KURUKSHETRA UNIVERSITY KURUKSHETRA
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 1ST YEAR (SEMESTER–I) COMMON FOR ALL BRANCHES (2004-2005)

Course No.	Course title	Teaching Schedule				Allotment of marks				Duration of Exams.
		L	T	P	Total	Sessional	Theory	Practical	Total	
MATH-101E	Mathematics-I	4	1	-	5	50	100	--	150	3
PHY-101E	Physics-I	3	1	-	4	50	100	--	150	3
BT-101E	Introduction to Biotechnology	3	1	-	4	50	100	--	150	3
	OR									
HUM-101E	Communication skills in English	3	1	-	4	50	100	--	150	3
ME-101E / CE-101E / EL-101E	Elements of Mechanical Engineering / Elements of Civil Engg./ Elements of Electronics Engg. *	3	1	-	4	25	75	--	100	3
	OR									
ME-105E	Engg. Graphics and Drawing	-	--	3	3	50	--	100	150	3
ME-103E	Manufacturing Processes	4	--	--	4	50	100	--	150	3
	OR									
CH-101E	Chemistry	3	1	-	4	50	100	--	150	3
CSE-101E	Fundamentals of Computer & Programming in c	3	2	-	5	50	100	--	150	3
	OR									
EE-101E	Electrical Technology	3	2	-	5	50	100	--	150	3
ES-101E	Environmental Studies**	4	-	-	4	25	75	--	100	3
PHY-103E	Physics Lab.-I	-	-	2	2	25	--	25	50	3
ME-107E	Workshop Practice	--	--	3	3	25	--	25	50	3
	Or									
CH-103E	Chemistry Lab.	--	--	2	2	25	--	25	50	3
CSE-103E	Computer Programming Lab.	--	--	2	2	25	--	25	50	3
	OR									
EE-103E	Electrical Technology Lab.	--	--	2	2	25	--	25	50	3
ME-109E CE-109E EL-109E	Elements of Mechanical Engineering / Elements of Civil Engg./ Elements of Electronics Engg. *	--	--	2	2	25	--	25	50	3
	Total	24/20	6/6	9/9	35/35	375/375	575/500	100/175	1050/1050	

Note:- 1. Students will study either Group A (BT-101E, ME-101E/ CE-101E/ EL-101E, ME-103E, CSE-101E. ME107E, CSE-103E, ME-109E/ EL-109E/ CE-109E) OR Group B (HUM-101E, ME-105E, CH-101E, EE-101E, ES-101E, CH-103E, EE-103E) SEMESTER-I/SEMESTER-II branches to be decided by the concerned institution.

Students are allowed to use single memory, non-programmable scientific calculator during examination.

Practical Examination will consist of 10 marks for viva-voce and 15 marks for Experiment.

*Institutes will offer one of these electives

**Subject is qualifying. It shall carry 25 sessional marks for field work (to be conducted by the institute) report.

KURUKSHETRA UNIVERSITY KURUKSHETRA
SCHEME OF STUDIES & EXAMINATIONS
B.Tech. 1ST YEAR (SEMESTER –II) COMMON FOR ALL BRANCHES (2003-2004)

Course No.	Course title	Teaching Schedule				Allotment of marks				Duration of Exams.
		L	T	P	Total	Sessional	Theory	Practical	Total	
MATH-102E	Mathematics-II	4	1	-	5	50	100	--	150	3
PHY-102E	Physics-II	3	1	-	4	50	100	--	150	3
BT-101E	Introduction to Biotechnology	3	1	-	4	50	100	--	150	3
	OR									
HUM-101E	Communication skills in English	3	1	-	4	50	100	--	150	3
ME-101E / CE-101E / EL-101E	Elements of Mechanical Engineering / Elements of Civil Engg./ Elements of Electronics Engg. *	3	1	-	4	25	75	--	100	3
	OR									
ME-105E	Engg. Graphics and Drawing	..	--	3	3	50	--	75	125	3
ME-103E	Manufacturing Processes	4	--	--	4	50	100	--	150	3
	OR									
CH-101E	Chemistry	3	1	-	4	50	100	--	150	3
CSE-101E	Fundamentals of Computer & Programming in C	3	2	-	5	50	100	--	150	3
	OR									
EE-101E	Electrical Technology	3	2	-	5	50	100	--	150	3
ES-101E	Environmental Studies**	4	-	-	4	25	75	--	100	3
PHY-104E	Physics Lab.-II	-	-	2	2	25	--	25	50	3
ME-107E	Workshop Practice	--	--	3	3	25	--	25	50	3
	Or									
CH-103E	Chemistry Lab.	--	--	2	2	25	--	25	50	3
CSE-103E	Computer Programming Lab.	--	--	2	2	25	--	25	50	3
	OR									
EE-103E	Electrical Technology Lab.	--	--	2	2	25	--	25	50	3
ME-109E CE-109E EL-109E	Elements of Mechanical Engineering / Elements of Civil Engg./ Elements of Electronics Engg. *	--	--	2	2	25	--	25	50	3
	Total	20/16	6/6	9/9	35/35	375/375	575/500	100/150	1050/1025	

Note:- 1. Students will study either Group A (BT-101E, ME-101E/ CE-101E/ EL-101E, ME-103E, CSE-101E. ME107E, CSE-103E, ME-109E/ EL-109E/ CE-109E) OR Group B (HUM-101E, ME-105E, CH-101E, EE-101E, ES-101E, CH-103E, EE-103E) SEMESTER-I/SEMESTER-II branches to be decided by the concerned institution.

Students are allowed to use single memory, non programmable scientific calculator during examination.

3. Practical Examination will consist of 10 marks for viva-voce and 15 marks for Experiment.

*Institutes will offer one of these electives

**Subject is qualifying. It shall carry 25 sessional marks for field work (to be conducted by the institute) report.

MATH-101E
MATHEMATICS-I
(COMMON FOR ALL BRANCHES)

L T P	Theory: 100 Marks
4 1 -	Sessional: 50 Marks
	Total: 150 Marks
	During of exam : 3 Hrs.

UNIT-I

Applications of Differentiation : Taylor's & Maclaurin's series, Expansion by use of known series, Expansion by forming a differential equation, Asymptotes, Curvature, Radius of Curvature for Cartesian, Parametric & polar curves, Centre of curvature & chord of curvature, Tracing of Cartesian & polar curves (standard curves).

UNIT – II

Partial Differentiation & its Applications : Functions of two or more variables Partial derivatives, Total differential and differentiability, Derivatives of composite and implicit functions, change of variables.

Homogeneous functions, Euler's theorem, Jacobian, Taylor's & Maclaurin's series for functions of two variables (without proof), Errors and approximations, Maxima-minima of functions of two variables, Lagrange's method of undetermined multipliers, Differentiation under the integral sign.

UNIT – III

Multiple Integrals and their Applications : Double integral, change of order of integration Double integral in polar coordinates, Applications of double integral to find area enclosed by plane curves and volume of solids of revolution.

Triple integral, volume of solids, change of variables, Beta and gamma functions and relationship between them.

UNIT – IV

Vector Calculus : Differentiation of vectors, scalar and vector point functions Gradient of a scalar field and directional derivative, divergence and curl of a vector field and their physical interpretations, Del applied twice to point functions, Del applied to product of point functions.

Integration of vectors, line integral, surface integral, volume integral, Green's, Stoke's and Gauss divergence theorems (without proof), and their simple applications.

TEXT BOOKS:

1. Advanced Engineering Mathematics : F. Kreyszig.
2. Higher Engineering Mathematics : B.S. Grewal.

REFERENCE BOOKS:

1. Engineering Mathematics Part-I : S.S. Sastry.
2. Differential and Integral Calculus : Piskunov.
3. Advanced Engineering Mathematics : R.K. Jain and S.R.K. Iyengar
4. Advanced Engg. Mathematics : Michael D. Greenberg

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

HY-101E

PHYSICS-I
(COMMON FOR ALL BRANCHES)

L	T	P	
3	1		**Theory: 100 marks**
			Sessional: 50 marks
			Total: 150 marks
			Time: 3 Hrs.

UNIT-I

PHYSICAL OPTICS

Interference: Division of wave front-Fresnel's biprism, Division of amplitude–Newton's rings, Michelson interferometer, applications.

Diffraction: Difference between Fraunhofer and Fresnel diffraction. Fraunhofer diffraction through a slit. Plane transmission diffraction grating, its dispersive and resolving powers.

Polarization: Polarised and unpolarized light, double refraction; Nicol prism, quarter and half wave plates, Polarimetry; Biquartz and Laurent's half-shade polarimeters, Simple concepts of photoelasticity.

UNIT-II

LASER: Spontaneous and stimulated emissions, Laser action, characteristics of laser beam-concepts of coherence, He-Ne and semiconductor lasers (simple ideas), applications.

FIBRE OPTICS: Propagation of light in fibres, numerical aperture, single mode and multi mode fibres, applications.

UNIT-III

EM Theory : E.M. wave theory-review of basic ideas, Gauss's Law, Ampere's Law and its applications to infinite line charge & Infinite plane ,eMaxwell's equations, simple plane wave equations, simple concepts of wave guides and co-axial cables, Poynting vector. **DIELECTRICS:** Molecular theory, polarization, displacement, susceptibility, dielectric coefficient, permitivity & various relations between these, Gauss's law in the presence of a dielectric, Energy stored in an electric field. Behavior of dielectrics in a.c. field-simple concepts, dielectric losses.

UNIT-IV

SPECIAL THEORY OF RELATIVITY: Michelson-Moreley experiment, Lorentz transformations, variation of mass with velocity, mass energy equivalence.

NUCLEAR PHYSICS: Neutron Cross-section, Nuclear fission, Moderators, Nuclear reactors, Reactor criticality, Nuclear fusion. Interaction of radiation with matter-basic concepts, radiation detectors-ionisation chamber, G.M. Counter, Scintillation and solid state detectors, cloud chamber and bubble chamber.

TEXT BOOKS: 1. Physics of the Atom - Wehr, Richards & Adair (Narosa)
2. Perspectives of Modern Physics - Arthur Beiser (TMH)
3. Modern Engineering Physics – A.S. Vasudeva (S. Chand)

REFERENCE BOOKS:
1. Electricity and Magnetism – F.W. Sears (Narosa)
2. Physics Vol-I & II – Resnick & Halliday (Wiley Eastern)
3. A Text Book of Optics – Brij Lal & Subramanyam

Ist YEAR B.TECH
INTRODUCTION TO BIOTECHNOLOGY (BT-101 E)

L	T	P/D	Theory: 100 marks
3	1		Sessional : 50 marks
			Total: 150 marks
			Time: 3 Hrs.

UNIT - I

Introduction to life: Characteristics of living organisms. Hierarchy of organisation and factors responsible for regulating different levels of organisations. Structure of Prokaryotic and Kukaryotic cell. Basic concept of State and Homeostasis.

Introduction to Biomolecules: Definition, general classification and important functions of carbohydrates, lipids, proteins, nucleic acids and vitamins.

Enzymes as biocatalysts: General characteristics, nomenclature and classification of Enzymes. Effect of temperature, pH, enzyme and substrate concentrations on the activity of enzymes. Elementary concept of cofactors and coenzymes.

UNIT - II

Biodiversity :

(i) **Plant System :** Basic concepts of plant growth, nutrition, photosynthesis and nitrogen fixation. Types of Growth regulators and their physiological effects.

(ii) **Animal System :** Elementary Study of Digestive, Respiratory, Circulatory, Excretory systems and their functions.

(iii) **Microbial System :** History of Microbiology, types of microbes and properties. Economic importance and control of microbes.

UNIT - III

Evolution: Theories of evolution. Mendel's laws of inheritance. Variation and speciation.

Genetic: Cell division – Mitosis and Meiosis. Evidence of nucleic acids as a genetic material. Central Dogma.

Genetic Engineering : Elementary knowledge of Recombinant DNA Technology, Bio-informatics and Genomics.

UNIT – IV

Introduction to Biotechnology : Definition, scope and achievements. Tools used in biotechnology.

Applications of Biotechnology in Agriculture, Medicine and Environment – an elementary knowledge.

Prospects and public perception of Biotechnology.

Text/ Reference Books:

1. Cell Biology and Genetics. 9th edition. Starr, C. and Taggard; R. (2001) Thomson Learning USA.
2. Life Science of Biology 6th edition Purves W.K.; Sadava, D.; Orians, G.H. and Heller, H.C. (2001). W.H. Freeman & company, USA.
3. Basic Biotechnology. Ratledge, C. and Kristiansen, B. (2001) Cambridge University Press.
4. Basic Biotechnology. Ignacimuthu, S.J. (2002) Tata McGraw-Hill Pub., New Delhi
5. Genes VII Lewis Benjamin (2002). Oxford Univ. Press Oxford.
6. Biotechnology 3rd Edition. Smith, J.E. (2003) Cambridge University Press.

HUM-101-E
COMMUNICATION SKILLS IN ENGLISH
B.E. Semester-I

L T P **Theory: 100 marks**

3 1 **Sessional: 50 marks**

Total: 150 marks

Time: 3 Hrs.

This course is designed for the students of Engineering and Technology who need English for specific purposes in specific situations. It aims at imparting the communication skills that are needed in their academic and professional pursuits. This is achieved through an amalgamation of traditional lecture-oriented approach of teaching with the task based skill oriented methodology of learning.

Unit-I

Communicative Grammar:

Part A : Spotting the errors pertaining to nouns, pronouns, adjective and adverbs; Concord - grammatical concord, notional concord and the principle of proximity between subject and verb.

Part B : Changing the voice : from Active to Passive and Passive to Active.

Unit-II

Lexis: Idioms and phrases; Words often confused; One-Word Substitutes; Formation of words (suffixes, prefixes and derivatives);

Unit-III

Oral Communication:

Part-A: Introduction to principal components of spoken English – Transcription, Word-accent, Intonation, Weak forms in English

Part-B: Developing listening and speaking skills through various activities, such as (a) role play activities, (b) Practising short dialogues (c) Group discussion (d) Debates (e) Speeches (f) Listening to news bulletins (g) Viewing and reviewing T.V. programmes etc.

Unit-IV

Written Communication: Developing reading and writing skills through such tasks/activities as developing outlines, key expressions, situations, slogan writing and theme building exercises, dialogue writing, interpreting pictures/cartoons.

Unit-V

(For Internal Evaluation Only):

Book Review – Herein the students will be required to read and submit a review of a book (Literary or non-literary) of their own choice. This will be followed by a presentation of the same in the class

Unit-VI

Technical Writing:

(a) Business Letters, Format of Business letters and Business letter writing
(b) E-mail writing
(c) Reports, Types of Reports and Format of Formal Reports
(d) Press Report Writing

SUGGESTED READING:

Language in Use (Upper intermediate Level, Adrian Doff Christopher Jones, Cambridge University Press
Common Errors in English, Abul Hashem, Ramesh Publishing House, new Delhi.
Objective English, Tata Mc. Graw Hill Publishing Company Ltd., New Delhi.
Spoken English for India, R.K. Bansal & J.B. Harrison, Orient Longman, Delhi.
The sounds of English, Veena Kumar, Makaav Educational Software, New Delhi.
English Phonetics & Phonology, P. Roach, Cambridge University Press, London.
English for Engineers and Technologists: A Skill Approach, Vol. 2, Orient Longman, Delhi.
Business Communication, M.S. Ramesh and C.C. Pattanshetti, R.Chand and Company, Delhi
Group Discussion, Sudha Publications/Ramesh Publishing House, New Delhi.
English Grammar & Composition. By Rajinder Pal & Prem Lata Suri, Sultan Chand Pub. New Delhi.

SCHEME OF EXAMINATION:

All questions will be compulsory and will cover all the aspects of the syllabus **except unit V**. There will be sufficient internal choice.

Unit-I: 20 Marks

Questions No. 1 will require the students to carefully read the sentences given and trace the errors, if any, and then supply the correct alternatives/answers.

Unit-II: 20 Marks

Question No. 2 may have four or five parts testing knowledge of different items of vocabulary.

Unit-III: 20 Marks

Question No. 3 will have four parts of 5 marks each from part A of the unit.

Note: Speaking and listening skills of part B will primarily be tested orally through internal assessment.

Unit-IV: 20 Marks

Question No. 4 may have many parts. The questions will be framed to test students' composition skills on the elements prescribed in the unit. For example, the students may be required to develop a hypothetical situation in a dialogue form, or to develop an outline, key expression etc.

Unit-V is for internal assessment only.

Unit-VI: 20 Marks
Question No. 5 may have two parts. While the one part may require the students to frame either a press/news report for the print media or write the given business letter, or e-mail a message, the second part will have a theory question on the format of formal report and business letter.

ME-101E

ELEMENTS OF MECHANICAL ENGINEERING

L	T	P
3	1	

Theory: 75 marks
Sessional: 25 marks
Total: 100 marks
Time: 3 Hrs.

Unit-I

Properties of Steam & Boilers: Formation of steam at constant pressure, Thermodynamics properties of steam, Condition of steam, Steam tables, Measurement of dryness fraction by throttling calorimeter, Classification of boilers, Comparison of water and fire tube boilers mounting and accessories with their functions, Constructional and operational details of Cochran and Babcock and Wilcox boilers, Problems.

Steam Turbines and Condensers: Classification of turbines, Working principle of impulse and reaction turbine, Compounding of impulse turbine, Comparison of impulse and reaction turbines, Types of condensers, Cooling ponds and cooling towers, Condenser and vacuum efficiencies.

Unit-II

I.C. Engines and Gas Turbines: Introduction, Classification, Constructional details and working of two-stroke and four-stroke diesel and petrol engines, Otto, Diesel and Dual cycles, Working principle of gas turbine, Constant pressure gas turbine cycle.

Water Turbines, Pumps and Hydraulic Devices: Introduction, Classification, Construction details and working of Pelton, Francis and Kaplan turbines, Specific speed and selection of turbines, Classification of water pumps and their working, Hydraulic jack and lift.

Unit-III

Simple Lifting Machines: Definition of machine, Velocity ratio, Mechanical advantage, Efficiency, Laws of machines, Reversibility of machine, Wheel and axle, Differential pulley block, Single, double and triple start worm and worm wheel, Single and double purchase winch crabs, Simple and compound screw jacks. Problems.

Power Transmission Methods and Devices: Introduction to Power transmission, Belt drive, Rope drive, Chain drive, Pulley, Gear drive, Types of gears, Gear train, Clutches, Types and function of clutches, Types and function of brakes, Power measurement by dynamometer, Types of dynamometers.

Unit-IV

Stresses and Strains: Introduction, Concept & types of Stresses and strains, Poison's ratio, stresses and strains in simple and compound bars under axial loading, Stress-strain diagrams, Hooks law, Elastic constants & their relationships, Principle stresses & strains and principal- planes, Mohr's circle of stresses. Numerical problems.

Bending Moment & Shear Force: Definitions, SF and BM diagrams for cantilever and simply supported beam. Calculation of maximum SF, BM and point of contra-flexure under the loads of (i) concentrated load (ii) uniformly distributed load (iii) combination of concentrated and uniformly distributed loads. Problems.

Text Books:

1. Strength of Materials - G.H. Ryder, Pub.- ELBS.
2. Hydraulic and Fluid Mechanics – Modi and Seth, Pub. – Standard Book House, New Delhi
3. Engineering Thermodynamics – C.P. Arora, Pub. - TMH, New Delhi
4. Thermal Engineering – A.S. Sarad, Pub. - Satya Prakashan, New Delhi.
5. Engineering Mechanics – K.L. Kumar, Pub. - TMH, New Delhi.
6. Theory of Machines – S.S. Rattan, Pub. – TMH, New Delhi.

Reference Books:

1. Strength of Materials – Popov, Pub. - PHI, New Delhi.
2. Hydraulic Machines – Jagdish Lal, Pub.- Metropolitan, Allahbad.
3. Thermal Science and Engineering – D.S. Kumar, Pub. – Kateria & Sons, New Delhi.

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

ELEMENTS OF CIVIL ENGINEERINGS

L T P
3 1 -

Sessional: 25 Marks
Exam.: 75 Marks
Total: 100 Marks
Time: 3 Hrs.

UNIT-I

Building Materials & Construction: Cement, sand, aggregate, bricks, reinforcing bars, structural steel sections.
Brick masonry: Bonds in brick work, reinforced brick work, load bearing walls, damp-proofing and water proofing, doors and windows
Making of concrete, reinforced concrete: columns, beams, lintels, floors and roofs, staircases, water retaining structures, foundations.

UNIT-II

Structural Steel: Properties, design of tension and compression members, beams and roof
Trusses, constructions- rewetted bolted and welded, industrial buildings and towers

UNIT-III

Soils and Foundations: Types of soils, bearing capacity of soils, improving the bearing capacity, earth pressure, foundation for walls, columns, machines and transmission towers, pile foundation.

UNIT-IV

Water supply and treatment: Water needs, estimation of water demand, impurities in water and their sanitary significance, water quality standards, water treatment systems, distribution systems- gravity, pumping and dual system, need for sanitation, systems of sanitation-water borne and conservancy methods of sanitation, sewerage systems- partial, combined and separate systems.

References:

1. Building Construction by Sushil Kumar, Standard Pub., New Delhi.
2. Reinforced Concrete by I.C.Syal & A.K.Goyal, A.H Wheeler & Co., Delhi
3. Design of steel Structures by A.S.Arya & J.L.Ajonani Nem Chand & Bros.
4. Basics & Applied Soil Mechanics by Gopal Ranjan & ASR Rao, New Age Int. Pub., New Delhi
5. Water Supply Enggi. By S.K. Garg.

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

EL-101E

ELEMENTS OF ELECTRONICS ENGINEERING

L T P
3 1 -

Sessional: 25 Marks
Exam.: 75 Marks
Total: 100 Marks
Time: 3 Hrs.

UNIT-I

Semiconductors p-type, n-type, pn junction diodes, pn junction as a circuit element, its characteristics, half wave and full wave and bridge type rectifier circuits basic filter circuits, Doide as voltage multiplier, clipper & clamper circuit. Zener diode as a voltage regulator. LED its characteristics construction & applications

UNIT-II

Characteristics of transistors in different configuration. Concept of d.c. and a.c. load line and operating point selection. Various amplifiers configurations their h-parameter equivalent circuits determination of voltage gain current gain input resistance and output resistance & power gain. Concept of feedback in amplifiers, different oscillators circuits (without analysis)

UNIT-III

Differential amplifier and its transfer characteristics. IC Op-Amps, its ideal & practical specifications and measurement of parameters. Op-Amp in different modes as inverting amplifier non inverting amplifier scale changer, differentiator & integrator.

UNIT-IV

Characteristics of JFET, MOSFET, Various amplifier configurations using FET. Characteristics and Construction of SCR, TRIAC, UJT. Their basic areas applications.

