guides
Insert : New slide,Duplicate slide,Picture,Text box, Movies & sound, Hyperlink.
Format : Font,Bullet,Alignment,Line spacing,Slide layout.
Tool : Power point,Presentation & conference,Expand slide,Macro,customise.
Slide show: View show,Rehearse timing,Naration,View on two screen ,Active buttons,Preset Animation,Custom -animation,Slide transition.
Window : New window,Arrange icons,Fit to page,Cascade.
4. Electronic Mail Using Outlook Express :
- Composing an Email Message
- Working with Address Book
- Automatically Add contents to Your Address Book
- Reading Email using Outlook Express
- Reading a message
- Checking for New Messages
- Reading file Attachment
- Taking Acting on a Messages
- Web Based Email
- Advantage os using Web Based Email.

[DCS-42P]   Office Tools Lab

List Of Practicals
1. Create a document using funcation :Saveas, Page Number, Bullets adn Numbering.
2. Create a document using styles and formatting option
3. Create a document using different fonts.
4. Create a document using the function page setup and page preview, then print that document.
5. Create a table and perform operation in it.
6. Create a table, chart in excel and implement all formula as addition, substraction, multiplication and division.
7. How to use mail merge in MS Word.
8. Create a Power Point presentation using slide designing.
9. Create, Save and Print the Power Point Presentation.
10. Create a Power Point Presentation using Clipart, Word Art Gallery and then add transition and animation effect.
LIST OF BOOKS
1. Microsoft Office 2010 For Dummies By Wallace Wang
2. 2007 Microsoft Office System Plain & Simple by Jerry Joyce-Microsoft Press

3. Office XP : The Complete Reference- Stephen L. Selson – Tata McGraw Hill Education.
4. Working in Microsoft Office - Richard Mansfield – Tata McGraw Hill Education.

[DCS-43] Dot (.) Net Technology

1. THE DOT(.) NET FRAMEWORK :
Introduction, Common Language Routime, Common Types System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language. Justin- Time compilation, garbage collection, Application installation and Assemblies, Web Services, Unified classes.
2. C# BASICS : Getting started with .NET framework, Elploring Visual Studio .NET, Inside a C# Program, Data Types, Statements, Arrays, Using Strings, Objects, Classes and Structs, Properties, Inheritance, Indexers, Delegates, Events, Namespaces, Generics.
3. ADVANCED FEATURES OF C# : Collection and Data Structure, Exception, Handling, Threading, Using Streams and Files, Reflection, Assemblies, Verioning, Windows Forms, Controls, Data binding to Controls, Advanced Database Programming using ADO.net, Using GDI+, Networking, .net Remoting, Manipulation XML.
4. VB .NET : Creating Applications with Visual Basic .NET, Variables, Constants and Calculations, Making Decisions and Working with Strings, List, Loops, Validations, Sub Procedures and Functions, Multiple Forms, Standard Modules and Menus. Array, Timers, Form Controls, File Handling, Exception Handling, Working with Database, Advanced Database Programming using ADO.net, Classes, Generics, Collections, Inheritance, Custom Controls, Packaging and deployment, Using Crystal Reports.
5. ASP .NET 2.0 : Features of ASP .NET 2.0, Stages in Web Forms Processing, Introduction to Server Control, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration, Personalization, Session State, ADO.NET., Database Programming - Connecting with Database using DAO, RDO & ADO.
6. Working with inbuilt Active X, Window Common Control, Creating Own Active X through Active X Control, Active X EXE, Difference between EXE and DLL.

