MIET

Model Institute of

Engineering & Technology

NAAC Accredited

[SYLLABUS FOR CSE]

[SEMESTERWISE COURSE DISTRIBUTION AND PAPERWISE OUTLINE OF BACHOLOR OF ENGINEERING IN COMPUTER SCIENCE]

FOR EXAMINATIONS TO BE HELD IN DECEMBER, 2010 ONWARDS
UNIVERSITY OF JAMMU, JAMMU.

COURSE OF STUDY FOR BE IST SEMESTER ENGINEERING
BRANCH: COMMON TO ALL BRANCHES

Course No.	Course Name	Lecture	Tutorial	Pract.	**Marks**			
					Theory	Sessional	Practical	Total
MTH -101	Engg. Math-1	3	2	-	100	25	-	125
PHY -102	Engg. Phy-I	3	1		100	25	-	125
CHM -103	Engg. Chem-I	3	1		100	25	-	125
M -104	Engg. Mech	3	1		100	25	-	125
HUM -105	Comm. Skills	3	1	-	100	25	-	125
M-106	Engg. Graphics	1	-	3	100	-	50	150
PHY -107	Engg. Physics Lab.	-	-	2	-	-	50	50
CHM -108	Engg. Chemistry Lab	-	-	2	-	-	50	50
M -109	Engg. Mech. Lab.	-	-	2	-	-	50	50
M -110	WS Technology	1	-	3	-	-	75	75
Total		17	6	12	600	125	275	1000

UNIVERSITY OF JAMMU
FOR EXAMINATIONS TO BE HELD IN DECEMBER 2010 ONWARDS

CLASS : B.E. IST SEMESTER
BRANCH: COMMON FOR ALL BRANCHES
COURSE TITLE: ENGINEERING MATHEMATICS-I
COURSE NO.MTH-101
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS		
3	2	0	**Theory**	Sessional	**Practical**
			100	25	**0**

SECTION-A

1. Differential Calculus**:** Successive differentiation, Leibnitz theorem (without proof), Partial differentiation with errors and approximations, Eular's theorem on homogeneous functions, Taylor's and Maclaurin's series of two variables, Maxima and Minima of functions of two variables, Asymptotes, Double points, curvature, Curve tracing in Cartesian, polar and parametric forms**.**

2. Integral Calculus**:-** Definite integrals with important properties, differentiation under the integral sign, Gamma, Beta and error functions with simple problems, applications of definite integrals to find length, area, volume and surface area of revolutions, transformation of coordinates, double and triple integrals with simple problems.

SECTION-B

1. Complex Trignometry**:** Hyperbolic functions of a complex variable, Inverse Hyperbolic functions, Logarthmic function of a complex variable, Summation of series by C+ iS method.
2. **Ordinary Differential Equations:** Differential equations of first order and first degree: Exact and non-exact differential equations, Linear and Bernoulli's differential equations. Higher order linear differential equations: Complementary solution, particular integral and general solution of these equations, variation of parameters technique to find particular integral of second order differential equations, Cauchy's and Lagrange's differential equations. Applications of Ordinary Differential Equations to simple Electrical and Mechanical Engg. problems.
3. **Solid Geometry:** Sphere, Intersection of sphere and plane, tangent plane property, cone and cylinder, related problems to right circular cone and cylinder.

Books Recommended

1. **Engineering Mathematics by B.S. Grewal, Khanna Publications, New Delhi**
2. **Calculus and Analytic Geometry by Thomas and Finney, Addision Weslay, Narosa.**
3. **Differential Calculus by S. Narayan, New Delhi**
4. **Integral Calculus by S. Narayan, New Delhi.**

NOTE**: There shall be total eight questions, four from each section. Each question carry 20 marks. Five questions will have to be attempted, selecting at least two from each section. Use of calculator is allowed.**

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FOR EXAMINATIONS TO BE HELD IN DECEMBER 2010 ONWARDS

B.E Ist Semester (Common Course) Maximum Marks:125

Subject: Engineering Physics-I	**L**	**T**	**P**	Theory	Sessional
Course No.PHY-102	**3**	**1**	**2**	**100**	**25**

Duration of Exam: 03 hours

SECTION-A

UNIT-1	**MATHEMATICAL PHYSICS**	**NO. OF LECTURES**	**WEIGHTAGE**
	Review of Vector Algebra, Scalar and Vector fields, Gradient of a Scalar field, Divergence and curl of a vector field and their physical significance, solenoid fields, Gauss Divergence theorem, Stokes theorem and their applications, Vector Identities	10	25%
UNIT-II	**ELECTROMAGNETIC FIELDS AND WAVES**		
	Guass's law in vector notation (differential and integral forms), Applications of Guass's law to find electric fields due to a long straight charged wire, Cylindrical and Spherical charge distributions. Derivation of Ampere's Circuital law, Application of Ampere's circuital law to find magnetic intensity due to long cylindrical wire, due to a long solenoid. Differential & Integral form of Faraday's law of electromagnetic induction, Equation of continuity, Displacement current and its significance, Maxwell's field equations (differential and integral forms), Betaron, Electromagnetic wave propagation in free space (e.m wave equations for $\xrightarrow[E]{}$ & $\xrightarrow[B]{}$ fields for free space and their solutions (plane wave solution), velocity of e.m. waves, Relation between E_o & B_o . Definition of Poynting Vetor, Poynting theorem.	16	25%
	SECTION-B		
UNIT-III	**APPLIED OPTICS**		
	Interference in thin films (by reflection and transmission of light), Theory of Newton's rings by reflected light, Determination of wave length and refractive index of monochromatic light by Newton's theory. Fraunhoffer & Fresnel's diffractions Fresnel's half period zones and rectilinear propagation of light, Fraunhoffer diffraction due to a single slit, plane diffraction grating & its theory for secondary maxima and minima. Un polarized and polarized light, Nicol Prism, Mathematical representation of polarization of different types, Quarter & half wave plates.	12	20%
UNIT-IV	**OSCILLATIONS**		
	Free damped and forced oscillations and their differential equations, Logarithmic decrement, power dissipation & Quality factor, ultrasonic waves and their production by Piezoelectric method and applications (General)	05	15%
UNIT-V	**FIBRE OPTICS**		
	Propagation of light in fibres, numerical aperture, Single mode and multimode fibres, General applications	05	15%

TUTORIALS

S.NO.	TOPICS	UNIT NO.
T-1	Numerical problems based on vector analysis	I
T-2	Numerical problems on Gradient of Scalar fields	I
T-3	Numerical problems on Divergence of Vector fields	I
T-4	Numerical problems on Curl of vector fields	I
T-5	Numerical problems based on Guass divergence theorem and Stokes Theorem	I
T-6	Numerical problems based on the applications of Guass's Law	II
T-7	Numerical problems based on the applications of Ampere's law	II
T-8	Numerical problems pertaining to the applications of Faraday's law	II
T-9	Numerical problems pertaining to the applications of Interference phenomenon, Formation of Newton's rings	III
T-10	Numerical problems pertaining to the applications of diffraction and polarization phenomenon	III
T-11	Numerical problems based on the applications of SHM, damped and forced motion of bodies and applications of ultrasonic	IV
T-12	Numerical problems based on the applications of Fibre optics	V

NOTE: SETTING OF QUESTION PAPER (Instructions for examiners)

i) The question paper will consist of two sections\
   a) Section-1
   &
   b) Section-II

ii) Section-I Comprises of Unit-I and Unit-II
Section-II Comprises of Unit-III, Unit-IV and Unit-V

iii) Number of questions to be set in the paper =8 (eight)
(Four from each section) as per weightage

iv) Number of questions to be attempted =5 (five)
(Selecting at least two from each section)

BOOKS RECOMMENDED

S.NO.	TITLE	AUTHOR
1.	Vector Analysis	Spiegal
2.	Mathematical Physics	Rajput & Gupta
3.	Physics	Reisnick & Hatliday
4.	Optics	Brijlal & Subramaniam
5.	Sound	Subramaniam
6.	Sound	Khanna & Bedi
7.	Fibre Optics	Ghatak, Tyagrajan

UNIVERSITY OF JAMMU
FOR EXAMINATIONS TO BE HELD IN DECEMBER 2010 ONWARDS

CLASS: B.E. IST SEMESTER
BRANCH: COMMON TO ALL
COURSE TITLE: ENGG. CHEMISTRY
COURSE NO.: CHM-103
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS		
3	1	2	**Theory**	**Sessional**	**Practical**
			100	**25**	**50**

SECTION - A

1. SPECTROSCOPY

UV Spectroscopy – Electronic transitions, spectrum, shift of bonds with solvents for double bonds, carbonyl compounds and aromatic compounds**.**

IR-Spectroscopy – Introduction, brief idea about instrumentation, applications and interpretation of IR Spectra, characterization of functional groups and frequency shift associated with structural changes**.**

'H-NMR Spectroscopy – Theory of 'H-NMR Spectroscopy, equivalent and non-equivalent protons, chemical shift, spin-spin coupling, spin-spin splitting, H'-NMR spectrum of a few organic compounds**.**

2. EXPLOSIVES

Introduction, classification and types of explosives, requirement for good explosives, preparation and uses of following explosives – Nitrocellulose, TNT, Dinitrobenzene, Picric Acid, Nitroglycerine and Dynamite, Gun Power, RDX, Tetracene**.**

SECTION - B

1. STEREOCHEMISTRY:-

Optical isomerism, recemerization, asymmetric synthesis, methods for resolution of racemic mixture, enantiomerism and diasteroisomerism**.**

2. ALLOYS

Introduction, purpose of making alloys, preparation of alloys, classification of alloys. (Ferrous and non-ferrous alloys), alloy steels & copper alloys**.**

3. LUBRICANTS

Definitions, functions of lubricants, mechanism of lubrication, classification of lubricants (Lubricating oils, semi solid lubricants, solid lubricants) synthetic lubricants, flash and fire points, oiliness, cloud and pour points**.**