Reference :

1. Electronic Devices & Circuits - Boylstad & Nashelsky.
2. Integrated Electronics By Millman & Halkias.
3. Electronic Principles – Malvino
4. Principles of Electronics – V.K. Mehta, Shalu Melta.
5. Electronic Circuits – Donald L. Shilling & Charles Belowl

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

ME-105E

ENGINEERING GRAPHICS AND DRAWING

L	T	P
-	-	3

Examination : 100 marks
Sessional: 50 marks
Total: 150 marks
Time: 3 Hrs.

Unit-I

Various types of projections, First and Third angle systems of orthographic projections. Projections of points in different quadrants. Projections of straight lines – parallel to one or both reference planes, contained by one or both planes, perpendicular to one of the planes, inclined to one plane but parallel to the other plane, inclined to both the planes, true length of a line and its inclinations with reference planes, traces of a line.

Unit-II

Projections of Polyhedra Solids and solids of Revolution – in simple positions with axis perpendicular to a plane, with axis parallel to both planes, with axis parallel to one plane and inclined to the other. Development of surface of various simple solids such as cubes, cylinders, prisms, pyramids etc. orthographic views, orthographic drawings of Bolts, Nuts, Bolted joints, screw threads, screwed joints.

Note : Some simple exercise may be attempted with AUTOCAD.

Text Book

1. Engineering Drawing Plane and Solid Geometry : N.D. Bhatt and V.M.Panchal, Forty-Fourth Edition 2002, Charotar Publishing House.

Reference Books

1. Engineering Graphics and Drafting : P.S. Gill, Millennium Edition, S.K. Kataria and Sons.
2. A Text Book of Engineering Drawing : S.B. Mathur, Second Revised and Enlarged Edition 2000, Vikas Publishing House.
3. Engineering Graphics using AUTOCAD 2000 : T. Jeyapoovan, First Edition 2002, Vikas Publishing House.

ME- 103E

MANUFACTURING PROCESSES

L T P
4

Theory : 100 marks
Sessional : 50 marks
Total: 150 marks
Time: 3 Hrs.

Unit-I

Introduction: Introduction to Manufacturing Processes and their Classification. Industrial Safety; Introduction, Types of Accidents, Causes and Common Sources of Accidents, Methods of Safety, First Aid.
Engineering Materials: General Properties and Applications of Engineering Materials, Mild Steel, Medium Carbon Steel, High Carbon Steel, High Speed Steel and Cast Iron.

Unit-II

Foundry: Introduction to Casting Processes, Basic Steps in Casting Process, Pattern, Types of Patterns, Pattern Allowances, Risers, Runners, Gates, Moulding Sand and its composition, Sand Preparation, Molding Methods, Core Sands and Core Making, Core Assembly, Mold Assembly, Melting (Cupola) and Pouring, Fettling, Casting Defects and Remedies.

Unit-III

Cold Working (Sheet Metal Work): Sheet Metal Operations, Measuring, Layout Marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining Advantages and Limitations.
Hot Working Processes: Introduction to Hot Working, Principles of Hot Working Processes, Forging, Rolling, Extrusion, Wire Drawing. Plant Layout, Objectives of Layout, Types of Plant Layout and their Advantages.

Unit-IV

Introduction to Machine Tools: Specifications and Uses of commonly used Machine Tools in a Workshop such as Lathe, Shaper, Planer, Milling, Drilling, Slotter, Introduction to Metal Cutting. Nomenclature of a Single Points Cutting Tool and Tool Wear. Mechanics of Chips Formations, Type of Chips , Use of Coolants in machining.
Welding: Introduction to Welding, Classification of Welding Processes, Gas Welding: Oxy-Acetylene Welding, Resistance Welding; Spot and Seam Welding, Arc Welding: Metal Arc, TIG & MIG Welding, Welding Defects and Remedies, Soldering & Brazing.

Text Books :
Workshop Technology Vol. I &II - Hazra & Chaudhary, Asian Book Comp., New Delhi.

Process and Materials of Manufacture-Lindberg, R.A. Prentice Hall of India, New Delhi.
Principles of Manufacturing Materials and Processes- Campbell, J.S.- McGraw- Hill.

Reference Books:

1. Manufacturing Science-Amitabha Ghosh & Ashok Kumar Malik, - East-West Press.
2. Manufacturing Process and Systems - Ostwald, Munoz , John Wiley.
3. Workshop Technology, Vol. 1, 2 & 3 – Chapman, WAJ, Edward Arnold.

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

CH-101E
CHEMISTRY
(COMMON FOR ALL BRANCHES)

L T P
3 1 -

Sessional : 50 Marks
Exam.: 100 Marks
Total: 150 Marks
Time: 3 Hrs.

Unit-1

Thermodynamics - Second law, concept of Entropy, Entropy change for an ideal gas, free energy and work functions, Free energy change, Chemical Potential, Gibb's Helmholtz equation, Clausius - Clapeyron equation, Related numerical problems with above topics. Phase-Rule - Terminology, Derivation of Gibb's Phase Rule Equation, One Component System (H_2O System), Two Components systems, Eutectic system (Pb-Ag), system with congruent m.pt. (Zn-Mg), systems with incongruent m.pt. (Na-K), Applications of above Systems.

Unit-2

Water & its treatment : Part I – Sources of water, impurities in water, hardness of water and its determination, units of hardness, alkalinity of water and its determination, Related numerical problems, scale and sludge formation (composition properties and methods of prevention). Water and its treatment : Part II – Treatment of water for domestic use, coagulation, sedimentation, filtration and dis-infection, water softening, Ion-exchange process, mixed bed demineralisation, Desalination (reverse osmosis) (electrodialysis).

Unit-3

Corrosion and its prevention - Galvanic & concentration cell, Dry and wet corrosion, Electrochemical theory of corrosion, Galvanic corrosion, pitting corrosion, water-line corrosion, differential aeration corrosion, stress corrosion, factors affecting corrosion, Preventive measures (proper design, Cathodic protection, protective coatings).

Lubrication and Lubricants-Friction, mechanism of lubrication, classification and properties of lubricants, Additives for lubricants, synthetic lubricants, Greases – Preparation & properties (consistency, drop point) and uses.

Unit-4

Polymers and Polymerization-Organic polymers, polymerisation, various types of polymerisation, effect of structure on properties of polymers, preparation properties and technical applications of thermo-plastics (PVC,PVA), thermosets (PF,UF), and elastomers (SBR,GR-N), Silicones, Introduction to polymeric compsites. Analytical methods;its needs and different methodes;Spectroscopy; its defination and scope;salient features of spectrophotometer,brief introduction of titrimetric methodes,Elementry discussion on flame photometry

TEXT BOOKS:

1. Engineering Chemistry, P.C. Jain, Monica Jain (Dhanpat Rai & Co.).
2. Chemistry in Engineering & Tech., Vol.I & II, Rajaram, Kuriacose (TMH).

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).

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

CSE -101E
FUNDAMENTALS OF COMPUTERS & PROGRAMMING IN C

L	T	P	
3	2		**Theory: 100 marks**
			Sessional : 50 marks
			Total: 150 marks
			Time: 3 Hrs.

Unit-1

An Overview of Computer System: Anatomy of a digital Computer, Memory Units, Main and Auxiliary Storage Devices, Input Devices, Output Devices, Classification of Computers. Radix number system: Decimal, Binary, Octal, Hexadecimal numbers and their inter-conversions; Representation of information inside the computers. Operating System Basics: Introduction to PC operating Systems: DOS, Unix/Linux, Windows 2000.

Unit-2

Programming Languages: Machine-, Assembly-, High Level- Language, introduction to Assembler, Compiler, Interpreter, Debuggers, Linker and Loader. Programming fundamentals: problem definition, algorithms, flow charts and their symbols.

Internet basics: How Internet works, Major features of internet, Emails, FTP, Using the internet.

Unit-3

C Programming language: C fundamentals, formatted input/ output, expressions, selection statements, loops and their applications; Basic types, arrays, functions, including recursive functions, program organization: local and external variables and scope & arrays.

Unit-4

Strings: strings literals, string variables, I/O of strings, arrays of strings; applications. Structures, Unions and Enumerations: Structure variables and operations on structures; Structured types, nested array structures; unions; enumeration as integers, tags and types. Standard library: Input / output; streams, file operations, formatted I/O, character I/O, line I/O, block, string I/O, Library support for numbers and character data, error handling:

Text Books:

1. Using Information Technology, 5th Edi, Brian K Williams & Stacey C. Sawyer, 2003, TMH
2. The C Programming Language by Dennis M Ritchie, Brian W. Kernigham, 1988, PHI.
3. C Programming – A modern approach by K.N. King, 1996, WW Norton & Co.

Reference Books:

1. Information technology, Dennis P. Curtin, Kim Foley, Kunal Sen, Cathleen Morin, 1998, TMH
2. Theory and problem of programming with C, Byron C Gottfried, TMH
3. Teach yourself all about computers by Barry Press and Marcia Press, 2000, IDG Books India.
4. Using Computers and Information by Jack B. Rochester, 1996, Que Education & Training.

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

EE-101E

ELECTRICAL TECHNOLOGY

L T P	Theory: 100 marks
3 2	**Sessional : 50 marks**
	Total: 150 marks
	Time: 3 Hrs.

UNIT-I

D.C. CIRCUITS: Ohm's Law, Kirchoff's Laws, D.C. Circuits, Nodal and Loop methods of analysis. A.C. CIRCUITS: Sinusoidal signal, instantaneous and peak values, RMS and average values, phase angle, polar & rectangular, exponential and trigonometric representations; R,L and C components, behaviors of these components in A.C. circuits. Concept of complex power, power factor.

UNIT-II

TRANSIENT RESPONSE: Transient response of RL, RC and RLC Circuits with step input. NETWORK THEOREMS: Thevenin's theorem, Norton's theorem, superposition theorem, maximum power transfer theorem, Star to Delta & Delta to Star transformation. SERIES AND PARALLEL A.C. CIRCUITS: Series and parallel A.C. circuits, series and parallel resonance, Q factor, cut-off frequencies and bandwidth.

UNIT-III

THREE PHASE CIRCUITS: Phase and line voltages and currents, balanced star and delta circuits, power equation, measurement of power by two wattmeter method, Importance of earthing. TRANSFORMERS: Principle, construction & working of transformer, Efficiency and regulation.

UNIT-IV

ELECTRICAL MACHINES: **D.C. Machine**: Principle, construction, EMF equation, Torque Equation, Types of Machine, internal & external characterstics, speed control. **Induction motor:** Principle, construction, EMF equation, Types of motors, slip concept, **Synchronous motor:** Principle, construction, Types of motors

TEXT BOOKS:

1. Basic Electrical Engg (2nd Edition) : Kothari & Nagarath, TMH
2. Electrical Technology (Vol-I) : B.L Theraja & A K Theraja, S.Chand

REFERENCE BOOKS:

1. Electrical Engineering Fundamentals : Deltoro, PHI
2. Network Analysis :Valkenburg, PHI

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

ENVIRONMENTAL STUDIES
(For Under-Graduate Students)

Unit 1 : The Multidisciplinary nature of environmental studies

Definition, scope and importance.
Need for public awareness.

Unit 2 : Natural Resources

Renewable and non-renewable resources :

Natural resources and associated problems.

a) Forest resources : Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources : Use and exploitation, environmental effects of extracting and mineral resources, case studies.
d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources : Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3 : Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.

- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem :
  a) Forest ecosystem
  b) Grassland ecosystem
  c) Desert ecosystem
  d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

Unit : 4 Biodiversity and its conservation

- Introduction – Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India.
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation.
- Hot-spots of biodiversity.
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of biodiversity : in-situ and ex-situ conservation of biodiversity.

Unit 5 : Environmental Pollution

Definition

- Causes, effects and control measures of :
  a) Air pollution
  b) Water pollution
  c) Soil pollution
  d) Marine pollution
  e) Noise pollution
  f) Thermal pollution
  g) Nuclear hazards
- Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management : floods, earthquake, cyclone and landslides.

Unit 6 : Social Issues and the Environment

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics : Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness.

Unit 7 : Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programme
- Environment and human health.
- Human Rights.
- Value Education.
- HIV/AIDS
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.
- Case Studies.

Unit 8 : Field Work

- Visit to a local area to document environmental assets-river / forest / grassland / hill / mountain.
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural.
- Study of common plants, insects, birds.
- Study of simple ecosystems – pond, river, hill slopes, etc.

Examination Pattern : The question paper should carry 100 marks

The structure of the question paper being.

PART – A	:	Short Answer Pattern	25 Marks
PART – B	:	Essay type with inbuilt choice	50 Marks
PART – C	:	Field Work	25 Marks

INSTRUCTIONS FOR THE EXAMINERS

Part – A Question 1 is compulsory and will contain ten short-answer type question of 2.5 marks each covering the entire syllabus.

Part – B Eight essay type questions (with inbuilt choice) will be set from the entire syllabus and the candidates will be required to answer, any four of them. Each essay type question will be of the 12½ marks.

The examination will be conducted by the college concerned at its own level earlier than the annual examination and each student will be required to score minimum of 35% marks each in theory and Practical. The marks obtained in this qualifying paper will not be included in determining the percentage of marks obtained for the award of degree. However, these will be shown in the detailed marks certificate of the student.

PHY-103E

PHYSICS LAB.-I

(COMMON FOR ALL BRANCHES)

L	T	P
-	-	2

Sessional Work:25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

Note: Students will be required to perform atleast 10 experiments out of the list in a semester.

LIST OF EXPERIMENTS

The experiments in Ist semester will be based mainly upon optics, electrostatics, wave and oscillations which are the parts of the theory syllabus of Ist semester.

1. To find the wavelength of sodium light by Newton's rings experiment.
2. To find the wavelength of sodium light by Fresnel's biprism experiment.
3. To find the wavelength of various colours of white light with the help of a plane transmission diffraction grating.
4. To verify Newtons formula and hence to find the focal lenth of convex lens
5. To find the wavelength of sodium light by Michelson interferometer.
6. To find the resolving power of a telescope.
7. To find the specific rotation of sugar solution by using a polarimeter.
8. To compare the capacitances of two capacitors by De'sauty bridge and hence to find the dielectric constant of a medium.
9. To find the frequency of A.C. mains by using sonometer.
10. To find low resistance by carrey foster Bridge
11. To find the resistance of a galvenometer by Post office Box
12. To Find Value of high Resistance by substitution method
13. To Find the value of high resistance by leakage method
14. To Convert a galveno meter in to an Ammeter of given range.

RECOMMENDED BOOKS:

1. Advanced Practical Physics – B.L. Worshnop and H.T. Flint (KPH)
2. Practical Physics – S.L.Gupta & V.Kumar (Pragati Prakashan).
3. Advanced Practical Physics Vol.I & II – Chauhan & Singh (Pragati Prakashan).

ME-107E

WORKSHOP PRACTICE

L	T	P
-	-	3

Sessional Work:25 Marks
Examination: 25 Marks
Total: 50 Marks

Duration of Exam: 3 Hrs.

NOTE :

1. At least ten experiments/ jobs are to be performed/ prepared by students in the semester.
2. At least 8 experiments/ jobs should be performed / prepared from the above list, remaining two may either be performed/ prepared from the above list or designed & set by the concerned institution as per the scope of the syllabus of Manufacturing Processes and facilities available in the Institute.

List of Experiments / Jobs

1. To study different types of measuring tools used in metrology and determine least counts of vernier calipers, micrometers and vernier height gauges.
2. To study different types of machine tools (lathe, shape or planer or slotter, milling, drilling machines)
3. To prepare a job on a lathe involving facing, outside turning, taper turning, step turning, radius making and parting-off.
4. To study different types of fitting tools and marking tools used in fitting practice.
5. To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.
6. To prepare joints for welding suitable fo r butt welding and lap welding.
7. To perform pipe welding.
8. To study various types of carpentry tools and prepare simple types of at least two wooden joints.
9. To prepare simple engineering components/ shapes by forging.
10. To prepare mold and core assembly, to put metal in the mold and fettle the casting.
11. To prepare horizontal surface/ vertical surface/ curved surface/ slots or V-grooves on a shaper/ planner.
12. To prepare a job involving side and face milling on a milling machine.

B.E. I/II Semester
CH-103E
CHEMISTRY LAB
(COMMON FOR ALL BRANCHES)

L	T	P
-	-	2

Sessional Work:25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

Note: At least ten experiments are to be performed by the students.

LIST OF EXPERIMENTS

1. Determination of Ca^{++} and Mg^{++} hardness of water using EDTA solution.
2. Determination of alkalinity of water sample.
3. Determination of dissolved oxygen (DO) in the given water sample.
4. To find the melting & eutectic point for a two component system by using method of cooling curve.
5. Determination of viscosity of lubricant by Red Wood viscometer (No. 1 & No. 2).
6. To determine flash point & fire point of an oil by Pensky -Marten's flash point apparatus.
7. To prepare Phenol-formaldehyde and Urea formaldehyde resin.
8. To find out saponification No. of an oil.
9. Estimation of calcium in lime stone and dolomite.
10. 10. Determination of concentration of $KMnO_4$ solution spectrophotomet-erically.
11. Determination of strength of HCl solution by titrating it against NaOH solution conductometerically.
12. To determine amount of sodium and potassium in a, given water sample by flame photometer.
13. Estimation of total iron in an iron alloy.

SUGGESTED BOOKS :

1. A Text Book on Experimental and Calculation – Engineering Chemistry, S.S. Dara, S. Chand & Company (Ltd.)
2. Essential of Experimental Engineering Chemistry, Shashi Chawla, Dhanpat Rai Publishing Company.
3. Theory & Practice Applied Chemistry – O.P. Virmani, A.K. Narula (New Age)

EE-103E

ELECTRICAL TECHNOLOGY LAB

L	T	P
-	-	2

Sessional Work:25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

LIST OF EXPERIMENTS

1. To verify KCL and KVL.
2. To verify Thevenin's & Norton's Theorems.
3. To verify Superposition theorems.
4. To study frequency response of a series R-L-C circuit and determine resonant frequency& Q- factor for various Values of R,L,C.
5. To study frequency response of a parallel R-L-C circuit and determine resonant frequency & Q -Factor for various values of R,L,C.
6. To perform direct load test of a transformer and plot efficiency Vs load characteristic.
7. To perform O.C. and S.C. tests on transformer.
8. To perform speed control of DC motor.
9. To perform O.C. and S.C. tests of a three phase induction motor.
10. Measurement of power in a 3 phase system by two watt meter method.

CSE-103E

COMPUTER PROGRAMMING LAB.

L	T	P
-	-	2

Sessional Work: 25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

Note: At least 5 to 10 more exercises to be given by the teacher concerned.

Representative programming problems:-

1. Write a program to find the largest of three numbers. (if-then-else)
2. Write a program to find the largest number out of ten numbers (for-statement)
3. Write a program to find the average mail height & average female heights in the class (input is in form of sex code, height).
4. Write a program to find roots of quadratic equation using functions and switch statements.
5. Write a program using arrays to find the largest and second largest no. out of given 50 nos.
6. Write a program to multiply two matrices
7. Write a program to read a string and write it in reverse order
8. Write a program to concatenate two strings
9. Write a program to sort numbers using the Algorithm.
10. Represent a deck of playing cards using arrays.
11. Write a program to check that the input string is a palindrome or not.

EL-109E
ELEMENTS OF ELECTRONICS ENGINEERING LAB.

L	T	P
-	-	2

Sessional Work:25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

LIST OF EXPERIMENTS:

1. To study the half wave & full wave rectifier.
2. To study t5he effect of various filters circuits.
3. To study the characteristics of pnp & npn transistor in common amitter & determine H- parameter from characteristics.
4. To study the characteristics of pnp & npn transistor in CB & determine h-parameter from characteristics
5. To determine the Av, Ai of RC coupled CE transistor amplifier
6. Determine the frequency of oscillation in herteley oscillator
7. Determine the frequency of oscillation in phase shift oscillator
8. Determine the effect of negative feedback on bandwidth & gain in CE, RC coupled amplifier
9. Study TC Op-Amp as a inverting amplifier & scale changer
10. Study IC Op-Amp as a non inverting amplifier
11. Study IC Op-Amp as an integrator
12. Study IC Op-Amp as a differentiator

ME-109E

ELEMENTS OF MECHANICAL ENGINEERING LAB.

L	T	P
-	-	2

Sessional Work: 25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

Note:

1. Total ten experiments are to be performed in the Semester.
2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed & set by the concerned Institution as per the scope of the syllabus.

LIST OF EXPERIMENTS

1. To study Cochran & Babcock & Wilcox boilers.
2. To study the working & function of mountings & accessories in boilers.
3. To study 2-Stroke & 4-Stroke diesel engines.
4. To study 2-Stroke & 4-Stroke petrol engines.
5. To calculate the V.R., M.A. & efficiency of single, double & triple start worm & worm wheel.
6. To calculate the V.R., M.A. & efficiency of single & double purchase winch crabs.
7. To find the percentage error between observed and calculated values of stresses in the members of a Jib crane.
8. To draw the SF & BM diagrams of a simply supported beam with concentrated loads.
9. To study the simple & compound screw jacks and find their MA, VR & efficiency.
10. To study the various types of dynamometers.
11. To the constructional features & working of Pelton/Kaplan/Francis.
12. To prepare stress-strain diagram for mild steel & cast iron specimens under tension and compression respectively on a Universal testing machine.
13. To determine the Rockwell / Brinell /Vickers hardness no. of a given specimen on the respective machines.

MATH-102E
MATHEMATICS-II
(COMMON FOR ALL BRANCHES)

L T P		
4 1	**Theory**	**: 100 marks**
	Sessional	**: 50 marks**
	Total	**: 150 marks**
	Duration of exam	**: 3 Hrs.**

UNIT-I

Matrices & its Applications : Rank of a matrix, elementary transformations, elementary matrices, inverse using elementary transformations, normal form of a matrix, linear dependence and in dependence of vactors, consistency of linear system of equations, linear and orthogonal transformations, eigen values and eigen vectors, properties of eigen values, Cayley - Hamilton theorem and its applications.

UNIT-II

Ordinary Differential Equations & its Applications : Exact differential equations. Equations reducible to exact differential equations. Applications of Differential equations of first order & first degree to simple electric circuits, Newton's law of cooling, heat flow and orthogonal trajectories.
Linear differential equations of second and higher order. Complete solution, complementary function and particular integral, method of variation of parameters to find particular Integral, Cauchy's and Legender's linear equations, simultaneous linear equations with constant co-efficients. Applications of linear differential equations to simple pendulum, oscillatory electric circuits.