[DCS-43P] Dot (.) Net Lab

1. Develop small software using . NET Technology.

LIST OF BOOKS
1. Application of .NET Technology, ISRD Group- McGraw Hill.
2. Beginning ASP.NET 4:in C# and VB by Imar Spaanjaars
3. Introduction to .NET 4.0 with Visual Studio 2010 From Apress
Publication - Alex Mackey
4. Understanding .NET (2nd Edition) - David Chappell

[DCS-44] Microprocessor & Its Application

DETAILED CONTENTS
1. OVERVIEW OF MICROCOMPUTERS SYSTEM:
1.1 Functional block.
(a) CPU.
(b) Memory.
(c) Input/Out devices (Key board, Floppy drive, Hard disk drive, Tape drive, VDU, Printer, Plotter).
1.2 Concept of programme and data memory.
(a) Registors (general purpose).
(b) external memory for storing data and results.
1.3 Data transfer between registers.
1.4 Concept of tristate bus.
1.5 Control on registers.
2. MEMORY OF A MICROCOMPUTER:
2.1 Concept of byte organised memory.
 (a) Address inputs.
(b) Address space.
(c) Data input/output.

2.2 Addressing and Address decoding.
(a) Memory system organisation.
(b) Partitioning of total memory space into small blocks.
(c) Bus contention and how to avoid it.
2.3 Memory chips.
(a) Types of ROM, RAM, EPROM, PROM.
(b) Read/Write inputs.
(c) Chip enable/select input.
(d) Other control input/output signals.
- Address latching.
- Read output.
- Address strobes.
(f) Power supply inputs.
2.4 Extension of memory.
- In terms of word length and depth.
3. C P U & CONTROL:
3.1 General microprocessor architecture.
3.1 Instruction pointer and instruction register.
3.2 Instruction format.
- Machine and Mnimonics codes.
- Machine and Assembly language.
3.3 Instruction decoder and control action.
3.4 Use of Arthematic Logic Unit.
- Accumulator.
- Temporary Register.
- Flag flip-flop to indicate overflow, underflow, zero result occurance.
3.5 Timing and control circuit.
- Crystal and frequency range for CPU operation.
- Control bus to control peripherals.
4. INTRODUCTION OF 8085 MICROPROCESSOR:
Evolution of Microprocessor, Register Structure, ALU, BUS Organization, Timing and Control.
5. INTRODUCTION OF 8086 MICROPROCESSOR:
Internal organization of 8086, Bus Interface Unit, Execution Unit, Unit, register, Organization, Sequential
Memory Organization, Bus Cycle.
6. ASSEMBLY LANGUAGE PROGRAMMING :
Addressing Modes, Data Transfer, Instructions, Arithmetic and Logic Instruction, Program Control Instructions
(Jumps, Conditional Jumps, Subroutine Call) Loop and String Instructions, Assembler Directives.
7. BASIC I/O INTERFACING :
Programmed I/O, Interrupt Driven I/O, DMA, Parallel I/O (8255-PPI, Centronics Parallel Port), Serial I/O
(8251/8250, RS-232 Standard), 8259-Programmable Interrupt Controller, 8237-DMA Controller, 8253/8254-
Programmable Timer/Counter, A/D and D/A conversion.
8. MEMORY INTERFACING :
Types of Memory, RAM and ROM Interfacing with Timing Considerations, DRAM Interfacing.
9. ADVANCE MICROPROCESSOR AND MICRO CONTROLLERS :
Brief idea of Microcontroller 8051, Pentium and Power PC NOTE :
Study of Popular ICs Read/Write Chips-8155/8156, 2114,2148,2164. ROM Chips- 8355,2716,2732,8755. Other
support chips - 8279,8257,8275,8205.
LIST OF BOOKS
1. Singh, B. P. - Advanced Microprocessor and Microcontrollers- New Age International.
2. Singh, B. P. - Microprcessor Interfacing and Application - New Age International.
3. Brey, Barry B. - INTEL Microprocessor - Prentic Hall (India)-4th Edition.
4. Liu and Gibson G.A. - Microcomputer System - The 8086/8088 Faimly-Prentice Hall (India) 2nd Edition.
5. Sombir Singh - Microprocessor and Its Application – Jai Prakesh Publication, Meerut

[DCS-44P] MICROPROCESSORS LAB

List Of Practical's
1. Assembly language programming :- Programming of simple problems.
2. Simple programming problems using 8085 and 8086 microprocessor.