4. DYES AND DRUGS

Classification of dyes and its applications. Define drug and give the applications of following drugs.

a) Narcotics b) Tranquilizers c) Antipyretics d) Antibiotics

FORMAT OF QUESTION PAPER
Total No. of Questions = 08
Questions to be attempted = 05
(Minimum Two from Each Section A & B)

Books Recommended :

1. Engineering Chemistry — Jain & Jain
2. Engineering Chemistry — Sharma, B.K.
3. Engineering Chemistry — Dara, S.S.
4. Organic Chemistry — Bahl, B.S.
5. Organic Chemistry — Soni, P.L.
6. Organic Chemistry — Jain, M.K.
7. Spectroscopy of Organic Compounds — Silverstain
8. Spectroscopy of Organic Compounds — Kalsi, P.S**.**

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FOR EXAMINATIONS TO BE HELD IN DECEMBER 2010 ONWARDS

CLASS: B.E. IST SEMESTER
BRANCH: COMMON TO ALL
COURSE TITLE: ENGINEERING MECHANICS
COURSE NO.M-104
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS		
3	1	2	**Theory**	Sessional	**Practical**
			100	25	**50**

SECTION-A (STATICS)

- Scope and basic concepts (Rigid body, force, units, etc), concept of free body diagram, Resultant of Co-planar concurrent forces in a plane and space, moment of force, Principle of Moments, Coplanar and spatial applications. Virtual work method and its applications. Equilibrium and its equations for a planar and spatial systems, Analysis of trusses, Method of joints and sections.
- Theory of friction, its laws and applications (inclined plane). Square threaded screws, Bolt friction, Centroids and center of gravity, centroids of lines and composite areas, centroids determined by integration.
- Moment of inertia, Area M.O.I, Transfer theorems, Polar M.O.I, Product of inertia, Principal M.O.I, Mohr's circle for area M.O.I, Transfer theorems and axes M.O.I of composite bodies.

SECTION-B (DYNAMICS)

- Kinematics of a particle rectilinear motion, motion curves, Rectangular components of curvilinear motion, Flight of Projectile, Normal and tangential components of acceleration, Radial and transverse components, Newton's Laws. D'Alembert's Principle.
- Kinematics of rigid bodies: Types of rigid body motion, Angular motion, fixed axis rotation, Analysis of plane motion and its applications, Instantaneous center and Instantaneous axis of rotation.
- Kinetics of Particle: Translation, Analysis of a particle as a rigid body.
- Kinetics of rigid bodies: Equations of plane motion, fixed axis rotation, Rolling bodies, General plane motion, Impulse and momentum in plane motion, Angular momentum.

RECOMMENDED BOOKS

1.	**Engineering Mechanics (Statics & Dynamics)**	**Beer and Johnson**
2.	**Engineering Mechanics (Statics & Dynamics)**	**Mariam and Kraige**
3.	**Engineering Mechanics (Statics and Dynamics)**	**Timoshenko and Young**
4.	**Engineering Mechanics (Statics and Dynamics)**	**Ferdinand L Singer.**

NOTE : There shall be total eight questions, four from each section. Five questions will have to be attempted selecting atleast two from each section. Use of calculator is allowed.

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B.E IST SEMESTER
BRANCH: COMMON TO ALL
TITLE: COMMUNICATION SKILLS
COURSE NO: HUM-105
DURATION: 3 HOURS

L	T	P	MARKS
3	1	-	THEORY: 100
			SESSIONALS: 25

Exercises in comprehension, grammar vocabulary, usage, pronunciation, spelling and composition based on the following texts:

i. Contemporary English Prose
Edited by Menon
Oxford University Press

ii. Developing English Skills
Edited by Thanker, Desai and Purani
Oxford University Press

Or

English through Reading-II
Edited by Bhasker and Prabhu

Note: Test-I carries 50% weightage in the question paper and Text-II carries 50% weightage
Question Paper:

1. Six short answer questions on comprehension to be set from Text-I. Students expected to answer any three in about 150 words each (30 marks)
2. Phrases and idioms from text I to be used in sentences. Hundred percent choices to be given (20 marks)
3. Completing a paragraph of which the first two or three short Sentences are given (10 marks)
4. Exercise on tenses from Text II (5 marks)
5. Exercises on active/passive transformation from Text-II (5 marks)
6. Forming verbs or adjectives or nouns from the given words-text-II (5 marks)
7. Propositions from text-II (5 marks)
8. Matching words and their meanings Text-II (5 marks)
9. Forming words ending in-ify,-ize,-tion, ec. From Text-II (5 marks)
10. Filling in the blanks with a given set of words in brackets-Text-II (5 marks)
11. Questions on miscellaneous exercises from Text-II such as Question tags - articles etc.

or

Marking Stress or Syllable in given words. (5 marks)

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FOR EXAMINATIONS TO BE HELD IN DECEMBER 2010 ONWARDS

CLASS: B.E. IST SEMESTER
BRANCH: COMMON TO ALL
COURSE TITLE: ENGINEERING GRAPHICS
COURSE NO.Eng-106
DURATION OF EXAM: 3 HOURS

L	T	P	**MARKS**		
1	0	3	**Theory**	Sessional	**Practical**
			100	0	**50**

UNIT-1

- Introduction: Conventional lines and signs used in Engineering Drawing, Printing and Lettering, Curves used in Engineering Practice: Cycloidals, Involutes, Spirals and Hellices, Locus of a point on simple mechanisms.
- Theory and practice of Orthographic projections.
- Projection of points and Lines: Projections of points and lines in different quadrants w.r.t principle reference planes, Finding of true length, True inclinations and traces of lines.
- Projection of Planes: Projections of a plane w.r.t. the principle planes in simple and inclined positions. Rotation method and the Auxiliary plane method. Space relation of a plane and a line. To locate a point on a plane given its projections. Parallel relation of lines and planes. Shortest distance between a line and a plane**.**

UNIT-2

- Projection of Solids: Classification and main features-Prisms and Pyramids. Projection of solids inclined to both the reference planes by (1) Rotation Method, and (II) Auxiliary plane method. Projection of solids in combination (Co-axial) in simple and inclined positions.
- Sectioning of Solids: Object of sectioning, Types of cutting planes, True shape of section, Auxiliary views of sections of multiple co-axial solids in simple and titled conditions.

UNIT-3

- Interpenetration of Solids and Intersection of Surface: Intersection of geometrical solids/hollow sections, Tracing of lines of intersection by line method and by section method.
- Development of Surfaces: Classification of surfaces, Methods of development-Straight line method and Radial line method, Development of solids and hollow sections in full or part development of transition pieces. To draw projections from given development.

UNIT-4

- Isometric Projection: Isometric scale, Isometric axes and Isometric planes, Isometric projection of solids and simple machine blocks.
- Orthographic Projections: Orthographic projection of simple blocks (First & Third angles), to draw the third view from given two views. Missing lines in projection**.**

RECOMMENDED BOOKS

1.	**Engineering Drawing**	**N.D Bhatt**
2.	**Practical Geometry**	**V. Laxminarayan & GEV**
3.	**Engineering Graphics**	**K.L. Narayanan & P. Kamaish**
4.	**Principles of Engineering Graphics**	**P.E Giesecks**
5.	**Engineering Graphics**	**Frederic & Michelle.**

NOTE **At least two questions to be attempted from Unit-I and at least one question from each of the Units-II, III and IV in the theory examination paper.**

B.E Ist Semester	Maximum Marks
Subject: Engineering Physics Lab-I	Sessional
Course No.: PHY-107	50

S.No.	Experiment No.	Title of Experiment
1.	**Exp-I**	To plot a graph between the distance of the knife edges from the center of gravity and the time period of a compound pendulum. From the graph, find **a) Acceleration due to gravity** **b) Radius of gyration and the moment of inertia of the bar about an axis through the center of gravity.**
2.	**Exp-II**	To find the dispersive power of a given prism using a spectrometer.
3.	**Exp-III**	To find the refractive index of a given liquid using a hollow prism
4.	**Exp-IV**	To find the focal lengths of a convex mirror and a concave lens using a convex lens and a concave mirror respectively.
5.	**Exp-V**	To find the frequency of A.C mains using an electrical vibrator.
6.	**Exp-VI**	To draw the V-I characteristics of a forward and reverse bias P-N junction diode.
7.	**Exp-VII**	To study the common base characteristics of PNP junction transistor.
8.	**Exp-VIII**	To study the common emitter characteristics of PNP junction transistor.
9.	**Exp-IX**	To study the common base characteristics of NPN junction transistor.
10.	**Exp-X**	To study the common Emitter characteristics of NPN junction transistor.
11.	**Exp-XI**	To evaluate the value of Planck's constant.
12	**Exp-XII**	To study the characteristics of a Solar Cell.

NOTE: A minimum of six experiments is to be performed in a semester.

BOOKS RECOMMENDED

	TITLE	**AUTHOR**
1.	**Practical Physics**	Warsnop & Flint
2.	**Practical Physics**	Chauhan & Singh (Vol. I & Vol. II)
3.	**B.Sc. Practical Physics**	C.L Arora

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COURSE NO. CHM – 108

CHEMISTRY PRACTICAL :

1. Determine the percentage of $CaCO_3$ in precipitated chalk. You are provided with IN HCl and 0.IN NaOH.
2. To analyse the given antacid tablets.
3. Determine Volumetrically the %age purity of given sample of Ferrous sulphate, x gms of which have been dissolved per litre provided N/10 $KMnO_4$
4. Determine Volumetrically the number of molecules of water of crystallization present in the given sample of Mohr's salt, x gms. of which have been dissolved per litre provided N/10 $K_2Cr_2O_7$ (using an external indicator).
5. Determine Volumetrically the percentage of Cu in a sample of $CuSO_4$ crystals, Z gms of which have been dissolved per litre, provided 0.IN $Na_2S_20_3$.
6. To determine the coefficient of viscosity of an unknown liquid using Ostwald Viscometer.
7. Determine the surface tension of a unknown liquid using Stalagmometer.
8. To prepare a pure and dry sample of Aspirin
9. To prepare a pure and dry sample of Glucosazone
10. Determine the method of purification of organic compounds by coloumn chromatography.
11. Determine the aniline point of a given lubricating oil.

