B.TECH DEGREE COURSE IN

INFORMATION TECHNOLOGY

(2012 Admissions)

CURRICULUM

SEMESTER I&II   **(Common to all branches)**

Code No.	Subject	L Hrs/wk	T Hrs/wk	P Hrs/wk	C	Int	Univ	Total
1101	Engineering Mathematics –I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	-	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	-	-	3	4	100	-	100
11 L2	Computer Programming Laboratory	-	-	2	2	100	-	100
11 L3	Language Laboratory	-	-	1	1	100	-	100
TOTAL		**19**	**2**	**9**	**44**			

* 1 hour / week each for Environmental Studies and Technical Communication

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SEMESTER III

Code No.	Subject	L Hrs/ Wk	T Hrs/ Wk	P Hrs/ Wk	C	Int.	Univ.	Total
CE/CS/EB/EC/EE / EI/FT/IT/ME/SE /1301	Engineering Mathematics –II	3	1	0	3	50	100	150
IT/ME 1302	Electrical Technology	3	1	0	3	50	100	150
CS/IT 1303	Discrete Computational Structures	3	1	0	3	50	100	150
CS/IT 1304	Object Oriented Programming	3	1	0	3	50	100	150
IT 1305	Computer Organization	3	1	0	3	50	100	150
IT 1306	Logic Design and Electronic Circuits	3	1	0	3	50	100	150
IT 13 L1	Electronic Circuits Lab	0	0	3	2	100	-	100
CS/IT 13 L2	Object Oriented Programming Lab	0	0	3	2	100	-	100
	TOTAL	**18**	**6**	**6**	**22**			

SEMESTER IV

Code No.	Subject	L Hrs/ Wk	T Hrs/ Wk	P Hrs/ Wk	C	Int.	Univ.	Total
CE/CS/EB/EC/EE / EI/FT/IT/ME/SE 1401	Engineering Mathematics –III	3	1	0	3	50	100	150
IT 1402	Microprocessor Architecture & System Design.	3	1	0	3	50	100	150
IT 1403	System Programming	3	1	0	3	50	100	150
IT 1404	Database Management Systems	3	1	0	3	50	100	150
CS/IT 1405	Data Structures and Algorithms	3	1	0	3	50	100	150
IT 1406	Data &Computer Networking	3	1	0	3	50	100	150
IT 14 L1	PC Hardware and Microprocessor Lab	0	0	3	2	100	-	100
CS/IT 14 L2	Data structures Lab	0	0	3	2	100	-	100
	TOTAL	**18**	**6**	**6**	**22**			

SEMESTER V

Code No.	Subject	L Hrs/ Wk	T Hrs/ Wk	P Hrs/ Wk	C	Int.	Univ.	Total
CE/CS/EB/EC/EE/ EI/FT/IT/ME/ SE 1501	Engineering Mathematics –IV	3	1	0	3	50	100	150
IT 1502	Operating Systems	3	1	0	3	50	100	150
CS/IT 1503	Software Engineering	3	1	0	3	50	100	150
IT 1504	Design and Analysis of algorithms	3	1	0	3	50	100	150
IT 1505	Object Oriented Modelling and Design	3	1	0	3	50	100	150
IT 1506	Internet Programming	3	1	0	3	50	100	150
IT 15 L1	Mini project-RDBMS Based	0	0	3	2	100	-	100
IT 15 L2	Operating Systems lab	0	0	3	2	100	-	100
	TOTAL	**18**	**6**	**6**	**22**			

SEMESTER VI

Code No.	Subject	L Hrs/ Wk	T Hrs/ Wk	P Hrs/ Wk	C	Int.	Univ.	Total
IT 1601	Financial Management & E-Banking	3	1	0	3	50	100	150
CS/IT 1602	Compiler Construction	3	1	0	3	50	100	150
IT 1603	Knowledge Engineering	3	1	0	3	50	100	150
IT 1604	Formal Languages and Automata Theory	3	1	0	3	50	100	150
IT 1605	Computer Graphics and Animation	3	1	0	3	50	100	150
IT 1606	Elective 1	3	1	0	3	50	100	150
IT 16 L1	Computer Graphics Lab	0	0	3	2	100	-	100
IT 16 L2	Mini Project – Internet based	0	0	3	2	100	-	100
	TOTAL	**18**	**6**	**6**	**22**			

IT 1606 ELECTIVE I

E1:Bioinformatics

E2:Parallel Computer Architecture & Programming

E3:Data Mining and Warehousing

E4:CS/IT 1606 D: Embedded Systems.

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SEMESTER VII

Code No.	Subject	L Hrs/ Wk	T Hrs/ Wk	P Hrs/ Wk	C	Int.	Univ.	Total
CS/EI/EB/EC/EE/IT 1701	Industrial Organization & Management	3	1	0	3	50	100	100
IT 1702	Operations Research	3	1	0	3	50	100	100
IT 1703	Internetworking	3	1	0	3	50	100	100
IT 1704	Mobile Computing	3	1	0	3	50	100	100
IT 1705	Elective II	3	1	0	3	50	100	100
IT 17 L1	Computer Network Lab	0	0	3	2	100	-	100
IT 17 L2	Mini project –Multimedia based	0	0	3	2	100	-	100
IT 17 L3	Project Design	0	0	2	1	50	-	50
IT 17 L4	Seminar	0	0	2	2	50	-	100
	TOTAL	**15**	**5**	**10**	**22**			

IT 1705 ELECTIVE II

E1:Digital Image Processing

E2:Cryptography and Data Security

E3:Human Computer Interaction

E4:Neural Networks

SEMESTER VIII

Code No.	Subject	L Hrs/ Wk	T Hrs/ Wk	P Hrs/ Wk	C	Int.	Univ.	Total
IT 1801	Electronic Business and Services	3	1	0	3	40	60	100
IT 1802	Real Time Systems	3	1	0	3	40	60	100
CS/IT 1803	Distributed Computing	3	1	0	3	40	60	100
IT 1804	Elective III	3	1	0	3	40	60	100
IT 18L1	Project	0	0	14	8	300	0	300
IT 18L2	Viva-voce	0	0	0	2	0	100	100
	TOTAL	**12**	**4**	**14**	**22**			

IT 1803 ELECTIVE III:
E1:Cloud Computing

E2:Software Project Management

E3:Software Testing Methods & Tools

E4:Cyber Laws & Intellectual Property Rights

<center># 1101 ENGINEERING MATHEMATICS I</center>

Module I
Ordinary differential equations:

First order differential equations - exact differential equations, Bernoulli's equations--Methods of solution and Simple applications.

Linear differential equations of higher orders with constant co-efficients-Methods of solution of these equations. Cauchy's linear differential equations. Simultaneous linear differential equations-Simple applications of linear differential equations in engineering problems –Electrical Circuits, Mechanical Systems.

Module II
Infinite series : Integral test, comparison test, ratio test, Cauchy's root test, Raabe's test, seies of positive and negative terms, concept of absolute convergence, alternating series, Leibniz test(No proofs for any of the above tests)

Power series : Taylor and Maclaurin series of functions, Leibniz formula for the nth derivative of the product of two functions (No proof),use of Leibniz formula for the determination of co-efficients of the power series.

Module III
Partial differentiation: Partial differentiation-Concept of partial derivative   - Chain rule- Total derivative- Euler's theorem for homogeneous functions, Differentials and their applications in errors and approximations, Jacobians - Maxima minima of functions of two variables(Proof of the result not required)-Simple applications.

Co-ordinate systems: Rectangular co-ordinates-Polar co-ordinates-In plane and in Space-Cylindrical polar co-ordinates-Spherical polar co-ordinates.

Module IV
Integral calculus:
Application of definite integrals: Area, Volume, Arc length, Surface area.
Multiple integrals : Evaluation of double integrals-Change of order of integration. Evaluation of triple integrals-Change of Variables in integrals.
Applications of multiple integrals. Plane Area, Surface area &Volumes of solids

References:

1. S.S.Sastry, Engineering Mathematics -Vol1, PHI publishers
2. Erwin Kreyzig, Advanced Engineering Mathematics, Wiley Eastern
3. T.Veerarajan, Engineering Mathematics, TMGH Publishers
4. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers

Type of Questions for University Exam.
Q 1:Eight short answer questions of 5 marks with two questions from each of the four modules. (8x5 = 40 marks)
Q 2 to Q.5 : Two questions A & B of 15 marks from each modules with option to answer either A or B. (4x15 = 60 marks)

1102 ENGINEERING PHYSICS

Module 1

Laser-introduction--spontaneous and stimulated emission-principle of laser- properties of laser-Einstein coefficients and the analysis of lasing conditions-   Basic components of a laser-Different types of lasers- construction, working and applications of Ruby laser-Neodymium YAG laser- He-Ne laser- semiconductor laser-Applications of laser in medicine, industry, science and communication.

Holography-basic principle-Comparison with ordinary photography-Recording and reconstruction of holograms-applications.

Fibre optics - Basic structure of an optical fibre - step-index fibre and graded index fibre-propagation of light in an optical fibre-acceptance angle and acceptance cone- Numerical aperture of a step-index fibre-Numerical aperture of a graded index fibre-modes of propagation-step index monomode fibre-Multimode stepindex fibre- Graded multimode fibre-Attenuation in optic fibres-fibre losses-material loss, scattering loss, absorption loss, leaky modes- dispersion in optical fibres-Applications.

Module II

Crystallography – Space lattice- Basis- Unit cell- Unit cell parameters- Crystal systems- Bravais lattices-Three cubic lattices-sc, bcc, and fcc- Number of atoms per unit cell- Co-ordination number-Atomic radius-Packing factor- Relation between density and crystal lattice constants- Lattice planes and Miller indices-Separation between lattice planes in sc- Bragg's law- Bragg's x-ray spectrometer- Crystal structure analysis.

Liquid crystals- Liquid crystals, display systems-merits and demerits- Metallic glasses- Types of metallic glasses (Metal-metalloid glasses, Metal-metal glasses) – Properties of metallic glasses (Structural, electrical,magnetic and chemical properties).

Shape memory alloys- Shape memory effect, pseudo elasticity

Module III

Introduction to nanoscale science and technology- nanostructures-nanoring, nanorod, nanoparticle,

nanoshells- Properties of nanoparticles- optical, electrical, magnetic, mechanical properties and quantum

confinement- Classification of nanomaterials- C60, metallic nanocomposites and polymer nanocomposites-Applications of nanotechnology.

Superconductivity-Introduction--transition temperature-Meissner effect-properties of super conductors.Types of superconductors-type 1 and type 2- AC Josephsons effect- DC Jospehsons effect- Flux quantisation-Squid-High temperature superconductors-Applications of super conductivity.

Special Theory of Relativity - Michelson-Morley experiment. Einstein's postulates. Lorentz transformation equations (no derivation). Simultaneity. Length contraction. Time dilation. Velocity addition. Relativistic mass. Mass energy relation. Mass less particle.

Module IV

Quantum mechanics-Introduction-origin of quantum theory-black body radiation and photo electric effect (brief ideas only)-matter waves- wave packet-uncertainty principle-(two forms)Time dependent Shrodinger equation for a free particle-Particle in force field and time dependent Schrodinger equation-Time independent schrodinger equation-Physical intrepretation of wave function-application -Particle in a Box (one dimensional) –Energy eigen values and wave functions

Ultrasonics-piezo electric effect-Magnetostriction effect-production of ultrasonics-properties of ultrasonics- ultrasonic diffractometer and determination of velocity of ultrasonics in a liquid-Application of ultrasonics in non destructive testing - Accoustics of building-reverberation-Absorption Coefficient- Sabines formula for reverberation time(Derivation)-Accoustic intensity-loudness-decibel-phon-conditions for good acoustics(Qualitative study).

References:

1. S. Mani Naidu, A Text book of Engineering Physics, Pearson, 2010
2. M.C. Santosh Kumar, Engineering Physics, Nalpat Publishers.
3. B. Premlet, Advanced Engineering Physics, Phasor Books, Kollam.
4. A.S. Vasudeva, Modern Engineering Physics, S. Chand & Co.
5. Prabir K. Vasu andHrishikesh Dhasmana, Engineering Physics, Ane books Pvt. Ltd.,2010.
6. S.O. Pillai & Sivakami, Applied Physics, New Age International (P) Ltd., Second Edition 2008.
7. G.S. Raghuvanshi, Engineering Physics, Prentice Hall of India.

Type of Questions for University Exam.

Q 1:Eight short answer questions of 5 marks with two questions from each of the four modules. (8x5 = 40 marks)

Q 2 to Q.5 : Two questions A & B of 15 marks from each modules with option to answer either A or B. (4x15 = 60 marks)

1103 ENGINEERING CHEMISTRY

Module I

Solid state chemistry: Fundamentals, Bonding in solids, Born-Haber cycle, Point defects, Methods to improve reactivity of solids, Free electron theory, Band theory, Fermi level in semiconductors, Molecular field theory of magnetic materials.

Spectroscopy: Molecular energy levels-Types of molecular spectra- Electronic spectra (Classification of electronic transitions- Beer Lamberts law, Vibrational spectra (mechanism of interaction and application), Rotational spectra (Determination of bond length and application). NMR spectra (Basic principle, chemical shift, spin-spin splitting)

Solid surface characterisation: Electron spectroscopy for chemical analysis, Chemical shift, BET isotherm, Thermodynamics of adsorption.

Module II

Electrochemistry: Fundamentals, Electrode potential, Nernst's equation, Types of electrodes, Salt bridge, E.M.F measurement. Concentration cells, Calculation of E.M.F of a concentration cell. Acids and bases, Arrhenius concept, Bronsted-Lowry concept of acids and bases, Lewis concept, Buffer solutions, pH measurement, Polarisation, Overvoltage.

Power generation: Secondary cells, Fuel cells, Photovoltaic effect, Solar cells.

Corrosion and its control: Theories of corrosion - Galvanic series- Types of corrosion - Factors affecting corrosion and different methods of corrosion control.

Chemical Kinetics: reaction rate, rate constant, rate law, reaction order, first order, second order, pseudo-first order reactions, integrated rate laws, half-life of a reaction and its relation to rate constant. Molecularity, simple unimolecular and bimolecular reactions. Arrhenius equation.

Module III

Chemical Thermodynamics: Fundamentals, Molecular interpretation of internal energy, enthalpy and entropy, Heat of reaction, Kirchhof's equation, Trouton's rule, Entropy changes accompanying different processes, Nernst heat theorem, Third-law.

Free energy: Dependence on pressure and temperature, Gibbs-Helmholtz equation, Free energy changes and equilibrium constant, chemical potential, Fugacity, Thermodynamics of biochemical reactions.

Phase Rule: Terms involved in phase rule and examples, Application of phase rule to one component water system, Application of phase rule to two-component systems.

Module IV

Engineering materials:

Polymers- Classifications- Mechanism of polymerisation (Addition, free radical, cationic, anionic and coordination polymerisation)- Thermoplastics and thermosetting plastics-Compounding of plastics-Moulding techniques of plastics (Compression, Injection, Transfer and Extrusion moulding)-Preparation, properties and uses of PVC, PVA, Nylon, PET - Silicon polymers-Biodegradable plastics. Elastomers- structure of natural rubber- vulcanisation- synthetic rubbers (Buna-S, Butyl rubber and Neoprene).

Lubricants- Introduction-Mechanism of lubrication- solid and liquid lubricant- Properties of lubricants-Viscosity index- flash and fire point- cloud and pour point- aniline value.

Refractories: Classification – Properties of refractories.

Cement- Manufacture of Portland cement- Theory of setting and hardening of cement.

References:

1. Peter Atkins, Julio de Paula, Elements of Physical Chemistry, Oxford University Press, 2005.
2. John E. McMurry and Robert C. Fay, Chemistry, 5th Edition, Pearson, 2008.
3. O. G Palanna, Engineering Chemistry, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 2009.
4. R.N. Goyal, Harmendra Goel, Textbook of Engineering Chemistry, 2nd Edition, Ane Books Pvt. Ltd., 2011.
5. R Gopalan, D Venkappayya, Sulochana Nagarajan, Textbook of Engineering Chemistry, 2nd Edition, Vikas Publishing House Pvt. Ltd., New Delhi, 2005.
6. Shashi Chawla, A Text Book of Engineering Chemistry, Dhanpat Rai & Co, New Delhi, 2003.
7. Kochubaby Manjooran, Modern Engineering Chemistry, Kannantheri Publication, Kochi.

Type of Questions for University Exam.

Q 1:Eight short answer questions of 5 marks with two questions from each of the four modules. (8x5 = 40 marks)

Q 2 to Q.5 : Two questions A & B of 15 marks from each modules with option to answer either A or B. (4x15 = 60 marks)

1104 ENGINEERING MECHANICS

A) STATICS

Module I
Concurrent forces in a plane: Principles of statics. Composition and resolution of forces. Equilibrium of concurrent forces in a plane. Method of projection. Method of moments. Friction.
Parallel forces in a plane: Two parallel forces. General case of parallel forces in a plane. Centre of parallel forces and centre of gravity, Pappus theorems, centroids of composite plane figures and curves. Distributed forces in a plane.
Module II
Properties of areas: . Moment of inertia of a plane figure with respect to an axis in its plane. Polar moment of inertia. Product of inertia. Principal axes. Mass moment of inertia of material bodies.
General case of forces in a plane: Composition of forces in a plane. Equilibrium of forces in a plane. Plane trusses **-** Method of joints. Method of sections. Plane frames : Method of members.
Principle of virtual work: Equilibrium of ideal systems, stable and unstable equilibrium.

B) DYNAMICS

Module III
Rectilinear translation: Kinematics of rectilinear motion. Differential equation of rectilinear motion. Motion of a particle acted upon by a constant force, by a force as a function of time and by a force proportional to displacement. Simple harmonic motion. D'Alembert's principle. Momentum and impulse. Work and energy, ideal systems, conservation of energy. Impact.
Module IV
Curvilinear translation: Kinematics of curvilinear translation. Differential equations of motion. Motion of a projectile. D'Alembert's principle in curvilinear motion. Moment of momentum. Work and energy in curvilinear motion.
Rotation of a rigid body: Kinematics of rotation. Equation of motion of a rigid body rotating about a fixed axis. Rotation under the action of a constant moment. Compound pendulum. General case of moment proportional to the angle of rotation. D'Alemberts principle of rotation. Resultant inertia force in rotation. Principle of angular momentum in rotation. Energy equation for rotating bodies.