Trainer kit to gain competence in the use of
(a) 8085 and 8086 Instruction set.
(b) Support chips of 8085 and 8086.

THIRD YEAR

INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP DEVELOPMENT

Unit 1:
PRINCIPLES OF MANAGEMENT:
Definition of management, Administration organization, Functions management, Planning, Organizing, Co-ordination and control, Structure and function of industrial organizations, Leadership- Need for leadership, Factors to be considered for accomplishing effective leadership, Communication -Importance, Processes, Barriers to communication, Making communication, Effective, formal and informal communication, Motivation - Factors determining motivation, Positive and negative motivation, Methods for improving motivation, Incentives, Pay promotion and rewards, Controlling - Just in time, Total quality management, Quality circle, Zero defect concept. Concept of Stress Management

Unit 2 :
HUMAN RESOURCE DEVELOPMENT: Introduction, Staff development and career development, Training strategies and methods.

Unit3:
 HUMAN AND INDUSTRIAL RELATIONS: Human relations and performance in organization, Understand self and others for effective behavior, Industrial relations and disputes, Characteristics of group behavior and Trade unionism, Mob psychology, Labour welfare, Workers participation in management.

Unit 4:
 PERSONNEL MANAGEMENT :
Responsibilities of human resource management - Policies and functions, Selection - Mode of selection - Procedure - training of workers, Job evolution and Merit rating - Objectives and importance wage and salary administration - Classification of wage, Payment schemes, Components of wage, Wage fixation.

Unit 5:
 FINANCIAL MANAGEMENT:
Fixed and working capital - resource of capital, Shares, types preference and equity shares, Debenture types, Public Deposits, Factory costing, Direct cost, Indirect cost, Factory over head, Fixation of selling price of product, Depreciation- Causes, Methods.

Unit 6:
MATERIAL MANAGEMENT:
Objective of a good stock control system - ABC analysis of inventory, Procurement and consumption cycle, Reorder level, Lead time, Economic order quantity, Purchasing procedure, Stock keeping, Bin card.

Unit 7:
 LABOUR, INDUSTRIAL AND TAX LAWS : Importance and necessity of industrial legislation, Types of labour laws and dispute, Factory Act 1948, Payment of Wages Act 1947, Employee State Insurance Act 1948, Various types of taxes - Production Tax, Local Tax, Trade tax, Excise duty, Income Tax.

Unit 8:
 ENTREPRENEURSHIP DEVELOPMENT:
Concept of entrepreneurship, need of entrepreneurship in context of prevailing employment conditions of the country. Successful entrepreneurship and training for entrepreneurship development. Idea of project report preparation.

DATA STRUCTURE USING C & C++

Unit 1:
BASIC CONCEPTS: Basic concepts and notation & Mathematical background

Unit 2:
 Stacks And Queues Representation of stacks & queues, linked sequential.

Unit 3:
 LISTS: List representation techniques, Multilinked structures, Dynamic storage allocation techniques.

Unit 4 :

SORTING ALGORITHMS :Insertion sorts, Bubble sort, Quicksort, Mergesort, Heapsort
Tables: - Searching sequential tables,Hash tables and Symbol tables, Heaps representation
Unit 5:
 TREES :Definitions and basic concepts, Linked tree representations,binary tree traversal algorithms,B-trees and their applications Graphs: Depths-first-search.

DATA STRUCTURE USING C & C++

List of Experiments
1. Write a program on Linked List Using 'C' & C++.
2. Exercise on Stack, Queues. Using C & C++
3. Exercises on Sorting .
DATA STRUCTURE
1. Data Structure - Schaum's Outline Series - McGraw Hill
2. Data Structure - Schaum's Series - McGraw Hill Publications
3. Horwitz and Sartaj Sahni - Data Structure