Books Recommended :

1. Experimental Engineering Chemistry Shashi Chawla

2. Lab. Manual on Engg. Chemistry Basin, S K & Sudha Rani

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FOR EXAMINATIONS TO BE HELD IN DECEMBER 2010 ONWARDS

COURSE NO. M-109

Engg. Mechanics Lab

Lab work shall be based on theory course of Engineering Mechanics Paper

CLASS : B.E. IST SEMESTER
BRANCH: COMPUTER ENGG., CIVIL ENGG., MECH. ENGG., ELECTRICAL ENGG., ELECTRONICS & COMM. ENGG.
COURSE TITLE: WORKSHOP TECHNOLOGY
COURSE NO.WS-110

L	T	P	MARKS		
1	0	3	**Theory**	Sessional	**Practical**
			0	0	**75**

Course Content:

Introduction to workshop as a fabrication unit. Information regarding various material of construction i.e Ferrous and Non-Ferrous, wood, plastics, etc. Basic fabrication process i.e castings, Mechanical working, welding and machining.

Wood working and pattern making practice, Information about working hand and wood working machines, various methods of joining of wooden parts for the fabrication of patterns, Pattern materials and allowances, pattern construction procedures, preservation of patterns.

Moulding and casting practice. Sand Moulding, Natural foundry sands and synthetic sands, preparation of moulding sands, mould making procedure, cast iron and aluminum and pouring, melting crucible process, Extraction of Castings.

Cold and hot working processes, basic tolls and equipment used in mechanical working. Forging furnace operation, Smith forgoing operations.

Books**:**

1. **Manufacturing process and materials by Campbell.**
2. **Manufacturing Process by P.N. Rao**
3. **Workshop Technology by Hajra and Chowdhary Vol.I**

Shop Practice:

Unit-1 Pattern Making:
- **i) Baring block pattern**
- **ii) Split pattern of "bench Vice" (Sliding Jaw).**

Unit-II Moulding and Casting
Moulding and Castings of Patterns at Unit I.

Unit-III Hand forging of:

- **i) Haxagonal headed bolt from a cylindrical rod.**
- **ii) Cubical Block from a Cylindrical section.**

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS
COURSE OF STUDY FOR BE 2ND SEMESTER ENGINEERING
BRANCH: COMMON TO ALL BRANCHES

Course No.	Course Name	Lecture	Tutorial	Pract	**Marks**			
					Theory	Sess.	Pract	Total
MTH –201	Engineering Math-1I	4	2	-	100	25	-	125
PHY -202	Engineering Phy-II	3	1	-	100	25	-	125
CHM -203	Engineering Chem-II	3	1	-	100	25	-	125
COM -204	Computer Programming	3	1	-	100	25	-	125
HUM-205	Engineering Economics	3	1	-	100	25	-	125
M -206	Machine Drawing-I	1	-	3	100	25	-	125
M -207	Workshop Technology-II	1	-	3	-	-	75	75
PHY –208	Engineering Physics II Lab	-	-	2	-	-	50	50
CHM –209	Engineering Chemistry II Lab	-	-	2	-	-	50	50
COM –210	Computer Programming Lab	-	-	2	-	-	75	75
Total		18	6	12	600	150	250	1000

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E 2ND Semester Maximum Marks:125

Course No: MTH-201	**L**	**T**	Theory	Sessional
Course Title: Engg. Math-II	**4**	**2**	**100**	**25**

Branch : Common to all branches
Duration of Exam: 3 hours

SECTION-A

1. Introduction to infinite series & sequences:- Convergence and divergence of a series, Leibnitz test, p-test, comparison test, Cauchy's root test, D' Alembert Ratio Test, Raabe's Test, Logarithmic test, alternating series..
2. Fourier Series: Introduction, Euler's formulae, sufficient conditions for a Fourier expansion, functions having points of discontinuity, change of intervals. Odd and even functions, Fourier expansion of Odd and even periodic functions, half range series, typical wave forms, Parseval's formula, complex form of Fourier -series.
3. Power Series Solutions of Second order O.d.e: Analytic function, ordinary point, singular point, regular and irregular singular points of o.d.e. Y " +P(x)Y' + Q(x)Y=0, Series solution of such differential equations about an ordinary point, Frobenius series solution about a regular singular point.

SECTION-B

2. First Order partial differential equations:-
   Formation of p.d.e, First order linear p.d.e, Non-Linear p.d.e. of Ist order, solution by Charpit's method, Four Standard forms of non-linear p.d.e with reference to Charpit's technique.

3. Higher Order Linear p.d.e: Homogenous and Non-homogenous higher order linear partial differential with constant coefficient inverse operator I/f (D,D'), Rules for finding P.I and C.F, Non-Linear equations of 2nd order. Application of p.d.e, method of separation of variables to solve equations of vibrations of strings (or one dim wave equation), one dim and two dim heat flow equations, Laplace equations, transmission line).

4. Matrices & determinants: Introduction, Rank of matrix, Elementary transformations, Elementary matrices, Inverse using elementary transformation, Normal form of a matrix, Vector spaces, Linear dependence and independence of vectors, consistency of linear system of equations, linear and orthogonal transformations, Eigen values and Eigen vector, Properties of Eigen value, Cayley Hamilton Theorem, Reduction to diagonal form, Reduction of quadratic form to canonical form, complex matrices.

BOOKS RECOMMENDED

1. Advanced Engineering Mathematics by R.K. Jain, S.R.K Iyenger, 2nd edition, Narosa, New Delhi.
2. Higher Engineering Mathematics by Dr. B.S. Grewal
3. Engineering Mathematics by Dr. Bhopinder Singh
4. Engineering Mathematics by B.S. Grewal Khanna Publication, New Delhi.
5. Partial differential equations by Singhania

Note : There shall be total eight questions, four from each section. Each question carry 20 marks. Five questions will have to be attempted, selecting atleast two from each section. Use of calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E IInd Semester (Common Course) Maximum Marks:125

Course No. PHY-202	**L**	**T**	Theory	Sessional
Course Title : Engineering Physics-II	**3**	**1**	**100**	**25**

Branch : Common to all branches
Duration of Exam: 3 hours

UNIT-1	RELATIVISTIC DYNAMICS	**NO. OF LECTURES**	**WEIGHTAGE**
	Concept of Relativity, Frames of reference, Galilean Transformations, Michelson and Morley's experiment, Postulates of Special Theory of relativity, lorentz transformations, Length Contraction, Time dilation, variation of mass with velocity (Velocity addition), mass energy equivalence ($E^2=P^2c^2+m_o^2c^4$).	10	25%
UNIT-II	WAVE-PARTICLE DUALITY		
	Black Body radiation spectrum (Characteristics & Energy distribution), Wien's laws, Rayleigh Jeans Law excluding mathematical derivations, ultraviolet Catastrophe, Planck's hypothesis and Planck's radiation law, Explanation of black body radiation characteristics on the basis of Planck's law, photon concept. Compton effect, derivation of the direction of emission and the change in wavelength of scattered photons, direction of recoil electron and discussion of observed results. Debroglie's hypothesis, concept of matter waves, Davisson & Germer's experiment, wavepacket, Phase and Group velocity, Heisenberg's uncertainty principle. Experimental illustration of uncertainty principle using single slit.	12	25%
UNIT –III	QUANTUM MECHANICS		
	Wave function definition, interpretation and significance of wave function, Schrodinger's wave equations (Steady-State and time dependent) for 1-dim case, concept of operators and expectation values, Applications of Schrodinger's equation (Time independent) to a) Particle in a 1-dimensional box of infinite height, b) single step potential barrier, c) Tunnel effect, d) Quantum Mechanical harmonic oscillator with concept of Zero point energy.	14	25%
UNIT-IV	SOLID STATE PHYSICS		
	Intrinsic & extrinsic semi-conductors, Fermi & impurity levels, Impurity compensation, charge neutrality equation and semi-conductor conductivity. Einstein's relation, drift and diffusion current. Introductory concepts of advanced materials viz; conducting polymers dielectric materials, Nanomaterials, Smart materials and High T_c materials.	7	15%
UNIT-V	LASERS		
	Principle of Laser action, population Inversion, Einstein's Coefficients, He-Ne & Ruby Lasers, Holography	5	10%

TUTORIALS

B.E IInd Semester
Subject: Engg: Physics-II
Course No.Phy-202

S.NO.	TOPICS	UNIT NO.
T-1	Numerical problems based on Length contraction & time dilation	I
T-2	Numerical problems based on variation of mass, energy mass equivalence etc.	I
T-3	Numerical problems pertaining to energy spectrum of Black body radiations, Wien's displacement/R-J laws, Planck's law	II
T-4	Numerical problems based on photo-electric effect, work functions	II
T-5	Numerical problems based on Compton effect, recoil energy of electron etc.	II
T-6	Numerical problems based on the characteristics of De-broglie waves, Davisson-Germer's Expt.	II
T-7	Numerical problems related to Heisenberg's uncertainty principle	II
T-8	Numerical problems based on Schrodinger's wave equation, expectation values of certain physical quantities and operators	III
T-9	Numerical problems to find the Eigen function and eigen values for particle in a box	III
T-10	Numerical problems to find the reflection and transmission co-efficients for a particle penetrating a potential barrier	III
T-11	Simple numerical problems based on finding the bandgaps in semi-conductor materials etc.	IV
T-12	Simple numerical problems based on finding the energy level difference in Lasers etc.	V

NOTE: SETTING OF QUESTION PAPER (Instructions for Examiners)

i) The question paper will consist of two sections

a) Section-I
&
b) Section-II

ii) Section-I Comprises of Unit-I and Unit-II
Section-II Comprises of Unit-III, Unit-IV and Unit-V

iii) Number of questions to be set in the paper =8 (eight)
(Four from each section as per weightage)

iv) Number of questions to be attempted =5 (five)
(Selecting at least two from each section)

BOOKS RECOMMENDED

	TITLE	**AUTHOR**
1)	Modern Physics	Beiser
2)	Modern Physics	Blatt
3)	Modern Physics	Gupta & Gupta
4)	Basic Electronics	Millman & Halkias
5)	Material Science	S.L. Kakani, Amit Kakani

UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E 2ND Semester Maximum Marks:125

	L	T	Theory	Sessional
Course No: CHM-203				
Course Title: Engg. Chem-II	**3**	**1**	**100**	**25**

Branch : Common to all branches
Duration of Exam: 3 hours

SECTION-A

1. **ENVIRONMENTAL CHEMISTRY :**
Concept of Environmental chemistry, segments of environment (a brief idea about atmoshphere, hydrosphere and lithosphere)

AIR POLLUTION – Introduction, Types of air pollution and control of air pollution.