References:
1. Timoshenko and Young, Engineering Mechanics, McGraw Hill Book Company.
2. Beer F. P. and Johnston E. R, Mechanics for Engineers (Vol. 1- Statics and Vol.2 - Dynamics),   Tata McGraw Hill.
3. Merriam H. L. & Kraige L. G, Engineering Mechanics (Vol. 1- Statics and Vol.2 - Dynamics), John Wiley and Sons.
4. Biju N, Engineering mechanics, Educational Publications.

Type of Questions for University Exam.
Q 1:Eight short answer questions of 5 marks with two questions from each of the four modules. (8x5 = 40 marks)
Q 2 to Q.5 : Two questions A & B of 15 marks from each modules with option to answer either A or B. (4x15 = 60 marks)

1105 ENGINEERING GRAPHICS

Module I
Introduction to engineering graphics. Drawing instruments and their use. familiarisation with current Indian Standard Code of Practice for general engineering drawing.
Scales- plain scale ,vernier scale, diagonal scale.
Conic sections- Construction of ellipse, parabola, hyperbola - construction of cycloid, involute, archimedian spiral and logarithmic spiral- drawing tangents and normals to these curves.
Module II
Introduction to orthographic projections- plane of projection- principles of first angle and third angle projections, projection of points in different quadrants.
Orthographic projection of straight lines parallel to one plane and inclined to the other plane- straight lines inclined to both the planes- true length and inclination of lines with reference planes- traces of lines.
Projection of plane laminae of geometrical shapes in oblique positions.
Module III
Projection of polyhedra and solids of revolution- frustum, projection of solids with axis parallel to one plane and parallel or perpendicular to other plane- projection of solids with axis inclined to both the planes- projection of solids on auxiliary planes.
Section of solids by planes inclined to horizontal or vertical planes- true shape of sections.
Module IV
Development of surface of cubes, prisms, cylinders, pyramids and cones
Intersection of surfaces- methods of determining lines of intersection - intersection of prism in prism and cylinder in cylinder.
Module V
Introduction to isometric projection- isometric scales, isometric views- isometric projections of prisms, pyramids, cylinders, cones and spheres.
Introduction to perspective projections : visual ray method and vanishing point method- perspective of circles- perspective views of prisms and pyramids.

References:
1. K.C. John. Engineering Graphics, PHI Learning
2. P.I. Varghese and K.C. John, Engineering Graphics, JET Publishers
3. N.D.Bhat , Elementary Engineering Drawing, Charotar publishing house
4. P.S.Gill , Geometric Drawing, B.D Kataria &Sons, Ludhiana
5. P I Varghese , Engineering Graphics, VIP Publishers.

University Examination Question Paper pattern
Two questions of 20 marks each from all the five modules. Answer one question from each module.
(5x20 = 100 marks)

1106 BASIC CIVIL AND MECHANICAL ENGINEERING
PART- A: BASIC CIVIL ENGINEERING

Module I
Engineering Materials: Cement - varieties and grade of cement and its uses. Cement mortar- Steel- types of steel for reinforcement bars, steel structural sections. Brick- varieties and strength, tests on bricks.

Aggregates- types & requirements. Concrete- grades of concrete as per IS code, water cement ratio, workability, mixing, batching, placing, compaction and curing.

Construction   : Foundation- types of foundations- isolated footing, combined footing, raft, pile & well foundations- Foundation for Machinery

Module II
Super structure: Brick masonry, English bond and Flemish bond, Stone masonry-Ashlar masonry- Rubble masonry. Roofing- Steel trusses, roofing for industrial buildings

Surveying: Principles, instruments, ranging and chaining of survey lines, errors in chaining, field work, field book, selection of survey stations, reconnaissance.

Leveling: Leveling instruments, different types, temporary adjustments, mean sea level, reduced level of point, booking of field notes, reduction of levels by height of collimation method.

References:
1. S.C. Rangawala, Engineering Materials, Charotar Publishing House, Anand.
2. Roy M. Thomas, Fundamentals of Civil Engineering, Educational Publishers,Ernakulam
3 Surendra Singh, Building Materials, Vikas Publishing Company, New delhi.
4 S.C. Rangawala, Building Construction, Charotar Publishing House, Anand.
5. P. Kanetkar, Surveying and Levelling, Volumes 1 and 2, United Book Corporation, Poona.

PART A - Type of Questions for University Exam. (Maximum Marks: 50) (To be answered in separate answer book)
Q 1 :Four short answer questions of 4 marks each with two questions from each modules. (4x5 = 20 marks)
Q 2 to Q.5 : Two questions A & B of 15 marks from each moduls with option to answer either A or B. (2 x 15 = 30 marks)

PART – B: BASIC MECHANICAL ENGINEERING

Module I
Thermodynamics: Thermodynamics systems – open, closed and isolated systems, equilibrium state of a system, property and state, process, cycle, Zeroth law of thermodynamics- concept of temperature, temperature scales. First law – internal energy, enthalpy, work and heat, Different processes, isobaric, isochoric, isothermal and adiabatic processes Second law – Kelvin-plank and Claussius statements, Carnot Cycle.

Internal Combustion Engines: Air standard cycles – Otto and Diesel cycles, working of two stroke and four stroke Petrol and Diesel engines, Carburatted and MPFI engines, fuel pump, fuel injector, ignition system, cooling system, lubricating system.

Module II
Refrigeration and Air conditioning: Vapour compression and vapour absorption refrigeration systems, summer, winter and comfort air conditioning.

Manufacturing processes – Casting (sand and die casting processes), Forging (open &closed die forging), Rolling, Extrusion, Welding (resistance, arc and gas), brazing and soldering
Elementary ideas of **simple reaction and impulse turbines**, compounding of turbines.

Transmission of power: Belt drives (open and closed), Chain drives.

References:
1. P.K. Nag, Engineering Thermodynamics, Tata McGraw Hill
2. J.P. Holman, Thermodynamics, Mc Graw Hill
3. Rogowsky, Elements of Internal combustion Engines, Tata McGraw Hill
4. Gill, Smith & Ziurys, Fundamentals of Internal Combustion Engines, Oxford & IBH
5. Stoecker, Refrigeration and Air Conditioning, Tata McGraw Hill
6. Raghavan : Material Science and Engineering, Prentice Hall of India

PART B - Type of Questions for University Exam. (Maximum Marks: 50) (To be answered in separate answer book)
Q 1 :Four short answer questions of 5 marks each with two questions from each modules. (4x5 = 20 marks)
Q 2 to Q.5 : Two questions A & B of 15 marks from each moduls with option to answer either A or B. (2 x 15 = 30 marks)

1107 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
PART- A: ELECTRICAL ENGINEERING

Module I

Resistance : Circular wires – Wire Tables – Temperature Effects – Types of Resistors – Colour Coding and Standard Resistor Values – Conductance – Ohmmeters – Metric Units –The Memristor.

Ohm's Law, Power and Energy : Ohm's Law – Plotting Ohm's Law – Power – Energy – Efficiency – Circuits Breakers, GFCI's and Fuses – Applications .

Series dc Circuits: Series Resistors – Series Circuits – Power Distribution and Series circuit – Voltage Sources in a Series – Kirchoff's Voltage Law – Voltage Division in a Series Circuit – Interchanging Series Elements – Notation – Voltage Regulation and the Internal Resistance of Voltage Sources. **Parallel dc Circuits:** Parallel Resistors – Parallel Circuits – Power Distribution in a Parallel Circuit – Kirchhoff's Current Law – Current Divider Rule – Voltage Sources in Parallel – Open and Short Circuits.

Capacitors: The Electric Field – Capacitance – Capacitors, **Inductors:** Magnetic Field – Inductance.

Module II

AC Fundamentals: Sinusoidal Alternating Waveforms - Sinusoidal ac Voltage Characteristics and Definitions – Frequency Spectrum – The Sinusoidal Waveform – General format for the sinusoidal Voltage of current – Phase Relations – Average Value – Effective (rms) Values – ac Meters and Instruments. Elementary Concepts of Energy Meter Watt Meter, Volt Meter and Ammeter.

The Basic Elements and Phasors: Response of Basic R,L and C Elements to a Sinusoidal Voltage or Current – Frequency Response of the Basic Elements – Average Power and Power Factor – Complex Numbers – Rectangular Form – Polar Form – Conversion between Forms.

Series and Parallel ac Circuits: Impedance and the Phasor Diagram- Series Configuration – Voltage Divider Rule – Frequency Response for Series ac Circuits –Admittance and Susceptance – Parallel ac Networks – Current Divider Rule – Frequency response of Parallel Elements.

Introduction to 3 phase Systems: StarΔ Connection

Elementary Concepts of Generation, Transmission, and Distribution: Various Levels of Power Transmission – Conventional Sources of Electrical Energy, Hydro, Thermal, Nuclear and Diesel Power Station - Introduction to Primary and Secondary distribution - Basic Concepts of Transformers - Principle of Operation – Applications to Power Systems.

PART- B: ELECTRONICS ENGINEERING

Module III

The Diode - Biasing the Diode, Voltage - Current Characteristic of a Diode, Diode Models, **Diode Applications -** Half Wave and Full Wave Rectifiers, Power supply Filters and Regulators, **Special Purpose Diodes -** Zener Diodes- Applications, Varactor Diodes, Optical Diodes-Other Types of Diodes. **Bipolar Junction Transistors (BJTs) -** Transistor Structure - Basic Transistor Operation, Transistor characteristics and parameters, Transistor as an Amplifier, Transistor as a Switch.

Module IV

Sensors-Temperature, light, force and sound sensors; **Actuators** – Heat, Light, force and sound actuators. **Electronic measurements** - measurements of voltages and currents, voltmeter, ammeter, multimeter, CRO (Block level treatment only)

Introduction to Electronic Communication systems: Modulation and Demodulation, Analog communication system, Electromagnetic frequency spectrum, Bandwidth and information capacity, Principles of Amplitude and angle modulation, Bandwidth requirements of angle modulated waves.

Optical communication: Fundamental concepts, Block diagram of an optical fibre communications system. **Cellular Telephone**: Fundamental concepts, Frequency reuse, Block diagram of a simplified cellular telephone system, Roaming and handoffs

Satellite communication: Block diagram of Satellite system link models – Uplink, Transponder Downlink.

Reference:
1. Boylestad, *Introductory Circuit analysis*, Pearson Education, 12/e, 2012.
2. Thomas L. Floyd, Electronic Devices, Pearson Education Inc. 7th edition.
3. Neil Storey, Electronics A systems approach, Pearson Education Inc. 2011 Wayne Tomasi, *Electronic Communication Systems: Fundamentals through Advanced,* Pearson Education Inc. 5th edition.

Type of Questions for University Exam.

Q 1:Eight short answer questions of 5 marks with two questions from each of the four modules. (8x5 = 40 marks)

Q 2 to Q.5 : Two questions A & B of 15 marks from each modules with option to answer either A or B. (4x15 = 60 marks)

1108 COMPUTER PROGRAMMING

Module I
Basics of Computer and Information Technology:
Digital Computer System (CPU, Memory, I/O devices)- Working of a digital computer- Hardware and Software : Definition - Categories of Software, Application of Computers – Role of Information Technology – Internet Services
Problem Solving Methodology:
Program - Programming Process (Problem statement, Analysis, Design a solution, Implement/Coding the solution, Test the solution, Iteration through the phases to refine/correct the program)- Design tools (Algorithm, Flow-chart, Pseudo-code)- Develop algorithms for simple problems.
Module II
Programming Languages:
Types and generation of programming languages- Compiler – Interpreter-Linker –Loader – Execution of Program
Basics of C:
Character set-Identifier- Keywords- Constants –Data Types- Variables and declaration –Operators and Expressions – Operator precedence and associativity – Expression Evaluation (Simple Examples) - Input and output functions – Simple computational problems involving the above constructs.
Module III
Control Statements:
Selection, Conditional operator, Iteration (for, while, do-while), Branching (switch, break, continue, goto), Nesting of control statements- Problems using control statements.
Arrays and Strings:
1D and 2D arrays –Searching (Linear and Binary) - Sorting (Bubble, Selection) – Matrix manipulation programs – Strings and basic operations on strings – Strings functions - Programs on string manipulation
Functions:
Definition – Calling – Declaration – Parameter Passing (by value and by reference) – Recursion – Library functions –Programs based on functions
Module IV
User defined data types:
Structure – Union - Enumerated data type - Programs involving structure and union.
Pointers:
Declaration, Initialization – Pointers and arrays – Pointers and structures – Pointers and functions – Command line arguments – Dynamic memory allocation – Operations on pointers – Programs involving the above concepts
Files:
File concept – File pointer – File handling operations (open, close, read, write etc) on sequential and random access files. Programs on file manipulations using fgetc(), fgets), fseek.

References:
1. Pradip Dey and Manas Ghosh, Computer Fundamentals and Programming in C, Oxford.
2. Samarjit Ghosh, All of C, PHI Learning
3. Byron Gottfried , Programming with C , 2nd edition, TMH publication.
4. B.W. Kernighan and D.M. Ritchie, The C Programming Language, Pearson Education.
5. R G Dromey , How to solve it by Computer, Prentice Hall
6. D.E. Knuth, The Art of Computer Programming – Volume 1,2 &3, Addison Wesley.
7. Yashwant P. Kanetkar, Let Us Use C, 8th Edition (Paperback).
8. Sukhendu Dey , Complete Knowledge in C, Narosa
9. Varghese Paul, Computer Fundamentals , EPD.

Type of Questions for University Exam.
Q 1:Eight short answer questions of 5 marks with two questions from each of the four modules. (8x5 = 40 marks)
Q 2 to Q.5 : Two questions A & B of 15 marks from each modules with option to answer either A or B. (4x15 = 60 marks)

1109 ENVIRONMENTAL STUDIES AND TECHNICAL COMMUNICATION
PART – A: ENVIRONMENTAL STUDIES (1 hour / week)

Module I

Natural resources - issues related to the use and over exploitation of forest resources, water resources, mineral resources, food resources, energy resources and land resources- role of an individual in conservation of natural resources - equitable use of resources for sustainable life styles.

Concept of an ecosystem - structure and function - energy flow in the ecosystem - ecological succession - food chains, food webs and ecological pyramids - structure and functions of a forest ecosystem and an aquatic eco system.

Definition of biodiversity - genetic, species and ecosystem diversity - biogeographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Threats to biodiversity, Conservation of biodiversity.

Module II

Environmental Pollution - Causes, effects and control measures of air pollution, water pollution, soil pollution, noise pollution, marine pollution, thermal pollution and nuclear hazards - Causes, effects and control measures of urban and industrial solid wastes -Role of an individual in prevention of pollution - An overview of the various environmental legislations in India - Issues involved in enforcement of environmental legislation. Disaster Management: Floods, earth quake, cyclone and landslides. Role of public awareness in disaster management.

The concept of sustainable development - Urban problems related to energy - Water conservation, rain water harvesting, water shed management - Resettlement and rehabilitation of people; its problems and concerns - Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies - Population growth and problems of population explosion – Environment and human health – Human rights – Value education – Role of Information Technology in environment and human health - Environmental ethics: issues and possible solutions.

References:
1. Rajagopalan. R, Environmental Studies: From Crisis to Cure, Oxford University Press, 2005
2. Erach Bharucha, Textbook of Environmental Studies and Ethics, Universities Press (India), Hyderabad, 2005.
3. Jayashree A. Parikh, V.M. Balsaraf, P.B. Dwivedi, Environmental Studies, Ane Books Pvt. Ltd., 2010.
4. Anindita Basak, Environmental Studies, Pearson, 2009.
5. Gouri Suresh, Environmental Studies and Ethics, I.K. International Publishing House Pvt. Ltd., New Delhi, 2007.
6. S.P. Misra, Essential Environmental Studies, 3rd Edition, Ane Books Pvt. Ltd., 2011.
7. Benny Joseph, Environmental Science & Engineering, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 2010.
8. Meenambal T , Uma R M and K Murali, Principles of Environmental Science and Engineering, S. Chand & Company Ltd, 2005

PART – B: TECHNICAL COMMUNICATION (1 hour / week)

This is a practice oriented, need based, and functional – communicative course. It is intended to develop the student's skill of communication in listening, speaking, reading and writing. The student is advised to cultivate the habit of reading newspapers, magazines and books in a free, extensive manner to consolidate the skill already achieved. A more inter-active process of teaching/learning is called for in order to achieve effective communication.

Questions at the class tests and semester end examination will be largely problem solving and application oriented in nature.

Module I

Communicative Grammar: Time, tense and aspect; Verbs of state and event; Use of preposition; Expressing emotions and attitudes: Hope, anticipation of pleasure, disappointment, approval, disapproval, surprise.

The sounds of English: (it is not a course in phonetics. Technical terms will not be used except when absolutely necessary.)
Length of vowels-long and short vowels
/ | /, / 3 : /, /a :/, / : /, /U : / | / / 2 /, /,/ Λ /, / O /, / U / - Consonants : / f, v, o, o, s, z, 3/ - Stress pattern -
Intonation: failing and rising.

Oral Communication: starting and ending a conversation; telling and asking people to do things; expressing opinions and ideas, decisions and intentions, offers and invitations, feelings, right and wrong, numbers and money.

Purpose and audience; dealing with customers and clients; face-to-face discussions; interviews; group discussions; meetings and attending meetings; checking understanding; raising questions;

giving and receiving feedback; using body language; leading and directing discussions; concluding discussions; using graphics in oral presentations

Reading Comprehension and reference skills: skimming and scanning; factual and inferential comprehension; prediction; guessing meaning of words from context; word reference; comprehending graphics in technical writing.

Reading strategies; reading speed; reading between the lines for hidden meaning; interpreting graphics; using a dictionary; using an index; using a contents list to find information; choosing the right reference source.

Module II

Written Communication: note making and note taking; summarizing; notes and memos; developing notes into text; organization of ideas: cohesion and coherence; Preparing notes – writing business letters and E-mail messages. Organizing a meeting, preparing an agenda, chairing a meeting, drafting motions and resolutions, writing minutes.