RELATIONAL DATABASE MANAGEMENT SYSTEM

Unit 1:
OVERVIEW OF DBMS : Data, Representation of Data, Record, Data item, Field name, File, Data and Information, Database (Properties), Benifits of Database approach, Database Management System (Capabilities, Advantages, Disadvantages) and Functions of DBMS. Basic DBMS terminology (Data items, Entities and Attributes, Schama and Subschama, Database users, Instrance and Schanas). Three views of Data (External View, Conceptual View, Internal View), Three level architecture of DBMS, Data Independence.
Unit 2:
 DATA MODELS : Define data model, classify data model, Local Models : Object and Record based- Object Oriented Model- Entry relationship Models - Entity sets and relationship sets- Attributes - Keys in entity and relationship sets : (a) Super Key (b) Candidate Key (c) Primary Key (e) Unique Key - Mapping constraints.Object based logical models, E-R model, E-R diagram, Notations, Hierarchical Model (Advantage, Disadvantages), Network model (Advantages, Disadvantages), Relational Model (Advantages, Disadvantages), Object oriented database, Object oriented relational database.
Unit 3 :
RELATIONAL MODEL :
Advantages, Disadvantages, Codd's 12 rules, Definition of Relations, Degree and Cardinality, Relational Model Constraints (Domain, Tuple Uniquiness, Key Constraints, Integrity Constraints, Entity constraints). Relations algebra (Basic operation : Union intersection and difference), Additional Relational Abgebraic Operations (Projection, Selection rows, Division)
Unit 4:
 RELATIONAL DATABASE DESIGN : Functional dependencies (I, II & III), Normal forms, Normalization, Boyce Codd Normal Form, Multivalued dependencis and Forth Normal Form, Join Dependencies and Fifth normal forms.
STRUCTURE QUERY LANGUAGE (SQL) : SQL, Object naming conventions, Object naming guidelines, Data types (Varchar 2, Number, Long, Date, Raw, Long Raw, Rowid, Char etc.), Tables, Views, Indexes, SQL Commond :- DESCRIBE, SELECT, COLUMN ALIASES, CONCATENATION OPERATOR, DISTINCT CLAUSE, ORDER BY, WHERE CLAUSE, LOGICAL OPERATIONS, SQL OPERATORS.
Unit 5:
DATABASE IMPLEMENTATION USERS: Database integrity, Locking techniques for concurrency control, Concurrency control based in Time Stamp Ordering, Multiversion Concurrency control techniques, Database Security.
RATIONAL DATABASE : Data definition language- Data mainpulation language- Relational algebra - Operators : Select, Project, Join, Rename, etc. - Simple example.
SECURITY : Authorization and View- Security constraints - Integrity Constraints- Encryption.
LIST OF BOOKS
1. An Introduction to Database System - C. J. Date
2. Database System Concepts - A. Silberschatz & H. F. Korth
3. Database Concepts and Systems - Lvan Bayroos/SPD
4. Fundamental of Database System - R. Elmashri & S. B. Navathe

RELATIONAL DATABASE MANAGEMENT SYSTEM LAB

STRUCTURED QUERY LANGUAGE
1. Creating Database
- Creating a database
- Creating a table
- Specifying relational data types
- Specifying constraints
- Creating indexes
2. Table and Record Handling
- INSERT statement
- Using SELECT and INSERT together
- DELETE, UPDATE, TRUNCATE Statement.
- DROP, ALTER statement
3. Retrieving Data From a Database
- The SELECT statement
- Using the WHERE clause
- Using Logical Operators in the WHERE clause
- Using In, BETWEEN, LIKE, ORDER BY, GROUP BY & HAVING clause
- Using Aggregate Functions
- Combining Tables Using JOIN

JAVA PROGRAMMING

Unit 1:
 An Overview of JAVA:- Introduction to Object Oriented Programming (two paradigms, abstraction, the three oops principles) creation of JAVA, JAVA Applits & applications, security & portability.

Unit 2:
 Data Types & Control statements: Integer,floating point type, character, boolean, all Operators, JAVA's selection statements,iteration and jump statement

Unit 3:
 Introducing Classes & Methods: Class fundamentals, declaring objects, overloading methods & constructs,access control, nested and inner classes, exploring the string class,Inheritance

Unit 4:
 Inheritance: Inheritance basics,member access and inheritance.