WATER POLLUTION : Introduction, Sources of water pollution and methods of controlling water pollution.

CHEMICALS AND METAL TOXICOLOGY (Biochemical effects of Pb, Hg, As, Zn, Cd, Ni, Se, CN, O_3 and pesticides in brief on man).

2. **INORGANIC CEMENTING MATERIALS** :
Cement and Lime – Introduction, classification of lime, manufacture and properties of lime, setting and hardening of lime.

Cement, types of cement, manufacture of Portland cement, setting and hardening of cement.

3. **WATER TREATMENT**
Introduction, types of water, softening of water by different processes, chemical methods and sterilization, priming and foaming, sludge and scale formation, determination of hardness of water by soap titration method and EDTA method. Radioactivity of water, numericals on hardness and softening of water.

SECTION-B

1. **PLASTICS:**
Introduction, importance of plastics and uses, classification of plastics, moulding constituents of a plastic, moulding of plastics into articles (compression moulding, injection moulding, transfer moulding and extrusion moulding) Preparation , properties and uses of following plastic materials:
a) Polymethyl methacrylate b) Epoxy resins c) Alkyd resins.

2. **RUBBER**
Introduction , types of rubber, treatment of latex, vulcanization of rubber, preparation, properties and uses of following synthetic rubber: Buna-S, Buna-N & Butyl rubber.

3. **PAINTS**

Introduction, requisites of a good paint, constituents of a paint, manufacture of a paint, properties and uses of important white pigments such as white lead, Zinc oxide and Lithophone.

BOOKS RECOMMENDED :

1.	Engineering Chemistry	Jain & Jain
2.	Engineering Chemistry	Sharma, B.K.
3.	Engineering Chemistry	Dara, S.S.
4.	Engineering Chemistry	Shashi, Chawla
5.	Organic Chemistry	Bahl, B.S.
6.	Environmental Chemistry	De, A.K.
7.	Textbook of Environmental Chemistry	Tyagi & Mehra
8.	Polymer Science	Gowrikar, V.R. etal.

Note : There shall be total eight questions, four from each section. Each question carry 20 marks. Five questions will have to be attempted, selecting atleast two from each section. Use of calculator is allowed.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

CLASS: B.E 2nd SEMESTER
BRANCH: COMMON FOR ALL BRANCHES
COURSE TITLE: COMPUTER PROGRAMMING USING C
COURSE NO: COM –204
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS Theory	MARKS Sessionals
3	1	-	100	25

SECTION-A

1. Basic structure of Computer, Stored Program Concept, Binary Arithmetic – Addition, Subtraction, Multiplication, Data Representation – Fixed and Floating Point, Semiconductor Memories.

2. Introduction to C, Data Types, Constants, Variables, Expressions, Statements, Operators, Data Input and Output.

3. Control Statements, Arrays, Recursion, Storage Classes, Library Functions.

SECTION-B

4. Functions, User Defined Data Types, Structures, Unions, Passing Structure to Functions.

5. Pointers, Operation on Pointers, Passing Pointers to Functions, Data Files – Opening, Closing, Creating Data Files

Books Recommended:-

1. Programming With C - Byron Gottfried.
2. Programming With C - E. Balaguruswamy.
3. C The Complete Referance – Herbert Schildt.
4. Let us C - Yashwant Kanitkar.
5. Digital Computer Fundamentals - Thomas C. Bartee.
6. Digital Computer Design - V . Rajaraman.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E. 2nd Semester Maximum Marks: 125
Course No. HUM-205 Theory Sessional
Course Title: Engineering Economics **L T** **100** **25**
Branch: Common to all branches **3 1**
Duration of Exam : 3 Hours

SECTION-A

UNIT-1

	Definitions of Economics
	a) Science of Wealth
	b) Science of Material Welfare
	c) Science of Scarcity
	Economic System
	a) Features of Capitalism
	b) Features of Socialism
	c) Features of Mixed Economy
UNIT-II	
	Consumer Behaviour
	a) Cardinal Utility Analysis: The Concept and Utility Maximisation: Laws of Diminishing Marginal Utility and Equi-Marginal Utility.
	b) Ordinal Utility Analysis: Meaning and Properties of Indifference Curves and Utility Maximization.
	Demand Theory:
	a) Meaning of Demand and law of Demand
	b) Factors Affecting Demand
	c) Elasticity of Demand (Price Elasticity, Income Elasticity and Cross Elasticity)
	d) Demand Forescasting
	SECTION-B
UNIT-III	
	Theory of Production:
	a) Factorsof Production and Production Function.
	b) Isoquants : Meaning & Properties
	c) Law of Variable Proportions & Returns to scale
	Costs and Cost Analysis
	a) The Concept of Marginal, Average, Fixed and Variable Costs.
	b) The Shape of Fixed, Average and Marginal Cost Curves (short run)
	Market and Market Structures
	a) Meaning and Feature of Perfect Competition, Monopolistic Competition, Oligopoly and Monopoly.
	b) Price Determination Under Perfect competition and monopoly.
UNIT-IV	
	Some commonly used Economic Concepts
	a) Meaning, Types and Methods to Control Inflation.
	b) Concept of Stock Market

	c) Meaning & Concept of National Income	
	d) Functions of Commercial Bank & Central Bank	
	e) Features of Development and Under Development	
	f) Meaning & Phases of Trade/Business Cycle	
	g) Index Number : Construction and difficulties in measurement of Index Number.	
BOOKS RECOMMENDED		
1.	K.K.Dewett	: Modern Economic Theory
2.	H.L Ahuja	: Advanced Economic Theory
3.	M.L. Jhingan	: Macro Economics
4.	P.N Chopra	: Business Economics/Advanced Eco. Theory

Note: There shall be total eight questions, four from each section. Each question carry 20 marks. Five questions will have to be attempted, selecting atleast two from each section. Use of calculator is allowed.

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E. 2nd Semester Maximum Marks: 125
Course No. M-206 Theory Sessional
Course Title: Machine Drawing-I **L P** **100** **25**
Branch: Common to all branches **1 3**
Duration of Exam : 3 Hours

SECTION-A

1. I.S. Code for Machine Drawing.
2. Types of Sections and Recommended Scale, Dimensioning and Sectioning of Machine elements.
3. Drawing and sketching of machine elements in Orthographic Projections.
4. Different types of Joints: Riveted joints, Threaded fasteners, Knuckle joint, Cotter Joints: Gib and Cotter, Sleeve and Spigot.
5. Stud assembly, Pipe joints including expansion joint.
6. Shaft pulley, cone pulley, Fast and loose pulley, etc.

SECTION-B

1. Simple assemblies: Shaft couplings and Clutches, Muff Coupling, Split muff, Flange Couplings: Solid and Flexible, Protected and Unprotected, Universal Coupling.
2. Bearings: Pedestal bearing including Hanger bearings, Pivot bearing and Swivel bearing.

RECOMMENDED BOOKS:-

1. Machine Drawing — P.S. Gill
2. Machine Drawing — Sidheshwar and Kannaih
3. Machine Drawing — N.D. Bhatt

NOTE:-

1. There will be Six questions in all, five from **Section- A** (each of 15 marks) and one Compulsory question of 55 marks from **Section - B.**

2. Students are required to attempt Four questions in all, three form Section-A and one compulsory question involving assembly from **Sections–B**.

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E 2ND Semester Maximum Marks : 75

Course No: M-207	**L**	**P**	Prac/Lab
Course Title: Workshop Technology-II	**1**	**3**	**75**

Branch : Common to all branches

Duration of Exam : 3 Hours

WELDING SHOP

1. Introduction to Welding as a fabrication process, Welding application and general safety precautions.
2. Introduction to Gas and Arc welding processes.
3. Preparation of single V-butt joint by Gas and Arc welding processes.
4. Preparation of double V-butt joint, Lap joint, Tee joint and Corner joint by Gas and Arc welding processes.

FITTING SHOP

1. Assembly of Snap fitting of flat pieces (Male, Female).
2. Assembly and fitting of two L-shaped rectangular flat pieces.

SHEET METAL SHOP

1. Introduction to sheet metal tools.
2. Practice of making regular geometrical and traditional shapes in sheet metal, which includes:
    a) Square elbow
    b) Tee joint
    c) Funnel making
    d) Tray and riveted handle.