Paragraph writing: Paragraph writing – Topic sentence, cohesion and coherence- sentence liners (so, but, however etc), ordering information in space and time; short essays: description and argument; comparison and contrast; illustration; using graphics in writing: tables and charts; diagrams and flow-charts; maps, plans and graphs. Preparation of a business report-writing a business proposal - format, length,structure.

Spelling rules and tips; writing a rough draft; editing and proof reading; writing the final draft; styling text; filling in complex forms; standard letters; Writing a curriculum vitae (both chronological & functional) along with an application for a job; Public relation – Concept and relevance – PR in a business organization-handing the media; writing a report; writing leaflets and brochures; writing references; essay writing: expository writing; description of processes and products; classification; the instructional process; arguments and presentation of arguments; narrating events chronologically.

References :

1.John Seely, Oxford Guide to Writing and Speaking, Oxford University Press.
2.C. Muralikrishna and Sunita Mishra, Communication Skills for Engineers, 2nd Edition, Pearson, 2011.
3.Meenakshi Raman and Sangeetha Sharma, Technical Communication: Principles and Practice, Oxford University Press, 2004.
4.Krishna Mohan and Meenakshi Raman, Effective English Communication,Tata Mc-GraHill,2000.
5.William Sanborn Pfeiffer, T.V.S. Padmaja, Technical Communication – A Practical Approach, Pearson, 2007.
6.R.C. Bhatia, Business Communication, 2nd Edition, Ane Books Pvt. Ltd., 2008.
7.Krishna Mohan and Meera Banerji, Developing Communication Skills, Mac Millan India Ltd, 2000.

University Examination Pattern

The question paper will have two parts. Part A and Part B will have a weightage of 50 marks each and they will have to be answered in separate answer books.

Question Paper Pattern for Part A (Environmental Studies)

Q I. – 6 short type questions of 3 marks each, with three questions from each module (6 x3 = 18)

QII. – 2 questions A and B of 16 marks from Module I with choice to answer one. Both A and B should have a minimum of two sub – sections.

QIII - 2 questions A and B of 16 marks from Module II with choice to answer one. Both A and B should have a minimum of two sub – sections.

Question Paper Pattern for Part B (Technical Communication)

Q I – 10 short answer questions of 2 marks each, with five questions from each module. The questions shall be problem solving and application oriented in nature. (10x2 = 20 marks)

QII. – 2 questions A and B of 15 marks from Module I with choice to answer one. Both A and B should have a minimum of two sub – sections. The questions shall be problem solving and application oriented in nature.

QIII - 2 questions A and B of 15 marks from Module II with choice to answer one. Both A and B should have a minimum of two sub – sections. The questions shall be problem solving and application oriented in nature.

ELECTRICAL WORKSHOP

1. One lamp controlled by one switch 2. Series and parallel connections of lamps.
3. Stair case wiring.
4. Hospital Wiring.
5. Godown wiring.
6. Fluorescent lamp.
7. Connection of plug socket.
8. Different kinds of joints.
9. Transformer winding.
10. Soldering practice.
11. Familiarisation of CRO.

MECHANICAL WORK SHOP

Preliminary exercises for beginners in all the following shops. Specific models may be designed by the teachers.

1) Fitting Shop.
2) Sheet Metal Shop
3) Foundry Shop
4) Welding Shop
5) Carpentry Shop

Note : 50 % marks is earmarked for continuous evaluation, and 50% marks for end semester examination to be conducted by two examiners. A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

11 L2 COMPUTER PROGRAMMING LABORATORY

Application packages

Word
1. To create an advertisement in Word.
2. To illustrate the concept of mail merging in word.

Spread Sheet
3. To create a spread sheet to analyse the marks of the students of a class and also to create appropriate charts.

Power Point
4. To create the presentation for the department using Power Point.

C Programming Basics

Operators & Expressions
5. To write a simple menu driven calculator program using switch statement

IO Formatting
6. To write a program to print Pascal's triangle.

Decision Making
7. To write a program for electricity bill preparation.

Looping
8. To write a program to print the *sine* and *cosine* series.

Arrays
9. To write a program to perform Matrix multiplication.
10. To write a program to prepare and print the sales report.
String
11. To write a program to perform string manipulation manipulations function like *string concatenations, comparison, find the length and string copy* without using library functions.
12. To write a program to arrange names in alphabetical order.

Functions
13. To write a C program to calculate the mean, variance and standard deviation using functions.
14. To write a C program to perform sequential and binary search using functions.

Recursion
15. To write a program to print the Fibonacci series and to calculate the factorial of the given number
    using functions.

Structures
16. To print the mark sheet of n students using structures.

Pointers
17. To write a program using pointers to access the elements of an array and count the number of occurrences of the given number in the array.

Note : 50 % marks is earmarked for continuous evaluation, and 50% marks for end semester examination to be conducted by two examiners. A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

11 L3 LANGUAGE LABORATORY

The **Language Lab** focuses on the production and practice of sounds of language and familiarizes the

students with the use of English in everyday situations and contexts.

Objectives:

1. To expose the students to a variety of self-instructional, learner-friendly modes of language learning.
2. To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer-based competitive exams.
3. To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm.
4. To train them to use language effectively to face interviews, group discussions, public speaking.
5. To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

SYLLABUS :

The following course content is prescribed for the **English Language Laboratory** sessions:

1. Introduction to the Sounds of English- Vowels, Diphthongs & Consonants.
2. Introduction to Stress and Intonation.
3. Situational Dialogues / Role Play.
4. Oral Presentations- Prepared and Extempore.
5. 'Just A Minute' Sessions (JAM).
6. Describing Objects / Situations / People.
7. Information Transfer
8. Debate
9. Telephoning Skills.
10. Giving Directions.

Note : 50 % marks is earmarked for continuous evaluation, and 50% marks for end semester examination to be conducted by two examiners. A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

CE/CS/EB/EC/EE/ EI/FT/IT/ME/SE **1301 ENGINEERING MATHEMATICS II**

MODULE 1

Matrices and Vector spaces: Rank of matrix, Echelon and normal form, Solutions of linear systems of algebraic equations, Eigen values and Eigen vectors, Cayley Hamilton theorem (non proof). Vector Spaces – Subspaces, - Linear Independence of vectors-Linear span-Dimension and Basis. Linear transformations.

MODULE II

Fourier series and Fourier integrals: Forier series of Periodic functions- Euler formulae for Fourier coefficients- functions having period 2π, arbitrary period-even and odd functions-half range expansions, Fourier integral, Fourier cosine and sine transformations, linearity property, transform of derivatives, convolution theorem (no proof)

MODULE III

Laplace transforms: Linearity property, transforms of elementary functions, Laplace transforms of derivatives and integrals, differentiation and integration of transforms, convolution theorem (no proof) use of Laplace transforms in the solution of initial value problems, unit step function, impulse function - transform of step functions, transforms of periodic functions.

MODULE IV

Vector calculus: Scalar and Vector point functions-Gradient and directional derivative of a scalar point function- Divergence and Curl of a vector point functions-their physical meanings. Evaluation of line integral, surface integral and volume integrals, Gauss's divergence theorem, Stoke's theorem (No Proof of these theorem), conservative force fields, scalar potential.

TEXT BOOKS
1. R.K.Jain, S.R.K.Iyengar, Advanced Engineering Mathematics: Narosa Publishers.
2. C.R.Wilie & L.C.Barrett, Advanced Engineering Mathematics, Mc-Graw Hill

REFERENCES
1. Larry C Andrews, Ronald C Philips, Mathematical Techniques for Engineers & Scientists, PHI Publishers
2. M.C.Potter, J.L.Goldberg, Advanced Engineering Mathemartics, Oxford Unversity Press.
3. B.S.Grewal, Higher Engineering Mathematics:, Khanna Publishers.

Type of Questions for University Examination

Q1. Eight short answer questions of 5 marks each with two questions from each of the four modules.
Q2 to Q5 : Two questions A & B of 15 marks from each module with option to answer either A or B.

IT/ME 1302 ELECTRICAL TECHNOLOGY

ModuleI

Transformers: working principle and elementary theory of an ideal transformer, Constructional features of single phase transformer, emf equation, turns ratio, vector diagram, equivalent circuit, impedance transformation, transformer losses, flux leakage, efficiency, open circuit and short circuit test, load test. Auto transformer - working principle and saving copper, basic idea of current transformer and potential transformer, distribution and power transformer, applications, standard rating, IS specifications.

Module II

Basic principles of electrical machines: Concepts of motoring and generating action,

DC machines-Main constructional features, principles of operation, types of generators, emf equation, characteristics, applications, armature reaction and commutation, types of motors, torque, speed, and power, characteristics, applications, starting losses, and efficiency, speed control, testing, load test of dc machines.

Module III

AC Machines: Alternator- rotating field, speed and frequency, effect of distribution of winding,coil span, characteristics, emf equation, losses and efficiency, regulation (emf method only), applications, synchronous motor- principle of operation, over excited and under excited, starting, applications, synchronous capacitor.

Induction Motor: Three phase induction motor, principles of operation, and constructional features of squirrel cage and slip ring motors, torque-slip characteristics, starting, speed control, losses and efficiency.

Single phase induction motor: Principle of operation, types of single phase induction motors

Module IV

Generation, transmission & distribution of electrical energy:

Different methods of power generation- thermal, hydro-electric, nuclear, diesel, gas turbine stations (general idea only), electrical equipments in power stations, concept of bus bar, load dispatching, methods of transmission, transmission lines, overhead lines and insulators, corona and skin effect of DC & AC distribution, substation (elementary idea only)

Text Books:

1. F. S. Bimbra, *Electrical Machines*, 7th ed., Khanna publications.

References:

1. B. L. Theraja, *Electrical Machines,* vol I & IV, 23rd ed., K hanna Publishers.

2. H. Cotton, *Advanced Electrical Technology,* 6th ed., Wheeler publications.

3. Nagarath & Kothari *Electrical Machine*, 3rd ed., Tata McGraw Hill.

Type of questions for University Examination

Question 1 - 8 short answer questions o f 5 marks each. 2 questions from one module

Question 2-5 – There will b e two cho ices from each module .Answer one question from each module of 15 ma rks

CS/IT 1303 DISCRETE COMPUTATIONAL STRUCTURES

Module I

Logics and Proofs ,propositions, conditional propositions and logical equivalences, quantifiers, proofs resolution, mathematical induction ,sets ,relations ,equivalence relations, functions.

Module II

Algorithms introduction, notations, recursive algorithms, complexity of algorithm, counting methods and pigeon hole principle, recurrence relations.

Module III

Graph theory, paths and cycles, Hamiltonian cycles, representation of graphs, Eulerian paths, traveling sales man problem, trees, characterization, spanning trees, game trees.

Module IV

Algebraic systems semi groups, monoid, subgroups, homomorphism, isomorphism, automorphism , rings, sub rings, posets, lattice, hasse diagrams

Text Books:

1.Satinder Bal Gupta - Discrete Mathematics and Structures, University science Press
   (Laxmi publications(P) Ltd.) ISBN : 978 – 81 – 318 – 0452 – 0, Fifth edition
2. N.Chanrasekaran, M.Umaparvathi – Discrete Mathematics, ISBN : 978 – 81 – 203 –
   3938 - 5, PHI Learning

References:

1.Thomas Koshy – Discrete Mathematics with Applications, (Indian Reprint 2010)ISBN : 978 – 81 – 8147 – 887 – 0, ELSEVIER
2.Malik D. S., Sen S. K - Discrete Mathematical Structures, Thomson Learning.
3.Richard Johnsonbaugh - Discrete Mathematics Pearson Education fifth edition.
4.G.Suresh Singh - Graph Theory, PHI Learning.
5.Garry Haggard, John Schlipf, Sue Whitesides, Discrete Mathematics for Computer Science, Thomson Learning.
6..Bernard Kolman, Robert C Busby, Sharon Cutler Ross, Nadeem-ur-rehman Discrete
      mathematical structures, Pearson Education.
7.J P Tremblay and Manohar Mc Graw Hill - Discrete mathematical structures with applications to computer science -
.8.John Truss Addison Wesley- Discrete mathematical structures for Computer science.

Type of questions for University Examination

Question 1   - 8 short answer questions o f 5 marks each. 2 questions from one module

Question 2-5 – There will b e two cho ices from each module .Answer one question from each module of 15 ma rks

CS/IT 1304 OBJECT ORIENTED PROGRAMMING

Module I
Object oriented technology, comparison with procedural programming (C and C++),key concepts of object programming, input and output in C++, declarations ,control structures, functions

Module II
Classes and Objects, declaring objects, accessing member variables, defining member functions, inline functions, static member variables and functions, friend function, overloading, constructors and destructors, overloading constructors, copy constructors anonymous objects, dynamic initialization using constructors, dynamic operators and constructors, recursive constructors encapsulation

Module III
Inheritance, types of inheritance, virtual base class, abstract class, advantages and disadvantages of inheritance, pointers and arrays, C++ and memory

Module IV
Binding, polymorphism and virtual functions, generic programming with templates, exception handling, string handling and file handling

Text Books:
1. Object oriented programming with ANSI and TURBO C++ ,Ashok N Kamthane , Pearson education 7th impression 2009.
2. Object oriented programming with C++ M.P.Bhave, S.A.Patekar, Pearson Edn.

References:
1. "Object Oriented Programming in C++" Robert Lafore, 4/e Pearson Edn.
2. Programming a Practical Approach, Madhusudan Mothe, Pearson Edn
3. C++ Programming :From Problem Analysis To Program Design, Malik, Thomson Learning
4. Computer Science :A Structured Approach Using C++,2nd Ed., Forouzan, Thomson Learning
5.Object Oriented Programming Using C++, 2/e, Ira Pohl, Pearson Edn.
6.E Balaguruswamy,Programming in ANSI C ,5th edition 2011,Tata McgGraw Hill,ISBN: 978-0-07-068182-8

Type of questions for University Examination

Question 1 - 8 short answer questions o f 5 marks each. 2 questions from one module

Question 2-5 – There will b e two cho ices from each module .Answer one question from each module of 15 ma rks

CUSAT B.TECH Degree Course – Scheme of Examinations & Syllabus 2012 IT Sem III

IT 1305 LOGIC DESIGN AND ELECTRONIC CIRCUITS

Module I

Number system – Binary – HEX and other number systems – conversion from one radix to another - Boolean algebra – ASCII – EBCDIC –Grey Code- Excess 3 code – Code Conversion – parity checking. Basic logic gates – positive and negative logic – OR, AND, NAND, NOR, XOR and NOT gates – K map- Half adder –Full adder – subtractor- serial parallel addition- binar y multiplication and division. multiplexer – demultiplexer-encoder – decoder -

Module II

Sequential circuits: Flip-flops – RS, JK, T and D flip flops – conversions – shift registerscounters- asynchronous counter – synchr onous counter – up down counter- ring counter. Logic f amilies - TTL, RTL, ECL, CMOS - tristate logic – specification – noise consideration RAM, ROM, PROM, EPROM, BJTRAM CELLS – MOSRAMS.

Module III

Amplification: CE amplifier – Low, Medium & high frequency analysis and design of RC coupled amplifier – FET construction & characteristics - classifications class A, ClassB, Class C amplifiers – transformer   coupled amplifier - Push pull amplifier- Negative & positive feedback.

Module IV

Pulse Circuits: Pulse shaping using RC circuits – differentiating integrating circuitsclipping – clamping using diodes and transistors – UJT – construction – characteristics-, SCR- Theory of operation and characteristics.

Text Books:

1) Electronic Devices & Circut Theory:Robert oyelstead,TenthEdn,Pearson(Module1&2)
2) A .Anand Kumar – Fundamentals of Digital Circuts,2nd Edn,PHI(module 3&4)

References :

1) H.H.Taub and D.Schgilling : Digital Integrated Electronics
2) Yarbrough, Digital LogicApplications and Design
3) R.Sandigi : Digital concepts with standard Integrated circuits
4) H.Blackly and John Viley : Digital Design with standard MSI and LST
5) Milman and Halkias : Electronic devices and circuits, Tata McGraw Hill
6) Milman and Halkias : Integrated Electronics
7) Milman and Taub : Pulse and Digital circuits
8) Boyelstead : Electronic devices & Integrated circuits.

Type of questions for University Examination

Question 1   - 8 short answer questions o f 5 marks each. 2 questions from one module
Question 2-5 – There will b e two cho ices from each module .Answer one question from each module of 15 marks

IT1306 COMPUTER ORGANISATION

Module I

Basic structure of computers - Functional units - Basic operational concepts - Bus structures - Instructions & instruction sequencing. Hardware and software -Addressing modes -Assembly language – Stacks &Subroutines

Module II

Processing Unit – Fundamental concepts –Execution of acomplete instruction - Hardwired control unit- microprogrammed control - control signals -microinstructions- microprogram sequencing- Branch address modification- Pre-fetching of micro instructions- Emulation.

Computer arithmetic - logic design for fast adders - multiplication - Booth' s algorithm Fast multiplication - integer division - floating point numbers and operations.

Module III

Memory or ganization-Semiconductor RAM memories- internal organization of memory chips- Static and Dynamic memories -cache memories - mapp ing functions- replacement algorithms - virtual memory - address translations –performance considerations – interleaving - Secondary storage.

Module IV

Input-output or ganizations - interrupts – Enabling & Disabling interrupts -handling multiple devices - device identification - vectored interrupts - interr upt nesting – Simultaneous requests – DMA - Buses - I/O interface circuits –Standard I/O interfaces.