UNIT-III

Laplace Transforms and its Applications : Laplace transforms of elementary functions, properties of Laplace transforms, existence conditions, transforms of derivaties, transforms of integrals, multiplication by t^n, division by t. Evaluation of integrals by Laplace transforms. Laplace transform of Unit step function, unit impulse function and periodic function. Inverse transforms, convolution theorem, application to linear differential equations and simultaneous linear differential equations with constant coefficients.

UNIT-IV

Partial Differential Equations and Its Applications : Formation of partial differential equations, Lagrange's linear partial differential equation, First order non-linear partial differential equation, Charpit's method. Method of separation of variables and its applications to wave equation and one dimensional heat equation, two dimensional heat flow, steady state solutions only.

TEXT BOOKS:

1. Advanced Engg. Mathematics F Kreyszig
2. Higher Engg. Mathematics B.S. Grewal

REFERENCE BOOKS :

1. Differential Equations – H.T.H. Piaggio.

2. Elements of Partial Differential Equations – I.N. Sneddon.
3. Advanced Engineering Mathematics – R.K. Jain, S.R.K.Iyengar.
4. Advanced Engg. Mathematics – Michael D. Greenberg.

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

PHY-102E
PHYSICS-II
(COMMON FOR ALL BRANCHES)

L T P	
3 1	**Theory: 100 marks** **Sessional: 50 marks** **Total: 150 marks** **Time: 3 Hrs.**

UNIT-I

CRYSTAL STRUCTURE: Space Lattice, unit cell and translation vectors, Miller indices, simple crystal structure, Bonding in solids, Experimental X-ray diffraction method, Laue method, powder Method, Point defects in solids, Elementary idea of quarks and gluons.

UNIT-II

QUANTUM PHYSICS: Difficulties with Classical physics, Introduction to quantum mechanics-simple concepts, discovery of Planck's constant, Group velocity and phase velocity, Schrodinger wave equations - time dependant and time independent Schrodinger equations, Elementary ideas of quantum statistics.

FREE ELECTION THEORY: Elements of classical free electron theory and its limitations, Drude's Theory of Conduction, quantum theory of free electrons, Fermi level, Density of states, Fermi-Dirac distribution function, Thermionic emission, Richardson's equation.

UNIT-III

BAND THEORY OF SOLIDS: Origin of energy bands, Kronig, Penney Model (qualitative), E-K diagrams, Brillouin Zones, Concept of effective mass and holes, Classification of solids into metals, Semiconductors and insulators, Fermi energy and its variation with temperature. Hall effect and its Applications.

UNIT-IV

PHOTOCONDUCTIVITY AND PHOTOVOLTAICS: Photoconductivity in insulating crystals, variation with illumination, effect of traps, applications of photoconductivity, photovoltaic cells and their characteristics.

MAGNETIC PROPERTIES OF SOLIDS: Atomic magnetic moments, orbital diamagnetism, Classical theory of paramagnetism, ferro magnetism - molecular fields and domains.

SUPER CONDUCTIVITY: Introduction (experimental survey), Meissner effect, London equation.

TEXT BOOKS:

1. Introduction to Solid State Physics (VII Ed.) - Charles Kittel (John Wiley).
2. Quantum Mechanics – Powell and Crasemann (Oxford & IBH)
3. Fundamentals of Solid State Physics – B.S.Saxena, R.C.Gupta and P.N.Saxena (Pragati Prakashan).

REFERENCE BOOKS:

1. Sold State Physics – Pillai (New Age).
2. A text book of Engg. Physics – Avadhanulu and Kshirsagar (S.Chand)
3. Quantum Mechanics – Ghatak & Loknathan.

Note: The Examiners will set eight questions, taking two from each unit. The students are required to attempt five questions in all selecting at least one from each unit. All questions will carry equal marks.

PHY-104E
PHYSICS LAB.-II
(COMMON FOR ALL BRANCHES)

L	T	P
-	-	2

Sessional Work:25 Marks
Examination: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

Note: Students will be required to perform at least10 experiments out of the list in a semester.

LIST OF EXPERIMENTS

The experiments in Second semester will be based upon electricity, Magnetism, Modern Physics and Solid State Physics, which are the parts of theory syllabus.

1. To study He Ne laser
2. Tofind the frequency of ultrasonic waves by piezo eletric methods
3. To find the value of e/m for electrons by Helical method.
4. To find the ionisation potential of Argon/Mercury using a thyratron tube.
5. To study the variation of magnetic field with distance and to find the radius of coil by Stewart and Gee's apparatus.
6. To study the characteristics of (Cu-Fe, Cu-Constantan) thermo couple.
7. To find the value of Planck's constant by using a photo electric cell.
8. To find the value of co-efficient of self-inductance by using a Rayleigh bridge.
9. To find the value of Hall Co-efficient of semi-conductor.
10. To study the V-I characteristics of a p-n diode.
11. To find the band gap of intrinsic semi-conductor using four probe method.
12. To calculate the hysteresis loss by tracing a B-H curve.
13. To verify richerdson thermionic equation
14. To find the flashing and quenching potential of Argon and to find the cap.of unknown capacitor
15. To find the temp coeff. of resistance by using Pt resistance therometer by post office box

RECOMMENDED BOOKS :

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

3. Advanced Practical Physics Vol.I & II – Chauhan & Singh (Pragati Prakashan).

Bachelor of Technology (Information Technology)

Scheme of Courses/Examination
(w.e.f.: 2004-2005)
(3rd Semester)

Sr. No.	Course No.	*Subject*	Teaching Schedule				*Examination Schedule* (Marks)			
			L	T	P	Total	Theory	Sessional	Practical	Total
1.	MATH-201E/ HUM-201E	Mathematics-III/ Basics of Industrial Sociology, Economics & Mgmt.	3	1	-	4	100	50	-	150
2.	CSE-201E	Data Base Management Systems	3	1	-	4	100	50	-	150
3.	CSE-203E	*Data Structures*	3	1	-	4	100	50	-	150
4.	CSE-205E	*Discrete Structures*	3	1	-	4	100	50	-	150
5.	CSE-207E	*Internet Fundamentals*	3	1	-	4	100	50	-	150
6.	ECE-203E	Analog Communication	3	1	-	4	100	50	-	150
7.	IT-253E	Internet Lab	-	-	3	3	-	50	25	75
8.	CSE-209E	Data Base Management Systems Lab	-	-	3	3	-	25	25	50

9.	**CSE-211E**	**Data Structures Lab**	**-**	**-**	**3**	**3**	**-**	**50**	**25**	**75**
10	**ECE-207E**	**Analog Communication Lab**	**-**	**-**	**2**	**2**	**-**	**25**	**25**	**50**
TOTAL			**18**	**6**	**11**	**35**	**600**	**450**	**100**	**1150**

BASICS OF INDUSTRIAL SOCIOLOGY, ECONOMICS & MANAGEMENT

HUM – 201 E Sessional : 50 Marks

L	T	P			
3	1	-	Theory	:	100 Marks
			Total	:	150 Marks
			Duration of Exam.	:	3 Hrs.

UNIT-I

Meaning of social change, nature of social change, theories of social change. The direction of social change, the causes of social change, the process of social change. Factors of social change – the technological factors, the cultural factors, effects of technology on major social institutions, social need of status system, social relations in industry.

UNIT-II

Meaning of Industrial Economic, Production Function, its types, Least Cost Combination, Law of Variable Proportion, Laws of Return – Increasing, Constant & Diminishing.
Fixed & variable costs in short run & long run, opportunity costs, relation between AC & MC, U-shaped short run AC Curve.
Price & Output Determination under Monopoly in short run & long run. Price Discrimination, Price Determination under Discriminating Monopoly. Comparison between Monopoly & Perfect Competition.

UNIT – III

Meaning of Management, Characteristics of Management, Management Vs. Administration, Management – Art, Science & Profession, Fayol's Principles of Management.
Personnel Management – Meaning & Functions, Manpower – Process of Manpower Planning, Recruitment & Selection – Selection Procedure.
Training – Objectives & Types of Training, Various Methods of Training. Labour Legislation in India – Main provisions of Industrial disputes Act 1947;

UNIT – IV

Marketing Management – Definition & Meaning, Scope of Marketing Management, Marketing Research – Meaning, Objectives.
Purchasing Management – Meaning & Objectives, Purchase Procedure, Inventory Control Techniques.
Financial Management – Introduction, Objectives of Financial decisions, Sources of Finance.
Note: Eight questions are to be set taking two from each unit. The students are required to attempt five questions in all, taking at least one from each unit.

TEXT BOOKS:

"Modern Economic Theory" Dewett, K.K., S. Chand & Co.
"Economic Analysis" K.P. Sundharam & E.N. Sundharam (Sultan Chand & Sons).
"Micro Economic Theory" M.L. Jhingan (Konark Publishers Pvt. Ltd.).
"Principles of Economics" M.L. Seth (Lakshmi Narain Aggarwal Educational Publishers – Agra). "An Introduction to Sociology", D.R. Sachdeva & Vidya Bhusan.
"Society – An Introductory Analysis", R.M. Maclver Charles H. Page.
"Principles and Practices of Management: R.S. Gupta; B.D. Sharma; N.S. Bhalla; Kalyani.

REFERENCE BOOKS

"Organization and Management : R.D. Aggarwal, Tata McGraw Hill.
Business Organization and Management : M.C. Shukla

MATH-201 E

MATHEMATICS - III

L	T	P
3	1	-

Theory	:	100 Marks
Sessional	:	50 Marks
Total	:	150 Marks
Duration of Exam		: 3 Hrs.

UNIT – I

Fourier Series : Euler's Formulae, Conditions for Fourier expansions, Fourier expansion of functions having points of discontinuity, change of interval, Odd & even functions, Half-range series.

Fourier Transforms : Fourier integrals, Fourier transforms, Fourier cosine and sine transforms. Properties of Fourier transforms, Convolution theorem, Perseval's identity, Relation between Fourier and Laplace transforms, Fourier transforms of the derivatives of a function, Application to boundary value problems.

UNIT-II

Functions of a Complex Variables : Functions of a complex variable, Exponential function, Trigonometric, Hyperbolic and Logarithmic functions, limit and continuity of a function, Differentiability and analyticity.

Cauchy-Riemann equations, Necessary and sufficient conditions for a function to be analytic, Polar form of the Cauchy-Riemann equations, Harmonic functions, Application to flow problems, Conformal transformation, Standard transformations (Translation, Magnification & rotation, inversion & reflection, Bilinear).

UNIT-III

Probability Distributions : Probability, Baye's theorem, Discrete & Continuous probability distributions, Moment generating function, Probability generating function, Properties and applications of Binomial, Poisson and normal distributions.

UNIT-IV

Linear Programming : Linear programming problems formulation, Solution of Linear Programming Problem using Graphical method, Simplex Method, Dual-Simplex Method.

Text Book

Higher Engg. Mathematics : B.S. Grewal

Advanced Engg. Mathematics : E. Kreyzig

Reference Book

Complex variables and Applications : R.V. Churchil; Mc. Graw Hill

Engg. Mathematics Vol. II: S.S. Sastry; Prentice Hall of India.

Operation Research : H.A. Taha.

Probability and statistics for Engineer : Johnson. PHI.

Note : Examiner will set eight question, taking two from each unit. Students will be required to attempt five questions taking at least one from each unit.

CSE-201 E
Database Management Systems

L	T	P
3	1	–

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.

Unit–1 Introduction Overview of database Management System; Various views of data, data Models, Schemes, Introduction to Database Languages & Environments. Advantages of DBMS over file processing systems, Responsibility of Database Administrator, Three levels architecture of Database Systems, **:** Introduction to Client/Server architecture.

Data Models: E-R Diagram (Entity Relationship), mapping Constraints, Keys, Reduction of E-R diagram into tables, Naming Secondary Storage Devices. Network & Hierarchical Model.

Unit-2 File Organisation: Sequential Files, index sequential files, direct files, Hashing, B-trees Index files, Inverted Lists.

Relational Model, Relational Algebra & various operations (set operations, select, project, join, division), Order, Relational calculus: Domain, Tuple. Well Formed Formula, specifications, quantifiers.

Unit-3 Introduction to Query Languages: QBE, integrity constraints, functional dependencies & Normalization (Normal forms- up to 5th Normal forms).

Unit-4 Introduction to Distributed Data processing, Object Oriented Data Base Management Systems parallel Databases, data mining & data warehousing, Concurrency control : Transaction, Timestamping, Lock-based Protocols, serializability and Recovery Techniques.

Text Books:

- Database System Concepts by A. Silberschatz, H.F. Korth and S. Sudarshan, 3rd edition, 1997, McGraw-Hill, International Edition.
- Introduction to Database Management system by Bipin Desai, 1991, Galgotia Pub.

Reference Books:

- Fundamentals of Database Systems by R. Elmasri and S.B. Navathe, 3rd edition, 2000, Addision-Wesley, Low Priced Edition.
- An Introduction to Database Systems by C.J. Date, 7th edition, Addison-Wesley, Low Priced Edition, 2000.
- Database Management and Design by G.W. Hansen and J.V. Hansen, 2nd edition, 1999, Prentice-Hall of India, Eastern Economy Edition.
- Database Management Systems by A.K. Majumdar and P. Bhattacharyya, 5th edition, 1999, Tata McGraw-Hill Publishing.
- A Guide to the SQL Standard, Date, C. and Darwen,H. 3rd edition, Reading, MA: 1994, Addison-Wesley.
- Data Management & file Structure by Looms, 1989, PHI

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

CSE-203 E
DATA STRUCTURES

L	T	P
3	1	-

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.

Unit-1 Introduction: Introduction to Data Structures: Definition & abstract data types, Static and Dynamic implementations, Examples and real life applications; built in and user defined data structures, Ordered list and Operations on it.
Arrays: Definition, implementation, lower bound, upper bound, addressing an element at a particular index for one dimensional arrays, Two dimensional arrays and Multi-dimensional arrays. Implementation of Data Structures like structure/ Record, Union, Sparse matrices: implementation of transpose.
Stacks : Sequential implementation of stacks, operations, Polish-notations, Evaluation of postfix expression, Converting Infix expression to Prefix and Postfix expression, Applications.
Unit-2 Queues: Definition, Sequential implementation of linear queues, Operations. Circular queue: implementation (using arrays), Advantage over linear queue, Priority queues & Applications.
Linked Lists: Need of dynamic data structures, continuous & linked implementation of lists. Operations on lists. Dynamic implementation of linked lists, Operations. Comparison between Array and Dynamic Implementation of linked list. Linked implementation of stacks and queues. Circular lists, implementation of primitive operations. Doubly linked lists : continuos & dynamic implementation, operations.
Unit-3 Trees : Definition, Basic terminology, Binary tree, Array and Dynamic Implementation of a binary tree, primitive operations on binary trees. External and internal nodes. Binary tree traversals : preorder, inorder and postorder traversals. Representation of infix, postifix and prefix expressions using trees. Representation of lists as binary trees. Introduction to Binary Search Trees, B trees, B+ trees , AVL Trees, threaded trees, balanced multi way search trees,
Unit- 4 Graphs: Definition of undirected & Directed Graphs & Networks, Basic terminology, Representation of graphs,. Graph traversals and spanning forests, minimum-spanning trees, computer representation of graphs.
Tables : Definition, Hash Functions, Implementation & Applications.
Sorting & Searching : Basic Searching techniques (Linear & binary), Introduction to Sorting. Sorting using selection, insertion, bubble, merge, quick, radix, heap sort.

Text Book:

Data Structures using C by A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.

Reference Books:

Data Structures and Algorithms by A.V. Aho, J.E. Hopcroft and T.D. Ullman, Original edition, Addison-Wesley, 1999, Low Priced Edition.
Fundamentals of Data structures by Ellis Horowitz & Sartaj Sahni, Pub, 1983,AW
Fundamentals of computer algorithms by Horowitz Sahni and Rajasekaran.
Data Structures and Program Design in C By Robert Kruse, PHI,
Theory & Problems of Data Structures by Jr. Symour Lipschetz, Schaum's outline by TMH
Introduction to Computers Science -An algorithms approach , Jean Paul Tremblay, Richard B. Bunt, 2002, T.M.H.

Data Structure and the Standard Template library – Willam J. Collins, 2003, T.M.H

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

CSE-205 E

Discrete Structures

L	T	P
3	1	-

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.

Unit-1 **Set Theory:** Introduction to set theory, Set operations, Algebra of sets, combination of sets, Duality, Finite and Infinite sets, Classes of sets, Power Sets, Multi sets, Cartesian Product, Representation of relations, Types of relation, Binary Relations, Equivalence relations and partitions, Partial ordering relations and lattices, Mathematics Induction, Principle of Inclusion & Exclusion, Propositions. Function and its types, Composition of function and relations, Cardinality and inverse relations. Functions & Pigeo principles.

Unit-2 **Propositional Calculus:** Basic operations: AND(^), OR(v), NOT(~), Truth value of a compound statement, propositions, tautologies, contradictions.

Techniques Of Counting: Rules of Sum of products, Permutations with and without repetition, Combination.
Recursion And Recurrence Relation : Polynomials and their evaluation, Sequences, Introduction to AP, GP and AG series, partial fractions, linear recurrence relation with constant coefficients, Homogeneous solutions, Particular solutions, Total solution of a recurrence relation using generating functions.
Unit-3 **Algebric Structures** Definition, elementary properties of algebric structures, examples of a Monoid, Submonoid, Semigroup, Groups and rings, Homomorphism, Isomorphism and Automorphism, Subgroups and Normal subgroups, Cyclic groups, Integral domain and fields, Cosets, Lagrange's theorem, Rings, Division Ring.
Unit-4 **Graphs And Trees:** Introduction to graphs, Directed and Undirected graphs, Homomorphic and Isomorphic graphs, Subgraphs, Cut points and Bridges, Multigraph and Weighted graph, Paths and circuits, Shortest path in weighted graphs, Eurelian path and circuits, Hamilton paths and circuits, Planar graphs, Euler's formula, Trees, Rooted Trees, Spanning Trees & cut-sets, Binary trees and its traversals

Text Book

- Elements of Discrete Mathematics C.L Liu, 1985, McGraw Hill

Reference Books:

- Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashik, 1989, Addison-Wesley.
- Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.
- Applied Discrete Structures for Computer Science, Doerr and Levasseur, (Chicago: 1985,SRA
- Discrete Mathematics by A. Chtewynd and P. Diggle (Modular Mathematics series), 1995, Edward Arnold, London,
- Schaums Outline series: Theory and problems of Probability by S. Lipshutz, 1982, McGraw-Hill Singapore
- Discrete Mathematical Structures, B. Kolman and R.C. Busby, 1996, PHI

- Discrete Mathematical Structures with Applications to Computers by Tembley & Manohar, 1995, Mc Graw Hill.
- Discrete Mathematics & Structure, Satyender Bal Gupta, 2nd Ed., Luxmi Pub.

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

CSE-207 E

Internet Fundamentals

L	T	P						
3	1	-	Exam	:	100	Marks	Sessional:	50 Marks
			Total	:	150	Marks	Duration of Exam: 3 Hrs.	

Unit-1

The Internet: Introduction to networks and internet, history, Internet, Intranet & Extranet, Working of Internet, Internet Congestion, internet culture, business culture on internet. Collaborative computing & the internet. Modes of Connecting to Internet, Internet Service Providers(ISPs), Internet address, standard address, domain name, DNS, IP.v6.Modems, Speed and time continuum, communications software; internet tools.

Unit-2

World Wide Web : Introduction, Miscellaneous Web Browser details, searching the www: Directories search engines and meta search engines, search fundamentals, search strategies, working of the search engines, Telnet and FTP, HTTP, Gophar Commands, TCP/IP.

Introduction to Browser, Coast-to-coast surfing, hypertext markup language, Web page installation, Web page setup, Basics of HTML & formatting and hyperlink creation.Using FrontPage Express, Plug-ins.

Unit-3

Electronic Mail: Introduction, advantages and disadvantages, User Ids, Pass words, e-mail addresses, message components, message composition, mailer features, E-mail inner workings, E-mail management, MIME types, Newsgroups, mailing lists, chat rooms, secure-mails, SMTP, PICO, Pine, Library cards catalog, online ref. works.

Languages: Basic and advanced HTML, Basics of scripting languages – XML, DHTML, Java Script.

Unit-4

Servers : Introduction to Web Servers: PWS, IIS, Apache; Microsoft Personal Web Server. Accessing & using these servers.

Privacy and security topics: Introduction, Software Complexity, Attacks, security and privacy levels, security policy, accessibility and risk analysis, Encryption schemes, Secure Web document, Digital Signatures, Firewalls, Intrusion detection systems

Text Book:

- Fundamentals of the Internet and the World Wide Web, Raymond Greenlaw and Ellen Hepp – 2001, TMH
- Internet & World Wide Programming, Deitel,Deitel & Nieto, 2000, Pearson Education

Reference Books:

- Complete idiots guide to java script,. Aron Weiss, QUE, 1997
- Network firewalls, Kironjeet syan -New Rider Pub.
- Networking Essentials – Firewall Media.
- www.secinf.com
- www.hackers.com

- Alfred Glkossbrenner-Internet 101 Computing MGH, 1996

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

B.TECH IIIRD SEMESTER

ANALOG COMMUNICATION

(ECE-203E)

L	T	P
3	1	-

THEORY : 100 Marks
SESSIONAL : 50 Marks
TOTAL : 150 Marks
TIME : 3 Hrs.

UNIT – I

NOISE: Classification of Noise, Various sources of Noise, Methods of Noise Calculation in networks and inter connected networks. Addition of noise due to several sources; noise in amplifiers in cascade, noise in reactive circuits, Noise figure, its calculation and measurement. Noise temperature, Mathematical representation of random noise, narrow band noise and its representation. Transmission of noise through linear systems, signal to noise ratio, noise bandwidth.

UNIT-II

MODULATION TECHNIQUES: Basic constituents of Communication Systems, need of modulation, Amplitude modulation, spectrum of AM wave, modulation index, DSBSC modulation, SSB Modulation, Collector modulation, Square law modulation methods, Methods of generating SSB Signals, vestigial side band modulation, Detection of AM Signal; Diode detector, Square Law Detector. Time Constant RC in diode detector. Diode detector with filter. FDM, Power relations in AM wave.

UNIT-III

ANGLE MODULATION: frequency and phase modulation, spectrum of FM Wave, modulation index and Bandwidth of FM Signal, NBFM and WBFM, Comparison between FM and PM Signals, FM and AM signals, AM and NBFM Signals, FM generation methods, Demodulation methods; slope detector, ratio detector, Foster-Seeley discriminator. Pre-emphasis & De-emphasis, effect of noise on carrier; noise triangle.