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E 2ND Semester Maximum Marks : 50
Course No: PHY-208 **P** Prac/Lab
Course Title: Engineering Physics Lab-II **2** **50**
Branch : Common to all branches
Duration of Exam : 3 Hours

S.NO.	EXPERIMENT NO.	TITLE OF EXPERIMENT
1.	Exp-1	To determine the wavelength of sodium light using a plane diffraction grating.
2.	Exp-II	To find the wavelength of a monochromatic source of light using Fresnel's Biprism.
3.	Exp-III	To determine the specific rotation of sugar using laurent's half shade polarimeter.
4.	Exp-IV	Verification of Faraday's laws.
5.	Exp-V	To find the wavelength of monochromatic light using Newton's rings Apparatus.
6.	Exp-VI	To find the co-efficient of self-induction of a coil by Anderson's bridge using head phone.
7.	Exp-VII	To determine the value of e/m for electron by a long solenoid (Helical method).
8.	Exp-VIII	To find the impedance of LCR series and parallel circuits.
9.	Exp-IX	To study the Zener diode characteristics.
10.	Exp-X	To find the specific resistance of given wire by using carry Foster's Bridge.
11.	Exp-XI	To find the wavelength of He-Ne gas laser.
12.	Exp-XII	To find the diameter of a thin wire using He-Ne gas laser.

NOTE: AT LEAST A MINIMUM OF SIX EXPERIMENTS IS TO BE PERFORMED IN A SEMESTER.

BOOKS RECOMMENDED

	TITLE	AUTHOR
1.	B.Sc Practical physics	C.L. Arora
2.	Practical Physics	Worsnop & Flint
3.	Practical Physics	Chauhan & Singh (Vol.I & Vol. II)

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E 2ND Semester Maximum Marks : 50
Course No: CHM-209 **P** Prac/Lab
Course Title: Engineering Chemistry Lab-II **2** **50**
Branch : Common to all branches
Duration of Exam : 3 Hours

EXPERIMENTS

1. Determine the total hardness of a sample of water by complexometric method (using EDTA).
2. Determine the chloride content in supplied water sample using Mohr's method (Argentometric method).
3. Determine dissolved oxygen in the given sample of water (winkler's method).
4. Determine the free chlorine in the given sample of water.
5. Determine the acidity of a given water sample.
6. Determine the alkalinity of a given water sample.
7. Determine the percentage of calcium oxide in cement.
8. Organic Analysis: Identify the following organic compounds (preparation of at least one derivative).
    a) Carboxylic acids
    b) Compounds containing alcoholic and phenolic OH groups
    c) Aldehydes & Ketones
    d) Carbohydrates
    e) Amides, amines, anilides and nitro compounds
    f) Hydrocarbons
    g) Compounds containing sulphur or halogen

LIST OF BOOKS RECOMMENDED

1. Experimental Engineering Chemistry — Shashi Chawla
2. Lab. Manual on Engineering Chemistry — Basin, S K & Sudha Rani
3. A Manual of Practical Engineering Chemistry — Dr. Rajinder Kumar

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FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 ONWARDS

B.E 2ND Semester Maximum Marks : 75

Course No: COM-210	**P**	Prac/Lab
Course Title: Computer Programming Using C Lab.	**2**	**75**

Branch : Common to all branches

Duration of Exam : 3 Hours

The practicals will be based on the topics covered under Theory Syllabus. The Students are required to perform at least 15 Programs.

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COURSE SCHEME
FOR B.E. 3rd SEMESTER COMPUTER ENGG.
FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

Course		Curriculum Hrs/week			Marks			Total
Number	Name	L	T	P	Theory	Sessional	Practical	
COM-301	Object Oriented Programming using C++	3	2	-	100	40	-	140
MTH-311	Engg. Maths – III.	3	2	-	100	40	-	140
MTH-312	Numerical Methods using C-Programming.	2	2	-	100	40	-	140
ECE-311	Electronics – I.	3	2	-	100	40	-	140
EE-315	Electrical Measurement	2	2	-	100	40	-	140
EE-317	Elements of Electrical Engg.	3	2	-	100	40	-	140
COM-302	Object Oriented Programming Lab	-	-	2	-	-	40	40
COM-303	Numerical Methods using C-Programming Lab.	-	-	2	-	-	40	40
ECE-312	Basic Electronics Lab.	-	-	2	-	-	40	40
EE-309	Basic Electrical Engg. Lab.	-	-	2	-	-	40	40
	Total	**16**	**12**	**8**	**600**	**240**	**160**	**1000**

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FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: OBJECT ORIENTED PROGRAMMING USING C++
COURSE No.: COM –301
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			Theory	Sessionals
3	2	-	100	40

SECTION A

Review of Pointers: Passing parameters, Array of Pointers, Character Pointers.
Programming Techniques: Unstructured, Procedural, Modular. Introduction to objects, object & cohesion

Overview of C++, Object Oriented programming, Encapsulation, Polymorphism, Inheritance, Console I/O, C++ Comments.
Classes, Metaclass, Abstract class, Public and private variables, Constructor and Destructor Functions, Constructors taking parameters, Object pointers, In-Line Functions, Automatic Inlining, Friend Functions, This Pointer, New & Delete, Array of Objects.

SECTION B

Function Overloading, Overloading Constructor Functions, Operator overloading, Overloading Binary and Unary Operators, Overloading Relational & logical Operators.

Inheritance, Using Protected Members, multiple inheritance, Virtual Base Classes, Introduction to Virtual Functions.

C++, I/O Basics, Ifstream, Ofstream, Fstream, Open(), Close(), EOF(), Binary I/O, Get(), Put(), Read(), Write(), Random Access, Seekg(), Seekp(), Tellg(), Tellp().

Textbook:-
1.Turbo C++ -by Robert Lafore**.**

Recommended Books:
1. Programming in C++ - by Balaguruswamy.
2. C++ the Complete Referance – by Herbert Schildt.
3. Mastering C++ - by K.R. Venugopal & T. Ravishankar & Raj Kumar**.**

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E. 3RD SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: NUMERICAL METHODS USING C- PROGRAMMING.
Course No. MTH-312
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
2	2	100	40

SECTION – I

1. **C. Programming:** - Introduction to data types, Constants, variables, Expressions, Statements, Operators, Control Statements, Array, Functions and Sub-routines**.** **(20)**

2. **Errors and significant digits**: - Computer representation of numbers, accuracy of numbers, Errors, Errors in approximation.

   Roots of algebraic equations: - Bisection methods, Secant methods, Newton Raphson Method, Integrated synthetic division with quadratic factors, method for finding complex roots, Graeffe's Root squaring method. (30)

3. **Solution of simultaneous algebraic equations :-** Gauss Elimination, Gauss Jordan, Partition method for linear system of equations, Power method for finding Eigen values, properties & bounds for Eigen values & Eigen vectors. (30)

SECTION – II

1. **Interpolation: -** Newton's Forward, Backward & Divided difference interpolation, Central difference interpolation formula, Stirling's & Bessel's formula, Langrange's interpolation formula. (20)

2. **Numerical Differentiation & Integration:-** Derivatives using Forward Difference Formula, Backward difference formula & Central difference formula, Numerical Integration using Trapezoidal Rule & Simpson's Rule (30)

3. **Difference equations & their solutions: -** Taylor's series method, Euler's method, Ranga kutta method, Predictor – Corrector method, Adams –Bashforth method (30)

BOOKS RECOMMENDED

1. Elementary Numerical Analysis- S.D. Conte & Carl De Boor., Macgraw hill
2. Numerical Method for Scientists & Engineers- M.R. Jain ,S.R.K. Iynegar & R.K Jain.,Wiley Eastern
3. Elementary Numerical Methods – B.S. Grewal, Knanna Publishion.

NOTE: There shall be total Eight Questions of 20 marks each, Four questions from each section and students have to attempt Five questions selecting at least Two from each section. Use of Calculator is allowed.

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FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: ELECTRONICS - I.
Course No. ECE-311
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

UNIT – I

Semiconductor devices: - Introduction, Intrinsic and extrinsic Semiconductors, PN- Junction Diodes, Mass Action Law, Diffusion and Drift with derivation, Zener Diode, Tunnel diode, Schottky Diode, Photo diode, LED's – Their characteristics and analysis, Hall effect.

UNIT – II

Transistors: Transistor and its characteristics in CE, CB & CC mode, Ebber's Moll Model, Generalized transistor Equation, Base width modulation, Biasing Ckt.., for transistors, CB,CC & CE configuration, FET's and their analysis, Operating point and load line, Characterstics and Equivalent Ckts. of JFET, MOSFET, UJT, PNPN Devices (Thyristor Family).

UNIT – III

Amplifiers: principle of Operation and classification of Amplifiers, H- Parameters, BJT & FET, Analysis and Frequency Response of Amplifiers, Multistage Amplifiers RC, LC, DC and transformer coupled.

UNIT – IV

Hybrid II Model: Gain band width product, Emitter follower at High Frequency Response of CE Amplifiers, Miller effect, Common Drain Amplifier at high frequencies.

Reference Books :-

1. Electronic Principles – by Malvin; Tata McGraw Hill

2. Integrated Electronics – by Millman & Halkias; Tata McGraw Hill

NOTE: There shall be total Eight Questions of 20 marks each, Two from each Unit and students have to attempt Five questions selecting at least One from each Unit. Use of Calculator is allowed.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER & AEI ENGINEERING
COURSE TITLE: ELECTRICAL MEASUREMENT
COURSE NO.: EE- 315
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			Theory	Sessionals
3	1	-	100	40

SECTION-A

Measurement & Error: - Measurement, significance of measurement, Methods of measurements, Instrumentation & their classifications, Sensitivity, resolution, accuracy, precision, significant figures, absolute and relative errors, types of errors, limiting errors, linearity & probability of errors.

Analog & Digital Instruments: - Analog multimeter as voltmeter, ammeter & ohmmeter, Electronic multimeter, voltmeters & ammeters for measurement of a.c. currents & voltages, thermo instruments, True RMS responding voltmeter.

Digital multimeter as voltmeter, ammeter & ohmmeter, Digital L.C.R measurements, Digital frequency meter, ratio measurement, period measurement, Time Interval measurement.