Text Books:

1. Hamacher C V, "Computer Or ganisation – International Edition -5th Edition", Mc.Graw Hill

2. Stallings William, "Computer Organization and Architecture", 8th Education. Edition, Pearson

References:

1. J.L Hennesy and D.A Pattersen,"Computer Architecture", Elsevier
2. Behrooz Parhami, "Computer Architecture", Oxford Univ. Press
3. Parthasarathy, Advanced Computer Architecture, Thomson Learning
4.V. P. Heuring and H. F. Jordan,*Computer System Design and Architecture*, Addison Wesley, New Delhi, 1997
5. Pal Chaudhary P, "Computer Organisation and Design " , Prentice Hall, New Delhi,
6. Hayes J P , "Computer Organisation and Architecture - 2nd Edition ", Mc Graw Hill,
7. Tanenbaum A S , "Structured Computer Organisation - 3rd Edition", Prentice Hall,
8.Kai Hwang & Faye A Briggs "Computer Archtecture and Parallel Processing "Mc.Graw Hill.,NewYork –1985

Type of questions for University Examination

Question 1   - 8 short answer questions o f 5 marks each. 2 questions from one module

Question 2-5 – There will b e two cho ices from each module .Answer one question from each module of 15 ma rks

CUSAT B.TECH Degree Course – Scheme of Examinations & Syllabus 2012 IT Sem III

IT 1307 LOGIC DESIGE LAB A. ANALOG

1. Study of Multimeters, Signal Generators, CRO etc and measurement of electricalquantities.

2. Testing of active and passive components – Resistors,Capacitors,Inductors,Transformers, Diodes, Transistors etc.

3. Characteristics of active devices:

i. Forward and reversed characteristics of a diode measurement of forward resistance .

ii. Common base characteristics of a transistor – measurements of current gain, input resistance and output resistance , maximum ratings of the transistor.

iii. Common emitter characteristics of a transistor – measurement of current gain, input resistance and output resistance, relation between and stud y of the effect of leakage current, maximum ratings of the transistor.

4. Rectifying circuits: FW Rectifier – HW Rectifier – FW Bridge Rectifier Filter circuits – capacitor filter , inductor filter and FT section filter (Measurement of ripple factor maximum ratings of the devices)

5. Study of RC and RLC circuits – Frequency response, pulse response, Filter Characteristics, Differentiating circuit and integrating circuit.

6. Clipping and clamping circuits using diodes/transistors

B. DIGITAL

1. Transfer characteristics and specifications of TTL and MOS gate.

2. Design of half adder and Full adder using NAND gates, set up R-S & J-K flip flops using NAND gates.

3. Asynchronous UP/DOWN counter using J-K F/Fs.

4. Study of shift registers and design of Ring counter using it.

5. Study of IC counter 7490,7492,7493 and 74192.

6. Study of MUX & DEMUX

Note : 50 % marks is earmarked for continuous evaluation, and 50% marks for end semester examination to be conducted by two examiners. A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

CS/IT 13L2 OBJECT ORIENTED PROGRAMMING LABORATORY

Exercises to make the students understand the following concepts
- Difference between struct and class
- Data abstraction
- Data encapsulation and information hiding
- Inheritance
- Single inheritance
- Multiple inheritance
- Multilevel inheritance
- Hierarchical inheritance
- Abstract class
- Operator overloading
- Function overloading
- Over-riding
- Pointers and arrays
- Files

Text Book:
1. Object oriented programming in C++-Balaguruswamy, Fifth edition, Tata McGraw-Hill, ISBN: 978-0071072830.

References:
1. Object oriented programming in C++-Robert Lafore, Third edition, Galgotia Publications, ISBN: 978-8175152694.
2. The c++ programming Language-Bjarne Stroustrup, Third edition, Pearson, ISBN: 978-8131705216.

Note : 50 % marks is earmarked for continuous evaluation, and 50% marks for end semester examination to be conducted by two examiners. A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

CE/CS/EB/EC/EE/ EI/FT/IT/ME/SE **1401 ENGINEERING MATHEMATICS III**

Module I

Complex Analytic functions and conformal mapping: curves and regions in the complex plane, complex functions, limit, derivative, analytic function, Cauchy - Riemann equations, Elementary complex functions such as powers, exponential function, logarithmic, trigonometric and hyperbolic functions. *Conformal mapping*: Linear fractional transformations, mapping by elementary functions like Z^2, e^z, sin z, cos z, sin hz, and Cos hz, Z+1/Z.

Complex integration: Line integral, Cauchy's integral theorem, Cauchy's integral formula, Taylor's series, Laurent's series, residue theorem, evaluation of real integrals using integration around unit circle, around the semi circle, integrating contours having poles, on the real axis.

Module II

*Partial differential equations:*Formation of partial differential equations. Solutions of equations of the form F(p, q) = 0, F(x,p,q)=0, F(y,p,q)=0, F(z,p,q)=0, F1(x,p) = F2 (y,q), Lagrange's form Pp+Qq = R. Linear homogeneous partial differential equations with constant co-effients.

Module III

Vibrating string : one dimensional wave equation, D'Alembert's solution, solution by the method of separation of variables. *One dimensional heat equation,* solution of the equation by the method of separation of variables, *Solutions of Laplace's equation* over a rectangular region and a circular region by the method of separation of variables.

Text Books

1. R.K.Jain, S.R.K.Iyengar: Advanced Engineering Mathematics, Narosa Publishers.1991
2. C.R.Wilie & L.C.Barrett: Advanced Engineering Mathematics,MGH Co.

Reference

1. Ervin Kreyszig, Wiley Eastern , Advanced Engineering Mathematics
2. Complex Variables & Applications: Churchill R.V, Mgh Publishers.
3. M.C.Potter, J.L.Goldberg , Advanced Engineering Mathematics, Oxford University
    Press,

IT1402 MICROPROCESSOR ARCHITECTURE AND SYSTEM DESIGN

Module I
Introduction to microprocessors: Brief historical background of microprocessor based computer systems ¨C
8086 Microprocessor :Internal Architecture, Memory Addressing modes, Instruction Addressing Modes, Instruction Set: Data movement, Arithmetic, Logic, String, Branching.
Hardware Specification of 8086 microprocessor - Bus timing & Control

Module II
Memory Interfacing ¨C Memory devices, Address Decoding.
Basic I/O Interfacing : I/O instructions, Isolated and Memory Mapped I/O, I/O port address decoding.
Interfacing with Programmable Peripheral Interface: Intel 8255- description, modes of operation, programming ¨C example of stepper motor control and matrix keyboard with 8255. 8279 programmable keyboard/display interface : description, interfacing with 8086.

Module III
Interrupts: 8086 Interrupts, Interrupt Processing, Hardware Interrupts, Interrupt Instructions.
8259 ¨C Programmable Interrupt Controller: description, programming.
DMA Operation - 8257 ¨C DMA Controller: Hardware description, Software Command.

Module IV
Advanced Microprocessor: Introduction to Intel 386, 486 & Pentium Processors : Features, data types, Functional Pin Configuration

Text Book:
Barry B Brey, The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions, Pearson Education, 8/e, ISBN:9788131726228

Reference
1 James .l Antonacos , An Introduction to Intel Family of Microprocessor ,3/e Pearson Education 2002
2. Mohammed Rafiquzzaman : Microprocessor & Microcomputer System Design, Wiley Publication
3. Douglas V Hall, "Microprocessors & Interfacing" 2nd edition, Tata Mc GrawHill
4. N Mathivanam, "Microprocessor and PC Hardware and Interfacing" 2003 by   PHI

Type of questions for University Examination Question 1- 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

CUSAT B.TECH Degree Course – Scheme of Examinations & Syllabus 2012 IT Sem IV

IT 1403 SYSTEM PROGRAMMING

Module I

Assemblers: Overview of the assembly process - Machine dependent assembler features-Machine independent assembler features-Design of two pass assembler-single pass assembler.

ModuleII

Loaders and linkers –Basic Loader functions-Machine Dependent Loader Features-Machine Independent Loader Features-Loader Design Options

Macro Processors-Basic Macro Processor Functions-Machine Independent Macro Processor Features-Macro Processor Design Options

Module III

Compilers- Basic Compiler Functions-Machine Dependent Compiler Features-Machine Independent Compiler Features-Compiler Design Options

Module IV

Operating Systems – Basic Operating Systems functions – Types of Operating Systems –
User Interface – Run-time Environment. Operating Systems Design Options – Hierarchical Structures – Virtual Machines – Multiprocessor Operating Systems – Distributed Operating Systems – Object Oriented Operating Systems.

Text Books

1. Leland L.Beck &D Manjula , "System Software - An Introduction to System Programming",Addison Wesely

Reference

1. .M.Dhamdhere, "System Programming and Operating Systems", 2ond Ed., TataMcgrawhill
2John J. Donovan, "Systems Programming", McGraw Hill.
3. Srimanta Pal "System Programming" Oxford University Press

4. John J Denovan,System Programming,Tata McGraw Hill,1991,isbn 978-0-07-460482-3

Type of questions for University ExaminationQuestion 1- 8 short answer questions of 5 marks each. 2 questions from one module Question 2-5 – There will be two choices from each module .Answer one question from each module of15 marks

IT 1404 DATABASE MANAGEMENT SYSTEMS

Module I

Introduction: Characteristics of the Database approach – Data models, schemas and instances – DBMS architecture – Data independence – Database languages and interfaces – Database administrator – Data modeling using Entity - Relationship (ER), Entity sets, attributes and keys - Relationships, Relationship types, roles and structural constraints - Weak Entity types - Enhanced Entity-Relationship (EER) and object modeling. Sub classes, super classes and inheritance - Specialization and generalization.

ModuleII

Record storage and file organizations: Placing file records on disks – Fixed length and variable length records Spanned Vs unspanned records – Allocating file records on disk– Files of unordered records(Heap files), Files of ordered records(Sorted files).- Hashing Techniques. Indexed structures for files – Types of single level ordered index, multi- level indexes.

Module III

The Relational model: Relational model concepts – Relational model constraints - The Relational Algebra – Relational calculus – Tuple Relational calculus, Domain Relational calculus. - SQL. Database Design: Functional dependencies – Basic definitions – Trivial and non trivial dependencies –Closure of a set of dependencies – Closure of a set of attributes – Irreducible sets of dependencies – Nonloss decomposition and Functional dependencies. First, Second and Third normal forms – Boyce-Codd normal form.

ModuleIV

Transaction Management- Concurrency Control-Lost Updates- Uncommited Data- Inconsistent Retrievals-The Scheduler-Concurrency Control with Locking Methods – Concurrency Control with Time Stamping- Concurrency Control with Optimistic Methods- Database Recovery Management.
Introduction to object oriented databases, Active databases. Data warehouses – Data mining

Text Books:

1) Elmasri and Navathe, *"Fundamentals of Database System*s", 3/e, Addison-Wesley.
2) A Silberschatz, H. F. Korth, and S Sudarshan, *"Database System Concept*s", McGraw Hill
3) Peter Rob, Carlos Coronel, *Database Systems,* Thomson Learning.

References:

1) Patrick O'Neil, Morgan Kaufman, Database –Principles, Programming & Performance,
2) Thomas Connoly ,Carolyn Begg " Database Systems",3/e,Pearson Education.
3) C.J Date, " *An Introduction to Database Systems* ", Addison-Wesley
4) Margaret.H.Dunham *,"Data Mining. Introductory and advanced topics*", Pearson Education,2003.
5) Hector Garcia-Molina,Jeffret D. Ullman, Jenniffer Widom ,"*Database System 6)* Ramon A mata-Toledo,Pauline K Cushman,Debabrata Sahoo,Database Management Systems,2007, Tata McGraw Hill,IsBN:978-0-07-063456-5
implementation", Prentice Hall International, Inc, 2000.

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

CS/IT 1405 DATA STRUCTURES& ALGORITHMS

Module I

Introduction to Data structures - Arrays & sparse matrices – representation, Searching - linear, binary, Fibonacci – Sorting – selection, bubble, insertion, quick, merge, heap, Introduction to external sorting, Hash tables – Hashing functions

Module II

Linked lists – singly, doubly and circular lists, Application of linked lists – Polynomial manipulation, Stacks – Implementation of stacks using arrays and lists – Typical problems – Conversion of infix to postfix – Evaluation of postfix expression . Queues & Deques – implementation., priority queues

Module III

Trees, Definition and mathematical properties. Representation – sequential, lists – Binary trees Binary tree traversals – pre-order, in-order & post-order, Expression trees . Threaded binary trees . Binary Search trees . AVL trees

Module IV

Graphs – Graph representation using adjacency matrices and lists – Graph traversals DFS, BFS - shortest path – Dijkstra's algorithm, Minimum spanning tree – Kruskal Algorithm, prins algorithm – Binary search, B trees and B+ trees.

Text Book:

1. Michael Waite and Robert Lafore, "Data Structures and Algorithms in Java" , Techmedia, NewDelhi, 1998.
2. Sartaj Sahni, 'Data Structures, Algorithms, and Applications in Java", McGraw-Hill
3. Adam drozdek," Data Structures and Algorithms in Java" ,Thomson Publications, 2nd Edition

References:

1. David Cousins **, "**Data Structures with Java",Pearson,2011

2. Aaron M.Tane nbaum, Moshe J.Augenstein, "Data Structures using C", Prentice Hall InternationalInc., Englewood Cliffs, NJ, 1986

3. Ellis Horowitz and Sartaj Sahni, " An introduction to Data Structures", Computer Science Press,Rockville, MA, 1984

4 Mark Allen Weiss, "Data Structures and Algorithm AnalysisinC++", Benjamin/CummingsPublishing Company Inc., Redwood City, CA, 1991

5. Jean Paul Tremblay and Paul G Sorenson, "An introduction to Data Structures with Applications",McGraw-Hill, Singapore, 1984

6. Debasis Samanta,"Classic Data Structures",PHI Learning Pvt Ltd

7. Tharies H Cormen,Charles E Leisenson,Ronald L Rivest,Clifferd stein,Introduction to Algorithams PHI Learning 3rd Edition,2009, ISBN 978-81-203-4007-7

8 John R Hubbard,Data Structure with Java ,2nd Edition Tata McGrawHill,2009,ISBN:978-0-07-014607-5

9 David Cousines,Data Structures with Java,Pearson 2011,IsSBn 978-81-317-5864-9

Type of questions for niversityExamination
Question 1- 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT1406 Data & Computer Networking

Module I

DATA COMMUNICATIONS: Data Transmission, Transmission Media, Signal Encoding Techniques, Digital Data Communication Techniques, Data Link Control Protocols, Multiplexing , Spread Spectrum

Module II

WIDE AREA NETWORKS : Circuit Switching and Packet Switching, Asynchronous Transfer Model,Routing in Switched Networks, Congestion Control in Switched Data Networks , Cellular Wireless Networks

Module III

LOCAL AREA NETWORKS: Topologies and Transmission Media, LAN Protocol Architecture Bridges, Layer 2 and Layer 3 Switches, High-Speed LANs, Wireless LANs

Module IV

INTERNET AND TRANSPORT PROTOCOLS: Internetwork Protocols, IPv6, Internetwork Operation: Multicasting, Routing Protocols, Integrated Services Architecture, Transport Protocols

TextBook

1)Data and Computer Communications, 8/E William Stalling
2) Data Communications and Networking , Behrouz A Forouzan , Behrouz Forouzan McGraw-Hill Companies

References

1.Youlu Zheng and Shakil Akhtar, *Networks for Computer Scientist and Engineers,* OxfordUniversity Press,2006

2. James F. Kurose and Keith W. Ross, Computer Networking – *A Top-DownFeaturing the Internet,2*/e Pearson Education ,2003

3. Larry L Peterson & Bruce S Dave, Computer Networks, 3rd Edn, Elsevier

4. S. Keshav, An Engineering Approach to Computer Networking, Pearson education ,2002

5.   F. Halsall, Data Communication, Computer Networks and Open Systems, AddisonWesley, 1996

6. Andrew S. Tanenbaum, Computer Networks , 4/e, Pearson education, 2003

7..Behrouz A. Fourouzan ,Data Communications and Networking, 2/e Tat McGrawhill,2000

8..   Leon-Garcia and I. Widjaja, Communication Networks, Tata McGraw Hill, 2000

9..   Bertsekas and Gallagar , Data Networks, 2/e, PHI, 1992

10. Douglas E Comer ,Computer Networks and Internet's, 2/e Pearson Education,2004

Type of questions for University
ExaminationQuestion 1 - 8 shorTanswerquestions of 5 marks each. 2 question from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of15 marks

IT 407 PC HARDWARE AND MICROPROCESSOR
LAB

Part A - PC HARDWARE

Study of SMPS, TTL and composite type monitor circuits, Emulator, Logic state
analyser, Serial port, Parallel port, Mother board, CGA card, Floppy disk controller, Hard disk controller,
Printer Interface, Keyboard Interface

Diagnostic Software, Diagnostic card, Designing and programming add on cards

Floppy Disk drive: Alignment, Programming, Formatting

Hard Disk drive: Partitioning, Familiarisation of disk maintenance, Software Tools. Trouble shooting
and maintenance: Preventive and maintenance, Common maintenance
problems
Familiarisation: Device drivers, Microcontrollers, Transputers

Part B - MICROPROCESSOR

1. Study of typical microprocessor trainer kit
2. Simple Programming examples using 8086 instruction set to understand the use of various
instructions and addressing modes – Monitor routines – at least 20 examples
3. Programming examples to initialise 8251 and to understand it's I/O operations
4. Programming examples to initialise 8255 and to understand it's I/O operations
5. Programming examples to initialise 8279 and to understand it's I/O operations
6. A/D and D/A counter Interface
5. Interface and programming of 8255(e.g. Traffic light control, burglar alarm, stop water)

*Note : 50 % marks is earmarked for continuous evaluation, and 50 % marks for end semester examination
to be assessed by two examiners .A candidate shall secure a minimum of 50 % marks in the aggregate and
50 % minimum in the end semester examination for a pass.*

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CS/IT14L2 DATA STRUCTURES LABORATORY

1. Simple programming exercises in Java
2. Study of algorithms and implementation in Java programming language for the following:
   Searching and Sorting
   Linked Lists- Singly and doubly
   Stacks – various applications
   Queues
   Trees
   Graphs

Text Book:
1. Data structures and algorithms in JAVA-Robert Lafore, Second edition, Pearson, ISBN: 978-8131718124.

References:
1. Programming with JAVA, a primer- Balaguruswamy, Fourth edition, Tata McGraw-Hill , ISBN: 978-0070141698.
2. Java and Object Oriented programming paradigm-Debasish Jana, First edition, PHI publishers, ISBN: 978-81-203-2775-7.

Note : 50 % marks is earmarked for continuous evaluation, and 50 % marks for end semester examination to be assessed by two examiners .A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

CE/CS/EB/EC/EE/ EI/FT/IT/ME/SE **1501 ENGINEERING MATHEMATICS IV**

Module I

Probability distributions: random variables (discrete & continuous), probability density,
mathematical expectation, mean and variance of a probability distribution, binomial distribution, Poisson approximation to the binomial distribution, uniform distribution , normal distribution. *Curve fitting*: method of least squares, correlation and regression, lines of regression.