UNIT-IV

TRANSMITER AND RECEIVER: Classification of radio transmitters, Block diagram of AM transmitter, Frequency Scintillation, Frequency drift, Radio broadcast transmitter, Radio telephone transmitter, Privacy devices, Armstrong FM transmitter, Simple FM transmitter using Reactance modulator.

Classification of radio receivers, TRF receives, superheterodyne receivers, Image Signal rejection, frequency mixers. Tracking and alignment of receivers, Intermediate frequency, AGC, AFC, SSB receiver.

REFERENCE BOOKS:

1. Taub & Schilling, Principles of Communication Systems, TMH.
2. Mithal G K, Radio Engineering, Khanna Pub.
3. Sirnon Haykin, Communication Systems, John Wiley.
4. Dungan F.R., Electronics Communication System, Thomson-Delmar
5. Electronics Communication System: Kennedy; TMH

NOTE:

Eight questions are to be set in all by the examiner taking two questions from each unit. Students will be required to attempt five questions in all.

IT-253 E **Internet Lab.**

L	T	P					
-	-	3	Exam:	25	Marks	Sessional: 50	Marks
			Total:	75	Marks	Duration of Exam:	3 Hrs.

PC Software: Application of basics of MS Word 2000, MS Excel 2000, MS Power Point 2000, MS Access 2000, HTML

1. To prepare the Your Bio Data using MS Word
2. To prepare the list of marks obtained by students in different subjects and show with the help of chart/graph the average, min and max marks in each subject.
3. Prepare a presentation explaining the facilities/infrastructure available in your college/institute.
4. Design Web pages containing information of the Deptt.

HTML Lists:

1. Create a new document that takes the format of a business letter. Combine <P> and <BR> tags to properly separate the different parts of the documents. Such as the address, greeting, content and signature. What works best for each.
2. Create a document that uses multiple <BR> and <P> tags, and put returns between <PRE> tags to add blank lines to your document see if your browser senders them differently.
3. Create a document using the <PRE>tags to work as an invoice or bill of sale, complete with aligned dollar values and a total. Remember not to use the Tab key, and avoid using emphasis tags like <B> or <EM> within your list.
4. Create a seven-item ordered list using Roman numerals. After the fifth item, increase the next list value by 5.
5. Beginning with an ordered list, create a list that nests both an unordered list and a definition list.
6. Use the ALIGN attribute of an <IMG> tags to align another image to the top of the first image.. play with this feature, aligning images to TOP, MIDDLE and BOTTOM.
7. Create a 'table of contents' style page (using regular and section links) that loads a different document for each chapter or section of the document.

Internet :

1. Instilling internet & external modems, NIC and assign IP address.
2. Study of E-mail system.
3. Create your own mail-id in yahoo and indiatimes.com.
4. Add names (mail-id's) in your address book, compose and search an element.

Reference Books:

- Complete PC upgrade & maintenance guide, Mark Mines, BPB publ.
- PC Hardware: The complete reference, Craig Zacker & John Rouske, TMH
- Upgrading and Repairing PCs, Scott Mueller, 1999, PHI,

CSE- 209 E
Database Management Systems Lab

L	T	P
-	-	3

Sessional: 25 Marks
Exam: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

1. Create a database and write the programs to carry out the following operation :

    1. Add a record in the database
    2. Delete a record in the database
    3. Modify the record in the database
    4. Generate queries
    5. Data operations
    6. List all the records of database in ascending order.

2. Create a view to display details of employees working on more than one project.
3. Create a view to display details of employees not working on any project.
4. Create a view to display employees name and projects name for employees working on projects <P1 and P3> or <P2 and P4>.
5. Using two tables create a view which shall perform EQUIJOIN.
6. Write trigger for before and after insertion. Detection and updation process.
7. Write a procedure to give incentive to employees working on all projects. If no such employee found give app. Message.
8. Write a procedure for computing amount telephone bill on the basic of following conditions.

Usage of S/w:

1. VB, ORACLE and/or DB2
2. VB, MSACCESS
3. ORACLE, D2K
4. VB, MS SQL SERVER 2000

CSE-211 E

Data Structures Lab

L T P

Sessional: 50 Marks
Exam: 25 Marks
Total: 75 Marks
Duration of Exam: 3 Hrs.

1. Write a program to search an element in a two-dimensional array using linear search.

2. Using iteration & recursion concepts write programs for finding the element in the array using Binary Search Method

3.. Write a program to perform following operations on tables using functions only

a) Addition b) Subtraction c) Multiplication d) Transpose

4.. Write a program to implement Queue.

5.Write a program to implement Stack.

6. Write a program to implement the various operations on string such as length of string concatenation, reverse of a string & copy of a string to another.

7. Write a program for swapping of two numbers using 'call by value' and 'call by reference strategies.

8. Write a program to implement binary search tree. (Insertion and Deletion in Binary search Tree)

9. Write a program to create a linked list & perform operations such as insert, delete, update, reverse in the link list

10 .Write the program for implementation of a file and performing operations such as insert, delete, update a record in the file.

11. Create a linked list and perform the following operations on it

a) add a node b) Delete a node

12. Write a program to simulate the various searching & sorting algorithms and compare their timings for a list of 1000 elements.

13. Write a program to simulate the various graph traversing algorithms.

14 Write a program which simulates the various tree traversal algorithms.

15 Write a program to implement various Searching Techniques.

16 Write a program to implement Sorting Techniques.

Note: At least 5 to 10 more exercises to be given by the teacher concerned.

B.TECH IIIRD SEMESTER
ANALOG COMMUNICATION LAB
(ECE-207E)

L	T	P
-	-	2

Sessional : 25 Marks
Viva : 25 Marks
Total : 50 Marks
Time : 3hrs.

LIST OF EXPERIMENTS

1. i) To study Double Sideband Amplitude Modulation and determine its modulation factor and power in sidebands.
   ii) To study amplitude demodulation by linear diode detector.
2. i) To study Frequency Modulation and determine its modulation factor.
   ii) To study PLL 565 as frequency demodulator
3. To study Sampling and reconstruction of pulse amplitude modulation system.
4. To study the Sensitivity characteristics of superhetrodyne receiver.
5. To study the Selectivity characteristics of superhetrodyne receiver.
6. To study the Fidelity characteristics of superhetrodyne receiver.
7. i) To study Pulse Amplitude Modulation
   a) Using switching method
   b) By sample and hold circuit.
   ii) To demodulate the obtained PAM signal by IInd order Low pass filter.
8. To study Pulse Width Modulation / Demodulation.
9. To study Pulse Position Modulation / Demodulation.
10. To study active filters (Low-pass, High-pass, Band-pass, Notch filter).

NOTE:

At least seven experiments are to be performed from above list and the concerned institution as per the scope of the syllabus can set remaining three.

Bachelor of Technology (Information Technology)

Scheme of Courses/Examination

(w.e.f.: 2004-2005)

(4th Semester IT)

Sr. No.	Course No.	*Subject*	Teaching Schedule				*Examination Schedule* (Marks)				Duration of Exam (Hrs.)
			L	T	P	Total	Theory	Sessional	Practical	Total	
1.	MATH-201E/ HUM-201E	Mathematics-III/ Industrial Economics & Principal of Mgmt.	3	1	-	4	**100**	**50**	-	150	**3**
2.	CSE-202E	Computer Architecture and Organization	3	1	-	4	100	50	-	150	**3**
3.	CSE-204E	Programming Languages	3	1	-	4	100	50	-	150	**3**
4.	IT-252E	Object Oriented Programming using C++	3	1	-	4	100	50	-	150	**3**
5.	ECE-204E	Digital Electronics	3	1	-	4	100	50	-	150	**3**
6.	ECE-216E	Microprocessor & Interfacing	3	1	-	4	100	50	-	150	**3**
7.	IT-256E	C++ Programming Lab	-	-	3	3	-	50	25	75	**3**
8.	ECE-212E	Digital Electronics Lab	-	-	3	3	-	50	25	75	**3**
9.	ECE-218E	Microprocessor & Interfacing Lab	-	-	3	3	-	25	25	50	**3**
10.	GPCSE-210	General Proficiency / Practical Training	1	-	-	1	-	50	-	50	
TOTAL			**19**	**6**	**9**	**34**	**600**	**475**	**75**	**1150**	

CSE- 202 E Computer Architecture & Organization

L	T	P			
3	1	–	Sessional:	50	Marks
			Exam :	100	Marks
			Total:	150	Marks

Duration of Exam: 3 Hrs.

Unit-1: General System Architecture: Store program control concept, Flynn's classification of computers (SISD, MISD, MIMD); Multilevel viewpoint of a machine: digital logic, micro architecture, ISA, operating systems, high level language; structured organization; CPU, caches, main memory, secondary memory units & I/O; Performance metrics; MIPS, MFLOPS.

Instruction Set Architecture: Instruction set based classification of processors (RISC, CISC, and their comparison); addressing modes: register, immediate, direct, indirect, indexed; Operations in the instruction set; Arithmetic and Logical, Data Transfer, Machine Control Flow; Instruction set formats (fixed, variable, hybrid); Language of the machine: 8086 ; simulation using MASM

Unit-2: Basic non pipelined CPU Architecture: CPU Architecture types (accumulator, register, stack, memory/ register) detailed data path of a typical register based CPU, Fetch-Decode-Execute cycle (typically 3 to 5 stage); microinstruction sequencing, implementation of control unit, Enhancing performance with pipelining. Hardwired control design method, Micro programmed control unit.

Unit-3: Memory Hierarchy & I/O Techniques: The need for a memory hierarchy (Locality of reference principle, Memory hierarchy in practice: Cache, main memory and secondary memory, Memory parameters: access/ cycle time, cost per bit); Main memory (Semiconductor RAM & ROM organization, memory expansion, Static & dynamic memory types); Cache memory (Associative & direct mapped cache organizations. Allocation & replacement polices, segments, pages & file organization, virtual memory.

Unit-4: Introduction to Parallelism: Goals of parallelism (Exploitation of concurrency, throughput enhancement); Amdahl's law; Instruction level parallelism (pipelining, super scaling –basic features); Processor level parallelism (Multiprocessor systems overview).

Computer Organization [80x86]: Instruction codes, computer register, computer instructions, timing and control, instruction cycle, type of instructions, memory reference, register reference. I/O reference, Basics of Logic Design, accumulator logic, Control memory, address sequencing, micro-instruction formats, micro-program sequencer, Stack Organization, Instruction Formats, Types of interrupts; Memory Hierarchy. Programmed I/O, DMA & Interrupts.

Text Books:

- Computer Organization and Design, 2nd Ed., by David A. Patterson and John L. Hennessy, Morgan 1997, Kauffmann.
- Computer Architecture and Organization, 3rd Edi, by John P. Hayes, 1998, TMH.

Reference Books:

- Operating Systems Internals and Design Principles by William Stallings,4th edition, 2001, Prentice-Hall Upper Saddle River, New Jersey
- Computer Organization, 5th Edi, by Carl Hamacher, Zvonko Vranesic,2002, Safwat Zaky.
- Structured Computer Organisation by A.S. Tanenbaum, 4th edition, Prentice-Hall of India, 1999, Eastern Economic Edition.
- Computer Organisation & Architecture: Designing for performance by W. Stallings, 4th edition, 1996, Prentice-Hall International edition.
- Computer Architecture & Organisation by M. Mano, 1990, Prentice-Hall.
- Computer Architecture- Nicholas Carter, 2002, T.M.H.

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

CSE-204 E **Programming Languages**

L	T	P
3	1	–

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.

Unit-1: Introduction: A brief history, Characteristics of a good programming language, Programming language translators compiler & interpreters , Elementary data types – data objects, variable & constants, data types, Specification & implementation of elementary data types, Declarations ,type checking & type conversions , Assignment & initialization, Numeric data types, enumerations, Booleans & characters.
Syntax & Semantics : Introduction, general problem of describing syntax, formal method of describing syntax, attribute grammar dynamic semantic.

Unit-2: Structured data objects : Structured data objects & data types , specification & implementation of structured data types, Declaration & type checking of data structure ,vector & arrays, records Character strings, variable size data structures , Union, pointer & programmer defined data objects, sets, files.
Subprograms and Programmer Defined Data Types: Evolution of data type concept abstraction, encapsulation & information hiding , Subprograms ,type definitions, abstract data types, over loaded subprograms, generic subprograms.

Unit–3: Sequence Control: Implicit & explicit sequence control ,sequence control within expressions, sequence control within statement, Subprogram sequence control: simple call return, recursive subprograms, Exception & exception handlers, co routines, sequence control. Concurrency – subprogram level concurrency, synchronization through semaphores, monitors & message passing
Data Control: Names & referencing environment, static & dynamic scope, block structure, Local data & local referencing environment, Shared data: dynamic & static scope. Parameter & parameter transmission schemes.

Unit-4: Storage Management: Major run time elements requiring storage ,programmer and system controlled storage management & phases , Static storage management , Stack based storage management, Heap storage management ,variable & fixed size elements.
Programming Languages: Introduction to procedural, non-procedural ,structured, logical, functional and object oriented programming language, Comparison of C & C++ programming languages.

Text Book:

- **P**rogramming languages Design & implementation by T.W. .Pratt, 1996, Prentice Hall Pub.
- Programming Languages – Principles and Paradigms by Allen Tucker & Robert Noonan, 2002, TMH,

Reference Books:

- Fundamentals of Programming languages by Ellis Horowitz, 1984, Galgotia publications (Springer Verlag),

- Programming languages concepts by C. Ghezzi, 1989, Wiley Publications.,
- Programming Languages – Principles and Pradigms Allen Tucker , Robert Noonan 2002, T.M.H.

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

IT-252 E Object Oriented Programming Using C++

L	T	P
3	1	–

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.

Unit–1: Introduction to C++, C++ Standard Library, Basics of a Typical C++ Environment, Pre-processors Directives, Illustrative Simple C++ Programs. Header Files and Namespaces, library files. Concept of objects, basic of object modeling, object classes, associations, behaviors, description, Object Oriented Analysis & Object Modeling techniques,

Object Oriented Concepts : Introduction to Objects and Object Oriented Programming, Encapsulation (Information Hiding), Access Modifiers: Controlling access to a class, method, or variable (public, protected, private, package), Other Modifiers, Polymorphism: Overloading,, Inheritance, Overriding Methods, Abstract Classes, Reusability, Class's Behaviors.

Classes and Data Abstraction: Introduction, Structure Definitions, Accessing Members of Structures, Class Scope and Accessing Class Members, Separating Interface from Implementation, Controlling Access Function And Utility Functions, Initializing Class Objects: Constructors, Using Default Arguments With Constructors, Using Destructors, Classes : Const(Constant) Object And Const Member Functions, Object as Member of Classes, Friend Function and Friend Classes, Using This Pointer, Dynamic Memory Allocation with New and Delete, Static Class Members, Container Classes And Integrators, Proxy Classes, Function overloading.

Unit-2: Operator Overloading: Introduction, Fundamentals of Operator Overloading, Restrictions On Operators Overloading, Operator Functions as Class Members vs. as Friend Functions, Overloading, <<, >> Overloading Unary Operators, Overloading Binary Operators.

Inheritance: Introduction, Inheritance: Base Classes And Derived Classes, Protected Members, Casting Base- Class Pointers to Derived- Class Pointers, Using Member Functions, Overriding Base –Class Members in a Derived Class, Public, Protected and Private Inheritance, Using Constructors and Destructors in derived Classes, Implicit Derived –Class Object To Base- Class Object Conversion, Composition Vs. Inheritance.

Unit–3: **Virtual Functions and Polymorphism:** Introduction to Virtual Functions, Abstract Base Classes And Concrete Classes, Polymorphism, New Classes And Dynamic Binding, Virtual Destructors, Polymorphism, Dynamic Binding.

Files and I/O Streams: Files and Streams, Creating a Sequential Access File, Reading Data From A Sequential Access File, Updating Sequential Access Files, Random Access Files, Creating A Random Access File, Writing Data Randomly To a Random Access File, Reading Data Sequentially from a Random Access File. Stream Input/Output Classes and Objects, Stream Output, Stream Input, Unformatted I/O (with read and write), Stream Manipulators, Stream Format States, Stream Error States.

Unit-4: Templates & Exception Handling: Function Templates, Overloading Template Functions, Class Template, Class Templates and Non-Type Parameters, Templates and Inheritance, Templates and Friends, Templates and Static Members.

Introduction, Basics of C++ Exception Handling: Try Throw, Catch, Throwing an Exception, Catching an Exception, Re-throwing an Exception, Exception specifications, Processing Unexpected Exceptions, Stack Unwinding, Constructors, Destructors and Exception Handling, Exceptions and Inheritance.

Text Books:

- C++ How to Program by H M Deitel and P J Deitel, 1998, Prentice Hall
- Object Oriented Programming in Turbo C++ by Robert Lafore ,1994, The WAITE Group Press.
- Programming with C++ By D Ravichandran, 2003, T.M.H

Reference books:

- Object oriented Programming with C++ by E Balagurusamy, 2001, Tata McGraw-Hill
- Computing Concepts with C++ Essentials by Horstmann, 2003, John Wiley,

- The Complete Reference in C++ By Herbert Schildt, 2002, TMH.
- C++ Programming Fundamentals by Chuck Easttom, Firewall Media.

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.

ECE-204E **DIGITAL ELECTRONICS**

L	T	P				
3	1	-	Theory	:	100	Marks
			Sessional	:	50	Marks
			Total	:	150	Marks
			Duration of Exam:		3 Hrs.	

UNIT 1 FUNDAMENTALS OF DIGITAL TECHNIQUES:
Digital signal, logic gates: AND. OR, NOT. NAND. NOR- EX-OR, EX-NOR, Boolean algebra. Review of Number systems. Binary codes: BCD, Excess-3. Gray codes.
COMBINATIONAL DESIGN USING GATES:
Design using gates. Karnaugh map and Quine Mcluskey methods of simplification.

UNIT 2 COMBINATIONAL DESIGN USING MST DEVICES
Multiplexers and Demultiplexers and their use as logic elements. Decoders. Adders / Subtracters. BCD arithmetic Circuits. Encoders. Decoders / Drivers for display devices.
SEQUENTIAL CIRCUITS:
Flip Flops: S-R- J-K. T. D, master-slave, edge triggered- shift registers, sequence generators. Counters. Asynchronous and Synchronous Ring counters and Johnson Counter, Design of Synchronous and Asynchronous sequential circuits.
UNIT 3 DIGITAL LOGIC FAMILIES:
Switching mode operation of p-n junction, bipolar and MOS-devices. Bipolar logic families: RTL, DTL, DCTL. HTL, TTL, ECL, MOS, and CMOS logic families. Tristate logic. Interfacing of CMOS and TTL families.
UNIT 4 A/D AND D/A CONVERTERS:
Sample and hold circuit, weighted resistor and R -2 R ladder D/A Converters, specifications for
D/A converters. A/D converters: Quantization, parallel -comparator, successive approximation, counting type.
Dual-slope ADC, specifications of ADCs.
PROGRAMMABLE LOGIC DEVICES:
ROM, PLA. PAL, Introduction to FPGA and CPLDs.
TEXT BOOK:
1. Modem Digital Electronics (Edition III): R. P. Jain; TMH
REFERENCE BOOKS:
1. Digital Integrated Electronics: Taub & Schilling: MGH
2. Digital Principles and Applications: Malvino & Leach: McGraw Hill.
3. Digital Design: Morris Mano: PHI,

NOTE: Eight questions are to be set in all by the examiner taking at least one question from each unit. Students will be required to attempt five questions in all.

ECE-216 E **Microprocessors And Interfacing**

L	T	P
3	1	–

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.

Unit-1:THE 8085 PROCESSOR : Introduction to microprocessor, 8085 microprocessor : Architecture, instruction set, interrupt structure, and assembly language programming.

MEMORY INTERFACING: Semiconductor memory and its types- Static and dynamic RAM, ROM, EPROM, EEROM and NOVRAM- Interfacing memory- Interfacing SRAM, DRAM, EPROM etc. Timing of RAM and ROM signals.

Unit-2 : THE 8086 MICROPROCESSOR ARCHITECTURE : Architecture, block diagram of 8086, details of sub-blocks such as EU, BIU; memory segmentation and physical address computations, program relocation, addressing modes, instruction formats, pin diagram and description of various signals.

INSTRUCTION SET OF 8086 : Instruction execution timing, assembler instruction format, data transfer instructions, arithmetic instructions, branch instructions, looping instructions, NOP and HLT instructions, flag manipulation instructions, logical instructions, shift and rotate instructions, directives and operators, programming examples.

Unit-3 : INTERFACING DEVICE : The 8255 PPI chip: Architecture, control words, modes and examples.Interfacing D/A and A/D converters

Unit-4: DMA : Introduction to DMA process, 8237 DMA controller,

INTERRUPT AND TIMER : 8259 Programmable interrupt controller, Programmable interval timer chips.

Text Books :

- Microprocessor Architecture, Programming & Applications with 8085 : Ramesh S Gaonkar; Wiley Eastern Ltd.
- The Intel Microprocessors 8086- Pentium processor : Brey; PHI

Reference Books :

- Microprocessors and interfacing : Hall; TMH
- The 8088 & 8086 Microprocessors-Programming, interfacing,Hardware & Applications :Triebel & Singh; PHI

- Microcomputer systems: the 8086/8088 Family: architecture, Programming & Design : Yu-Chang Liu & Glenn A Gibson; PHI.
- Advanced Microprocessors and Interfacing : Badri Ram; TMH

Note: Eight questions will be set in all by the examiners taking at least two questions from eachunit .Students will be required to attempt five questions in all at least one from each unit.

IT-256 E **C ++ Programming Lab.**

L	T	P
–	–	3

Sessional: 50 Marks
Exam: 25 Marks
Total: 75 Marks
Duration of Exam: 3 Hrs.

Q1. Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called power ( ) that takes a double value for n and an int value for p, and returns the result as double value. Use a default argument of 2 for p, so that if this argument is omitted, the number will be squared. Write a main ( ) function that gets values from the user to test this function.

Q2. A point on the two two numbers can represent dimensional plane: an X coordinate and a Y coordinate. For example, (4,5) represents a point 4 units to the right of the origin along the X axis and 5 units up the Y axis. The sum of two points can be defined as a new point whose X coordinate is the sum of the X coordinates of the points and whose Y coordinate is the sum of their Y coordinates. Write a program that uses a structure called point to model a point. Define three points, and have the user input values to two of them. Than set the third point equal to the sum of the other two, and display the value of the new point. Interaction with the program might look like this:

Enter coordinates for P1: 3 4
Enter coordinates for P2: 5 7
Coordinates of P1 + P2 are : 8, 11

Q 3. Create the equivalent of a four function calculator. The program should request the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operation: adding, subtracting, multiplying, or dividing the two numbers. (It should use a switch statement to select the operation). Finally it should display the result. When it finishes the calculation, the program should ask if the user wants to do another calculation. The response can be 'Y' or 'N'. Some sample interaction with the program might look like this.