SECTION-B

Bridge Measurements :- Wheatstone bridge, Kelvin bridge, AC bridges, Maxwell, Hays Bridge, Schering bridge, Wagner Ground connection, Wein bridge

Oscilloscopes:-Block diagram ,CRT, probes, deflection amplifiers & delay line, source & coupling for trigger generator, automatic time base, Dual trace oscilloscope, sweepmode measurements of voltage, phase, frequency , dual beam oscilloscopes

Transducers & data acquisition systems:- Classification of transducers, selecting a transducer, strain guages, Displacement ,temperature measurements, photosensitive devices Introduction, Block diagram representation, Recorders, necessity of recorders, Recording requirements, classification of recorders.

References:

1. A Course in Electrical & Electronic Measurement & Instrument.(Dhanpati) – A.K. Sawhney.
2. Electrical Measurement & Measuring Instruments (ELBs) – F.W. Golding.
3. A course in Electrical & Electronic Measurement & Instrumentation – J.B. Gupta.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER
COURSE TITLE: MATHEMATICS – III
COURSE No. MTH-311
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

SECTION - I

LAPLACE TRANSFORMS:
Laplace Transforms, Inverse Laplace Transforms, Properties of Laplace Transforms, LT of unit step function, Impulse function, Periodic function, Initial value theorem, Final value theorem, Convolution theorem, Application of LT to solve linear differential equations and convolution type integral equations.

INTEGRAL TRANSFORMS AND FOURIER INTEGRALS:
Integral transforms and Fourier Integrals Fourier integral theorem, Fourier sine and cosine Integrals, and their inverses.

SECTION - II

SPECIAL FUNCTIONS**:**
Special Functions Legendre polynomials, Rodgrigue's formula, Recurrence formulae, generating function, Orthogonality of Legendre polynomials, Bessel function of Ist kind. Recurrence formulae, generating function, Orthoganality of Bessel function.

BOOLEAN ALGEBRAS:
Boolean Algebras, Lattices, Finite Boolean algebra, C.N.F and D.N.F, Application of Boolean algebra to switching theory.

Books Recommended:-

01. Higher Engineering Mathematics — B.S. Grewal
02. Boolean Lattices — V.K. Khanna
03. Engineering Mathematics-III — Bhopinder Singh

NOTE: There shall be total Eight Questions of 20 marks each, Four questions from each section and students have to attempt Five questions selecting at least Two from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: ELEMENTS OF ELECTRICAL ENGG.
COURSE NO.: EE-317
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			Theory	Sessionals
3	2	-	100	40

UNIT – I

Electric circuit laws & energy sources: Basic electric circuit Terminology, Ohm's law, Kirchoff's current law (KCL) & Kirchoff's Voltage law (KVL), Circuit parameters, (Resistance, Inductance & Capacitance), series & parallel combination of resistance, Inductance & Capacitance, Ideal & practical voltage and Current sources and their transformation, Dependent voltage sources & Dependent current Sources.

UNIT – II

D.C Circuit Analysis: - power & energy relations, analysis of series Parallel D.C Circuit, delta –Star transformation, Superposition theorem, Loop & Nodal Methods, Thevenin's theorem, Norton's Theorem, Maximum Power Transfer Theorem

UNIT – III

A.C. Circuit Analysis: basic terminology and definition, Phasor And Complex Number Representation, Solution of Sinusoidally Excited RLC circuits, Formulation of N/W Equation, Laplace transform equation, Power and energy relations in AC ckts, Applications of N/W theorem to AC ckts. , Resonance in series and parallel ckts., quality factor .

UNIT -IV

Steady state AC 3 phase ckts.:- Concept of 3 phase voltage , Wye (Y) circuits , Delta circuits , current and voltage relations in Wye and delta ckts , Transformer: Construction, Operating principles of Phasor Diagrams.

Books Recommended:

1. Basic Electrical Engg. - Fitzgerald
2. Principles of Electrical Engg - Vincent Del Toro
3. Engg. Circuits and Analysis - Hayt , Kimmerly

NOTE: There will be eight questions of 20 marks each, two from each unit. Students are required to attempt five questions selecting atleast one question from each unit. Use of Calculator is allowed.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: OBJECT ORIENTED PROGRAMMING LAB
COURSE No.: COM –302
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS
		2	40

The Practicals will be based on Computer Languages Theory Syllabus. The students are required to submit at least 10 Programs covering at least 2 programs from each unit.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER 2009, 2010 & 2011

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: Numerical Methods using C-Programming lab
Course No. COM-303

L	T	P	MARKS
		2	40

The Practical's will be based on Theory Course in Numerical methods. The students are required to submit/perform at least Ten Programs.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER 2009, 2010 & 2011

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: Basic Electronics Lab.
Course No. ECE-312

L	T	P	MARKS
		2	40

List of Practicals:-

1) Familiarization with various Electronic components – resistors, Capacitors, Transistors, Diodes, IC, Transformers.
2) Diode characteristics (Forward & Reverse)
3) Diode as a Rectifier with capacitor Filter (Half & Full Bridge)
4) Zener diode Characteristics & Zener diode as voltage regulator.
5) Characteristics of Tunnel Diode, LED's, Photo -diode.
6) Characteristics of transistors in CB, CE & CC mode.
7) Biasing of CE-configuration with Load line characteristics.
8) Characteristics of JFET, MOSFET.
9) Characteristics of UJT & its working as relaxation oscillator.
10) Characteristic of SCR

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FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: Basic Electrical Engg. Lab
Course No. EE- 309

L	T	P	MARKS
		2	40

(1) Study of wires and cables.
(2) Study of various types of wiring.
(3) Methods of Earthing & Measurement of Earth resistance.
(4) Electric Shocks- Precaution & treatment.
(5) Verification of Kirchhoff's Law.
(6) Verification of Superposition Theorem.
(7) Study of voltage current relationship of a series RLC circuit & obtain Series Resonance.
(8) Study of three phase AC circuit with
    i) Star connection Load.
    ii) Delta connected load.
(9) Study of Single Phase Transformer. Determination of voltage Ratio, Turn ratio and Polarity test.

UNIVERSITY OF JAMMU, JAMMU

COURSE SCHEME
FOR B.E. 4TH SEM COMPUTER ENGG.
FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

Course		**Curriculum Hrs/week**			**Marks**			
Number	Name	L	T	P	Theory	Sessional	Practical	**TOTAL**
COM-401	Digital Electronics.	3	2		100	40		140
COM-402	Principles of Programming Languages	3	2		100	40		140
COM-403	System Programming.	3	2		100	40		140
MTH-413	Discrete Mathematics.	3	2		100	40		140
ECE-411	Electronics – II.	2	2		100	40		140
ECE-412	Communication Engg.	2	2		100	40		140
COM-404	Digital Electronics Lab.			2			40	40
COM-405	PC Hardware & Maintenance Lab.			2			40	40
ECE-413	Electronics – II Lab.			2			40	40

ECE-414	Communication Engg. Lab.			2			40	40
	Total	**16**	**12**	**8**	**600**	**240**	**160**	**1000**

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FOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: DIGITAL ELECTRONICS.
COURSE NO. : C0M-401
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

I: Digital Systems and Binary Numbers
Binary numbers, Number –Base Conversions , Arithmetic operations using number system, Data Representation - fixed and floating, Complements(1's and 2's),Binary codes – weighted / non-weighted codes, BCD codes, Excess- 3-code, Grey codes, Conversion between codes, Code convertors Codes for error detection and correction (Hamming code).

II: Boolean Algebra and Logic Simplification :
Boolean Algebra, Logical gates, Simplification of Boolean function using Boolean algebra ,Karnaugh map(up to five variables), Quine Mcclusky Methods, Logic Family & their characteristics (RTL,DTL,TTL, ECL, MOS & CMOS).
Combinational Logic design -Half and Full adders, Half and full subtractors, BCD Adder , Comparators.

Section B

III: Decoders, Encoders , Multiplexers, De-Multiplexers, Programmed logic devices –Read only memory, Programmable Read only Memories (PROM) and Programmable Logic Arrays (PLA), Programmable Array Logic (PAL), Analog to digital converter (ADC), Digital to Analog converter (DAC).

IV: Sequential logic design:
Latches and Flip flops, conversion between flip flops, Shift Registers, Analysis of synchronous and asynchronous counters, Design of Synchronous and Asynchronous Sequential circuits, State Reduction and Assignment,
Races and hazards in Asynchronous Sequential circuits ,ASM Charts.

BOOKS RECOMMENDED:

1. Digital Design — Morris Mano
2. Digital Electronics — R.P Jain
3 Digital Logic Design — J.P. Hayes
4. Digital Logic Design — Brain Holdsworth
5. Digital Electronics & Circuits Design — Thomas Mac calla
6. Digital Electronics — R.K Gour

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: PRINCIPLES OF PROGRAMMING LANGUAGES.
Course No. C0M-402
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
2	2	100	40

UNIT –I

Programming language concepts: - History, Structure and operation of a Computer, translators and software simulated Computers, Hardware, Software, firmware and virtual Computers, Hierarchies.

Data types:- Elementary data types, Specification and implementation, declaration, type checking and type conversion, Assignment and initialization, structured data types, specification and implementation, declaration, Type checking, vectors, Arrays, Character strings, pointers & files. (40)

UNIT-II

Data and Sequence Control:- Static and dynamic scope, Local data, parameters, Parameter transmission, task shared data, implicit, explicit sequence central, subprogram sequence control, recursive subprograms, exceptions and exception handlers, co-routines , task and concurrent execution. (30)

UNIT – III

Object Oriented Programming and Operating Environment:- Definition of OOP, difference between procedural and OOP, data encapsulation, data abstraction, information hiding, classes in C++, inheritance and polymorphism in C++, batch processing, interactive, embedded system and programming environment. (30)

UNIT – IV

Storage, Syntax and Translation:- Programmer and system control, storage management phases, static storage management, stack storage management, heap/storage management in case of fixed and variable size, syntactic criteria, elements of language, stages in translation, formal definition of syntax.
Introduction to Lisp & Prolog. (60)

BOOKS RECOMMENDED:

1. Programming Languages : Pratt
2. Programming Languages : Pratt & Zelkawitz

REFERENCE BOOKS:-

1. Programming Languages : E.Horowitz
2. Programming Languages : M.Jazayeri
3. Principles of Programming Language: D.Tennett.