Module II

Sampling distributions: population and samples, the sampling distribution of the mean unknown),σ known), the sampling distribution of the mean (σ(the sampling distribution
of the variance, point estimation, interval estimation, tests of hypotheses, null hypotheses and significance tests, hypothesis concerning one mean, type I and type II errors, hypotheses concerning two means. The estimation of variances : Hypotheses concerning one variance - Hypotheses oncerning two variances.

Module III

Finite difference Operators: ∇, Δ, E, δ, μ , $x^{(n)}$ .Newton's Forward and   Backward differences interpolation polynomials, central differences, Stirlings central differences interpolation polynomial.   Lagrange interpolation polynomial, divided differences, Newton's divided differences interpolation polynomial. *Numerical differentiation:* Formulae for derivatives in the case of equally spaced points. *Numerical integration:* Trapezoidal and Simpson's rules, compounded rules, errors of interpolation and integration formulae. Gauss quadrature formulae (No derivation for 2 point and 3 point formulae)

Module IV

Numerical solution of ordinary differential equations: Taylor series method, Euler's
method, modified Euler's method, Runge-Kutta formulae 4th order formula. *Numerical solution of boundary value problems:* Methods of finite differences, finite differences methods for solving Laplace's equation in a rectangular region, finite differences methods for solving the wave equation and heat equation.

Text Books:

1. Irvrin Miller & Freind : Probability And Statistics For Engineers, Prentice Hall Of
      India
2. S.S.Sastry: Numerical Methods, PHI Publishers.

References:

1. P.Kandaswamy K.Thilagavathy, K.Gunavathy: Numerical Mehtods, S.Chand & Co.
2. A.Papoulis: Probability,Random   Variables   And   StochasticProcesses,MGH
      Publishers

Type of questions for University Examination

Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question from each module of

15 marks

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IT1502 OPERATING SYSTEMS

Module I

Introduction to Operating Systems. Processes - Interprocess Communication - Race Conditions - Critical Sections – Mutual Exclusion - Busy Waiting - Sleep And Wakeup - Semaphores - Event Counters - Monitors - Message Passing. Process Scheduling - Round Robin Scheduling - Priority scheduling -multiple queues - Shortest Job First - Guaranteed scheduling - Two- level scheduling.

Module II

Memory management. Multiprogramming. Multiprogramming and memory usage - Swapping - multiprogramming with fixed and variable partitions - Memory management with bit maps, linked lists, Buddy system - allocation of swap space. Virtual memory - paging and page tables, associative memory - inverted page tables. Page replacement algorithms.

Module III

File systems and I/O files. Directories - File system implementation - security and protection mechanisms.
Principles of I/O hardware - I/O devices - device controllers - DMA. Principles of I/O software - interrupt handlers - device drivers - Disk scheduling - clocks and terminals. I/O Buffering - RAID- Disk Cache.

Module IV

Deadlock - conditions for deadlock. Deadlock detection and recovery. Deadlock avoidance - resource trajectories - safe and unsafe states - bankers algorithm. Deadlock prevention. Two phase locking – non-resource deadlocks - starvation.
Case Study: UNIX / LINUX operating system

Text Book

1.William Stallings,"Operating systems",Pearson Education, sixth edition2009
2. D.M.Dhamdhere, "Operating Systems", 2nd Edition, Tata McGraw-Hill

Reference

1. Garry Nutt, "Operating Systems – A Modern perspective ", Third Edition, Pearson Education
2. Andrew S. Tanenbaum, "Modern Operating Systems", Prentice Hall
3. Bach, M.J., "Design of UNIX Operating System", Prentice Hall
4. Charles Crowley, "Operating systems – A Design Oriented Approach", Tata McGrawhill, 1997
5. Michel Palmer "Guide o Operating Systems", Vikas Thomson Learning Publishing, NDelhi
6. Pramod Chandra P Bhatt "An Introduction to Operating Statems Concept and Practice,PHI
7. William Stallings,Operating Systems,6th Edition,Pearson,2009,ISBN 978-81-317-2528-3

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15marks

CS/IT 1503 SOFTWARE ENGINEERING

Module *I*
Software Life Cycle - Water fall model – Prototyping – Spiral model – pros and cons of each model.
Requirements Analysis - SRS – DFD – ER Diagrams – Decision tables – Decision Trees – Formal specification techniques: Axiomatic and Algebraic specifications - Petrinets

Module II
Software Design: Design Heuristics – Cohesion and Coupling
Design Methodologies - Structured analysis and design, Architectural Design, Interface design, Component Level design.
Software Reuse and Software Maintenance issues.

Module III
Introduction to Software Quality Management - Software Testing - Objectives of testing – Functional and Structural testing –Generation of test data - Test Plan - Unit testing – Integration testing – System testing – Test reporting.
Overview of SQA Planning – Reviews and Audits – Software configuration
management - Quality Standards - Study of ISO9000 & CMM

Module IV
Software Project Management - Brief study of various phases of Project Management – Planning – Organizing – Staffing – Directing and Controlling
Software Project Cost Estimation – COCOMO model – Software Project Scheduling
CASE tools: CASE definitions – CASE Classifications – Analysis and Design Workbenches, Testing Workbenches

Text Books:
1.   Fundamentals of Software Engineering – Rajib Mall, Second edition, PHI, ISBN: 978-8-12-032445-9.
2.   Software Engineering – Roger S. Pressman, Seventh illustrated edition, McGraw-Hill, ISBN: 978-0-07-337597-7.

References:
1. Software Engineering – Pankaj Jalote, Third illustrated edition, Springer books, ISBN: 978-0-38-720881-7.
2. Software Quality assurance-Milind Limaye-First edition, Tata McGraw-Hill, ISBN: 978-0-07-107252-6.
3. Software   Testing-Principles,   testing   and   tools-M.G.Limaye,   First   edition,   Tata McGraw-Hill, ISBN:978-0-07-013990-9.
4. Managing Software Projects-Frank Tsui, illustrated edition, Jones and Barlett learning, ISBN: 9780763725464.
5. Software engineering-David Gustafson, First edition, Schaum's outline series, ISBN: 978-0-07-053101-7.
6.Foundation Of Software Testing,Aditya P Mathur,Pearson,2008,ISBN 978-81-317-0795-1
8Rajib Mall,Fundamentals of Software Engineering,3rd Edition,PHI Lerarning,2009 ISBN-978-81-203-3819-7

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1504 DESIGN AND ANALYSIS OF ALGORITHMS

Module I

Analyzing Algorithms and problems. Classifying functions by their asymptotic growth rate. Recursive procedures. Recurrence equations - Substitution Method, Changing variables, Recursion Tree, Master Theorem. Design Techniques- Divide and Conquer, Dynamic Programming, Greedy, Backtracking

Module II

Analysis of searching and sorting. Insertion sort, Quick sort, Merge sort and Heap sort. Binomial Heaps and Fibonacci Heaps, Lower bounds for sorting by comparison of keys. Comparison of sorting algorithms. Amortized Time Analysis. Red-Black Trees – Insertion & Deletion.

Module III

Graphs and graph traversals. Strongly connected components of a Directed graph. Biconnected components of an undirected graph.
Transitive closure of a Binary relation. Warshalls algorithm for Transitive closure. All pair shortest path in graphs. Dynamic programming. Constructing optimal binary search trees.

Module IV

Complexity Theory - Introduction. P and NP. NP-Complete problems. Approximation algorithms. Bin packing, Graph coloring. Traveling salesperson Problem.

Text Books:

1. T. H. Cormen, C. E. Lieserson, R. L. Rivest, Introduction to Algorithms, Prentice Hall India,2004
2. Allen Van Gelder, Sara Baase, "Computer Algorithms - Introduction to Design and Analysis", 3rd Edition,2006

References:

1. Anany Levitin, "Introduction to the design and analysis of algorithms", Pearson Education
2. A.V.Aho, J.E.Hopcroft and J.D. Ullman, "The Design and Analysis of Computer Algorithms", Addison Wesley Publishing House, Reading, MA
3. E Horowitz and S Sahni, "Fundamentals of Computer Algorithms", Computer Science Press, Rockville
4. Jeffrey H.Kingston, "Algorithms and Data Structures - Design, Correctness and Analysis ", Addison Wesley, Singapore, 1990
5. Knuth, "Art of Computer Programming Vol II, Sorting and Searching,", Prentice Hall

6. Sara Baase,Allen Van Gelder,Computer Algorithanms, 3rd Edition 2006 ,Pearson ,ISBN 978-81-317-0244-4

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of
15 marks

IT 1 5 05 OBJECT ORIENTED MODELLING AND DESIGN

Module I

 Introduction to UML and Unified Process. Use case modeling: Actors and Use cases, Use case specification, Actor generalization, Use case generalization. Objects and classes, Relationships, Inheritance and Polymorphism, Packages.

Module II

Use case realization: Interactions, Sequence diagrams, Communication diagrams, Interaction occurrences. Activity diagrams: Activity semantics, activity partitions, Sending signals and accepting events, Interaction overview diagrams.

Module III

Design: Design workflow, well-formed design classes, Refining analysis relationships. Interfaces and components. State machine diagrams, Composite states, submachine states.

Module IV

Implementation workflow, Deployment, Introduction to OCL: Why OCL? OCL expression syntax, Types of OCL expressions. Introduction to Software Architecture, Architecture description language (ADL)

Text Book:
1. Michael R Blaha ,James R Rumbaugh,Object Oriented Modeling And Design with UML^{TM,} Second Edition, Pearson,2005 .
2. Jim Arlow and Ila Neustadt, UML 2 and the Unified Process: Practical Object oriented Analysis and Design, Second Edition, Pearson Education.

Reference:
1. Craig Larman, Applying UML and Patterns, 3rd Edition, Pearson Education.
2. Grady Booch, JamesRambaugh,Ivar Jacobson .A.W - The Unified Modeling Language User Guide
3. Bruegge, Object Oriented Software Engineering using UML patterns and Java, Pearson Education
4. James Rambaugh et. al., Object Oriented Modelling and Design –PHI
5. Ivar Jacobson, Grady Booch, James Rambaugh A.W, The Unified Software Development Process.
6. DeLillo, Object Oriented Design in C++, Thomson Learning
7. Object Oriented Analysis & Design,John Deacon,Pearson 2009,ISBN 978-81-317-2606-
8. Michel R Blaha,James R Runbaugh,Object Oriented Modeling & design with UML,2nd Edition,Pearson,2005 ISbn 978-81-317-1106-4
9.Timothy C LethGridge,Robert Laganiere Object Oriented Software Engineering,Tata McGrawhill1991,ISBN 978-0-07-460482-3

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1506 INTERNET PROGRAMMING

Module – I
FUNDAMENTALS OF WEB: Internet, WWW, Web Browsers and Web Servers, URLs, MIME, HTTP, Security, The Web Programmers Toolbox.
XHTML : Basic syntax, Standard document structure, Basic text markup, Images, Hypertext Links, Lists, Tables, Forms, Frames.
CSS: Introduction, Levels of style sheets, Style specification formats, Selector forms, Property value forms, Font properties, List properties, Color, Alignment of text, The box model, Background images, The <span> and <div> tags, Conflict resolution.

Module – II
Javascript: Overview of Javascript, Object orientation and Javascript, Syntactic characteristics, Primitives, operations, and expressions, Screen output and keyboard input, Control statements, Object creation and modification, Arrays, Functions, Constructors, Pattern matching using regular expressions, Errors in scripts, Examples.
Javascript and XHTML Documents:
The Javascript execution environment, The Document Object Model, Element access in Javascript, Events and event handling, Handling events from the Body elements, Button elements, Text box and Password elements, The DOM 2 event model, The navigator object, DOM tree traversal and modification.

Module – III
XML: Introduction, Syntax, Document structure, Document type definitions, Namespaces, XML schemas, Displaying raw XML documents, Displaying XML documents with CSS, XSLT style sheets, XML processors, Web services.
Perl: Origins and uses of Perl, Scalars and their operations, Assignment statements and simple input and output, Control statements, Fundamentals of arrays, Hashes, References, Functions, Pattern matching, File input and output; An Example.
Perl for CGI Programming: The Common Gateway Interface; CGI linkage; Query string format; CGI.pm module; A survey example; Cookies. Database access with Perl and MySQL

Module – IV
PHP: Origins and uses of PHP, Overview of PHP, General syntactic characteristics, Primitives, operations and expressions, Output, Control statements, Arrays, Functions, Pattern matching, Form handling, Files,Cookies, Session tracking, Database access with PHP and MySQL.

Text Books:
1. Robert W. Sebesta: Programming the World Wide Web, 4th Edition,
Pearson Education, 2008. (Listed topics are from Chapters 1 to 5, 7 to 9, 11 and 13)

Reference Books:
1. M. Deitel, P.J. Deitel, A. B. Goldberg: Internet & World Wide Web How to Program, 4th Edition, Pearson Education, 2004.
2. Chris Bates: Web Programming Building Internet Applications, 3rd Edition, Wiley India, 2007.
3. Xue Bai et al: The web Warrior Guide to Web Programming, Cengage Learning, 2003.
4. Robert W Sebesta, Programming with World Wide Web,4th Edition,2008,pearson,ISBN 978-81-317-2417-0

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 15L1 MINI PROJECT – RDBMS BASED

Any of the following projects or similar one using relational database systems like DB2,UNIFY, INGRESS, ORACLE, SYBASE, INFORMIX, Visual Foxpro etc

1. Hospital Automation
2. Bank Transaction Management
3. Hotel Management
4. Scheduling in Power Plant
5. Promotion Management for a Firm
6. Manufacturing System Database
7. Placement Center Database Management
8. Gas Agency Management
9. Office Automation
10. Railway Reservations
11. Computerizing Course Reservation
12. Hostel Management
13. Managing of Research Laboratory Activities
14. Business Transaction in an Industry
15. Inventory Management
16. Cricket Board Database
17. Carrier Planning
18. Employee Database
19. Production Management
20. Natural Resources Database
21. Salary Payment Database
22. Airless Reservations
23. Finance Database Management
24. Transport Management System
25. Library Management System
26. College Admission
27. Question Paper Bank

Each batch comprising of 3 to5 students shall design. Each student shall submit a project report at the end of the semester. The project report should contain the design and engineering documentation including the Bill of Materials and test results. Product has to be demonstrated for its full design specifications. Innovative design concepts, reliability considerations and aesthetics/ ergonomic aspects taken care of in the project shall be given due weight.

Guidelines for evaluation:

i)   Attendance and Regularity   10

ii) Work knowledge and Involvement   30

iii) End-Semester presentation & Oral examination   20

iv) Level of completion and demonstration of
     functionality/specifications   25

v) Project Report   15

Total 100 marks

Note: *Points (i) & (ii) to be evaluated by the project guide & co-ordinator and the rest by the final evaluation team comprising of 3 teachers including the project guide.*

IT 15L2 Operating Systems LAB

1. MASM Lab:
    Basic programming in 8086 programs
2. Generate Assemblers: One
    pass assembler Two pass
    assembler
3. Compiler:
     Generation of lexical Analyzer
     Generation of parser
     Generation of Intermediate Code Generator
     Symbol Table
3. Operating System programs

Note : 50 % marks is earmarked for continuous evaluation, and 50 % marks for end semester examination to be assessed by two examiners .A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

IT 1601 FINANCIAL MANAGEMENT AND E-BANKING

MODULE I The basic concepts of Accounting: The separation of ownership and control, The users of accounts, Computers and users of accounts, Accounting concepts and conventions, Accounting equation, Balance sheet, Classifying items, The processing function. Book-Keeping: The double-entry system, Double-entry of expenses, Asset of stock, Capital and revenue expenditure, Balancing accounts on computers, The trial balance, The final accounts, Depreciation, Bad debts and provision for bad debts, Division of the ledger, Books of original entry, Source documents, Accounting systems, Interpretation of accounts**.**

MODULE II Costing: Cost Accounting, Classifying costs, Break-even analysis, Break-even graphs, Marginal costing. Ratio Analysis: Ratio meaning, profitability ratios, profit in relation to sales, profit in relation to investments, Liquid ratios, Solvency ratios, other ratios, Activity ratios, Eps, DuPont Financial analysis, ratios for predicating bankruptcy, Inter-fim comparison, ratios limitations**.**

MODULE III Fund Flow Statement : Meaning, Importance , Definition of terms, Funds and Flow, Sources and use of funds, Changes in working capital, Preparation of funds flow statements, cash flow statements, Sources and uses, preparation. Cost Reduction: Difference between cost control and cost reduction, Prequisites for an effective cost reduction, Concept of value analysis- crux of the cost reduction, steps involved in introducing a cost reduction program, some examples of cost reduction, Common limitations**.**

MODULE IV   E-BANKING

Changing Dynamics in the Banking Industry, Changing Consumer Needs, Cost ,DemographicTrends,Regulatory Reform, Technology Based Financial services products.Home Banking Implementation Approaches, Home Banking Using Bank's Proprietary Software, Banking via the PC Using Dial-Up Software, Banking via Online Services, Banking via the Web:Security First Network Bank.Open versus Closed Models, Management Issues in Online Banking, Differentiating Products and Services, Managing Financial Supply Chains, Pricing Issues in Online Banking, Marketing Issues: Attracting Customers, Keeping Customers, Back- Office Support for Online Banking, Integrating Telephone Call Centers with the Web.

REFERENCES

1. Nand Dharmeja & K.S. Sastry ,Finance & Accounting for Managerial Competiveness Weeler Publishing, Allahabad

2. Eugene.F.Brigham & Joel F Houston- Fundamentals of Financial Management –Thomson Learning.

3. P.H. Bassett - Computerised Accounting, NCC Blackwell Ltd. , Oxford, 1994

4. M.C Shukla & T.S.Grewal, Advanced Accounts- S.Chand & Co. , New Delhi

5. Ravi Kalkota,Andrew B.Whinston,Electronic Commerc A Manager's Guide Pearson Education 2006.

6. Khan and Jain - Theory and Problems in Tata Mc Graw Hill Financial Management

7. I.M.Pandey - Financial Management ,Vikas Thomson Learning - Publishing, NewDelhi

Type of questions for University Examination
Question 1- 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

CS/IT 1602 COMPILER CONSTRUCTION

Module I

Compiler: Introduction – Analysis of the source program – phases of a compiler – Lexical analysis – Role of the lexical analyser – Input Buffering -- Specification of tokens – Recognition of tokens – Lexical analyser generators.