Enter first number, operator, second number: 10/ 3
Answer = 3.333333
Do another (Y/ N)? Y
Enter first number, operator, second number 12 + 100
Answer = 112
Do another (Y/ N) ? N

Q4. A phone number, such as (212) 767-8900, can be thought of as having three parts: the area code (212), the exchange (767) and the number (8900). Write a program that uses a structure to store these three parts of a phone number separately. Call the structure phone. Create two structure variables of type phone. Initialize one, and have the user input a number for the other one. Then display both numbers. The interchange might look like this:

Enter your area code, exchange, and number: 415 555 1212
My number is (212) 767-8900
Your number is (415) 555-1212

Q 5. Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB. Use a friend function to carry out the addition operation. The object that stores the results maybe a DM object or DB object, depending on the units in which the results are required. The display should be in the format of feet and inches or metres and cenitmetres depending on the object on display.

Q 6. Create a class rational which represents a numerical value by two double values- NUMERATOR & DENOMINATOR. Include the following public member Functions:

- constructor with no arguments (default).
- constructor with two arguments.
- void reduce( ) that reduces the rational number by eliminating the highest common factor between the numerator and denominator.
- Overload + operator to add two rational number.
- Overload >> operator to enable input through cin.
- Overload << operator to enable output through cout.

Write a main ( ) to test all the functions in the class.

Q 7. Consider the following class definition

```
class father {
protected : int age;
public;
        father (int x) {age = x;}
        virtual void iam ( )
        { cout < < "I AM THE FATHER, my age is : "<< age<< end1:}
};
```

Derive the two classes son and daughter from the above class and for each, define iam ( ) to write our similar but appropriate messages. You should also define suitable constructors for these classes.

Now, write a main ( ) that creates objects of the three classes and then calls iam ( ) for them. Declare pointer to father. Successively, assign addresses of objects of the two derived classes to this pointer and in each case, call iam ( ) through the pointer to demonstrate polymorphism in action.

Q 8. Write a program that creates a binary file by reading the data for the students from the terminal.
The data of each student consist of roll no., name (a string of 30 or lesser no. of characters) and marks.

Q9. A hospital wants to create a database regarding its indoor patients. The information to store include

a) Name of the patient
b) Date of admission
c) Disease
d) Date of discharge

Create a structure to store the date (year, month and date as its members). Create a base class to store the above information. The member function should include functions to enter information and display a list of all the patients in the database. Create a derived class to store the age of the patients. List the information about all the to store the age of the patients. List the information about all the pediatric patients (less than twelve years in age).

Q 10. Make a class **Employee** with a name and salary. Make a class **Manager** inherit from **Employee**. Add an instance variable, named department, of type string. Supply a method to **toString** that prints the manager's name, department and salary. Make a class **Executive** inherit from **Manager**. Supply a method **to String** that prints the string **"Executive"** followed by the information stored in the **Manager** superclass object. Supply a test program that tests these classes and methods.

Q11. Imagine a tollbooth with a class called toll Booth. The two data items are a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A constructor initializes both these to 0. A member function called payingCar ( ) increments the car total and adds 0.50 to the cash total. Another function, called nopayCar ( ), increments the car total but adds nothing to the cash total. Finally, a member function called displays the two totals. Include a program to test this class. This program should allow the user to push one key to count a paying car, and another to count a nonpaying car. Pushing the ESC kay should cause the program to print out the total cars and total cash and then exit.

Q12. Write a function called reversit ( ) that reverses a string (an array of char). Use a for loop that swaps the first and last characters, then the second and next to last characters and so on. The string should be passed to reversit ( ) as an argument.

Write a program to exercise reversit ( ). The program should get a string from the user, call reversit ( ), and print out the result. Use an input method that allows embedded blanks. Test the program with Napoleon's famous phrase, "Able was I ere I saw Elba)".

Q13. Create some objects of the string class, and put them in a Deque-some at the head of the Deque and some at the tail. Display the contents of the Deque using the forEach ( ) function and a user written display function. Then search the Deque for a particular string, using the first That ( ) function and display any strings that match. Finally remove all the items from the Deque using the getLeft ( ) function and display each item. Notice the order in which the items are displayed: Using getLeft ( ), those inserted on the left (head) of the Deque are removed in "last in first out" order while those put on the right side are removed in "first in first out" order. The opposite would be true if getRight ( ) were used.

Q 14. Assume that a bank maintains two kinds of accounts for customers, one called as savings account and the other as current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed.

Create a class account that stores customer name, account number and type of account. From this derive the classes cur_acct and sav_acct to make them more specific to their requirements. Include necessary member functions in order to achieve the following tasks:

a) Accept deposit from a customer and update the balance.
b) Display the balance.
c) Compute and deposit interest.
d) Permit withdrawal and update the balance.
e) Check for the minimum balance, impose penalty, necessary and update the balance.
f) Do not use any constructors. Use member functions to initialize the class members.

Q 15. Create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class, a member function get_data ( ) to initialize baseclass data members and another member function display_area ( ) to compute and display the area of figures. Make display_area ( ) as a virtual function and redefine this function in the derived classes to suit their requirements. Using these three classes, design a program that will accept dimensions of a triangle or a
rectangle interactively and display the area.

Remember the two values given as input will be treated as lengths of two sides in the case of
rectangles and as base and height in the case of triangles and used as follows:
Area of rectangle = x * y
Area of triangle = ½ * x * y

ECE-212 E **Digital Electronics Lab.**

L	T	P	Sessional : 50 Marks
–	–	3	Practical: 25 Marks
			Total: 75 Marks
			Duration of Exam: 3 Hrs.

LIST OF EXPERIMENTS

1. Study of TTL gates – AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.

2. Design & realize a given function using K-maps and verify its performance.

3. To verify the operation of multiplexer & Demultiplexer.

4. To verify the operation of comparator.

5. To verify the truth tables of S-R, J-K, T & D type flip flops.

6. To verify the operation of bi-directional shift register.

7. To design & verify the operation of 3-bit synchronous counter.

8. To design and verify the operation of synchronous UP/DOWN decade counter using J K flip-flops & drive a seven-segment display using the same.

9. To design and verify the operation of asynchronous UP/DOWN decade counter using J K flip-flops & drive a seven-segment display using the same.

10. To design & realize a sequence generator for a given sequence using J-K flip-flops.

11. Study of CMOS NAND & NOR gates and interfacing between TTL and CMOS gates.

12. Design a 4-bit shift-register and verify its operation . Verify the operation of a ring counter and a Johnson counter.

Note : At least ten experiments are to be performed, atleast seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus.

ECE-218 E Microprocessors and Interfacing Lab.

L	T	P
–	–	3

Sessional: 25 Marks
Exam: 25 Marks
Total: 50 Marks
Duration of Exam: 3 Hrs.

LIST OF EXPERIMENTS

1. Study of 8085 Microprocessor kit.

2. Write a program using 8085 and verify for :
   a. addition of two 8-bit numbers.
   b. addition of two 8-bit numbers (with carry).

3. Write a program using 8085 and verify for :
   a. 8-bit subtraction (display borrow)
   b. 16-bit subtraction (display borrow)

4. Write a program using 8085 for multiplication of two 8- bit numbers by repeated addition method. Check for minimum number of additions and test for typical data.
5. Write a program using 8085 for multiplication of two 8- bit numbers by bit rotation method and verify.
6. Write a program using 8085 for division of two 8- bit numbers by repeated subtraction method and test for typical data.
7. Write a program using 8085 for dividing two 8- bit numbers by bit rotation method and test for typical data.
8. Study of 8086 microprocessor kit
9. Write a program using 8086 for division of a defined double word (stored in a data segment) by another double word division and verify.
10. Write a program using 8086 for finding the square root of a given number and verify.
11. Write a program using 8086 for copying 12 bytes of data from source to destination and verify.

12. Write a program using 8086 and verify for:
    a. Finding the largest number from an array.

b. Finding the smallest number from an array.

13. Write a program using 8086 for arranging an array of numbers in descending order and verify.

14. Write a program using 8086 for arranging an array of numbers in ascending order and verify.

15. Write a program for finding square of a number using look-up table and verify. .

16. Write a program to interface a two digit number using seven-segment LEDs. Use 8085/8086 microprocessor and 8255 PPI.

17. Write a program to control the operation of stepper motor using 8085/8086 microprocessor and 8255 PPI.

Note: At least ten experiments have to be performed in the semester out of which seven experiments should be performed from above list. Remaining three experiments may either be performed from the above list or designed & set by the concerned institution as per the scope of the syllabus of EE-309-C.

- Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashik, 1989, Addison-Wesley.
- Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.
- Applied Discrete Structures for Computer Science, Doerr and Levasseur, (Chicago: 1985,SRA
- Discrete Mathematics by A. Chtewynd and P. Diggle (Modular Mathematics series), 1995, Edward Arnold, London,
- Schaums Outline series: Theory and problems of Probability by S. Lipshutz, 1982, McGraw-Hill Singapore
- Discrete Mathematical Structures, B. Kolman and R.C. Busby, 1996, PHI
- Discrete Mathematical Structures with Applications to Computers by Tembley & Manohar, 1995, Mc Graw Hill.
- Discrete Mathematics & Structure, Satyender Bal Gupta, 2nd Ed., Luxmi Pub.

Bachelor of Technology (Information Technology)

Scheme of Courses/Examination

(w.e.f.: 2004-2005)

(5th Semester IT)

Sr. No.	Course No.	*Subject*	Teaching Schedule				*Examination Schedule* (Marks)				Duration of Exam (Hrs.)
			L	T	P	Total	Theory	Sessional	Practical	Total	
1.	IT-351	Web Design	3	1	-	4	100	40	-	140	3
2.	IT-353	Digital & Data Communication	4	1	-	5	100	40	-	140	3
3.	IT-355	Network Programming	4	1	-	5	100	40	-	140	3
4.	IT-357	Operating System	4	1	-	5	100	40	-	140	3
5.	IT-359	Multimedia & Virtual Reality	4	1	-	5	100	40	-	140	3
6.	IT-361	Web Design Lab	-	-	3	3	-	40	25	65	3
7.	IT-363	Digital & Data Communication Lab	-	-	2	2	-	25	25	50	3
8.	IT-365	Network Programming Lab	-	-	3	3	-	40	25	65	3
9.	IT-367	Multimedia & Virtual Reality Lab	-	-	2	2	-	25	25	50	3
10.	IT-369	Training Report						70		70	
TOTAL			19	5	10	34	500	400	100	1000	

IT-359

Multimedia & Virtual Reality

L	T	P		
4	1		**Theory:**	**100**
			Sessional:	**40**

UNIT-1

BASICS OF MULTIMEDIA TECHNOLOGY:

Computers,communication and entertainment,multimedia an introduction & emerging applications,framework for multimedia systems,multimedia devices, CD-AUDIO,CD_ROM,CD_I,multimedia presentation and authoring profeesional tools.

AUDIO, VIDEO AND IMAGE:

Digital representation of sound,transmission of digital sound, MPEG-Audio ,audio compression and decompression,brief survey of speech recognition and generation,audio synthesis,musical instrument digital interface,evaluating a compression system-redundancy and visibilility,video compression techniques,JPEG-image compression standards,MPEG-motion video compression standard-DVI Technology

UNIT-2

MULTIMEDIA FILE SYSTEMS AND INFORMATION MODELS

The case of multimedia information system,file support for continuous media-data models for multimedia and hyper media information ,multimedia presentation and authoring,current state of industry-design paradigms and user interface-barriers to widespread use,multimedia system service architecture,media stream protocol and services and window system,client control of continuous media,file system support,hyper applications

UNIT-3

MULTIMEDIA COMMUNICATION SYSTEMS:

multimedia services over the public network, requirements,architecture and protocols-applications-network services-network protocols-multimedia interchange:Quicktime movie file format(QMF)-MHEG(Multimedia and Hypermedia information and coding expert group)-format function and representation summary-real time interchange-Multimedia conferencing:teleconferencing systems.

Animation:

Introduction,Basic terminologytechiques,Motion graphics 2D & 3D animation.Introduction to MAYA(Animating tool):Fundamentals,Modeling:NURBS,Polygon,Organic,animation,paths &boxes,deformers,working with MEL:Basics &programming Rendering &special effects:shading &texturing surfaces,lighting, special effects.

UNIT-4

VIRTUAL REALITY:

Applications of multimedia,intellegient multimedia systems,desktop virtual reality,VR operating system,virtual environment displays&orientation making;visually coupled system requirements;intellegent VR software systems.

Books Recommended:

1. David Hillman,"Multimedia Technology&Applications",Galgotia publications.
2. John.F.Koegelbuford,Multimedia Systems,AWP,1994.
3. An Introduction,Villamil &Molina,Multimedia mc Milan,1997.
4.Multimedia:Sond &video,Lozano,1997,PHI(Que)

Reference Books:

1. Production,planning and delivery,Villamil & Molina,Que,1997
2.Multimedia on the PC,Sinclair,BPB

3.Multimedia in action by Jeff coate judith,1995,PHI
4.Multimedia System by Koegel,AWL.
Note:There will be 8 questions in all.Two questions will be set from each unit.Students are required to attempt five questions selecting at least from each unit.

IT-355 **Network Programming**

L	T	P		
4	**1**		**Sessional:**	**40**

Theory: 100

Unit-1 Introduction to Java & Principles of Object Oriented Progamming:
Basic Concepts of OOP and it's Benefits. Application of OOP. The Creation of Java, Importance of Java for the Internet, Java's Magic: The Byte-code, Features of Java. Object-Oriented Programming in Java, Java Program Structure.
Defining Classes:
Defining of a Class, Definition of Methods, Constructors, Creating Objects of a Class, Assigning Object Reference Variables, The keyword "this" , Defining and Using a Class, Automatic Garbage Collection.
Arrays and Strings:
Arrays, Arrays of Characters, String handling Using String Class, Operations on String Handling Using. String Buffer Class.
Extending Class and Inheritance:
Using Existing Classes, Class Inheritance, Choosing Base Class, Access Attributes, Polymorphism, Multiple Levels of Inheritance, Abstraction through Abstract Classes, Using Final Modifier, The Universal Super class-Object Class.
Unit-2 Package & Interfaces:
Understanding Packages, Defining a Package, Packaging up your Classes, Adding Classes from a Package to your Program, Understanding CLASSPATH, Standard Packages, Access Protection in Packages, Concept of Interface.
Exception Handling:
The Idea behind Exceptions, Types of Exceptions, Dealing with Exceptions, Exception Objects, Defining Your Own Exceptions, Checked and Unchecked Exceptions.
Multithreading Programming:
The Java Thread Model, Understanding Threads, The Main Thread, Creating a Thread: extending Thread and implementing Runnable, Creating Multiple Threads, Thead Priorities, Synchronization, Deadlocks inter-thread communication, Deadlocks.
Input/Output in Java:
I/O Basic, Byte and Character Structure, I/O Classes, Reading Console Input, Writing to Console Output, Reading and Writing on Files, Random Access Files, Storing and Retrieving Objects from File. Stream Benefits.

Unit-3 Creating Applets in Java:

Applet Basics, Applets Architecture , Applet Life Cycle, Simple Applet Display Methods, Requesting Repainting, Using the Status Window, The HTML APPLET Tag, Passing parameters to Applets.
Networking:
Basics, Networking Classes and Interfaces, Using Java.net Package, doing TCP/IP and Datagram Programming by Server Socket and Socket Classes.
Java Data Base Connectivity(JDBC)
Database Connectivity- Relation Databases, JDBC API, Reusing Database Objects, Transactions, Advance Techniques.
Working with Windows:
AWT Classes, Window Fundamentals, Working with Frame, Creating a Frame Window in an Applet, displaying information within a Window.
Unit-4 Event Handling: Two Event Handling Mechanisms, The Delegation Event Model, The Event Handling Process, Event Classes, Sources of Events, event Listener Interfaces, Using the Delegation Event Model, Adapter Classes.
Java Servlet Programming:
Role and Advantages of Java Servlets in Web application Development.
HTTP Servlets- Introduction, page generation, server side includes, servlet chaining, java Server pages.
Server Life Cycle- Servlet Alternative, Reloading, Init and Destroy, Single Thread Model, Background Processing Last Modified times, synchronization, Persistent state capabilities.
Retrieving Information- Intialization Parameters, Methods of receiving Information about Client-server and clients request.
Sending HTML Information-Structure of Response, Sending a Normal Response, using Persistent Connection, HTML generation, Status Codes, HTTP headers, Error Handling.
Books Recommended:

1. Java-2 The complete Reference by Patrick Naughton and Herbertz Schildt, TMH.
2. Beginning JAVA 2 (JDK1.3 Edition), Ivor Horton, WROX Public.
3. Thinking in Java, Bruce Eckel
4. JAVA 2 UNLEASHED, Tech Media Publications.
5. JAVA 2(1.3) API Documentations.
6. "Programming with Java", By E Balaguruswamy.

IT-353
Digital and Data Communication

L	T	Theory	Sessional
4	**1**	**100**	**40**

Unit-1

Introduction

A communications model- Data communications – Data communication networking – Standards – Making organizations – Data Transmission:Concepts and terminology – Analog and Digital Transmission – Transmission impairments – Transmission media.

Data Encoding:

Digital data,Digital signals:Encoding schemes:NRZ-L,NRZ-I,Manchester-Diff-Manchester-Encoding,Pseudoternary-Bipolar-AMI,B8ZS- HDB3 – Evaluation factors-Digital data, analog signals: Encoding Techniques –ASK-FSK-PSK-QPSK-Performance comparision-Analog data,digital signals:Quantization- Sampling theorm-PCM-Delta modulation-Errors- comparision- Analog Data, analog signals:Need for modulation -0 Modulation methods – Amplitude modulation- Angle modulation- Comparision

Unit-2

Digital data communication techniques:

Asynchronous and synchronous transmission –Error Detection techniques : Parity checks – Cycle redundancy checks-Checksum-Error Correcting codes: Forwards and backward error corrections

DTE & DCE interface:

Characterstics of DTE-DCE interface.Interfaces: Rs-232-C , Rs-449/422,A/423-A.

Unit-3

Data link control

Need for data link control – Line configurations: Topology,duplexity and line discipline – flow control : effect of propagation delay and transmission rate – sliding window protocol-Error Control; Error detection – ARQ – Bit oriented link control- Necessity – Protocols – HDLC,ADCC,LAP-B,SDLC – Character-oriented link control- Binary synchronous communications – Their categories-Limitations,serial Controller 85C30.

Multiplexing

Advantages – Types of Multiplexing – FDM – Synchronous TDM – Stastical TDM or Asynchronous TDM,Study of their characterstics and carrier systems.

Unit-4

Satellite Communication Systems:

Satellite parameters and configurations – Capacity allocation , Frequency Division FDMA ; Time Division TDMA- Fixed assigned multiple access(FAMA), Demand assign multiple access(DAMA) – The concept of spread spectrum : FHSS, DSSS – CDMA – Transmission and reception.

Books Recommended:

1. Proakin, “Digital Communications”,Mc Graw Hill.
2. W.Stalling, “Wireless Communication And Networks” Pearson.
3. Stallings, “Data & computer Communications”,PHI.
4. Forouzen, “Data Communication & Networking”,Tata Mcgraw Hill.
5. Roden, “Digital & Data Communication Systems”,PHI.
6. Miler, “Introduction to Digital & Data Communications”,Jaico Pub.
7. Pratt, “Satellite Communication”, John Wiuley.

IT-351
WEB DESIGN

L 3 **Theory: 100**

T 1 **Sessional:40**

UNIT 1 The World Wide Web As A Communication System
The state of the World Wide Web, An overview of the World Wide Web, The role of the Web within Cyberspace, Information Spaces in the web.
A Developer 's tour of the Web
An overview of the web's Potential, Web functions, Web development Phases, Developer's Tour Check
Options for Web Connections: Choosing user Connections, Choosing Information Provider Connections, Accessing the Web, Web Connections Check.
UNIT 2 Information Architecture:
Role of information architecture, collaboration and Communication, Organizing information.
Navigation Systems:
Types of navigation systems, integrated navigation elements, Remote navigation elements, Design elements navigation system.
Web Development Principles And Methodology overview
The Web as a medium for expression, Web User Experiences, Web Communication Process, A Web Development Methodology, Web Principles and Methodology check.
UNIT 3 Web planning and analysis
Principles of web planning, web planning techniques, a web plan example, web analysis processes, web analysis principles
Web design & implementation - an overview of web design, principles of web design, web design methodologies, design techniques, design problems, sample web design, web designer's Check, The State of the art in web implementation, an implementation overview, implementation Principles, implementation Processes, web implementer's Check
Web promotion & Innovation
Web promotion Principles, Web promotion Techniques, Web Business Models, Web Promoter's Check, an Innovation Overview, web Innovation Techniques, and web Innovator's Check.
UNIT 4 HTML
Structure of HTML document, HTML elements, Linking Basics, Linking in HTML, Images and Anchor tag, their attributes, image maps, list, frames, tables, Forms in HTML, Embedding of graphics through HTML.
XML Basic of XML valid documents,
Syntax, elements & attributes of XML, Document Type Definition,
Ways to use XML: using XML as data source, XML in data islands.
Displaying XML with CSS & XSL, rewriting HTML as XML
DHTML – an introduction of DHTML, relationship between HTML, SGML, & XML
CSS – basic style sheet concept, using style sheet in your document.
JAVASCRIPT
Features of JavaScript, Variables, Control Structures, operators, loping, conditional statements & functions in JavaScript.

Core Language Objects – Array, Boolean, date, Math, String, Global, Number
JavaScript with DOM Objects – Event Handling through JavaScript, Window, Document & Forms, Frame Object, Form Validation through JavaScript, JavaScript vs. CGI

Books Specified:

HTML – a beginner's guide by Willard –TMH
JavaScript – Unleased - 3 rd Edition from SAMS – Tech Media.
HTML – Complete Reference By Thomas A Powell – TMH.
http:// www.w3schools.com
Yong ,XML in steps by step – PHI
HTML 3.2 and CGI Professional Reference Edition by John December & Mark Ginsburg – SAMS – Tech Media
Aaron Weiss , Rebecca Taply , Kim Deniels , Stuven Mulder , Jeff Kaneshki : Web Authoring Desk Reference – Tech Media

NOTE : - There will be 8 questions in all; Two will be set from each unit . Students are required to attempt any 5 questions selecting at least 1 from each unit.