Unit 5:
Multithreaded Programming.: The JAVA thread model,thread priority, synchronozation, Messaging.

Unit 6:
Input/Output Applits: I/O Basics, byte streams & character streams, predefined streams, reading and writing console input/output, reading and writing files, applet fundamentals,applete class.

LIST OF PRACTICALS

 PROGRAMS USING CONTROL STATEMENTS.

LIST OF BOOKS
1. Core Java II Advanced Feature 8th Edition, Sun Microsystem
2. The Complete Reference JAVA Seventh Edition

E-COMMERCE AND ERP

Unit 1:
ELECTRONIC COMMERCE : Overview, Definitions, Advantages and Disadvantages of E- commerce, threats of E-commerce, Managerial Prospective, Rules and Regulations For controlling E-commerce, Cyber Laws.
TECHNOLOGY : Relationship Between E-Commerce and Networking, Different Types of Networking For E-commerce, Internet, Internet and Extranet, EDI System Wireless Application Protocol : Definition, Hand Held Devices, Mobility and Commerce, Mobile computing, Wireless Web, Web Security, Infrastructure Requirement Form E-Commerce.
Unit 2:
BUSINESS MODELS OF E-COMMERCE : Model based on transaction, Type, Model Based on Transaction Party -B2B, B2C,C2b, C2c, E-Governance.
Unit 3:
E-STRATEGY : Overview, Strategic, Methods for developing E-commerce. FOUR C's: Four C's (Convergence, Collaborative Computing, Content Management and Call Center) SUPPLY CHAIN MANAGEMENT : E-logistics, Supply Chain Portal, Supply Chain Planning
Tools (SCP Tools), Supply Chain Execution (SCE), SCE-
Framework, Internet's effect on Supply Chain Power.
Unit 4:
E-PAYMENT MECHANISM : Payment through card system, E-Cheque, E-Cash, E-Payment Threats and protections. E-MARKETING : Home-Shopping, E-Marketing, Tele-Marketing.
Unit 5:
ELECTRONIC DATA INTERCHANGE (EDI): Meaning, Benifits, Concepts, Application, Edi Model. RISK OF E-COMMERCE : Overview, Security for E-commerce, Security Standards, Firewall, Cryptography, Key Management, Password system, Digital certificates, Digital signatures.
LIST OF BOOKS
1. E-Commerce-M. M. Oka- EPH
2. Electronic Commerce- Technologies & Application - Bhaskar Bharat - TMH
3. E-Commerce :Strategy Technologies and Applications - Tata McGraw Hill

SEMESTER-VI

ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT

Unit 1:
INTRODUCTION : - Basics of ecology, Ecosystem, Biodiversity Human activities and its effect on ecology and eco system, different development i.e. irrigation, urbanization, road development and other engineering activities and their effects on ecology and eco system, Mining and deforestation and their effects.
- Lowering of water level , Urbanization.
- Biodegradation and Biodegradibility, composting, bio remediation, Microbes .Use of biopesticidies and biofungicides.
- Global warning concerns, Ozone layer depletion, Green house effect, Acid rain,etc.
Unit 2 :
POLLUTION : Sources of pollution, natural and man made, their effects on living environments and related legislation.
2.1 WATER POLLUTION :