Module II

Syntax Analysis – Role of the parser – Context free grammars – Top-down parsing – Bottom-up parsing – Operator precedence parsing – LR parsers (SLR, Canonical LR, LALR) – Parser generators.

Module III

Syntax-directed translation – Syntax-directed definitions – S-attributed definition – L-attributed definition – Top-down and bottom-up translation – Type checking – Type systems – Specification of a type checker. Run time environment – Source language issues – Storage organization – Storage allocation strategies – Access to nonlocal names – Symbol tables.

Module IV

Intermediate code generation – Intermediate languages – Declaration – Assignment Statement – Boolean expression – Procedure calls - Code optimization – Introduction – Sources of optimization – Introduction to data flow analysis. Code generator – Issues in the design of a code generator, the target machine, A simple code generator.

Text Books:

1. Alfred V. Aho, Ravi Sethi & Jeffrey. D. Ullman, "Compilers Principles, Techniques
   & Tools", Pearson

References:

1. Kenneth.C.Louden, Compiler Construction:Principles And Practice, Thomson
   Learning, India
2. Keith D. Cooper & Linda Torczon, Engineering a Compiler, 2nd edition, Elsevier,
   New Delhi.
3. S.S. Muchnick, Harcourt Asra, Advanced Compiler Design implementation, Morgan
   Kaufman, 1997
4. Alan Holub, Compiler Design in C, PHI
5. Dorling Mindersley, Principles of Compiler Design,ITL Education Solution LTd,2012,ISBN 978-81-317-6126-7

Type of questions for University Examination

Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1603 KNOWLEDGE ENGINEERING

MODULE I:
Problems and Search: What is Artificial Intelligence, The AI Problems, Defining the Problem as a State Space Search, Production systems, Problem Characteristics, Production System Characteristics, Issues in the Design of Search Programs
Heuristic Search Techniques: Generate-and- Test, Hill Climbing, Best-First Search, Problem Reduction, Constraint Satisfaction, Means-Ends Analysis.
GAME PLAYING: Minimax search procedure, Alpha-beta cutoffs

MODULE II
Knowledge Representation:- Knowledge Representation Issues,Representations and Mappings, Approaches to knowledge Representation,Issues in Knowledge Representation, TheFrameProblem.
Using Predicate Logic:- Representing Instance and Isa Relationships, Computable Functions and Predicates, Resolution, Natural Deduction.
Representing Knowledge Using Rules:- Procedural Versus Declarative knowledge, Logic Programming, Forward versus Back ward Reasoning, Matching, Control Knowledge.

MODULE III
Symbolic Reasoning under Uncertainty:- Introduction to Nonmonotonic Reasoning, Logics for Nonmonotonic Reasoning, Implementation Issues, Augmenting a Problem solver, Implementation:Depth-First Search, Implementation: Breadth_First Search.
Statstical Reasoning:- Probability and Baye's Theorem, CertaintyFactors and Rule-Based Systems, Bayesian Networks, Dempster-Shafer Theory, Fuzzy Logic.
Weak Slot-and-Filler Structures:- Semantic Nets, Frames.
Strong Slot-and Filler Structures: Conceptual Dependency, Scripts, CYC.

MODULE IV
Learing: What is learning,Rote learning,Learing by Taking Advice,Learing in Problem-solving,Learing from example:induction,Explanation-based learning
Connectionist Models: Introduction: Hopfield Networks,Learning in Neural Networks, Learning in Neural Networks,Applications of Neural Networks,Recurrent Networks

Text Books:
1. Elaine Rich and Kevin Knight, "Artificial Intelligence", Tata McGraw-Hill Publishing Company Ltd., New Delhi, Third Edition, ISBN: 13:978-0-07-008770-5, 2010.
References:
1. Dan W.Patterson, "Introduction to Artificial Intelligence and Expert Systems", Prentice Hall India Ltd., New Delhi, 2009, ISBN: 81-203-0777-1 .
2. Amit Konar,Artificial Intelligence and Soft Computing,CRC Press
3. Rajendra Akerkar, Introduction to Artificial Intelligence, PHI Learning Pvt. Ltd. , 2005, ISBN: 81-203-2864-7.
4. Akshar Bharati, Vineet Chaitanya, Rajeev Sangal, "Natural Language Processing: A Paninian Perspective", Prentice Hall India Ltd., New Delhi, 1996, ISBN 10: 8120309219

Type of questions for University Examination

Question 1- 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1604 Formal Languages And Automata Theory

Module I

Finite Automata and Regular Expression:NFA ,DFA, Equivalence of NFA and DFA, Equivalence of NFA and NFA with epsilon moves, regular expression, Equivalence of regular expression and finite automata, Finite automata with output , Equivalence of finite automata with output ,Applications of Finite automata, Properties of Regular sets: Pumping Lemma , closure properties , My Hill Nerode theorem

Module II

Context Free Grammars: Derivations parse Trees, Ambiguity Simplification-
CNF,GNF.
Push Down Automata: DPDA, equivalence of PDA and CFL, pumping lemma for CFL, Closure Properties, decision algorithms.

Module III

Turing machine: TM model,Computational Languges and Functions,Techniques for construction of TM , NDTM , undecidability, universalTM, Properties halting problem of TM.
Properties of recursive & recursive enumerable languages.

Module IV

Chomsky Hierarchy : equivalence of regular grammar and FA , equivalence of unrestricted grammar and TM , Equivalence of LBA and CSL, Relation between languages

Text Books:
1. J E Hopcroft and J D Ullman Introduction to Automata Theory ,Languages and
    Computation,Pearson Education.
2. John C Martin,Introduction to Languages and the theary of computation,3rd edn,The McGraw-Hill Companies.

References:
1. Misra and Chandrasekharan, Theory of Computation, Prentice Hall
2. H R Lewis Papadimitrou, Elements of Theory of Computation PHI
3. John Martin, Introduction to Language and Theory of Computation, TMH
4. Peter Linz, An Introduction to Formal Languages and Automata Narosa Publucation
5. Michael Sipser, Introduction to the Theory of Computation, Thomson Learning
6. K V N Sunitha, N Kalyani, Formal Langusges And Automata Theory,McGrawHill
   Shymalendu Kandar,2012,Dorling Kindersley,Automata Theory and Formal Languages,ISBN:978-81-317-6077-2

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1605 COMPUTER GRAPHICS AND ANIMATION

MODULE I

Computer – Aided Design, Presentation graphics, Computer art, Entertainment ,
Education & Training, Visualization, image- Processing, Graphical User Interfaces, Over view of graphic systems. Points and Lines, Line drawing algorithms, Circle Generating algorithms, Ellipse generating algorithms, Parallel curve algorithms, Attributes of output primitives.

MODULE II

Basic transformations, Matrix representations and homogeneous co-ordinates, Composite
transformations, other transformations, Raster methods for transformations. The viewing Pipe-Line , Viewing Co-ordinate reference frame, Window-to-viewport co-ordinate transformation, 2-D viewing functions, Clipping operations.

MODULE III

3-D Display methods, 3-D Graphics packages. Polygon surfaces, Curved lines and
surfaces, spline representations, Bezier curves and surfaces, B-spline curves and surfaces, Beta splines, Relational splines, Conversion between spline representations, Displaying spline curves, Sweep representations, Constructive Solid-Geometry Methods, Octrees, BSP trees, Fractal Geometry methods.

MODULE IV

Transformation, Rotation scaling, Other transformations , composite Transformations, 3-
D Transformation functions, Modeling and co-ordinate transformations, 3-D Viewing concepts.Classification of visible surface detection algorithms, Back-face detection, Depth-Buffer method, A-Buffer method, Scan-Line method, Depth-Sorting method, BSP- Tree method, Area subdivision method, Octree methods, Ray-Casting methods, Curved surfaces, Wireframe methods, Visibility- Detetction functions, Illumination models and surface rendering methods, colour applications, Computer Animation.

TEXT BOOK

1. Donald Hearn & M.Paulin Baker, Computer Graphics- Eastern Economy Edn, 1995

REFERENCES :

1. William .M.Newmann & Robert.F.Sproull- Principles of Interactive Computer
    Graphics, McGraw Hill Inc. 1981
2. Roy .A. Plastock & Gordon Kelly- Computer graphics, Schaum's Series in
    Computers , Int Edn.
3. Steven Harrington- Computer Graphics – A Programming Approach
    McGraw Hill ,Int Edn.4.
4. Anirban Mukhopadhyay,"Introduction to Computer Graphics", Vikas Thomson
    Learning Publishing, N Delhi
5. Peter Ratner, "Human Modeling & Animation", Wiley Dream Tech India P Ltd, N Delhi
6. Chennakesava R Alavala "Computer Graphics",PHI

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1606 E1 BIOINFORMATICS

Module I

Basic Concepts of Molecular Biology: Cells - Chromosomes, DNA, RNA, Proteins, Central dogma of molecular biology, Genomes and Genes - Genetic code, Transcription,

Translation and Protein synthesis. Web based genomic and proteomic data bases: NCBI, Gene Bank

ModuleII

Sequence alignments – Dot plot-Pair-wise sequence alignments - local and global - Sequence similarity and distance measures - Smith-Waterman algorithm, Needleman- Wunch algorithm, Multiple sequence alignment –Sum-of-Pairs measure - Star and tree alignments – PAM and BLOSUM, Phylogenetic analysis

ModuleIII

Informational view of Genomic data, Genomic Signal Processing, DNA Spectrograms, Identification of protein coding regions, Gene expression, Microarrays, Microarray image analysis

ModuleIV

Gene structure in Prokaryotes and Eukaryotes: Molecular Structure Prediction: Basic concepts and terminologies related to molecular structures, Basic molecular Visualization, RNA secondary structure prediction, Protein folding problem, Protein Threading, Protein Visualization, Introduction to Drug Discovery.

CaseStuy

Software Tools: Use of Tools for basic and specialized sequence processing such as: BLAST, FASTA, RasMol, Phylip, ClustalW

TextBook:

1. Setubal & Meidanis, *Introduction to Computational Molecular Biology*,
       Thomson:Brooks/Cole, International Student Edition, 2003

2. Claverie & Notredame, *Bioinformatics - A Beginners Guide*, Wiley-Dreamtech India
       Pvt Ltd, 2003.

References:

1. Lesk, *Introduction to Bioinformatics*, Oxford University Press, Indian Edition, 2003

2. Higgins and Taylor, *Bioinformatics: Sequence, structure and databanks*, Oxford
       University Press, Indian Edition, 2003

3. Bergeron, *Bioinformatics Computing*, Prentice hall of India, 2003

4. Jiang, Xu and Zhang, *Current topics in Computational Molecular Biology*, Ane
       Books, New Delhi, 2004

5. S.C Rastogi & Namitha Mendiratta, *Bioinformatics method and application
       Genomics, Protinomics & drug discovery*, Prentice-Hall India Ltd, 2nd ed.

6. Dov Stekel, *Microarray, Bioinformatics*, Cambridge University Press, 2003

7.   Shuba Gopal,Rhys Price Jones,Paul Tymann,Anne Hakke Bioinformatics,,Tata McGraw Hill,2010,ISBN:978-0-07-014624-2,0-07-014624-1

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions fromone module
Question 2-5 – There will be two choices from each module .Answer one question from each module of15mars

7

IT 1606 E2 PARALLEL COMPUTER ARCHITECTURE & PROGRAMMING

Module I.
Introduction to Parallel Processing-Shared Memory Multiprocessing-Distributed Memory-Parallel Processing Architectures- Introdution-Parallelism in sequential Machines—Abstract Model of Parallel Computer – Multiprocessor Architecture- Array Processors.

Module II.
Pipelining and Super Scalar Techniques-Linear Pipeline Processors-Non-Linear Pipeline processors-Instruction pipeline design-Arithmetic pipeline Design- Super Scalar and Super pipeline Design.

Module III.
 Programmability Issues-An Overview-Operating system support-Types of Operating Systems-Parallel Programming models-Software Tools-Data Dependency Analysis- Types of Dependencies-Program Transformations.

Module IV.
Shared Memory Programming-Thread –based Implementation-thread Management- Attributes of Threads- Mutual Exclusion with Threads- Mutex Usage of Threads- Thread implementation-Events and Conditions variables-Deviation Computation with Threads- Java Threads
          Distributed Computing –Message   Passing Model-General Model-Programming Model- PVM.

Text Books
1. Kai Hwang, "Advanced Computer Architecture: Parallelism, Scalability, Programmability", McGRawHill International Edition, 1993.
2. M.Sasikumar, et.al., "Introduction to Parallel Processing", PHI, New Delhi, 2000

References
1. P. Pal Chaudhuri , "Computer Organisation and Design", PHI, New Delhi, 1994.
2. Parthasarathy, Advanced Computer Architecture, Thomson Learning
3. William Stallings, "Computer Organisation and Architechture", PHI, New Delhi, 1996.
4. "Proceedings of Third International Conference on High Performance Computing", IEEE, Computer Society Press , California, USA, 1996.
5. "Parellel Processing", Learning Material Series, Indian Society for Technical Education, New Delhi, 1996.
6. V.Rajaraman, C. Siva Ram Murthy, "Parallel Computers Architecture and Programming", PHI, New Delhi, 2000

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1606 E3 DATA MINING AND WAREHOUSING

MODULE I

Definition Data Mining, Data Mining- On What kind of Data, Data Mining Functionalities, Classification of Data Mining Systems, Major Issues in Data Mining.

MODULE II

Data Warehouse and OLAP Technology: What is Data Warehouse, A Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, From Data Warehouse to Data Mining.

MODULE III

Data Preprocessing: Why preprocess the data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

MODULE IV

Concept Description: Definition,   Data Generalization and Summarization – Based Characterization, Analytical Characterization, Mining Class Comparisons, Mining Descriptive Statistical Measures in Large Databases, Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases.

TEXT BOOK:

1.   Jiawei Han & Micheline Kamber, "*Data Mining Concepts",* Morgan Kaufmann Publishers

REFERENCE:

1. Pudi, Data Mining & Data warehousing, Oxford
2. Alex Berson, Stephen J. Smith, "Data Warehousing, Data Mining and OLAP", McGraw Hill.
3. Margaret.H.Dunham *,"Data Mining. Introductory and advanced topics*", Pearson Education,2003.
4. Pieter Adriaans, Dolf Zantingo, "Data Mining", Addison Wesley, 1998
5. Pang- Ning Tan, Michael Steinbach & Vipin Kumar, "Introduction to Data Mining" Addison Wesley, 2006
6. Amitesh Sinha, Data Warehousing, Thomson Learning

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

CS/IT 1606 E4   EMBEDDED SYSTEMS

Module I
Overview of Embedded System:- Embedded System, Categories of Embedded System, Requirements of Embedded Systems. Embedded system design process-requirements-specification-architecture design-Designing hardware and software components-System integration. Instruction sets-Computer architecture taxonomy-ARM processor: architecture and memory organization-Data operations-Flow control-TI C55x DSP: Processor and memory organization- Addressing modes-data operations.

Module II
CPUs: Programming input and output-Supervisor mode,Exceptions and Traps-Coprocessors-Memory system mechanism-CPU performance-CPU power consumption.
Program Design and analysis: Components of embedded program-Model of programs-Assembly ,linking and loading-Basic compilation techniques-Program optimization-Program level performance analysis-Software performance optimization-Program level energy and power analysis-analysis and optimization of program size- program validation and testing

Module III
Introduction to Real Time Operating System **:** Task and task states,task and data, semaphore and shared data,message queues, mail boxes,pipes,time functions,events,Memory management,interrupt routines in RTOS environment. Preemptive real time operating systems-priority based scheduling-Rate monotonic scheduling-Earliest deadline first scheduling-Interprocess communication mechanism-Evaluating OS performance-Power management and optimization of processes.

Module IV
Real Time & Database Applications: - Real-Time Embedded Software Development, Sending a Message over a Serial Link. Distributed embedded architectures-I2C bus-Field bus-Internet enabled systems-Vehicles as networks-Sensor networks.

Text Books:

1. Wayne Wolf, " Computer as Components-Principles of Embedded Computing System
     Design", Elsevier,Morgan Kaufman,2008 ISBN-13: 978-155860541
2. K.V.K.K Prasad,*Programming for Embedded System*s,Dreamtech Software Team,
     Wiley Dreamtech,2005 ISBN-13:978-8177224610

References:

1. Raj Kamal, "Embedded Systems: Architecture, Programming and Design" McGraw-Hill
    Education (India); 2nd Edition edition (March 9, 2009) ISBN-13: 978-0070151253
2. Steve Heath "Embedded Systems Design" Newnes (2002) ISBN-13: 978-0750655460
3. Tammy Noergaard "Embedded Systems Architecture: A Comprehensive Guide for
    Engineers and Programmers" Newnes (February 24, 2005) ISBN-13: 978-0750677929
4.Introduction to Embedded Systems,Shibu K V,Tata Mc Graw Hill,2009,ISBN:978-0-07-0141589-4,0-07-014589-X

 Type of questions for University Examination

 Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module

 Question 2-5 – There will be two choices from each module .Answer one question

 from each module of 15 marks

IT 16L1 COMPUTER GRAPHICS LAB

This lab exercises are to be done in JAVA language

1.   Program to draw line using Bresenham's algorithm for all quadrants.

2.   Program to draw a circle.

3.   Program to draw an ellipse.

4.   Program to draw a spiral using Bresenham's circle drawing algorithm.

5.   Procedure to move a line around the circle.

6.   Procedure to rotate a wheel.

7.   Procedure to translate a circle.

8.   Program to show 2D clipping and windowing.

9.   Development of 2D graphics package.

10.   Segmentation.

Note : 50 % marks is earmarked for continuous evaluation, and 50 % marks for end semester examination to be assessed by two examiners .A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.
   .

IT 16L2 MINI PROJECT – INTERNET BASED

Design and development of an online web oriented commercial site.
Concepts: Server side scripting through ASP or JSP or PHP, Client side scripting through Java Script or VBScript, Web servers like IBM Web Sphere or Tomcat or IIS or Apache, Web Application development framework using IBM Web sphere studio or PHP Triad or Visual studio .Net, Web concepts to mobile devices using WML, WAP, XML. Students can do any of the following sample projects or similar ones:

1. Online auction management system
2. Online ticket reservation system
3. Online banking
4. Online academic softwares like Tutors, Admission, Examination etc.
5. Mobile programming using web services. Here a web service can be a cricket score, weather forecast, railway timing and so on.
6. News aggregators
7. Download managers
8. Email software
9. Mobile – Website communication using SMS
10. Online file repositories.