NOTE: There will be Eight question of 20 Marks each as per weight age indicated against each Unit. Students have to attempt Five Questions in all.

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FOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: SYSTEM PROGRAMMING
COURSE NO.: C0M-403
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			Theory	Sessionals
3	2	-	100	40

Section-A

Introduction to Software Processors: - What is system software? Components of system software, Evolution of system software, General Machine Structure, Machine Language, Translators, Loaders, Interpreters.

Assemblers:- Element of Assembly language programming overview of assembly process, Design of Two-pass Assembler. A single pass Assembler, Macros and Macro processors, Macro Instructions, Features of Macro, Macro calls within Macros.

Software processors for interactive Environment: - Interactive Computing and program Development, Interpreters. Incremental compilers.

Software tools:-Spectrum of software Tools, Text Editors, Debug Monitors, programming Environments.

Section-B

Loaders and Linkage Editors:-General loader scheme, Compile and go loader, Absolute loader, relocating loader, direct linking loader, Loading, Linking and relocation, design of absolute loader and direct linking loader.

Features of Higher level languages (HLL):- Importance and features of HLL, Extensive data types and structures, Scope rules, Storage Allocation, Functional Modularity.

Compilers:-General Model, Introduction to various phases of compiler, passes of a compiler, Introduction to Parser and Parsing Techniques.

TEXT/REFERENCES:-

1. **System programming and operating systems : by Dharmdhere. D.M. TMH**
2. Introduction of systems software : D. dhere—TMH
3. Systems programming: J.J. Donavan—McGraw Hill.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: DISCRETE MATHEMATICS.
Course No. MTH-413
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

SECTION – I

SETS, RELATIONS, MATHEMATICAL LOGIC

1. Finite and infinite sets, countable and uncountable sets,
2. Principle of inclusion and exclusion, Mathematical Induction, Pigeon-Hole principle.
3. Logical operators, truth tables, Law of inferences and prepositional calculus.

ALGEBRAIC SYSTEM

1. Relations and functions, types of functions, Lattice, chains, Anti chains
2. Groups and sub groups, Related theorems, cosets, normal subgroups and group Homomorphism
3. Rings, integral domains and fields; examples and related results.

SECTION - II

GRAPH THEORY

1. **Basic terminology, multi graphs and weighted graphs, connectivity ; walk, trail and path, circuits & Cycles, shortest path in weighted graphs, Algorithm of shortest path,**
2. Hamiltonian and Eulerian paths and circuits, Eulerian trail & circuit, Eulerian graphs, Hamiltonian cycle, Hamiltonian graph, Konisberg Bridge problem, Chineese Postman problem, Traveling Sales Person problem, Planar graph and Euler's formula.
3. Trees and cut sets:- Trees, Rooted Trees, path lengths in rooted trees, prefix codes binary search trees, spanning trees and cut sets.

BOOKS RECOMMENDED :

1. Discrete Mathematics by C.L. Liu.
2. Graph Theory by Narsingh Deo
3. Discrete Mathematical structure with applications to computer science by Trembley and Manohar.

NOTE: There shall be total Eight questions of 20 Marks each, Four from each Section. Students shall have to attempt Five questions selecting at least two from each Section. Use of calculator is allowed.

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FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: ELECTRONICS-II.
Course No. ECE-411
DURATION OF EXAM: 3 HOURS

			Marks		
L	**T**	**P**	**Theory**	**Sessional**	**Practical**
2	**2**	**0**	**100**	**40**	**0**

. **SECTION - I**

FEEDBACK AMPLIFIERS

Classification of amplifiers, Feedback concept, Advantages of negative feedback Way of introducing negative feedback in amplifiers, Gain with & without negative feedback , effect of negative feedback on Input & Output resistances of amplifiers. Bandwidth with negative feedback & their analysis. Procedure for analysis of feedback amplifiers, Analysis of different topologies.

OSCILLATORS

Necessity of oscillator, Barkhussein criteria, Gain with Feedback, Types of Oscillators, Audio frequency(R-C phase shift, Wein bridge) & radio frequency(Collpitt, Clapp, Hartley) oscillators with necessary derivation for determining gain & frequency of oscillation.
Crystal Oscillator.

SECTION - II

VOLTAGE REGULATORS

Necessity of voltage regulated supplies, Factors effecting unregulated power supply, Stabilization, Types of voltage regulators-Series & shunt regulators. Series voltage regulator using emitter follower & its expression for Sv & Ro. Pre regulators, Short Circuit protection circuits, Monolithic regulators , SMPS.

OPERATIONAL AMPLIFIERS & ITS APPLICATION

Basic Differential Amplifier- its working & types, Small signal analysis using H-parameters, Differential & Common mode gain, Building block of op-amp, Circuit symbol features & Electrical parameters of OP-Amp, Op-amp in open loop & closed loop configuration with derivation. OP-amp as voltage follower, Inverter, I-V converter, Summing, Scaling & average amplifiers(Non Inverting & Inverting), Op-amp as clipper, clamper, peak detector, comparators & Schmitt trigger,. Integrator, Differentiator,
Timer-555 & its Applications.

Book Recommended:

01.	Integrated Electronics	By Millman Halkais
02.	Electronics Devices	By Bolystead
03.	Electronics Devices	By Malvino Leach
04	Op-Amp & Linear Integrated Circuit	By R.A. Gyakwad.

NOTE : There shall be Eight Questions of 20 Marks each, Four from Each Section. Five questions have to be attempted in all selecting at least two from each Section.

UNIVERSITY OF JAMMU, JAMMU.
For Examination to be held in June 2010, 2011 & 2012

Class: BE 4th Semester				Marks		
Branch: COMPUTER ENGINEERING	L	T	P	Theory	Sessional	Practical
Course No:- ECE-412	2	2	-	100	40	--
Course Title:- Communication Engg.						
Duration of Exam: 3 Hours						

SECTION - I

Introduction to Elect. Comm. System, Concept & need for modulation, Definition of signal to noise ratio & noise figure, Representation of signal & system (periodic non-periodic etc.), Spectral analysis of signal (Fourier series & fourier Transforms), Representation of AM. Frequency spectrum of AM wave, Power relation in Am wave, Modulation & demodulation of AM, SSB techniques, Balanced modulator, Type of SSB, Modulation & demodulation of SSB signals.

Theory of FM, Representation & frequency spectrum of FM, Pre-Emphasis De-Emphasis, Wide band & narrow band FM, Generation & detection of FM signal, Comparison with PM & AM.

SECTION - II

Pulse modulation techniques, Sampling & sampling theorem & its proof, Aliasing effect, Natural & flat top sampling principle generation & detection of PAM, PPM, PWM, PCM, DM, ADM, Time division multiplexing, Frequency division multiplexing.
Digital modulation Techniques: Generation & detection of ASK,FSK,BPSK.

Information Theory: Information , information rate, Entropy ,Source-coding & coding Efficiency , Shannon –Fano coding, huff-man coding, Channel capacity theorem.

Books Recommended:

1. Electronics Comm. System By G. Kennedy
2. Principles of Comm. System By. Taub & Schilling

Reference Book

1. Communication System By Simon Haykins

NOTE : There shall be Eight Questions of 20 Marks each, Four from Each Section. Five questions have to be attempted in all selecting at least two from each Section.

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FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: DIGITAL ELECTRONICS LAB.
Course No. COM-404

L	T	P	MARKS
		2	40

List of Practicals:-

1. Verification of truth table of basic gates.
2. Verification of truth tables of ADDER/SUBTRACTER using IC-7483
3. Verification of truth tables of MULTIPLEXER/DEMULTIPLEXER
4. Verification of truth tables of BCD –7- Segment Display
5. Verification of truth tables of Code Conversion.
6. Design of Flip-Flops using IC chips.
7. Design of Two's complementor ckts using shift registers.
8. Design and Implementation of Asynchronous MOD-12 counters.
9. Design of a sequential ckt for character generation
10. Study of PLA'S and PAL's.

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FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: PC HARDWARE & MAINTENANCE LAB.
Course No. COM-405

L	T	P	MARKS
-	**-**	2	40

List of Practicals:-

1. Study of Keyboards – Mechanical Keyboards, Membrane Keyboards,
2. Study of Printers – Dot Matrix, Inkjet Printers.
3. Study of SMPS.
4. Assembling the units of Computer,.
5. Fault Finding in the various units of Computer, fault finding Codes and Beeps.
6. Software loading at different Platforms such as DOS, Windows –95 /98 2000.
7. Use of Antivirus Software.
8. Preparation of user Manuals/ Service Manuals for various Computer Blocks.

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For Examination to be held in June 2010, 2011 & 2012

Class: BE 4th Semester

Branch: Computer Engg.	**L**	**T**	**P**	**Practical**
Course No: ECE-413	**-**	**-**	**2**	**40**

Course Title: Electronics-II Lab
Duration of Exam: 3 Hours

List of Practicals

1. To study the operation characteristics of the P.N. junction, Ge/Si (Forward & Reverse Charactersitics).
2. To study the operation characteristics of Zener diode (Forward & Reverse Charactersitics).
3. Half wave Rectifier.
4. Full wave / Bridge Rectifier.
5. To study the operation charactersistics (Input / Output) of PNP / NPN Transistor (Common Emitter / Common Base).
6. To study the frequency response of signal amplifier (CE/CB).