IT-357
Operating Systems

L	T	Theory	Sessional
4	**1**	**100**	**40**

UNIT 1:

Introductory Concepts: Operating System functions and characteristics, historical evolution of operating systems, Real time systems, Distributed systems, Methodologies for implementation of O/S service , system calls, system programs , interrupt mechanisms.
Processes: Processes model, process states, process hierarchies, implementation of processes, data structures used such as process table, PCB creation of processes, context switching, exit of processes.
Interprocess communication: Race conditions, critical sections, problems of mutual exclusion, Peterson's solution, producer-consumer problem, semaphores, counters, monitors, message passing.

UNIT 2:
Process scheduling: objective, preemptive vs non- preemptive scheduling, comparative assessment of different algorithms such as round robin, priority bases scheduling, FCFS, SJF, multiple queues with feedback.
Deadlocks: conditions, modeling, detection and recovery, deadlock avoidance, deadlock prevention.
Memory Management: Multiprogramming with fixed partition, variable partitions, virtual partitions, virtual memory, paging, demand paging design and implementation issues in paging such as page tables, inverted page tables, page replacement algorithms, page fault handling, working set model, local vs global allocation, page size, segmentation and paging.

UNIT 3:
File Systems: File type, attributes, access and security, file operations, directory structures, path names, directory operations, implementation of file systems, implementation of file and file operations calls, implementation of directories, sharing of files, disk space management, block allocation, free space management, logical file system, physical file system.
Device Management: Techniques for device management , dedicated devices, shred devices, virtual devices, device characterices-hardware considerations: input and output devices, storage devices, independent device operation, buffering, multiple paths, device allocation considerations.

UNIT 4:
Distributed Systems: Introduction to II/W and S/W concepts in distributed systems, Network operating systems and NFS, NFS architecture and protocol, client- server model, distributed file systems, RPC- Basic operations, parameter passing, RPC semantics in presence of failures threads and thread packages.
Case Studies: Unix/Linux: Implementation of processes, memory model, file system, deadlock handling strategies, scheduling , IPC, system calls.
WINDOWS NT: Layered structure, interpretability.

Books recommended:

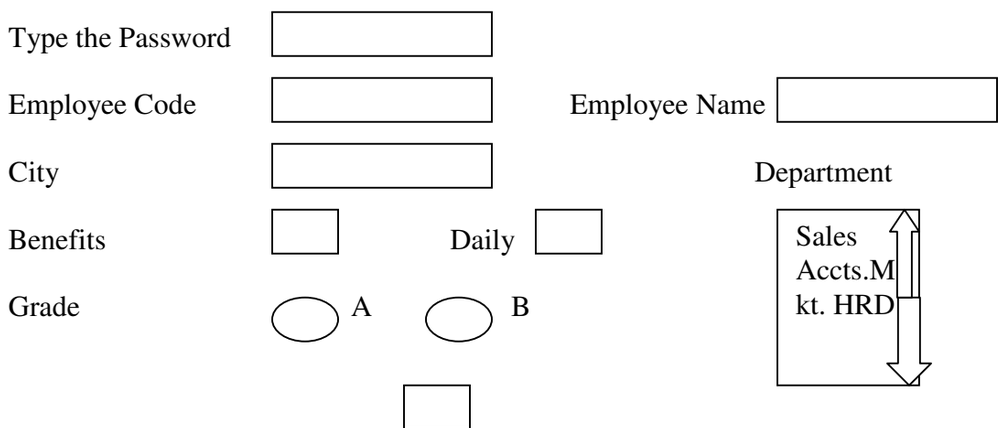
1. Peterson J L & Silberschatz , " Operating System concepts" Addison Wesley
2. Brinch, Hansen, "Operating System Principles" PHI
3. Tenanbaum A S " Operating System", PHI.

NOTE: There will be 8 questions in all . Two questions will be set from each unit. Students are required to attempt 5 questions selecting at least 1 question from each unit

IT-361
Web Designing Lab

L	T	P	Sessional	: 40 Marks
-	-	3	**Exam**	**: 25 Marks**

1. Design the following Form on WEB Pages:-



2. Create a web page with four frames has picture, second frame has table showing the details of students in your class, third frame has a list of syllabus of your semester and last frame a hyperlink to a different web page.

3. (a) Write a program in JAVASCRIPT to check that the string is palindrome or Not.
   (b) Write a program in JAVASCRIPT to shake the window.
   Write

4. Write a Program in JAVASCRIPT to make a simple calculator.

5. (a) Write a Program in JAVASCRIPT to display all the information about the

browser, you are using in the lab.

(b) 1. Write a program in java Script to display Count Value, which counts the number of times mouse Over event occurred on placing on a link.

2. Write a program in JAVASCRIPT, which will response to the mouse & keyboard events

6. (a) Write a program in JAVASCRIPT to display a digital clock.

(b) 1. Write a program in JAVASCRIPT which will show the current date & time.

2. Convert that date & time into another format.

7. (a) Write a program in JAVASCRIPT to make a personalize welcome page

(b) Redirect the user to the e-mail form page after 20 seconds.

8. (a) Write a Program in JAVA Script to make an email registration form.

(b) Validate all the input fields.

(c) Display all user details on a new page.

9. Create a page (Open.html) with a link " Open new Window". On clicking the link, call a JavaScript funtion to open a page (new.html) in a new window with attributes no toolbar, no resize, no scroll bar, height=200, width=200. Take your name as input in this page & clicks submit. Display the entered in the page "open.html".

10. (a) Design (college_year_branch_Student.xml), which describes data about college students.

(b) Display the above xml page in an html page as data island.

11. (a) Create & use style-sheet (CSS) for login & display detail page.

(b) Create & use Style-sheet (XSL) for xml page used in 10^{th} practical.

12. Create web pages for an organization like your College giving details about various Departments, Faculty Members, Its Foundation, various Achievements etc. using different features of web designing.

IT-363

Digital & Data Communication Lab

L	T	P		
-	-	2	Sessional	: 25 Marks
			Exam	: 25 Marks

1. Perform Amplitude modulation/demodulation and calculate modulation index and percentage (%age) modulation.
2. Perform frequency modulation for calculating frequency deviation (DF) and modulation index.
3. Prove and perform sampling theorem for various bit rates (eg. 8kbps, 16kbps, 32kbps, 64kbps).
4. Convert analog signal into digital using delta modulation/demodulation.
5. Prove and perform “adaptive delta modulation/demodulation” to reduce the quantization voice.
6. Perform and verify the following A/D converting modulation/demodulation Technique using:
   i) PAM
   ii) PPM
   iii) PWM
7. Analyze the pulse code modulation (PCM) system and perform A/D conversion using PCM.
8. Prove and perform multiplexing using time division multiplexing technique.
9. Analyze and establish a PC TO PC Communication using RS-332 DTE-DCE interface.
10. Establish a transmitter and receiver link using optical fiber.

IT-365

Network Programming Lab

L	T	P		
-	-	3	Sessional	: 40 Marks
			Exam	: 25 Marks

1. (a) Write a program for the following:
   - To implement an integer stack, which can hold 10 values**?**
   - To Convert an integer to its binary equivalent**.**
2. (a) Write a program to implement the concept of inheritance having a base class representing a person, derived from this class make two classes, one about the students and other about employees. Input & Output this information about students & employees.
   (b) Implement Function overloading concept.
3. Write a program to copy the contents of source file into destination file, handling the exceptions.
4. Write a program to implement the buffering concept in which producer produces the data and consumer consumes it using the threading concept.
5. Create an applet in which create another thread which will move a string message continuously.
6. Write a program for the following**:**
   - To demonstrate mouse event handlers**.**
   - To demonstrate key event handlers**.**
7. Create a frame window in which there are two text boxes to input integers and another text box for their sum. The sum is displayed on the click of a button.
8. Write a program for Client and Server and establish communication between them**.**
9. Write a program using servlets and a web page using HTML so as to print the dynamic response from the servlets when the web page is submitted**.**
10. Create a database using MS-Access and access this database in your program using JDBC**.**

IT-367

Multimedia & Virtual Reality Lab

L	T	P		
-	-	2	Sessional	: 25 Marks
			Exam	: 25 Marks

1. Perform the following using Movie Star**:**
   - Video Capturing
   - Video Editing and
   - Creating Video CD.
2. Animate a ball by changing it color, size, & position frame to frame and tweened animation in Flash**.**
3. Using Adobe Deluxe Photoshop edit a digital photo by changing the background color, changing the theme, changing the part of the photo, creating the different parts of the photo and edit them**.**
4. Animate the following using GIF animator**:**
   - Image
   - Banner Text
5. Write a program to simulate the game of Pool Table**.**
6. Transform a alphabetical string into circle and then chage it again in to alphabetical string**.**
7. Perform the following using Multimedia Software**:**
   - Clip a portion of an audio wave file
   - Add another audio file to the above clipped file
8. Perform the following using multimedia software**:**
   - Extract audio from video file like .avi/.dat/.mpeg and save it in MP3
   - Change the format of above audio file into midi/ wav/ asf/ wm/ cda
9. Perform the following using Multimedia software**:**
   - Capture video with web camera.
   - Add the required audio.
   - Synchronize the Audio and Video
10. Create a documentary film of your Department which includes audio, Video, graphics, images and animation**.**

IT-367

Multimedia & Virtual Reality Lab

L	T	P		
-	-	2	Sessional	25 marks
			Exam	: 25 Marks

1.Create any two slides using power point

2.Create a website on any of your favorite topic

3.Create a website of your college using HTML tags

4.Perform the following using Movie star:

- Video Capturing
- Video Editing and
- Creating Video CD.

5.Animate a ball using Flash

6.Using Adobe Deluxe Photoshop edit a digital photo by changing the background color,changing the theme, changing the part of the photo and editing the different parts of the photo.

7. Animate the following using GIF animator**:**

- Image
- Banner Text

8. Perform the following using Multimedia Software**:**

- Clip a portion of an audio wave file
- Add another audio file to the above clipped file

9. Perform the following using Multimedia software

- Extract audio from video file like .avi/.dat/.mpeg and save it in MP3
- Change the format of above audio file into midi/wav/asf/wm/cda

SCHEME OF EXAMINATION FOR B.TECH. DEGREE COURSE
Sixth Semester Examination
(Information Technology)
(w.e.f. 2005 – 2006)

Course No.	Subject	Teaching Schedule				Examination Schedule			Total Marks	Duration of Exam (Hrs.)
		L	T	P	Total	Theory	Sessional	Practical		
IT-352	Analysis & Design of Algorithm	4	1	0	5	100	40	0	140	3
IT-354	Software Engineering	4	1	0	5	100	40	0	140	3
IT-356	Computer Graphics	4	1	0	5	100	40	0	140	3
IT-358	Computer Network	4	1	0	5	100	40	0	140	3
IT-360	Management Information System	3	1	0	4	75	50	0	125	3
IT-362	Software Engineering Lab	0	0	2	2	0	30	30	60	3
IT-364	Computer Graphics Lab	0	0	3	3	0	40	40	80	3
IT-366	Networking Lab	0	0	2	2	0	30	30	60	3
IT-368	Visual Basic .Net Lab	0	0	3	3	0	40	40	80	3
IT-370	Colloquim	0	1	0	1	0	35	0	35	3
	Total	19	6	10	35	475	385	140	1000	

Note: Students shall undertake 6 weeks Practical Training after 6th Semester Exam. In reputed organization

IT-352 **Analysis & Design of Algorithms**

L	T	Theory	Sessional	Duration
4	1	100	40	3 Hrs

Unit – 1:
Introduction: Algorithm, Analyzing algorithm, Designing algorithm, Concept of algorithmic efficiency, Run time analysis of algorithms, Asymptotic Notations.

Divide and conquer: Structure of divide and conquer algorithms: examples; binary search, quick sort, Strassen Multiplication; Analysis of divide and conquer run time recurrence relations.

Unit – 2:
Greedy Method: Overview of the greedy paradigm examples of exact optimization solution (minimum cost spanning tree), Approximate solution (Knapsack problem), Singles source shortest paths.

Dynamic programming: Overview, difference between dynamic programming and divide and conquer, Applications: Shortest path in graph, Matrix multiplication, Traveling salesman problem, longest common sequence.

Unit – 3:
Back tracking: Overview, 8-queen problem, and Knapsack problem
Brach and bound: LC searching Bounding, FIFO branch and bound, LC branch and bound application: 0/1 Knapsack problem, Traveling Salesman Problem.

Unit – 4:
Graph searching and Traversal: Overview, Traversal methods (depth first and breadth first search).
Trees: Review of trees, Binary search tree, Traversal, Insertion & Deletion in Binary Search Tree, B-Trees, B+Trees, Basic operations on B Trees.
Computational Complexity: Complexity measures, Polynomial Vs non-polynomial time complexity; NP-hard and NP-complete classes, examples.
Text Book:
E. Horowitz, S. Sahni, and S. Rajsekran, " Fundamental of Computer Algorithms," Galgotia Publication
Reference Books:

1. T. H. Cormen, Leiserson, Revest and Stein, "Introduction of Somputer algorithm," PHI.
2. Sara Basse, A. V. Gelder, " Computer Algorithms," Addison Wesley.

Note: Eight questions will be set in all by the examiners taking two questions from each unit. Students will be required to attempt five questions in all, selecting at least one question from each unit.

IT-354 **Software Engineering**

L	T	Theory	Sessional	Duration
4	1	100	40	3 Hrs

Unit – 1:

Introduction: Program vs. software products, emergence of software engineering, software life cycle, models: waterfall, prototype, evolutionary and spiral model, Software Characteristics, Applications, Software crisis.

Software project management: Project management concepts, software process and project metrics Project planning, project size estimation metrics, project estimation techniques, empirical estimation techniques, COCOMO, A Heuristic estimation techniques, staffing level estimation, team structures, staffing, risk analysis and management, project scheduling and tracking.

Unit – 2:

Requirements Analysis and specification: Requirements engineering, system modeling and simulation Analysis principles modeling, partitioning Software, prototyping, Prototyping methods and tools, Specification principles, Representation, the software requirements specification and reviews Analysis Modeling: Data Modeling, Functional modeling and information flow: Data flow diagrams, Behavioral Modeling, The mechanics of structured analysis: Creating entity/relationship diagram, data flow model, control flow model, the control and process specification, The data dictionary, Other classical analysis methods.

System Design: Design concepts and principles: the design process: Design and software quality, design principles, Design concepts: Abstraction, refinement, modularity, software architecture, control hierarchy, structural partitioning, data structure software procedure, information hiding, Effective modular design: Functional independence, Cohesion, Coupling, Design Heuristics for effective modularity; The design model; Design documentation.

Architectural Design: Software architecture, Data Design: Data modeling, data structures, databases and the data warehouse, Analyzing alternative Architectural Designs, architectural complexity; Mapping requirements in to software architecture; Transform flow, Transaction flow; Transform mapping; Refining the architectural design.

Unit – 3:

Testing and maintenance: Software Testing Techniques, software testing fundamentals: objectives, principles, testability; Test case design, Unit testing: white box testing, basic path testing: Control structure testing: Black box testing, testing for specialized environments, architectures and applications. Software Testing Strategies: Verification and validation, Integration testing, Validation testing, alpha and beta testing. System testing: Recovery testing, security testing, stress testing performance testing; The art of debugging process debugging approaches. Software re-engineering: Reverse engineering, restructuring, forward engineering.

Unit – 4:

Software Reliability and Quality Assurance: Quality concepts, Software quality assurance, SQA activities; Software reviews: cost impact of software defects, defect amplification and removal; formal technical reviews: The review meeting, review reporting and record keeping, review guidelines; Formal approaches to SQA; Statistical software quality assurance; software reliability: Measures of reliability and availability, The ISO 9000 Quality standards, SEI-CMM Capability Maturity Model.

Computer Aided Software Engineering: CASE, building blocks, integrated case environments and architecture, repository.

Text Books:

- Software Engineering – A Practitioner's Approach, Roger S. Pressman, 1966, MGH.

Reference Books:

- Fundaments of software Engineering, Rajib Mall, PHI
- An Integrated Approach to Software Engineering by Pankaj Jalote, 1991 Narosa.
- Software Engineering by an Ian Sommerville, Pearson Edu, 5th edition, 1999, AW.
- Software Engineering Fundamentals, Oxford University, Ali Behforooz and Frederick J. Hudson.

Note: Eight questions will be set in all by the examiners taking two questions from each unit. Students will be required to attempt five questions in all, selecting at least one question from each unit.

IT-356 **Computer Graphics**

L	T	Theory	Sessional	Duration
4	1	100	40	3 Hrs

Unit – 1:
Introduction: What is Computer Graphics, Computer Graphics Applications, Computer Graphics hardware and Software, Two dimensional Graphics Primitives: Points and Lines, Point Plotting Techniques: Coordinate system, Incremental Method, Line drawing algorithms: DDA, Bresenhams's Circle drawing algorithms: Using polar coordinates, Mid point circle drawing algorithms, Filled area algorithms: Scan line, Polygon filling algorithms, Boundary filled algorithms.

Point & Positioning Devices: Light pen, Mouse, Tablet, Input technique, Positioning technique, and character recognition.

Unit – 2:
Two Dimensional Viewing: Viewing pipeline, Window to view port transformation, Window to view port mapping.
Clipping: Point & Line clipping algorithm. 4-bit code algorithm., Cohen-Sutherland Line clipping algorithms, Liang-Barsky line clipping algorithms.
Polygon clipping: Sutherland-Hodgeman Polygon clipping algorithm. Curve clipping, Text clipping.

Unit – 3:
Three Dimensional Viewing: Viewing pipeline, Viewing coordinates, Projection: Parallel. Perspective.

Two Dimensional Geometric Transformations: Two Dimensional transformations: Transformations translation scaling rotation, other transformations: reflection. Shear, Homogeneous Coordinate system.
Raster Graphics: Raster graphics fundamental, solid area scan conversion, interactive raster graphics and raster graphics system.

Unit – 4:
Representation of 3-D Curves and Surfaces: Curved lines and surfaces, spline representations, interpolation and approximation alpines, Parametric conditions, Geometric continuity conditions.
Beizer curves and surfaces: Beizer curves, properties of beizer curves, beizer surfaces, B-apline curves and surfaces.

Hidden Surfaces removal: Hidden surface elimination, depth buffer algorithm, scan line coherence and area coherence algorithm, priority algorithm.

Case study: Device independent graphics system, graphics system design case study of graphics kernel system.

Books Recommended:-

1. Hern & Baker – Computer Graphics, 2nd Ed. PHI.
2. Newmann & Sprawl – Introduction to interactive Computer Graphics, MGH.
3. Harrington – Computer Graphics – A programming Approach.
4. Rogers – Principles of Computer Graphics – MGH.
5. Folay – Fundamental of Interactive Computer Graphics – Addison Welsey

Note: Eight questions will be set in all by the examiners taking two questions from each unit. Students will be required to attempt five questions in all, selecting at least one question from each unit.

IT-358 **Computer Network**

L	T	Theory	Sessional	Duration
4	1	100	40	3 Hrs

Unit – 1:

Introduction: Basics of Computer Networks, need and Evolution of computer networks, description of LAN, MAN, WAN & wireless networks.

Basics terminology of Computer Networks: Bandwidth, physical and logical topologies, media 10 base A, 10base 5, 10 base 5, 10base-t, 100 base FX, 100base LX and wireless. LAN & WAN devices – Router, Bridge Ethernet switch HUB, Modem SCU/DSU.

OSI Reference Model:

Laying architecture of networks, OSI model, Functions of each layer, Services and Protocols of each Layer.

Unit – 2:

TCP/IP: Introduction History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission control protocol, User Datagram Protocol, IP Addressing, IP address classes, Subnet addressing, Internet control Protocols, ARP, RARP, ICMP, application layer, Domain Name System, Email-SMTP, POP, IMAP, FTP, NNTP, HTTP, SNMP, TELNET, overview of IP version 6.

OSI and TCP/IP model with description of data encapsulation & peer to peer communication, comparison of OSI and wireless.

Physical Layer: Representation of a bit on physical modem that is in wired network, optical network and wireless network. Encoding/Modulation – TTL, Manchester Encoding, AM, FM and PM. Dispersion, Jitter, Latency and Collision. Different types of media-twisted pair, unshielded twisted pair, coaxial cable, optical Fiber cable and wireless.

Unit – 3:

Data Link Layer: LLC and MAC sub layer, MAC addressing layer 2 devices, framing error control and flow control. Error detection & correction CRC, block codes parity and checksum, elementary data link protocol, sliding window protocol, channel allocation problem-static and dynamic, Multiple Access protocol- ALOHA, CSMA/CU, Token bus, token ring, FDDI.

Network Layer: Segmentations and autonomous system path determination, network layer addressing, network layer data gram, IP addressed Classes. Sub netting – Sun network, Subnet Mask, Routing algorithm-optionally principle, Shortest path routing, hierarchical routing, Broadcast routing, Multicast routing, routing for mobile host – Concatenated Visual Circuits, tunneling fragmentation and DHCP, Routing protocol- RIP, IGRP, USPF and EIGRP. Network layer in ATM networks.

Unit – 4:

Transport Layer: Layer – 4 protocol TCP & UDP. Threeway hand shakes open connection. ATM AAL layer protocol, session layer design issue, presentation layer issue, and Application layer design issue.

Introduction to network management: Remote Monitoring Techniques: polling, traps performance management, class of service, quality of service, security management, firewalls, VLANs, proxy servers, introduction to network operating system: Client-Server infrastructure, Windows NT/2000.

Text Book:

1. Tanenbaum. “Computer Networks”, PHI

Reference Books:

1. Darlx, “ Computer Network and their protocols”, DLA Labs.
2. Freer, “Comp. Communication and Networks”, East – West-Press.
3. Data Communications, Computer Networks and open systems (4th Edition).

4. Halsall Fred, 2000, Addtion Weslay, low price Edition.
5. Business data communications, Fitzgerald Jerry.
6. Computer Networks – A system approach, Larry L. Peterson & Bruce S. Davie, 2nd Edition.
7. Computer Networking – ED Title, 2002, T.M.H.

Note: Eight questions will be set in all by the examiners taking two questions from each unit. Students will be required to attempt five questions in all, selecting at least one question from each unit.

IT-360 **Management Information System**

L	T	Theory	Sessional	Duration
3	1	75	50	3 Hrs

Unit – 1:

Introduction: Definition information system, role and impact of MIS, The challenges of Information system, Nature of MIS, Characteristics of MIS, Myths regarding MIS, Requirements of MIS, Problems & Solutions in implementing MIS, Benefits of MIS, Limitations of MIS, Significance of MIS, Components of MIS. Role of MIS, Major Management challenge to building and using information system in Organization, functions of management.