- Factors contributing water pollution and their effect.
- Domestic waste water and industrial waste water. Heavy metals, microbes and leaching metal.
- Physical, Chemical and Biological Characteristics of waste water.
- Indian Standards for qulity of drinking water.
- Indian Standards for quality of treated waste water.
- Treatment methods of effluent (domestic waste water and industrial/ mining waste water), its reuse/safe disposal.
2.2 AIR POLLUTION : Definition of Air pollution, types of air pollutants i.e. SPM, NOX, SOX, GO, CO2, NH3, F, CL, causes and its effects on the environment.
- Monitoring and control of air pollutants, Control measures techniques. Introductory Idea of control equipment in industries i.e.
A. Settling chambers
B. Cyclones
C. Scrubbers (Dry and Wet)
D. Multi Clones
E. Electro Static Precipitations
F. Bog Fillers.
- Ambient air qulaity measurement and their standards.
- Process and domestic emission control
- Vehicular Pollution and Its control with special emphasis of Euro-I, Euro-II, Euro-III and Euro IV.
2.3 NOISE POLLUTION : Sources of noise pollution, its effect and control.
2.4 RADISACTIVE POLLUTION : Sources and its effect on human, animal, plant and material, means to control and preventive measures.
2.5 SOLID WASTE MANAGEMENT : Municipal solid waste, Biomedical waste, Industrial and
Corrected and Approved by B.T.E. Meeting On Dated 02.06.2015
Hazardous waste, Plastic waste and its management.
Unit 3:
LEGISLATION :
Preliminary knowledge of the following Acts and rules made
thereunder-
- The Water (Prevention and Control of Pollution) Act - 1974.
- The Air (Prevention and Control of Pollution) Act - 1981.
- The Environmental Protection (Prevention and Control of Pollution) Act -1986. Rules notified under EP Act - 1986 Viz.
The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000
The Hazardous Wastes (Management and Handling) Amendment Rules, 2003.
Bio-Medical Waste (Management and Handling) (Amendment) Rules, 2003.
The Noise Pollution (Regulation and Control) (Amendment) Rules, 2002.
Municipal Solid Wastes (Management and Handling) Rules, 2000.
The Recycled Plastics Manufacture and Usage (Amendment) rules, 2003.
Unit 4:
ENVIRONMENTAL IMPACT ASSESSMENT (EIA) :
- Basic concepts, objective and methodology of EIA.
- Objectives and requirement of Environmental Management System (ISO-14000) (An Introduction).
Unit 5:
 DISASTER MANAGEMENT : Definition of disaster - Natural and Manmade, Type of disaster management, How disaster forms, Destructive power, Causes and Hazards, Case study of Tsunami Disaster, National policy- Its objective and main features, National Environment Policy, Need for central intervention, State Disaster Authority- Duties and powers, Case studies of various Disaster in the country, Meaning and benifit of vulnerability reduction, Factor promoting vulnerability reduction and mitigation, Emergency support function plan. Main feature and function of National Disaster Management Frame Work, Disaster mitigation and prevention, Legal Policy Frame Work, Early warning system, Human Resource Development and Function, Information dissemination and communication.

INTERNET & WEB TECHNOLOGY

Unit 1 :
INTERNET : Introducing Internet, Its Uses : Why Internet, Basic internet Tools, E-Mail, Ftp, Telnet, Usenet News, Web Browsers, Search Engines, Yahoo, Archie, Infoseak, Veronica, World Wide Web. How Internet works: Administration of Internet, How to Go On Internet : Requirements, Hardware, Software, ISP,

Internet Account PPP/Shell. How to Use E-Mail Services On Internet Introducing Hotmail/Yahoo/Vsa-Net, How To Operate E-Mail address, How to Operate E-Mail Services : Sending E- Mail, Forwording, Saving, Reading etc., How to attach files,

Unit 2:

WEB TECHNOLOGY :

A. HTML: Elements of HTML, HTML sources & Rules of nesting, syntax conventions, HTML Categories, text tags, Formatting WebPages by using Styles, adding pictures, image attribute , introduction to forms, tables and models,advantages & limitations of tables, frames, links. SS cascading style sheets, XHTML, XML, Cient Side Scripting, Server Side Scripting, Managing data with SQL.

B. JAVA SCRIPTS: what is a Java Scripts, adding, Java scripts to documents, embedding java scripts, linking java scripts, creating a page program with scripts. What is a Java and its appletes, to make webpages run server sripts, activeX. Data types, variables, operators, conditional statements, array object, date object, string object.