Each batch comprising of 3 to5 students shall design. Each student shall submit a project report at the end of the semester. The project report should contain the design and engineering documentation including the Bill of Materials and test results. Product has to be demonstrated for its full design specifications. Innovative design concepts, reliability considerations and aesthetics
/ ergonomic aspects taken care of in the project shall be given due weight.

Guidelines for evaluation:

i) Attendance and Regularity	10
ii) Work knowledge and Involvement	30
iii) End-Semester presentation & Oral examination	20
iv) Level of completion and demonstration of functionality/specifications	25
v) Project Report	15
Total	100 marks

Note. *Points (i) & (ii) to be evaluated by the project guide & co-ordinator and the rest by the final evaluation team comprising of 3 teachers including the project guide.*

CS/EB/EC/EE/EI/IT 1701 INDUSTRIAL ORGANIZATION AND MANAGEMENT

Module I
Organisation: Introduction, definition of organization, system approach applied to organization, necessity of organization, elements of organization, process of organization, principles of organization, formal and informal organization, organization structure, types of organization structure .
Forms of business organization: Concept of ownership organization, types of ownership. Individual ownership, partnership, joint stock Company, private and public limited company, co-operative organizations, state ownership, public corporation

Module II
Basic concept of management: Introduction, definitions of management, characteristics of management, levels of management, management skills
Management theory: Scientific management, contribution of Gilbreth. Gantt, Neo-classical theory, modern management theories
Functions of management: Planning, forecasting, organizing, staffing, directing, motivating, controlling, co-coordinating, communicating, decision making.

Module III
Personnel management: Introduction, definition, objectives, characteristics, functions, principles and organization of personnel management
Markets and marketing: Introduction, the market, marketing information, market segmentation, consumer and indusial markets, pricing, sales, physical distribution, consumer behaviour and advertisement.
Financial management: the basics , financial accounts, inflation, profitability, budgets and controls, cost accounting, valuation of stock, allocation of overheads, standard costing ,marginal costing

Module IV
Productivity and production: Measurement of productivity, productivity index productivity improvement procedure
Materials management and purchasing: Objectives, functions, importance of materials management. Stores and storekeeping
Inventory control: Classification, functions, inventory models, inventory costs, EOQ, Materials requirement planning

References:
1. Fraidoon Mazda, Engineering Management-, Addison -Wesley
2. Koontz and O'Donnell, Essentials of Management, Mc Graw Hill
3. Kotlar P, Marketing Management, Prentice Hall India
4. Prsanna Chandra , Finance Management,TMH.5th ed.,
5. Monks J.G Operations Management ,MGH

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from each module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1702 OPERATIONS RESEARCH

Module I

Linear Algebra : Review of the properties of matrices and matrix operations, partitioning
of matrices, vectors and Euclidean spaces , unit vectors , sum vectors, linear dependence, bases, spanning set , rank, product form of inverse, simultaneous equations , basic solutions, point sets, lines and hyper planes, convex sets, extreme points, fundamental theorem of linear programming.

Module II

Linear Programming : Statement of LP problem, slack and surplus variables, basic
feasible solutions, reduction of feasible solutions to basic feasible solutions, artificial variables, optimality conditions, unbounded solutions, Charne's M method, two phase method, degeneracy, duality. Rectangular zero sum games : Von Neumans' theorem, saddle points, pure and mixed strategies , formulation of primal and dual LP problem for mixed strategies, dominance graphical solution.

Module III

Transportation, Assignment & Game problems : the transportation problem, the
coefficient matrix and its properties , basic set of column vectors , linear combination of basic vectors, the tableau format, stepping stone algorithm, U-N method , inequality constraints, degeneracy in transportation problem , Koening's method

Module IV

Queueing theory : Basic structure of queueing models, exponential and poisson
distribution, the birth and death process , queueing models based on poissons input and exponential services time, the basic model with constant arrival rate and service rate, finite queue, limited source Q models involving non exponential distributions, single service model with poission arrival and any services time distribution , poission arrival with constant service time , poisson arrival with constant service time , poission arrival and Erlang service time priority disciplines.

References

1) Hamdy.A Taha : Operation Research, 8th Edition, Pearson Education
2) Hadely G. : Linear Programming(Addision Weselys)
3) Hiller & Lieberman : Operation Research (Holden – Day – Inc)
4) Sasieni, Yaspen & Friedman : Operation Research
5) Gue & Thomas : Operation Research
6) S.Kalavath : Operation Research-Vikas Thomson Learning Publishing, NewDelhi
7) N.G.Nair : Resource Management-Vikas Thomson Learning
      Publishing,NewDelhi
8) C.R.Kothari : Introduction to Operational Research- Vikas Thomson Learning
      Publishing, NewDelhi

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1703 INTERNETWORKING

Module I:

TCP/IP Internet,Internet services,Internetworking Concept and Architectural model,
Internet Addresses:Classful Internet Addresses, ARP,RARP,
Internet Protocol: connectionless datagram delivery,routing IP datagrams,ICMP,Classless and subnet adress extensions(CIDR**),** Protocol layering,UDP,TCP.

ModuleII:
Routing:The origin of Gateway routing tables, Original Internet Architecture and Cores, Core Gateways, Automatic route propagation, Vector distance (Bellman-Ford), routing, Gateway to Gateway Protocol (GGP), Autonomous system concept, Exterior Gateway Protocol (EGP), Interior Gateway Protocol (RIP, OSPF, HELLO), Routing Information Protocol (RIP), Combining RIP, HELLO, and EGP, Routing with partial information.

Module III:
Internet multicasting,Mobile IP,Private Network Interconnection,Client Server Model,Sock Interface.
Bootstrap and autoconfiguration: BOOTP,DHCP.Domain Name System.

Module IV:
Remote Login:TELNET-File Transfer and access(FTP,TFTP,NFS)-E-mail-WWW-Voice and Vedio over IP**-**Internet managment- Internet Security and Firewall design-Ipv6.

Text Book:
1.Douglas E.Comer,Internetworking with TCP/IP, Volume 1 Pearson Education.

References:
1. Youlu Zheng and Shakil Akhtar, *Networks for Computer Scientist and Engineers,*
    Oxford University Press,2006
2. James.F.Kurose & Keith W.Ross , *Computer Networking –A Top Down approach*
    featuring Internet, 3/e, Pearson Education,2005.
3. Douglas E.Comer, *Computer Network and Internets, 2/e*, Person education ,2003.
4. Andrew S.Tanenbaum, *Computer Networks* ,$/e Edition,Pearson education,2003
5. William Stallings, *Wireless Communicatuion Networks*, 2/e, Pearson Education,2003.
6. Nathan J. Muller, *Bluetooth Demystified***,** McGraw-Hill Professional Publishing,2000
7.TCP/IP Illustarte Volume I ,The Protocols,W.Richard Stevens

Type of questions for University Examination

Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1704 MOBILE COMPUTING

ModuleI

Review of wireless and mobile communication (covered in Advanced Computer
Networks)-Mobile computing architecture-Pervasive Computing-Voice oriented data Communication, Operating System for Mobile Computing, Mobile Devices, cards and sensors, Mobile computing applications: messaging-SMS-MMS-GPRS applications- Mobile agents.

ModuleII

Wireless Internet-Mobile IP-wireless web-Web services and mobile web services-
Wireless middleware-wireless gateway and mobile application servers-Wireless Access Protocol(WAP)-WAP protocol layers. Mobile database management:-data caching, transaction models, processing queries, Data recovery, QoS .Mobile Transport Layer

Module III

Cellular network- First Generation Networks-Second generation (2G): GSM-CDMA
network .data over cellular network-2.5G network-GPRS-GPRS System Architecture and Protocol layers. EDGE. Third generation network(3G) network-MMS-introduction to 4G and 5G systems-Emerging wireless networks: Ultra wide band(UWB)-Free space optics(FSO)-Mobile ad-hoc network(MANET)-Wireless sensor networks-OFDM and Flash OFDM

ModuleIV

Wireless security-WLAN security-cellular wireless network security-Mobile ad-hoc
network security-Internet security protocols: VPNs and IPSec-Wireless middleware security-SSL for wireless web security-WAP security and WTLS. Client programming tools-using XML and UML for mobile computing –J2ME.

Text Book:

1. Raj Kamal, *Mobile Computing,* Oxford University Press, 2007

References:

1. Amjad Umar**,** Mobile Computing and Wireless Communications,NGE Solutions,2004
2. Asoke Talukder,Roopa Yavagal, *Mobile Computing,*McGrawhill,2006
3. Reza Behravanfar, Phillip Lindsay, Reza B'Far*, Mobile Computing Principles: designing and developing mobile applications with UML and XML*,Cambridge University Press,2006.
4. U. HansMann, L Merk, M.S. Nicklous and T. Stober, *Principles of Mobile Computing*, 2/e- Spniyer, 2003
5. Schiller J, *Mobile Communications*, 2/e-Addison Weslay,2003.

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1705 E1 DIGITAL IMAGE PROCESSING

Module I.   Image representation and modelling - enhancement - restoration - Image analysis and reconstruction - image data compression. Two dimensional systems - linear systems and shift invariance. Fourier transform - Z - transform - Block matrices and Kronecker products - Random signals

Module II.   Image perception - introduction - light - luminance - brightness and contrast - MTF of the visual system - visibility - function - monochrome vision models - color representation - color matching and reproduction - color vision model Image sampling and quantization - Two dimensional sampling theory - reconstruction of images from its samples - Myquistrate - aliasing - sampling thorem. Practical limits in sampling reconstruction. Image quantization - visual quatization.

Module III.   Image transforms - Two dimensional orthogonal and unitary transforms - properties of unitary transforms - one dimensional DFT - cosine, sine Harmrd and Haar transforms
               Image enhancement - Point operations - contrast stretching - clipping and thresholding - digital negative intensity level slicing - bit extraction. Histogram modelling - histogram equalisation - modification. Spatial operations - smoothing techniques. Magnification and interpolation. Transform operations. Color image enhancement.

Module IV.   Image analysis and computer vision - spatial feature extraction - transform features. Edge detection - gradient operators - compass operators - stochastic gradients - line and spot detection.

Text Books

1) Jain Anil K , "Fundamentals of Digital Image Processing-" , Prentice Hall
2) Gonzalez Rafel C, Wintz Paul , "Digital Image Processing,-", Addison Wesley

References:

3) Pratt William K , "Digital Image Processing, ", John Wiley and Sons
4) Rosenfield Azriel, Kak Avinash C, " Digital Picture Processing", Academic Press Inc.
5)   Malay K Pakhira,"Digital Image Processing And Pattern Recognition,PHI

Type of questions for University Examination

Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1705 E2 CRYPTOGRAPHY AND DATA SECURITY

Module I

Cryptography and Cryptanalysis – aspects of security – cryptanalytic attacks –
Transposition ciphers – substitution ciphers – the Hagelin Machine – Statistics and Cryptanalysis –
The information theoretical approach – general scheme – information measure and absolute security –
The unicity distance – Error probability and security – Practical security.

Module II

The DES algorithm-Characteristics of DES-Alternative Descriptions-Analysis of DES-
The modes of the DES-Future of DES-International Data Encryption Algorithm-Stream and Block
Enciphering –The theory of finite state machines-shift registers-Random properties of shift register
sequences-the generating function-Cryptanalysis of LFSRs- Non-linear Shift registers.

Module III

Public Key Systems-The RSA system-The knapsack system-cracking the knapsack
system-Public key systems based on elliptic curves. Authentication and Integrity- Protocols-
message integrity with the aid of Hash functions-Entity authentication with symmetrical algorithm-
Message authentication with digital signatures-Zero knowledge techniques.

Module 1V

Key Management and Network Security – General aspects of key management – key
distribution for asymmetrical systems – key distribution for symmetrical algorithms- Network security-
Fair cryptosystems.

References :-

1. Jan C A – Basic Methods of Cryptography –Cambridge University Press
2. Thomas Calabrese, Thomson Learning - Information Security Intelligence: Cryptographic Principles & Applications .
3. Wenbo Mao, Modern Cryptography: Theory and Practice –Pearson Education
4. Dorothy Elizabeth Robling Denning, Cryptography and Data Security - Addison Wesley Publishing Co
5. Fine Worlds and Encryption - TMH
6. Niels Ferguson, Wiley - Bruce Schneier's Practical Cryptography
7. Micheal Welschenbac - Crytography in C & C++
8. Rich Helton, Wiley = Crytography & Algorithm

9. Dorling Mindersley Cryptography and Networking Security, ITL Education Solution LTd, 2012, ISBN 978-81-317-6452-7

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

CS/IT 1705 E3 NEURAL NETWORKS

Module I

Introduction to neural networks. Artificial neural networks. Biological neural networks-
Comparison , Basic building blocks of ANN. Activation functions. McCulloch-Pitts Neuron Model,
Hebb net. Learning Rules-Hebbian Learning Rules, Perceptron, Delta, Competitive, Boltzmann.
Perceptron networks- single layer, multilayer –algorithm.

Module II

Feedback Networks, Discrete Hopfield nets, Continuous Hopfield nets. Feed Forward
Networks: Back Propagation Networks, Learning Rule, Architecture, training algorithm. Counter
Propagation Network: Full CPN, Forward only CPN, architecture, training phases.

Module III

 Adaptive Resonance Theory, architecture, learning in ART, Self Organizing feature
maps: Kohonen SOM, Learning Vector Quantization, Max net, Mexican Hat, Hamming net. Associative
memory networks Algorithms for pattern association Hetero associative networks, Auto associative
memory networks Bidirectional associative memory networks Energy Function.

Module IV

Special networks: Probabilistic neural networks, Cognitron, Simulated Annealing,
Boltzmann machine, Cauchy machine, Support Vector Machine Classifiers. Application of Neural
networks In Image Processing and classification. Introduction to Fuzzy systems, Neuro fuzzy
sytems.

Text books:

1. Laurene   Fausett: *"Fundamentals   of   neural   networks"*,   Prentice   Hall,   New
   Jersey,1994.
2. James A. Freeman, David M. Skapure: Neural Networks Algorithms, Applications and Programming
   Techniques, Addison-Wesley, 1990.

References:

1. S   N   Sivanandan: *"Introduction   to   neural   networks   using   "MATLAB"*,
   TataMcGrawHill New Delhi.,2004
2. Kevin Gruney: "An Introduction to neural networks", CRC Press,1997.
3. D. L.Hudson & M. E. Cohen: "*Neural Networks and Artificial Intelligence in
   Biomedical Engg."*, Prentice Hall Of India, New Delhi.,1999
4. James A. Anderson, "*An Introduction to Neural Networks", Prentice Hall of
   India,1995.*
5. Simon Haykin: "*Neural Networks"*, Pearson Education1998
6. Yegnanarayana: "*Artificial Neural Networks"*, Prentice Hall of India2004.
7. Jack M. Zureda, *Introduction to Artificial Neural Systems,1992*
8. R B Mishra,*Artificial Intelligence*, PHI

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of
15 marks

7

IT 1705 E4: Human Computer Interaction

Module 1.
MODELS, THEORIES, AND FRAMEWORKS:On the Effective use and Reuse of HCI, KnowledgeMacrotheory for Systems of Interactors,Design of MoRAS,Distributed Cognition: Toward a New Foundation for Human- Computer Interaction Research

Module II.
USABLITY ENGINEERING METHODS AND CONCEPTS:The Strategic Use of Complex Computer Systems,User Interface Evaluation: How Cognitive Models can Help,HCI in the Global Knowledge – Based Economy: Designing to Support Worker Adaptation,A Reference Task Agenda for HCI,The Maturation of HCI: Moving Beyong Usability Toward Holistic Interaction

Module III.
USER INTERFACE SOFTWARE AND TOOLS:
Past, Present, and Future of User Interface Software Tools,Creating Creativity: User Interfaces for Supporting Innovation,Interaction Spaces for Twenty – First – Century Computing

Module IV
GROUPWARE AND COOPERATIVE ACTIVITY:Computer – Mediated Communications for Group Support: Past and Future,Intellectual Challenge of CSCW: The Gap Between Social Requirements and Technical Feasibility,Social Transluscence: Designing Systems That Support Social processes,Transcending the Individual Human Mind: Creating Shared Understanding through Collaborative Design,The Development of Cooperation : Five Years of Participatory Design in the Virtual School,Distance Matters .

Text Books:
1.John M Carroll: Human Computer Interaction,Pearson
2.Alan Dix,Janet Finlay: Human Computer Interaction,Pearson

REFERNCES:

1. Designing user interface----Ben Schneiderman[ISBN:0-201-69497-2]
2. Designing visual user interface: Communication oriented techniques ---Kevin Mullet and Darrell Sano [ISBN:0-201-54364-8]
3. Usability Engineering : Jacob Nielson[ISBN: 0-125-18406-9]
4. Graphic design for Electronic documents and user interfaces --- Aaron Marcus[ISBN:0-201-54364-8]

Type of questions for University Examination

Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 17L1COMPUTER NETWORK LAB

1.Familiarisation/Introduction to:
      (a) Network components such as
         Modem, Gateways, Routers, Switches, Cables etc. (b)
      Various network softwares, services and
         applications.
      (c) Network trouble shooting Techniques.
0. Serial Port Programming
0. Parallel Port Programming
0. TCP/IP and socket Programming
0. Winsock Programming
0. RPC Programming
0. Performance modelling of networks.

Text Book:

1. Youlu Zheng and Shakil Akhtar, Networks for Computer scientists & Engineers/Lab manual, Oxford Univ. Press
2. Douglas E.Comer, Hands on Networking with Internet Technologies, Pearson Education

Note : 50 % marks is earmarked for continuous evaluation, and 50 % marks for end semester examination to be assessed by two examiners .A candidate shall secure a minimum of 50 % marks in the aggregate and 50 % minimum in the end semester examination for a pass.

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IT 17L2 MINI PROJECT -   MULTIMEDIA BASED

Multimedia project involving Painting and 3D Animation , 3D Titling, 3D Modeling and Animation, Working with sound, Frame and   Video Capturing and special Effects, Authoring and Presentation. Projects can be done using software's like 3D Studio Max.