Unit – 2:

Information system and Organizations: The relationship between Organization and Information System, Information needs of different organization levels: Information concept as quality product, classification and value of information, methods of data and information collection. Strategic role of information system, Salient features of Organization, Information, management and decision making, How Organization affect Information Systems, How Information system affect Organization, Ethical and Social impact of information system.

Unit – 3:

Business application of Information System: Foundation Concepts Information systems in Business: Information system and technology, Business Applications, Development and Management. The internetworked E-business Enterprise: Internet, and Extranet in business. Electronic Commerce System: Electronics commerce Fundamentals, Commerce Application and issues. E-business Decision Support: Decision support in E-Business, Artificial Intelligence Technologies in business.

Unit – 4:

Technical Foundation of Information System: Computers and information processing, Computer Hardware, Computer software, Managing data resources, Telecommunication, Enterprise: wide computing and networking.

Strategic and Managerial Implications of Information Systems: Strategic Information System: Introduction, Characteristics of Strategic Information Systems, Strategic Information Systems (SISP), Strategies for developing an SIS, Potential Barriers to developing a Strategic Information System (SIS),
Decision Support System (DSS): Decision making concepts, methods, tools and procedures. Managing Information Resources: Introduction, IRM, Principal of Managing Information Resources, IRM functions, Computer Security: Introduction, Computer Security, Types of Computer Security, Disaster Recovery Plan.

Books Recommended:

1. W .S . Jawadakar, “Management Information System”, McGraw Hill
2. J. O. Brien, “ Management Information System”, TMH, New Delhi
3. Uma G . Gupta, “Management Information System” Fifth Edition TMH.
4. Kenneth C. Laudon, “Management Information System Organisation and Technology” TMH.

Note: Eight questions will be set in all by the examiners taking two questions from each unit. Students will be required to attempt five questions in all, selecting at least one question from each unit.

IT-366 **Computer Network Lab**

P	Practical	Sessional	Duration
2	30	30	3Hrs

1. Study the physical media of connectivity.
2. Study the pin-structure of cross-over cable.
3. Study the different LAN Technologies.
4. Study the functioning of a Switch.
5. Study the Functioning of a Router.
6. Establishing LAN (Star topology) for your LAB using Hubs (18 port, 16 port).
7. Study and install the media converting using optical fiber.
8. Install and configure the LAN card.
9. Install and configure window 200 Server.
10. Study and implement the virtual network.

Note: Students should perform at least 10 experiments.

IT-364 **Computer Graphics Lab**

P	Practical	Sessional	Duration
3	40	40	3Hrs

List of experiments:

1. Write a program to implement DDA line drawing algorithm.
2. Write a program to implement Bresenham's line drawing algorithm.
3. Implement the Bresenham's circle drawing algorithm.
4. Write a program to draw a decagon whose all vertices are connected with every other vertex using lines.
5. Write a program to show a ship moving using the concepts of 2-D transformations.
6. Write a program to show a ball moving on the screen according to the given requirements.
7. Write a program to implement the midpoint circle drawing algorithm.
8. Write a program to implement the Beizer curve.
9. Implement the line clipping algorithm using C.
10. Implement boundary fill algorithm using C.
11. Implement the depth buffer algorithm using C.

Note: Students should perform at least 10 experiments.

IT-368 **Visual Basic.Net Lab**

P	Practical	Sessional	Duration
3	40	40	3Hrs

Experiment List:

1. Create a calculator that can be used for adding, subtracting, multiplication and division.
2. Write an application to use WMI to retrieve information about your PC.
3. Write an application to create a File and Folder browser.
4. Write a program in VB.NET to send an email via SMTP.
5. Write a program to create a MDI web browser.
6. Write an application to access registry in VB.NET.
7. Write a program to retrieve a web page source from the Internet.
8. Create a slot machine game using standard controls and random number generator.
9. Write a program to create a word processor.
10. Write a program for encryption and decryption.
11. Write an application to capture screen.
12. Create a drawing application in VB.NET.
13. Write an application in VB.NET to play MP#3 files.

Note: Students should perform at least 10 experiments.

IT-362 **Software Engineering Lab**

P	Practical	Sessional	Duration
3	30	30	3Hrs

1. Study and categorize the generic phases of software development and maintenance.
2. Study various software development models.
3. Study various type of feasibility study and steps in doing feasibility study.
4. Study various steps for doing the requirement analysis of any project.
5. Write algorithm and draw flow chart to implement the constructive cost estimation model (COCOMO).
6. Making use of Graphical Design notation, study the concept in developing data flow diagram (DFD) for any selected project.
7. Making use of object oriented design, implement a student & employee record system using the concept of inheritance.
8. Select an appropriate programming language & translate the detailed design made in experiment 7 in appropriate programming language.
9. Develop a complete test strategy for the project selected in exp-8. Document it in a test specification.
10. Apply the debugging process to the project selected in exp-9 in accordance with the result generated from its testing in exp-9.
11. Study various concepts involved in cost / benefit analysis.
12. Draw flow chart and write algorithm for designing an editor.

Note: Students should perform at least 10 experiments.

Bachelor of technology (Information)

Schemes of Studies / Examination (Semester-7th w.e.f 2006-2007)

S.No	Course No.	Subject	Teaching Schedule				Examination Schedule				
			L	T	P	Total	Theory	Sessional	Practical	Total marks	Duration of Exam (Hours)
1	IT-451	Linux for Information Technology Applications	4	1	0	5	75	50	0	125	3
2	IT-453	Broad Band Communication	4	1	0	5	100	40	0	140	3
		Elective-I	4	1	0	5	100	40	0	140	3
		Elective-II	3	1	0	4	100	40	0	140	3
3	IT-455	Compiler Design	3	1	0	4	75	50	0	125	3
4	IT-457	Linux Lab	0	0	3	3	0	40	25	65	3
5	IT-459	SSP Lab	0	0	3	3	0	40	25	65	3
6	IT-461	Broad Band Communication Lab	0	0	3	3	0	40	25	65	3
7	IT-463	Minor Project	0	0	3	3	0	40	25	65	3
8	IT-465	Training Report	0	0	0	0	0	70	0	70	3
Total			**18**	**5**	**12**	**35**	**450**	**450**	**100**	**1000**	**30**

Elective –I

IT-467 Neuro Fuzzy Computing

IT-469 E-Commerce

Elective - II

IT-471 Image Processing

IT-473 Artificial Intelligence

VII Semester B.Tech (Information Technology) **IT-451 Linux for Information Technology Applications**.

L	T	Exam	Sessional	Duration
4	1	100	40	3 hrs

Unit-1

Introduction: Basic concepts of the operating system. Commands, shells and processes; users and groups; file system and directories. System installation, configuration and upgrade

Installation stages; network installation; disk partitioning; post-install system customization and upgrade; dpkg and APT package installation, remove, upgrade and query; semi-automatic system installation.

Kernel

Kernel tasks; managing kernel modules at runtime; kernel configuration and compilation boot loaders GRUB and LILO;

Unit-2

Linux Networking

Basic concepts of networking: Network packets, TCP/IP protocol suit, address resolution protocol (ARP); IP addresses and network mask; subnets and routing; IPV4 and Network classes; ports. Configuring Linux machine on the network; arp, ipconfig and netstat commands. Network services and tools; telnet, rsh, ftp, rcp, ssh, rsync, inetd.conf; opening and closing ports.

Network File system (NFS)

File system sharing or the network; remote procedure call (R P C) services; NFS server and client sides; NFS installation & configuration; and statistic mount and auto mount configuration; when trouble shooting NFS; security and optimization

Network information service (NIS)

Centralized authentication systems; sharing user and host information or the network;

NIS server and client sides and configuration; compatibility mode; net group; security issues.

Unit –3

Integrating Linux and Windows

Elements of windows networking; Net BIOS SMB\ \ CIFS protocols; domain controller; Samba server on Linux for centralized window logon; file sharing and printing, samba client; samba installation and configuration; Unix and windows password. Dual Boot: running windows and Linux on the same PC; GRUB and NT Boot loaders; accessing windows files systems from Linux and vice versa;

Light Weight Directory Access Protocol (LDAP)
Overview of Unix authentication and naming service; introduction to LDAP: Domain component (DC); organizational Unit (OU); common names (CN); Schemas; IDIF format; services; polls and commands; server and client sides; Open LDAP installation and configuration; LDAP applications. Shell scripting, syntax of brash; looping; case statement; function; command substitution; awk, grep, sed. Startup and Run Levels. Scheduled jobs. Boot up and login process sequence; run levels; startup scripts; scheduling jobs with at and cron.

Unit-4

Linux Security
System vulnerabilities; port scanning; encryption, encrypted services and connections; PGP/GPG Intrusion protection: tcp-wrappers, IP-firewalls (iptables), NAT and DMZ; Intrusion detection systems: tripwire; Secure system management practices.

Email Server
Steps of Email transaction; Email envelope and headers; SMTP servers; IMAP and POP3 servers;
E-mail relay; Postfix configuration; Spam and viruses,

Linux Computational Clusters
Overview of Linux cluster and clustering tools; High performance Computational Clusters; Message Passing Interface (MP) for parallel programming; MPI compilation and installation; Scheduling and queue systems. Sun Grid Engine (SGE); cluster management tools.
Domain Name Server (DNS)
Host name resolution; domain name hierarchy; DNS zones; configuration of master, slave and caching DNS servers with BIND 9.
Books Recommended:

1. Red Hat Linux 9 – Bell & Duff- Pearson
2. Complete Reference, Red Hat Linux-Richard L. Peterson – TMH
3. Linux N/W Administration Guide by Tery Dawson, Gregor N. Purdy, Tony Bautts – OREILLY
4. Red Hat Linux 9 Bible-Christopher Negus by WILEY publishing
5. Linux Configuration & Installation by Patrick Volker Ding, Kevin Richard, Eric Foster-Johnson BPB publication
6. Linux Programming Bible by John Goerzen-Wiley Dream Tech India (P) Ltd.

Note: 8 questions will be set in all by the examiners taking at least one question from each unit.
Students will be required to attempt five questions in all.

VII Semester B.Tech. (Information Technology)

IT – 453 Broad bands Communication

L	T	Exam	Sessional	Duration
4	1	100	40	3Hrs.

Unit –1 Introduction:
Introduction to optical communication-Fibers and their characteristics. Propagation of Light in optical fibers: modal dispersion, material dispersion and attenuation, numerical. Aperture, figure of merit. Single mode, multimode step index and graded index fibers.

Unit –2 Fiber manufacture. Light sources. Light emitting diodes and their characteristics. Switching speed, spectral and spatial distribution of output, modulation response. Basic of lasers. Semiconductor lasers. Transmitters and receivers. Optical multipliers and dmultiplexers Optical amplifiers and repeaters. Photo detectors.
Introduction to DWDM. ITU channel specification. DWDM Network Topologies

Unit –3 ISDN Overview – A conceptual view of ISDN – ISDN standards – services capability- teleservice protocol architecture – facsimile – Teleflex. Message handling systems.ISDN Interfaces and functions- Transmission structure – user network interface Configuration- ISDN protocol architecture – ISDN connection – terminal adaptation. Addressing networking.

ISDN Physical layer – line coding techniques, basic user network interface – primary rafe. User network interface – U interface.

ISDN Data Link Layer – LAPD, bearer channel link control 1.465/120. Frame mode Bearer service and protocol. ISDN call control, frame relay connection control.
Signaling system number 7: SS& architecture. Signaling data link level, signaling link level. Signaling network level, signaling connection control part **Unit -4**

ATM Networking – ATM as an asynchronous technology, ATM cell and its structure. ATM Networks. ATM position in the OSE reference modal, B ISDN protocol reference. Model, ATMJ functions and layers, ATM signaling principles, ATM performance, merging voice, audio, data and video, ATM signaling principles, ATM operation and maintenance, ATM reference configurations.

ATM protocol stack – the lower layers: Fiber based network. Fiber based network, advantages, and fiber modes. ATM physical layer media AT transmission convergence sub layer. The ATM layer. ATM Switching principle, ATM OAMN functions. signaling. Upper Layers: ATM adaptation layer functions, ATM services.

Books Recommended:

1. ISDN and Broadband ISDN –William Stallings Mc million pub co.
2. Broadband communication-Balaji Kumar-Mc Graw Hill
3. Integrated broadband networks-Handel & Huber Addison Wesley.
4. Introduction to ATM net working-Walter J Goral ski-MC Graw Hill inc.
5. Optical Network –A Practice Perspective, Rajiv Ramaswami, Kumar Sivaranjan-Morgan Kanufuman
6. High Speed Digital Transmission Networking-filberts held john Wiley sons
7. Introduction to DWDM Technology S.V.Kartalopoullous, IEEE Press.

Note: 8 questions will be set in all by the examiners taking at least one question from each unit.
Students will be required to attempt five questions in all.

VII Semester B.Tech. (Information Technology) **IT – 467 Neuro-Fuzzy Computing**

L	T	Exam	Sessional.	Duration
4	1	100	40	3Hrs.

Unit -1

Basic concepts of neurocomputing :

Artificial Neural Networks (ANN) and their biological roots and motivations. ANNs as numerical data/signal/image processing devices. Encoding (training phase) and decoding (active phase). Taxonomy of neural networks: feed forward and recurrent networks with supervised and unsupervised learning laws. Static and dynamic processing systems. Basic data structures: mapping of vector spaces, clusters, principal components.

Basic terminology related to an artificial neuron:

A summing dendrite, synapses and their weights, pre- and post-synaptic signals, activation potential and activation function. Excitatory and inhibitory synapses. The biasing input. Types of activating functions.

Unit -2

The Perceptron

The Perceptron and its learning law. Classification of linearly separable patterns.

Linear Networks

Adaline- - -the adaptive linear element. Linear regression. The Wiener- Hopf equation. The Least –Mean-Square (window-Holf) learning algorithm. Method of steepest descent. Adaline as a linear adaptive filter. A sequential regression algorithm.

Unit -3

Multi-Layer Feed Forward Neural Networks

Aka Multi-Layer Perceptrons. Supervised Learning. Approximation and interpolation of functions. Radial-Basis functions. Back-propagation Learning law. Fast training algorithms. Applications of multilayer perceptions: Image coding, Paint-Quality inspection,Nettalk.

Self-Organizing systems.

Unsupervised Learning. Local learning laws. Generalized Hebbian Algorithm. The Oja's and Sanger's rules. Principal component analysis __ Karhunen-Loeve transform.

Unit –4

Competitive Learning:

MinNet and MaxNet networks. Clustering, Learning Vector Quantisation. Codebooks. Application in data compression.

Self-Organising Feature Maps

Kohonen networks.

Recurrent Networks

Hopfield networks.

Fuzzy Logic Systems

Basic definitions and operations.

Fuzzy relations.
Fuzzy rules
Fuzzy inference
Fuzzification and de- fuzzification
Adaptive Neuro-Fuzzy Inference Systems

Recommended references:

- Simon Haykin, Neural Networks – a Comprehensive Foundation, Prentice Hall, 2nd ed., 1999, ISBN 0-13- 273350-1
- Martin T. Hagan,. H. Demuth, M. Beale, Neural Netywork Design, PWS Publishing, 1996, ISBN 0-534-94332-2
- A. Konar, Computational Intelligence Principles, Techniques and Applications. Springer, 2005, ISBN: 3-540-20898-4
- Neural Networks & Fuzzy Systems by KOSKO-PHI
- Fuzzy Logic to engineering applications- Timothy J.Ross
- Fuzzy Control –Drianlcov
- Fuzzy modeling & Contolby Yagar

Note: 8 questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

VII Semester B.Tech (Information Technology)

IT-469 E-Commerce

L	T	Exam	Sess.	Duration
4	1	100	40	3 hrs

Unit-1

ELECTRONIC COMMERECE ENVIRONMENT AND OPPORTUNITIES

Evolution of E-Commerce- its setbacks and potential. Types of E-Commerce, business models in B2C, B2B and C2C areas. Categories of E-Commerce, Specific Business benefits of E-Commerce.

Background-Electronics commerce environment- electronics market place technologies-modes of electronic commerce-electronic data interchange-migration to open EDI-Electronics commerce with WWW/Internet.

Unit-2

ELECTRONIC COMMERCE PROTOCOLS AND PAYMENT SCHEMES

Secure transport protocols-secure transaction-Secure Electronic Payment Protocol (SEPP)- Secure Electronic Transactions (SET)- Authentication – Security on Web servers and enterprise networks.

Internet Monetary payment and security requirements- Payment and purchase order-On-line electronic cash. and micro payments.

Unit-3

INTERNET /INTRANET SECURITY ISSUES AND SOLUTIONS

Security Need for computer security – threats in the E-Commerce environment.

Intruder approaches – strategies- tools- Encryption- access to Internet- Antivirus program security teams.

Unit- 4

TECHNOLOGIES FOR ELECTRONICS COMMERCE

Master card/Visa secure electronic transaction- E-mail and secure E-mail-MIME-S/MIME-MOSS- Internet and web site establishment- Internet resources- technologies- tools-applications- charges – Access and architecture – searching.

APPLICATIONS

Advertising on the internet-Issues and technology –Electronic publishing issue approaches legalities and technologies.

Books Recommended:

TEXT BOOK:

1. “Web Commerce Technology Handbook” by Daniel Minoli and Emma Minoli, Tata McGraw Hill Publishing Company limited, New Delhi, 1999 – Chapters: 1,2,3,4,5,6,7,8,10,11.

References:

1. Electronics Commerce – Security, Risk management and Control by Greenstein and Feinman, Tata McGraw Hill Publishing Company limited, New Delhi,2000.

2. E-security and You by Sundeep Oberoi, Tata McGraw Hill Publishing Company Limited, New Delhi, 2001.
3. E-Commerce – Business, Technology and Society – Addison Wesley, 2002: Laudon and Traver.
4. “E-Business and E-Commerce – How to Program” Prentice Hall, 2001: Dietal, Dietel and Nieto.
5. “E-Commerce” John Wiley Publ: H. Chan, R.Lee, T. Dillon and E.Chang.
6. Several papers from journals, conference proceedings and the net.

Note: 8 question will be set in all y examiners taking at least one question from each unit student will required to attempt five questions in all

VII Semester B.Tech (Information Technology)

IT-471 Image Processing

L	T	Exam	Sess.	Duration
3	1	100	40	3 hrs

Unit-1

Digital image fundamentals, application of digital image processing, elements of digital image processing systems, vidicon camera, Line scan CCD senso, area sensor, flash A/D converter display – elements of visual perception, structure of the human eye, Luminance, brightness, contrast, mach band effect, image fidelity criteria, color models, - RGB, CMY, HIS mathematical preliminaries of 2D systems, convolution, Fourier transform – ZS transform – toeplitz and circulant matrices, orthogonal and unitary matrices.

Unit- 2

Image transforms, Unitary transform, 2D, DFT, DCT, DST, Discrete wavelet transform, Discrete Hadamard, Walsh, Hostelling transform, SVD transform, Slant Haar transforms. Image Enhancement and Restoration: Constrast stretching, intensity level slicing, Histogram equalization, spatial averaging, directional smoothing, Median filtering, nonlinear filters, maximum, minimum, geometric mean contra harmonic mean, LP mean filters, edge detection, Roberts, Sobel, Isofropic, Kinesh, Campass gradient, Laplacian operators.

Unit- 3

Degradation model- unconstrained and constrained restoration, inverse filtering, removal of blur caused by uniform linear motion, Wiener filtering, geometric transformations for image restoration.

Unit –4

Image compression- Huffman coding, truncated Huffman coding, Br, Binary codes, arithmetic coding, bit plane coding contrast area coding, Run length encoding, transform coding JPEG and MPEG coding schemes.

Image Segmentation, pixel based approach, feature threshold, choice of feature, optimum threshold, threshold selection methods, region based approach, region growing, region splitting, region merging, spilt and merge.

Books Recommended:

1. Gonzalez, R.C. and woods, R.E., :Digital image processing", Addison Wesley.
2. A.K.Jain, " Fundamentals of Digital Processing", PHI.
3. Umbaugh, S.E. Computer vision and image processing, Prentice Hall Int. NJ
4. W. Pratt, Digital Image Processing", Wiley Inter-science

Note: 8 questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

VII Semester B.Tech (Information Technology)

(IT-473)
ARTIFICIAL INTELLIGENCE

L	T	Exam	Sess.	Duration
3	1	100	40	3 Hrs

Unit-1
Introduction –foundation and history of AI, AI problems and techniques.
AI programming languages, Introduction to LISP and PROLOG.
Problem spaces and searches, Blind search strategies, Breadth first – Depth first – Heuristic search techniques Hill Climbing – Best first – A Algorithms AO* algorithm – game tress, Min-max algorithms, game playing – Alpha beta pruning.

Unit –2

Knowledge representation issues predicate logic – logic programming Semantic nets- frames and inheritance, constraint propagation; Representing Knowledge using rules, Rules based deduction systems.
Reasoning under uncertainly, Review of probability bays probabilistic interferences and Dempaster Shafer theory, Heuristic methods, symbolic reasoning under uncertainty Statistical reasoning fuzzy reasoning, temporal reasoning non monotonic reasoning.

Unit – 3

Planning, Planning in situational calculus, Representation for planning, Partial order planning algorithm, learning from examples discovery a learning, Learning by analogy, Explanation based learning neural nets Genetic algorithms.

Unit – 4

Principles of natural languages processing rule based systems architecture, Expert systems, Knowledge acquisition concepts AI application to robotics, current trends in intelligent systems.

Books Recommended:

1. Elain Rich and Kevin Knight, “Artificial Intelligence”, Tata McGraw-Hill, New Delhi.
2. Staurt Russel and other Peter Norvig, “Artificial Intelligence – a Modern Approach”, Prentice Hall.
3. Patrick Henry Winston, “Artificial Intelligence”, Addison Wesley, third Ed.
4. Artificial Intelligence & Expert System By Patterson – PHI.

Note: 8 questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

VII Semester B.Tech (Information Technology)
(IT-455)
COMPILER DESIGN

L	T	Exam	Sess.	Duration
3	1	75	50	3 Hrs

Unit-1

Introduction:

Compilers and translators, the structure of a compiler, different states in the construction of a compiler.

Unit-2

Finite automata and Lexical Analysis- language for specifying lexical analyzers, implementation of lexical analyzers.
Syntax specification of programming language, context free grammars, derivation and implementation of lexical analyzers.
Parsers, shift reduce parsing, operator-precedence parsing, top down parsing, predictive parsers, LR parsers, the canonical collection of LR(O) ITEMS, Costruction SLR parsing tables, construction Tables, implementation of LR parsing tables.

Unit-3

Syntax direct translation schemes: Implementation of syntax directed translation intermediate code, postfix notation, parse trees and syntax trees, three address code, quadruples and triple, translation of assignment statement, Boolean expressions, Control statements.
Symbol table, contents and data structure, and representation scope information.
Run time storage administration, implementation of a simple stack allocation structured languages. Error detection and recovery –lexical, syntactic-phase error, semantic error, detection and recovery.