C. JAVA SERVLET : Servlet environment and role, HTML support, Servlet API, The servlet life cycle, Cookies and Sessions.

D. JSP : JSP architecture, JSP servers, JSP tags, understanding the layout in JSP, Declaring variables, methods in JSP, inserting java expression in JSP, processing request from user and generating dynamic response for the user, inserting applets and java beans into JSP, using include and forward action, comparing JSP and CGI program, comparing JSP and ASP program; Creating ODBC data source name, introduction ot JDBC, prepared statement and callable statement.

E. DYNAMIC WEB PAGES : The need of dynamic web pages; an overview of DHTML, Cascading Style Sheet (CSS), Comparative studies of different technologies of dynamic page creation.

ACTIVE WEB PAGES : Need of active web pages; Java applet life cycle.

WEB TECHNOLOGY PRACTICAL

1. Exercises on E-Mail.
2. Exercises on to see web sites.
3. Development of different Websites using all tools.
4. Development of Websites using Front-page

COMPUTER GRAPHICS

Unit 1:

OVERVIEW OF GRAPHICS SYSTEM : Refresh Cathode Ray Tubes, Random Scan and Raster Scan Monitors, Colour CRT Monitors, DVST, Plasma Panel Displays, LED and LCD Monitors, Laser Devices, Three dimensional monitors, Hard copy devices - Printer, Plotters, Display processes- Random-Scan systems, DVST system, Raster Scan System.

Unit 2:

OUTPUT PRIMTIVES : Points and lines, Line drawing algorithms, DDA algorithm, Presentations Line Algorithm, Ant aliasing Lines, circle generating algorithms - Circle equation, Presentations circle algorithm

ATTRIBUTES OF OUTPUT PRIMITIVES : Line styles, Line type, Line width, Line colour, Area filling- Scan line algorithm, Boundary fill algorithm, Flood fill algorithm.

Unit 3:

TWO DIMENSIONAL TRANSFORMATIONS : Basic transformations, Translation, Scaling and Rotation, Matrix representation of homogeneous co-ordinates, Composite transformations, Translations, scaling and protection, scaling relative to a fixed point, Rotation

about fixed point, Arbitary scaling directions, Other transformations- Reflection and Shear.

Unit 4:

WINDOWING AND CLIPPING :

Windowing concepts, Clipping algorithms - Line clipping, Area clipping, Text clipping, Blanking, Window to viewport transformations.

Unit 5 :

INTERACTIVE INPUT METHODS :

Touch panel, Light pens, Graphics tablets, Joy sticks, Track ball, Mouse, Voice systems, Logical classification of input

devices, Locator devices, Stroke devices, String device, Valuator devices, Choice device, Pick device.

COMPUTER GRAPHICS PRACTICAL

1. Practice on Computer Aided Drafting and Design.
2. Exercise Based on all tools of graphics

LIST OF BOOKS

1. Computer Graphics - Hearn & Baker
2. Computer Graphics - Bresenham List of Experiments

PROJECT

Rationale: The purpose of including project in curriculum is to develop skill and knowledge specifications of hardware used in computers. It will also develop the capability of assembly and testing of project and its stages.

GENERAL OBJECTIVE:

Purpose of the project work is :

(i) To develop abilities of diagnosing problems.

(ii) To develop the abilities to :

(a) Make literature survey.

(b) Design/develop/fabricate/test simple circuits.

(c) Prepare documents for electronic work.

(d) Work as a team.

1. COMPUTER SCIENCE PROJECT (SW/HW):

The student is expected to work on a project in consultation and acceptance with the instructor on either system software or hardware aspects related to industrial environment. The student is also expected to fabricate different cards used in PC, their testing and assembly of PC. The end targets for the project should be well defined and evaluation should place major importance on meeting these targets.

2. DATA PROCESSING PROJECT:

The student is expected to work and learn from implementing an application software and study its functional and performance aspects and submit a report. The evaluation must be based on the project report and the seminars.

3. MAINTENANCE PROJECT:

Similar as Computer Science Project (Software & Hardware), related to maintenance operation and evaluation of the System.