(Each student has to do separate project)

Each batch comprising of 3 to5 students shall design. Each student shall submit a project report at the end of the semester. The project report should contain the design and engineering documentation including the Bill of Materials and test results. Product has to be demonstrated for its full design specifications. Innovative design concepts, reliability considerations and aesthetics
/ ergonomic aspects taken care of in the project shall be given due weight.

Guidelines for evaluation:

i) Attendance and Regularity	10
ii) Work knowledge and Involvement	30
iii) End-Semester presentation & Oral examination	20
iv) Level of completion and demonstration of functionality/specifications	25
v) Project Report	15
Total 100 marks	

Note *Points (i) & (ii) to be evaluated by the project guide & co-ordinator and the rest by the final evaluation team comprising of 3 teachers including the project guide.*

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IT 17L3 PROJECT DESIGN

The major project work shall commence in the seventh semester and completed by the end of eighth semester. Students are expected to identify a suitable project and complete the analysis and design phases by the end of seventh semester.

Each batch comprising of 3 to 5 students shall identify a project related to the curriculum of study. At the end of the semester, each student shall submit a project synopsis comprising of the following.

- x   Application and feasibility of the project
- x   Complete and detailed design specifications.
- x   Block level design documentation
- x   Detailed design documentation including circuit diagrams and algorithms / circuits
- x   Bill of materials in standard format and cost model, if applicable
- x   Project implementation action plan using standard presentation tools

Guidelines for evaluation:

i) Attendance and Regularity		10
ii) Quality and adequacy of design documentation		10
iii) Concepts and completeness of design		10
iv) Theoretical knowledge and individual involvement		10
v) Quality and contents of project synopsis		10
	Total	50 Marks

Note: *Points (i)-(iii) to be evaluated by the respective project guides and project coordinator based on continuous evaluation. (iv)-(v) to be evaluated by the final evaluation team comprising of 3 internal examiners including the project guide.*

IT 1704 SEMINAR

Students shall individually prepare and submit a seminar report on a topic of current relevance related to the field of Computers either hardware or software. The reference shall include standard journals, conference proceedings, reputed magazines and textbooks, technical reports and URLs. The references shall be incorporated in the report following IEEE standards reflecting the state-of-the-art in the topic selected. Each student shall present a seminar for about 30 minutes duration on the selected topic. The report and presentation shall be evaluated by a team of internal experts comprising of 3 teachers based on style of presentation, technical content, adequacy of references, depth of knowledge and overall quality of the seminar report

IT1 801 ELECTRONIC BUSINESS AND SERVICES

Module I

E-COMMERCE TO E-BUSINESS: Defining e-business – development of new economy – Types of e-business. E-business markets and models – e-business environment, market places, models – Types of e-business models – Framework for analyzing e business.

E-BUSINESS TREND SPOTTING: Increase Speed of Service - Self-Service – Provide Integrated Solutions-Integrate Sales and Service - Customization and Integration - Customer Service Consistent and Reliable - Service Delivery - Contract Manufacturing - Increase Process Visibility -Employee Retention -Integrated Enterprise Applications - Multichannel Integration

ModuleII

E-BUSINESS DESIGN: Technology -Constructing an e-Business Design - Self-Diagnosis - Reversing the Value Chain -Choosing a Narrow Focus -Case Study

E-BUSINESS ARCHITECTURE: Functional Integrated Apps -Integrating Application Clusters into an e-Business Architecture –Aligning the e-Business Design with Application Integration.

CUSTOMER RELATIONSHIP MANAGEMENT: Integrating Processes to Build Relationships -Customer Relationship Management -Definition -Organizing around the Customer - CRM Architecture -CRM Infrastructure -Implementing CRM -CRM Trends - Building a CRM Infrastructure

Module III

CHAIN MANAGEMENT: Transforming Sales into Interactive Order Acquisition -Defining Selling-Chain Management - Business Forces Driving the Need for Selling -Technology Forces Driving the Need for Selling -Managing the Order Acquisition Process **ENTERPRISE RESOURCE PLANNING:** The e-Business Backbone -ERP Decision - Enterprise Architecture Planning- ERP Implementation.

Module IV

SUPPLY CHAIN MANAGEMENT: Inter-enterprise Fusion -Defining Supply Chain Management – Basics of Internet-Enabled SCM- e-Supply Chain Fusion- Management Issues

E-PROCUREMENT: The Next Wave of Cost Reduction - Isolated Purchasing to Real- Time Process Integration -Operating Resource Procurement- Lack of Process Integration

TEXT BOOKS:

1. Ravi Kalakota and Marcia Robinson, "e-Business : Roadmap for Success", Addison Wesley,I998
2. Colin Combe, "Introduction to E-business: Management & Strategy", Butterworth-Heinemann, (Imprint of Elsevier) 2008

REFERENCE:

1. Daniel Menasce, Virgilio Almeida, "Scaling for E-Business: Technologies, Models, Performance, and Capacity Planning", Prentice Hall,2000
2. Harvey Deitel, Paul Deitel , T. Nieto, Complete e-Business and e-Commerce Programming Training Course, Prentice Hall- Student Edition, 2001

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

IT 1802 REAL TIME SYSTEMS

Module I
Introduction: Basic Model, Characteristics and applications of real time systems, Safety
and Reliability, Types of Real Time Tasks, Timing Constraints. Real Time Task Scheduling:
clock driven scheduling, event driven scheduling, Rate monotonic algorithm. Scheduling Real time
Tasks in Multiprocessor and distributed systems. Clocks in distributed real time systems.

Module II
Resource sharing among real time tasks, Priority inversion, Priority Inheritance protocol,
Highest Locker Protocol, Priority Ceiling Protocol, Handling task dependencies.
Real Time operating system features, Unix as a real time operating system, Windows as a real time
operating system, POSIX, Benchmarking real time systems.

Module III
Real Time Communication: Basic concepts, Real time communication in a LAN,
Bounded access protocols for LANs, Real time communication over packet switched networks,
Routing, Resource reservation, Rate control, QoS Models.

Module IV
Real Time data bases: Applications of real time data bases, real time database application
design issues, characteristics of temporal data, concurrency control in real time databases, locking based
concurrency control protocols, optimistic concurrency control protocols, speculative control protocols.

Text Book:
1. Rajib Mall, Real Time Systems: Theory and Practice, Pearson Education, 2007

Reference:
1. Jane W S Liu, Real Time Systems, Pearson Education
2. K.V.K.K Prasad, *Embedded / RealTime systems: "Concepts, Design and programming",* Dreamtech Software Team, Wiley Dreamtech
3. K.V.K.K Prasad,*Programming for Embedded System*s,Dreamtech Software Team, Wiley Dreamtech,2005
4. Bruce Powel Douglass, Real Time UML, 3rd edition, Pearson Education
5. David E. Simon,*An Embeded Software Primer,* Pearson Education

Type of questions for University Examination
Question 1 - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question from each module of 15 marks

CS/IT 1803 DISTRIBUTED COMPUTING

Module I
Characterization of Distributed systems – Introduction - Examples of Distributed Systems – Challenges - System Models – Architectural models - Fundamental Models – Interprocess communication - The API for the Internet protocols - External Data representation and Marshalling - Client Server Communication - Group communication. Interprocess communication in UNIX. Distributed Objects and Remote Invocation – Communication between distributed objects - Remote Procedure Call - Events and Notifications - Case Study - Java RMI.

Module II
Operating System Support-The Operating system layer – Protection- Processes and Threads-Operating System architecture.
Distributed file Systems-Introduction-File Service architecture– Case study Sun NFS. Name services and Domain Name System – Directory Services.

Module III
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.

Module IV
Distributed DBMS Architecture- Distributed Database Design –Query Decomposition and Data Localization -Distributed transactions – concurrency control in distributed transactions– distributed deadlocks – transaction recovery.

Text Book:
1. George Coulouris, Jean Dollimore, Tim Kindberg, "Distributed Systems – Concepts and Design", Fourth Edition, Pearson Education, 2011. ISBN 978-81-317-1840-7.

References:
1. Sunita Mahajan, Seema Shah, "Distributed Computing", Oxford University Press, 2010. ISBN: 0-19-806186-2.
2. Andrew S Tanenbaum, "Distributed Operating Systems", Pearson Education, 2011. ISBN 978-81-7758-179-9.
3. Randy Chow, Theodore Johnson, "Distributed Operating Systems and Algorithm Analysis", Pearson Education, 2011. ISBN 978-81-317-2859-8.
4. M.Tamer Ozsu, Patrick Valduriez, "Principles of Distributed Database Systems", Second Edition, Pearson Education.

Type of questions for University Examination
Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module
Question 2-5 – There will be two choices from each module .Answer one question
from each module of 15 marks

IT 1804 E1 CLOUD COMPUTING

ModuleI
Cloud Models: Cloud Characteristics, Measured Service, Cloud Models, Security in a Public Cloud, Public Versus Private Clouds, Cloud Infrastructure Self Services. ***Cloud as a Service***: Gamut of Cloud Solutions, Principal Technologies, Cloud Strategy, Cloud Design and Implementation using SOA, Conceptual Cloud Model, Cloud service Defined

Module II
Cloud Solutions: Cloud Ecosystem, Cloud Business Process Management, Cloud Service management, Cloud Stack, Computing on Demand(CoD),Cloud Sourcing.***Cloud Offerings***: Information Storage, Retrieval, Archive and Protection, Cloud Analytics, Testing Under Cloud, Information Security, Virtual Desktop Infrastructure, Storage Cloud

Module III
Cloud Management: Resiliency, Provisioning, Asset Management, Cloud Governance, High Availability and Disaster recovery, Charging Models, Usage Reporting, Billing and Metering. ***Cloud Virtualization Technology:*** Virtualization Defined, Virtualization Benefits, Server Virtualization, Virtualization for x86 Architecture, Hypervisor Management software, Logical Partitioning(LPAR),VIO Server, Virtual Infrastructure Requirements

Module IV
Deep Dive: Cloud Virtualization: Storage Virtualization, Storage Area Networks, Network-Attached Storage, Cloud Server Virtualization, Virtualized Data Center. ***Cloud and SOA:*** SOA Journey to Infrastructure SOA and Cloud, SOA Defined , SOA and IAAS,SOA-based Cloud Infrastructure Steps, SOA Business and IT Services
  :
Text Book
  1.Dr.Kumar Saurabh: Cloud Computing,Wiley India.

Reference
  1. Kai Hwang.GeoffreyC.Fox.Jack j. Dongarra:Distributed and Cloud Computing,Elsevier
  2.Anthony T Velte,Toby J Velte,Robert Elsenpeter:Cloud Computing,TATA McGRAW-HILL
  3. MichelMiller**:** Cloud Computing, Pearson Education.

Type of questions for University Examination

Question 1- 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1804 E2: SOFTWARE PROJECT MANAGEMENT

Module I

Project Management :The Management Spectrum - The People-The Product- Software Scope- Problem Decompostion-The process- The Project- The W^5HH Principle
METRICS FOR PROCESS AND PROJECT:1 Metrics in the process and Project Domain- Software Measurement- Metrics for Software Quality- Integrating Metrics within the Software Process Metrics for small Organizations- Establishing a Software Metrics Program

Module II

Estimation - Resources **-** Software Project Estimation**-** Decomposition Techniques**-** Empirical Estimation Models**-** Estimation for Object –Oriented Projects**-** Specialized Estimation Techniques**-** Estimation for Angile Devolopment**-** Estimation for Web Engineering Projects The Make/Buy Decision
PROJECT SCHEDULING- Basic Concepts**-** Project Scheduling**-** Defining a Task set for the Software Project**-** Defining Atask Set for the Software Project**-** Scheduling **-** Earned Value Analysis

ModuleIII

 RISK MANAGEMENT: Reactive vs. Proactive Risk Strategies**-** Software Risks**-** Risk Identification**-** Risk Projection**-** Risk Refinement**-** Risk Mitigation, Monitoring, and Management**-** The RMMM plan
Quality management- Quality Concepts**-**Software Quality Assurance**-**SQA Activities**-**Software Reviews**-**Formal Technical Reviews**-**Formal Approaches to SQA**-**Statistical Software Quality Assurance**-** Software Reliability and Availability**-**The ISO 9000 Quality Standards**-**The SQA Plan

Module IV

CHANGE MANAGEMENT: Software Configuration Management-The SCM Repository-The SCM Process- Configuration Management for Web Engineering

 Text Book:

1..Rogor.S.Pressman, Software Engineering, Mcgraw Hill, Int.Ed.

 References :-

1. Harold Kerzner,Program Management-A System Approach Planning Scheduling And Controlling, CBS
2. Schwalbe, Information Technology Project Management Thomson Learning
3. Cleland D.L & King W.R :System Analysis And Project Management, Mcgraw Hill
4. Meredith J.R :Project Management-A Management Approach, Wiley-Ny
5. Charles.S.Parker, Management Information Systems –   Strategy and Action, McgrawHill
6. Annelies Von Maryrhause, Software Engineering Methods and Management, Academic Press.
7. Jame.R.Johnson, The Software Factory, QED Info.Sciences Inc.
 8.   Kieron Conway, Software Project Management, From Concept to Deployment

Type of questions for University Examination

Question 1   -   8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one questionfrom each module of 15 marks

IT 1804 E3: SOFTWARE TESTING METHODS & TOOLS

Module I

Principles of Testing-White Box Testing- Static Testing – Structural Testing – Black Box Testing – Integration Testing – System and Acceptance Testing – Functional and NonFunctional Testing- Regression Testing.

ModuleII

Testing of Object-Oriented Systems- Differences   in OO Testing-Usability andAccessibility Testing- People and Organizational Issues in Testing-Common people Issues-Organization Structures for Testing Teams

ModuleIII

Test Management and Automation-Test Planning- Test Management- Test Process- Test Reporting- Software Test Automation-What to Automate-Scope of Automation- Design and Architecture for Automation- Generic Requirement for Test Tool/Framework- Process Model for Automation- Selecting a Test tool.

ModuleIV

Test Metrics and Measurements- What are Metrics and Measurement?- Why Metrics in Testing-Types of Metrics- Project Metrics-Efforts Variance- Schedule Variance-Effort Distribution Across Phases – Progress Metrics – Test Defect Metrics – Development Defect Metrics –Productivity Metrics-Release Metrics.

Text Book:

1. Srinivasan Desikan, Gopalaswamy Ramesh, "Software Testing: Principles and Practices, Pearson Education, 2006.

Reference:

1. Graham, Dorothy Graham, Mark Fewster, Brian Marick, "Software Test
2. Automation: Effective Use of Test Execution Tools" Addison-Wesley
3. Tamres, Introducing Software Testing, Pearson Education
4. Michael R. Lyu, "Handbook of Software Reliability Engineering", McGraw-Hill
5. Kit, Software Testing in Real World, Pearson Education

Type of questions for University Examination

Question 1   - 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1804 E4: CYBER LAWS& INTELLECTUAL PROPERTY RIGHTS

Module I
Intellectual property rights: Software copyrights, Introduction to copy right law, copy right in databases and electronic publishing, law of confidence, patent laws, trademarks, product designs, International Law Copyright & Related Rights.

Module II
Cyber Crime and Criminal Justice: Concept of Cyber Crime , Hacking,Cyber Fraud and Cheating, Virus on the Internet, Defamation, Harassment and E-mail Abuse, Cyber Pornography.

Module III
Contracts in Infotech World,Jurisdiction in the Cyber World, Battling Cyber Squatters and Copyright Protection in the Cyber World.

Module IV
E-Commerce Taxation: Real Problems in The Virtual World, Digital Signatures Certifying Authorities and E-Governance
Indian Evidence Act of 1872 v Information Technology Act 2000, Protection of Cyber Consumers in India.

Text Books
1.Vivek Sood,Cyber Law Simplified,TataMcGrawHill

References

1 D. Bainbridge, *Introduction to Computer Law*, 5/e, Pearson Education, 2004.
2 P. Duggal, *Cyber law: the Indian Perspective*, 2005.
3 C. P. Fleeger and S. L. Fleeger, *Security in Computing*, 3/e, Pearson Education, 2003.
4 M. Bishop, *Computer Security: Art and Science*, Pearson Education, 2003.
5 Jonathan L. Zittrain, *Internet Law: Technological Complements to Copyright* (Foundation Press, 2005).

Type of questions for University Examination

Question 1- 8 short answer questions of 5 marks each. 2 questions from one module

Question 2-5 – There will be two choices from each module .Answer one question

from each module of 15 marks

IT 1 8L1 PROJECT WORK

Each batch of students shall develop the project designed during the VII semester. The implementation phase shall proceed as follows:

A detailed algorithm level implementation, test data selection, validation, analysis of outputs and necessary trial run shall be done.

Integration of hardware and software, if applicable, shall be carried out.

A detailed project report in the prescribed format shall be submitted at the end of the semester. All test results and relevant design and engineering documentation shall be included in the report.

The work shall be reviewed and evaluated periodically

A committee consisting of the Project Coordinator (appointed by the Head of the Department/Division) Project guide and at least one senior faculty member will carry out the assessment based on at least one interim review and a final review just before the submission of the project report.

The final evaluation of the project shall be done by a team of minimum 3 internal examiners including the project guide and shall include the following.

- x   Presentation of the work
- x   Oral examination
- x   Demonstration of the project against design specifications
- x   Quality and content of the project report

Guidelinesfor evaluation:

Regularity and progress of work	60
Work knowledge and Involvement	60
End semester presentation and oral examination of completion and demonstration	60
Level of functionality/specifications	60
Project Report – Presentation style and content	60
Total	300 marks

Note: *Points (i) and (ii) to be evaluated by the respective project guide and the project coordinator based on continuous evaluation. (iii)-(v) to be evaluated by the final evaluation team comprising of 3 internal examiners including the project guide.*

IT 1 8L2 VIVA-VOCE

Each student is required to appear for a viva-voce examination at the end of the complete course work.. The examination panel shall comprise of a minimum of one internal examiner and one external examiner, both appointed by the University. The examiners shall evaluate the students in terms of their conceptual grasp of the course of study and practical/analysis skills in the field. The students shall produce the seminar report and project reports duly attested by the institutional authorities, before the examiners