Unit-4

Code Optimization: The principal sources of optimization, loop optimization, The DAG Representation of basic blocks, value numbers and algebraic claws, global data flow analysis. Object programs, problems in code generation a machine model code generator, register allocation and assignment, code generation from DAG's peephole optimization.

Books Recommenced:

1. Aho, a.v. and A.V. and Ullman J.D., “Principal of Compiler design”, Addison-Wesley.
2. Dhamdhere D M, “Compiler construction – Principal and practice, McMillan, India.
3. “Compiler construction”, Learning materials series, ISTE, New Delhi.
4. Allen Hoiub, “Compiler Design in C”, PHI.

Note: 8 questions will be set in all by the examiners taking at least one question from each unit. Students will be required to attempt five questions in all.

7th Semester B.Tech. (Information Technology)

Linux Lab (IT-457)

L	T	P		
-	-	3	**Sessional:**	**40**
			Exam:	**25**

1. Install Linux on the system dual boot with the windows Operating System.
2. Do the following tasks:-
    a. Create, remove, resize various types of partitions through GUI as well as command line.
    b. Configure printers in Linux through GUI as well as command line.
3. Creating, Removing of Swap space as well as swap files trough command line as well as GUI.
4. Implementation Disk Quotas- enabling, creating, mounting, configuring, assigning, disabling.
5. Managing Users and Groups in Linux- Adding, Modifying, Password aging.
6. Configuration Networks on Linux through GUI & Command Line- Ethernet, Modem, ISDN, Wireless.
7. Configuring NFS (Network File System) on Linux both GUI & Command Line.
8. Configuring Samba server on Linux both GUI & Command line.
9. Configuring D.N.S (Domain Name system) server on Linux both GUI & Command Line.
10. Configure an e-mail server in Linux-send mail.
11. Configuring Firewalls and Managing various services of Linux.
12. Configuring Log Server in Linux.

Note: Students should perform at least 10 experiments from the list.

7th Semester B.Tech. (Information Technology)
Server Side Programming Lab (IT-459)

L	T	P		
-	-	3	**Sessional:**	**40**
			Exam:	**25**

1. Create a Subroutine with arguments passing & call the subroutine for specific no. of time.
2. Write a program in ASP which define an object & then display the properties of object with method.
3. Write a program in ASP to display present day, month & date. Also display digital clock.
4. Write a program in ASP which will check that a specific file, folder & drive exists or not. Also return the extension of file. Then use the read & write properties on a file using text-stream object.
5. Send information to the user after he submit the form using GET & POST method & implement from validation.
6. Write a program in ASP that has a form taking the user's name as input. Store this name in a permanent cookie & whenever the page is opened again, then value of the name field should be attached with the cookie's content.
7. Use ad-rotator to change advertisements on client side request.
8. Create a session dictionary using object tag. In session-on start add keys for time, user agent, remote I.P. & add appropriate values. Create a simple page to display the values.
9. Implement session tracking using user authentication.
10. Write a program to delete all cookies of your web site that has created on the client's computer.
11. Write a program is ASP to check the capabilities of the browser using browser capability component.
12. Using data base to store & retrieves values input by a user showing them & make updating & add new records to existing database.
13. Create two ASP pages, a form creation web page (selectprice.asp) and a form processing script (liststockbyprice.asp). In selectprice.asp, the user should be shown a form in which he can enter the item & desired maximum price. When it is submitted liststockbyprice.asp will return all the stocks from database whose cost are less than the price entered by user.

Note: Students should perform at least 10 experiments from the list.

7th Semester B.Tech. (Information Technology)

BBC Lab (IT-461)

L	T	P		
-	-	3	**Sessional:**	**40**
			Exam:	**25**

1. Setting Up Fiber Optic Analog Link & Fiber Optic Digital Link.
2. Propagation loss in Optical Fiber.
3. Measurement of Numerical Aperture.
4. Characteristics of E-O converter (LED.
5. Characteristics of F.O. communication Link.
6. Setting of Fiber Optic Voice Link using AM-FM & PWM.
7. Full Duplex Computer Communication using RS232 ports and software.
8. Set up hardware for ISDN and Study of ISDN Instruments 1. ISDN Telephone 2. Terminal Adaptor (For the interface of Analog Telephone and PC)
9. Software setup and programming of the ISDN equipment.
10. Establishing voice communication between ISDN phone & analog phone via Terminal Adaptor.
11. Study the basic Principle of Radio Frequency identification & Designing of RFID system.
12. Design & develop the program based on application of RFID.
13. To study Theoretical & Practical hardware Training on Bluetooth.

Note: Students should perform at least 10 experiments from the list.

SCHEME OF EXEMINATION FOR B.TECH DEGREE COURSE
8th Semester Examination
(Information Technology)
(w.e.f.2006-2007)

Course No	Subject	Teaching schedule				Examination Schedule			Total Duration	
		L	T	P	Total	Theory	Sessional	practical	Marks	Exam (Hrs)
IT-452	Information Technology Applications	4	1	0	5	100	25	0	125	3
IT-454	Mobile Communication	4	1	0	5	100	25	0	125	3
IT-456	Advance Computer Network & Applications	4	1	0	5	100	25	0	125	3
	Elective-iii	4	1	0	5	75	25	0	100	3
	Elective-iv	4	1	0	5	75	25	0	100	3
IT-458	Major Project Lab	0	0	6	6	0	75	50	125	3
IT-460	Mobile Communication Lab	0	0	2	2	0	50	50	100	3
IT-462	Seminar	2	0	0	2	0	50	0	50	
IT-464	Comprehensive Viva	0	0	0	0	0	75	0	75	
IT-466	General Fitness & Professional Aptitude	0	0	0	0	0	0	75	75	
		22	5	8	35	450	375	175	1000	21

Elective-III
IT-468 Cryptography and Security System
IT-470 Distributed computing

Elective-IV
IT-472 Data wore housing and data mining
IT-474 Embedded System

VIII SEMESTER B. TECH. (Information Technology)
(IT-452) Information Technology Applications

L	T	Exam	Sess	Duration
4	1	100	25	3Hrs.

Unit-1

History of IT, Basic Information Technology Concepts. Human-Computer Interface, Social Implication of IT, privacy and Security

Unit-2

Integrated management information, Seamless Integration, Supply Chain management, Integrated Data Model, Benefits of ERP.

Business Engineering and ERP, Definition of Engineering, Principles of Business Engineering, Business Engineering with Information Technology, Building the Business Model

ERP Implementation- An overview, Role of Consultant, Vendors and Users, Customization, Precautions, ERP post Implementation options, ERP Implementation Technology, Guidelines for ERP Implementation.

ERP Domain MPG /PRO, IFS / Avalon-Industrial and Financial System, BAN-IV, SAP Marketing of ERP- Market Dynamics and Dynamic strategy.

Unit-3

SAP, SAP past present and future, The integrated R/3 repository, Enterprise and modeling with R/3, Object of R/3 data dictionary, Customizing R/3 : Concepts and techniques

Unit-4

Multi Client Server Solution – Open Technology- User Interface- Applications Integration

Basic architectural Concepts, The System Control Interface, Services-Presentation Interface-Database Interface

Books Recommended:

1. Jost Antonio Fernandz - The SAP R/3 Hand Book TMH New Delhi
2. V.K. Garg and N. K. Venkita Krishna, Enterprise Resource planning Concepts and Practice

Note: These will be 8 questions in all. Two questions will be set from each unit. Students are required to attempt five questions selecting at least one question from each unit.

VIII SEMSTER B. Tech. (Information Technology)
(IT-454) MOBILE COMMUNICATION

L	T	Exam	Sess:	Duration
4	1	100	25	3Hrs.

Unit-1

Introduction:
Introduction cell mobile system, tuning efficiency, mobile radio environment, frequency reuse, co channel interface reduction, and handoff mechanism cell cite and mobile antennas, noncochannel interface. Frequency spectrum utility and management channel management, type of handoff and dropped call rat, cell splitting.

Analog and digital modulation techniques, performance of various modulations, spectra efficiency, and error rate, GMSK, GFSK, DQPSK modulation technique in wireless system comparison of various modulation techniques.

Unit-2

Point to point model propagation over terrains, Losses, Power requirements, Smart Antennas, antennas at cite, gain and pattern relationship mobile antennas, tilting effect, parasitic elements usage, diversity techniques.

Unit-3

Digital technology, digital speech, digital mobile telephony, GSM, Multiples access techniques, north TDMA, American TDMA (ISI36), Japauer cellular TDMA (DDC), CDMA, ISFS North American CDMA standards, PCS, PHS, Advanced system, GPRS, UMTS, IMT, WAP.

Unit-4

Satellite system architecture, satellite orbit and constellations, LEO and MEO system, GPS Information, Iridium, MSAT, VSAT, DBS, Orbcomm satellite service, use of mobile communication networks, concepts, advanced mobile communication system using satellite,

Book Recommended

1. Rapp apart T.S, “Wireless communication”, Prentice Hall, NJ.
2. GSM, CDMA & 3G System-steel Lee and Gluis, JW.
3. K.FEHER-Wireless Digital engineering
4. Mobile Satellite communication Engineering-Richards Addison Wesley.
5. Lee, WCY, “Mobile Communication Engineering”, TMIH, New Delhi.

Note: Examiner will set 8 questions in all, at least two questions from each unit. Students are required to attempt five questions selecting at least one question from each unit.

VIII SEMESTER B. Tech. (Information Technology)
(IT-456) Advance Computer Network & Applications

L	T	Exam	Sess.	Duration
4	1	100	25	3Hrs

UNIT – 1

Introduction: Overview of computer networks, seven-layer architecture, TCP/IP suite of protocols, etc.

MAC protocols for high-speed LANS, MANs, and wireless LANs. (For example, FDDI, DQDB, HIPPI, Gigabit Ethernet, Wireless Ethernet, ect.)

UNIT-2

Fast access technologies (For example, ADSL, Cable Modem, etc.)

IPv6: Why IPv6, basic protocol, extensions and options, support for QoS, security, etc., neighbor discovery, auto-configuration, routing. Changes to other protocols. Applications Programming Interface for IPv6. 6 bone.

UNIT-3

Mobility in networks Mobile IP. Security related issues.

IP Multicasting. Multicast protocols, address assignments, session discovery, etc. TCP extensions for high-speed networks, transaction-oriented applications. Other new options in TCP.

Network security at various layers. Secure-HTTP, SSL, ESP, Authentication header, Key, distribution protocols. Digital signatures, digital certificates.

UNIT-4

The Wireless Applications Protocols, applications environment, wireless application protocol client software, wireless application protocol gateways, implementing enterprise wireless application protocol strategy and Security Issues in Wireless LAN. Wireless network management, GPRS, and VOIP services.

Network Management: Introduction, LAN, SNMP, and CMIP. Issues in the management of large networks. Multicast: IGMP, PIM, DVMRP

Books and References:

1. W.R. Stevens. TCP/IP Illustrated, Volume 1: The protocols, Addison Wesley, 1994.
2. G.R. Wright. TCP/IP Illustrated, Volume 2: The Implementation, Addison Wesley, 1995.
3. W.R. Stevens. TCP/IP Illustrated, Volume 3: TCP for Transactions, HTTP, NNTP, and the Unix Domain Protocols, Addison Wesley, 1996.
4. R. Handel, M.N. Huber, and S. Schroeder. ATM Networks. Concepts, protocols, Applications, Addison Wesley, 1998.
5. William Stalling, Wireless Communications and Networks. Prentice Hall 2002

6. Yi-Bring Lin, Imrich Chlamtac, Wireless and Mobile Network Architecture, John Wiley-2001.
7. M.R. Karim, Mohsen Sarrf, W-CHMA and cdma 2000 for 3G Mobile Networks, McGraw-Hill Professional, 2002.
8. W. Stallings. Cryptography and Network Security: Principles and practice, 2nd Edition, Prentic Hall, 1998.
9. C.E. Perkins, B. Woolf, and S.R. Alpert. Mobile IP: Design Principles and Practices, Addison Wesley, 1997.
10. Peter Loshin. IPv6 Clearly Explained, Morgan Kauffman, 1999.
11. M. Gonsalves and K. Niles. IPv6 Networks, McGraw Hill, 1998.
12. RFCs and Internet Drafts, available from Internet Engineering Task Force. Articles in various journals and conference proceedings.

Note: Examiner will set 8 questions in all, at least two questions from each unit. Students are required to attempt five questions selecting at least one question from each unit.

VIII SEMESTER B. Tech. (Information Technology)
(IT-468) Cryptography and Security System

L	T	Exam	Sess	Duration
4	1	75	25	3Hrs.

UNIT-1

Introduction, Essentials of crypto, essentials of network mg and the internet, setting realistic security objectives, appropriate communication security, legal restrictions encryption basic building blocks, how crypto system fail, choosing between strong and weak crypto.
Security objectives, example in line encryptor, deployment example, point-to-point encryption, IP routed configuration, key recovery and escrowed encryption,
Basic issues in secret key management, random key generation, automatic rekeying, and manual key distribution centers, maintaining keys and system security.

Unit-2

Security at IP Layer and VPN: Basic issues with using IPSEC. Cryptographic checksums, Ip security protocol, IPSEC key management, other TCP/IP network security protocols, virtual private networks (VAN), basic issues IPSEC proxy cryptography, IPSEC encrypting roater, and site-to-site encryption. IPSEC and Public key crypto, basic issues with IPSEC clients.

Unit-3

IPSEC client to server site remote access, Internet firewalls, IPSEC firewall, a VAN with a firewall, public key cryptography, secret key exchange with RSA crypto, Secure socket layer (SSL)
Internet security and public key certificates: Basic issues in internet transaction security, transaction world wise Web, security alternatives for web form, web browser with SSI,

Unit-4

Web server with server with SSL, vending with exportable encryption, basic issue with e-mail security, technology- offline message keying digital signatures, secure E-mail client distribution public keys, Public key certificates, certificates distribution centralized distribution, centralized certification authority hierarchical certification authority.

Book Recommended:

1. Richard E-Smith, "Internet Cryptography", Addision Wesley, 2nd Ed.
2. Cryptography and network security – Principles and Practice by William Stallings- Pearson education

Revise: Examiner will set 8 questions in all, at least two questions from each unit. Students are required to attempt five questions selecting at least one question from each unit.

VIII SEMESTER B. Tech. (Information Technology)
(IT-470) Data Warehousing and Data Mining

L	T	Exam	Sess	Duration
4	1	75	25	3Hrs

UNIT-1

Introduction of Data Warehousing: The evolution of Data Warehousing (The Historical Context). The data warehousing – a brief history, today's development environment.

Principles of Data Warehousing (Architecture and Design Techniques): Types of data and their uses, conceptual data architecture, design techniques, introduction to the logical architecture.

Creating the Data Asset: Business Data Warehouse Design, Populating the Data Warehouse.

UNIT-2

Unlocking the Data Asset for end users (The use of Business Information) : Designing business information warehouse, populating business information warehouse, user access to information, information data in context.

Implementing the Warehouse (Managing the project and environment) : Obstacles to implementation, planning your implementation, justifying the warehouse, organizational implications of data Warehousing, the data warehouse in your organization, data warehouse management, looking to the future.

UNIT-3

Introduction of Data Mining: Motivation, importance, data mining, kind of data, functionalities, interesting patterns, classification of data mining system, major issues.

Data warehouse and OLAP technology for data mining : data warehouse, operational database systems and data warehouse architecture, implementation, development of data cube technology, data warehousing to data mining, data warehouse usage.

UNIT-4

Data Preparation: Preprocess, data cleaning, data integration and transformation, data reduction, discrimination and concept hierarchy generation.
Data Mining Primitives, languages and system architectures, graphical user interfaces.

Concept Description: Characterization and comparison data generalization and summarization based characterization, analytical characterization, and analysis of attribute relevance, mining class comparison, and mining descriptive statistical measures in large databases.
Mining association rules in large databases, mining single dimensional Boolean association rules from transactional databases, mining multi-dimensional association rules from relational databases and data warehouses, from association to correlation analysis, constraint based association.

Books and Reference:

1. J. Han & M. Kanber, Data Mining: Concepts and Techniques, Morgan Kaufmann/ Elsevier, India, 2001

2. D. Hand, H. Mannila, & P. Smyth. Principles of Data Mining, MIT Press, 2001.

3. Recent literature from ACM SIGMOD, VLDB, IEEE Trans. Knowledge & Data Engg, Data Mining & Knowledge Discovery, ACM SIGKDD, IEEE ICDM, SIAM, Data Mining, ICML.

4. M. Jarke et al. fundamentals of Data Warehouses (2^{nd} ed.), Springer, 2003, ISBN 3-540-42089-4.

5. C. Seidman, Data Mining with Microsoft SQL Server 2000 Technical Reference Microsoft Press, ISBN 0-7356-1271-4.

Note: Examiner will set 8 questions in all, at least two questions from each unit. Students are required to attempt five questions selecting at least one question from each unit.

VIII SEMESTER B. Tech (Information Technology)

(IT-472) Distributed Computing

L	T	Exam	Sess	Duration
4	1	75	25	3 Hrs

UNIT-I

Distributed systems- architecture. Key characteristics – resource sharing openness – concurrency –scalability- fault tolerance – transparency. Design issues –naming – communication- software structure – workload allocation – consistency maintenance. User requirement- functionality- quality of service- reconfigurability. Review of network protocols. Intercross communication- building blocks- client server communication group communication. Intercross communication in UNIX. Remote Procedure calling. Design issues- interface definition language exception handling. Implementation – interface processing- communication handling. Binding. Case study- sun RPC- Java RMI.

UNIT-II

Distributed Operating systems-kernel –processes and threads- Naming and protection- Communication and Invocation – virtual memory. Distributed file service – design issues – interfaces- implementation techniques. Case study sun NFS. Name service SNS and DNS. Time and co-ordination. Synchronizing physical clocks- logical time and logical clocks. Distributed co-ordination- distributed mutual exclusion – elections. Replication – basic architectural model- consistency and request ordering.

UNIT-III

Shared data and transactions – client server- fault tolerance and recovery- transactions-nested transactions. Concurrency control- locks- optimistic concurrency control- timestamp ordering. Distributed transactions- atomic commits protocols- concurrency control distributed deadlocks- transactions with replicated data.

UNIT-IV

Recovery and fault tolerances. Transaction recovery- logging- shadow versions- fault model for transactions. Fault tolerance- characteristics. Hierarchical and group masking of faults. Security – authentication and key distribution- logic of authentication – digital signatures.

Text Books and References:

1. C.A.R. Hoara, "Communicating Sequential Processes", Prentice Hall, 1980
2. Dimitri P. Bertsekas, John N. Tsitiklis, "Parallel and Distributed Computation : Numerical Methods", Prentice Hall International, Inc, 1989
3. Douglas Comer and David L. Stevens, "Internetworking with TCP/IP Vol III: Client server programming and Applications", Prentice Hall, New York, 1990
4. George Coulouris, et. Al "Distributed System – Concepts and Design", Second ed, Addison Wesley, 2000
5. George Tel, "Introduction to Distributed Algorithms", Cambridge University Press, 1994 6)
6. H.S.M. Sedan, "Distributed Computer system", Butterworths, London, 1988
7. Joel M. Crichlow, "Introduction to Distributed and Parallel Computing", Prentice Hall, New York, 1988 6. M. Sasikumar, et. Al. "introduction to Parallel Processing", PHI, New
8. Distributed Systems Concepts and Design, George colulouris, Jean Dolli more, Time Kindberg, Pearson Education Asia, Third Edition 2001.
9. Principles of Distributed Database System, M Tamer Ozsu, Patrick Valduriez, Second Edition, PHI, 1999.
10. Distributed operating system, "P.K. Sinha", PHI
11. Advance operating system, "Mukesh Singhal", TMH
12. Advance database system, "Raghu Rama Krishan"

Note: Examiner will set 8 questions in all, at least two questions from each unit. Students are required to attempt five questions selecting at least one question from each unit.

VIII SEMESTER B. Tech. (Information Technology)

(IT-474) Embedded system

L	T	Exam	Sess	Duration
4	1	75	25	3Hrs

UNIT-I

CPU Architecture and programming: Embedded System Revolution, ARM

Controller, architecture, addressing mode, Instruction Set, Special features – Analog

DSP controllers Texas

UNIT-II

Embedded software: Examples of embedded system, their characteristic and their typical hardware components, embedded software architectures, round robin, round robin with interrupts,

Function queue scheduling and real time operating system, selection. Real time operating system:
Tasks and task states, tasks and date shard data and reentrancy, semaphores and shared data use of semaphores, protecting shard data.

UNIT-III

Features of Real Time Operating System: Messages, queues, mailboxes and paper, time function, events, memory management, interrupt basic system design using an RT (OS design principles, interrupt routines, task structures and priority.)

UNIT-IV

Examples of and embedded system design: Problem specification, resolving timing problem, use of an RTOS, work division into tasks dealing with shared data, encapsulating semaphores and queues, saving space and power.

Text Books and References:

1. AN Embedded Software Primer, David E. Simon Pearson Education Asia Publication
2. Frank vahid and Tonoi Givargis- Embedded system Design
3. Wayne Wolf Computers as Components Principles of Embedded Computing system Design
4. John B peatman Embedded Design pict 18f452

VIII SEMESTER B. Tech. (Information Technology)

(IT-460) Mobile Communication Lab

L	T	P	
-	-	2	

Sessional: 50
Exam: 50

1. Observe the Modulation and demodulation using internal generation of 2047 bit PN sequence as modulator input and Bit error rate measurement with PRBS-11 data (2047 bits).
2. Study of home networking using combination of CDMA, BLUETOOTH, infrared Ethernet & various sensors like fire, gas air conditioning. Use at least five sensors
3. Understanding RF environment & study of GSM network by actually connecting to the GSM environment by any services provide SIM like airtel, idea, RPG ect.
4. Real time study of various GSM commands like Network registration, call control, call setting, call information, phone book commands & commands related to network information about number of cells and there strength etc.
5. To understanding the concept of GPS and establishing link between GPS Satellite & GPS Trainer.
6. To establish audio & video combined link & data communication between transmitters, receiver satellite transponder simulated in a lab.
7. To study and observe the difference in uplink & downlink frequency.
8. To establish PC-to-PC communication using satellite communication link.
9. To calculate antenna gain and antenna beam width.
10. Study and observe the Wave Modulation and Demodulation
11. To plot the radiation pattern of micro strip antennas.
12. Study and observe the antenna matching and antenna radiation with distance.

Note: Students should perform at least 10 experiments from the list