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FOR EXAMINATION TO BE HELD IN JUNE 2010, 2011 & 2012

CLASS: B.E.4TH SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: COMMUNICATION ENGG. LAB.
Course No. ECE-414

L	**T**	**P**	**MARKS**
-	**-**	**2**	40

List of Practicals:-

1. To plot the response of RF Tuned amplifier.
2. To find the modulation index of AM signal.

3. Hardware realization of AM demodulator circuit.
4. Hardware realization of FM modulation circuit using 8038.
5. Hardware realization of Sample & Hold circuit.
6. Hardware realization of Ask modulator.
7. Study of PCM & TDM signals.

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COURSE SCHEME
FOR B.E 5TH SEMESTER COMPUTER ENGG.
FOR EXAMINATION TO BE HELD IN DECEMBER-2010 ONWARDS

Course		Curriculum Hrs/week			Marks			TOTAL
Number	**Name**	**L**	**T**	**P**	**Theory**	**Sessional**	**Practical**	
COM-501	Internet & Web Technology.	3	2		100	40	-	140
COM-502	Data Structures.	3	2		100	40	-	140
COM-503	Microprocessor – 8085.	3	2		100	40	-	140
COM-504	Automata & Formal Languages	2	2		100	40	-	140
COM-505	Computer Networks.	3	2		100	40	-	140
COM-506	Computer Organization & Architecture.	3	1		100	40	-	140
COM-521	Data Structures Lab.	-	-	2	-	-	40	40
COM-522	Microprocessor Lab.	-	-	2	-	-	40	40
COM-523	Computer Networks Lab.	-	-	2	-	-	40	40
COM-524	Web Tech. Lab	-	-	2	-	-	40	40
Total		**16**	**12**	**8**	**600**	**240**	**160**	**1000**

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FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

CLASS: B.E. 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: INTERNET AND WEB TECHNOLOGY
COURSE NO. : C0M-501
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS	
			Theory	Sessionals
3	2	-	100	40

Section A

Introduction to Internet, History, Working of Internet, Internet applications, Internet Protocols, Internet service Provider, Internet Addresses, CGI, CGI Applications, CGI methods, Interface Specifications.

Overview of HTML, HTML Tag, HTML forms, Introduction to DHTML, Frames, Style Sheets, Cascading Style Sheets (CSS), Document object Model, Positioning HTML Content, Absolute & Relative Positioning.

JavaScript, Its uses, Operators, Statements, Object manipulation, Function, Event Handler, Events, Form Validation, Browser Detection, Session Tracking methods like cookies, URL Writing, Hidden fields.

Section B

XML Attributes in XML, Well- Formedness & Validation of XML, DTD, Building Block of DTD, Attributes, Entity, XML Schema, Order, Restriction, Pattern.

Server Side Programming Servlet, Life Cycle of Servlet, Deployment descriptor, JSP(Java Server Pages), Error Handling in JSP, JSP and Java Beans, Include , Forward, Redirecting, Java Beans, Java Beans Component Specification, Development Phases, EJB, ASP(Active Server Pages

Recommended books:-

1. Fundamentals of the Internet and the World Wide Web, Raymond Greenlaw and Ellen Hepp 2001, TMH.
2. Internet & World Wide Programming, Deitel, Deitel & Nieto, 2000, Pearson Education.
3. HTML & XHTML: The Definitive Guide By Chuck Musciano, Bill Kennedy, 2000,4th Edition.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: DATA STRUCTURES
COURSE No. COM-502
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Introduction to data structures:- Concepts of data and algorithm, Relation between Data structure & algorithm, Introduction to Time & Space complexity, Data types, Data Structures & Abstract data types, Representation of Arrays, Sparse matrices.

Stacks and Queues:- Concept of stacks, Operation on stacks, Multiple stacks, Application of stacks in Infix, Postfix, Prefix, Recursion, Concept of Queues, Operation on Queues, Multiple Queues, Priority Queues, Circular Queues.

Linked Lists :- Insertion, Deletion and traversal on Linear Linked Lists, Doubly Linked List, circular Linked List, Linked List as data structure, Header nodes, Stacks & Queues using linked list, Dynamic memory management, Garbage Collection

Section B

Trees:- Binary trees and it's representation using Linked list, Operations on Binary Trees, Traversal Algorithms, Applications, Threaded Binary Trees and its traversal algorithms, Heterogeneous binary trees, List representation using binary trees, Optimum search trees, AVL trees.

Graphs:- Representation of Graphs, traversal methods, Applications undirected graphs, Directed Graph & their traversal, Depth first, Breadth First, Shortest path algorithms, Minimum Cost Spanning tree.

Sorting & Searching:

1. Exchange Sort (Bubble, Quicksort)
2. Selection & Tree Sorting.
3. Insertion sort, Shell Sort, Address Calculation Sort
4. Merge & Radix Sort.
5. Sequential Searching, Searching an Ordered Table, Index sequential search, Binary search, Interpolation search, Tree searching.

REFERENCES:-

1. Data Structure using C – Tenenbaum, Langsam, Augenstein
2. Fundamentals of data structures - Horowiz E. and Sahni S.
3. Data structures and Program Design Robert L. Kruse.
4. Data Structures & Algorithm - Aho, Hopcraft and Ullman.
5. Data Structure with Applications – Sorenson.

Note:- There shall be eight questions of 20 marks each, Four from each section. Five questions have to be attempted selecting atleast two questions from each section.

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FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: MICROPROCESSOR-8085
COURSE No. COM-503
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Microprocessor Architecture, Pin Description of 8085, Instruction Set and Instruction Format, Data Transfer Instructions, Arithmetic Operations, Logic and Branch Operations, Programming Techniques with Additional Instructions, Looping, Counting and Indexing, Logic Operations, Rotate Compare. 8085 Interrupts.

Counters and Time Delay Programs, Stack and Subroutines, Conditional Call and Return Instructions & Code Conversions, BCD to Binary, Binary to BCD, BCD to Seven Segment L.E.D, ASCII to Binary, BCD Addition, BCD Subtraction, Introduction to Advanced Instructions and Applications, Multiplication, Subtraction with carry.

Section B

Parallel Input/Output & Interfacing: - Basic Interfacing Concepts, Interfacing Output Displays, Interfacing Input Keyboards, Memory Mapped I/O, Interfacing Memory.

Programmable Interface Devices: - Basics of Programmable I/O, General Purpose Programmable Peripheral Devices – 8255A, 8259A, Direct Memory Access Controller – 8237, 8279, 8253, 8155.

Reference:

1. **Microprocessor Architecture, Programming and Applications with 8085/8080 - Ramesh S. Gaonkar.**

2. **Introduction to Microprocessors - Aditya Mathur**

Note:- There shall be eight questions of 20 marks each, Four from each section. Five questions have to be attempted selecting atleast two questions from each section.

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CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: AUTOMATA AND FORMAL LANGUAGES
COURSE No. COM-504
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section-A

Introduction:-Symbols, string Concatenation, alphabet, Language, Tree, Mathematical Induction Proofs , States, Transition Tables, Finite Automata, Regular Expressions, Push- down Automata, Turing Machine, Context Free grammars.

Finite Automata :- Deterministic Finite Automata (DFA), Designing, Non- deterministic finite Automata (NFA) without E-moves, Conversions, Equivalence, NFA with E-moves, Regular expression designing, Finite machine with output assigned, Moore and mealy machines, Conversion and Equivalence.

Section- B

Turing Machines:-Turing Hypothesis, Turing Computability, Non- deterministic, Multitape and other versions of Turing machines, Churches Hypothesis, Primitive Recursive functions, Universal Turing machines, decidability, Halting problem, Stack Automata.

Regular Grammar & Context free Languages: -Context free Grammar, Context free Languages, reduced form of Grammar, Ambiguous and Non- Ambiguous grammar, acceptors and generators, Relations between Classes of Languages, Pumping lemma of regular sets, Chomsky's hierarchy of languages, derivation Trees.

References:-

1. **Introduction to Automata Languages & Computation**
   - **by A.V. AHO, J. E. Hopcreft & J.D. Ullman**

2. **Introduction Theory of Computer Science**
   - **by E. V. Krishna Moorthy**

Note:- There shall be eight questions of 20 marks each, Four from each section. Five questions have to be attempted selecting atleast two questions from each section.

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FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: COMPUTER NETWORKS
COURSE No. COM-505
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Review of data Communication Systems: - Introduction to communication system, synchronous and asynchronous systems, serial and parallel system, Modems, RS 232 interface, uses of computer networks, Network topologies, OSI Reference Model, TCP-IP Reference Model.

Computer Networks:- X .25 Networks, Physical layer : Transmission media, ISDN services, ATM networks, Cellular Radio, SONNET

Data Link Layer: – Design Issues, Protocols (Sliding window protocols) HDLC.
Medium Access Sub layer: Static Channel v/s Dynamic Channel, Aloha, Multiple access protocols, IEEE 802.3, 802.4, 802.5, Bridges, FDDI.

Section B

Network Layer: - Routing Algorithms, Congestion Control, Internetworking.

Transport Layer :- Transport services, Elements of Transport protocols.

Session Layer & Presentation Layer:- Design Issues

Application Layer :- Presentation and Network security, Data Compression, DNS, ASN-1, email, Usenet, Introduction to WWW, DES, Ciphers, Authentication, Firewalls.

Reference/Books :-

1. **Data Communication - By Williaim L. Schweber.**
2. **Computer Networks - By Andrew S. TanenBaum.**
3. **Communication Network System for Computer - By Davies & Barbq**

Note:- There shall be eight questions of 20 marks each, Four from each section. Five questions have to be attempted selecting atleast two questions from each section.

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FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: COMPUTER ORGANISATION AND ARCHITECTURE.
COURSE No. COM-506
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Introduction:- Basic structure of Computers, stored programme concept, Basic Operational concepts, Functional Units, Machine language, concept of memory locations, addresses, addressing modes, instruction format, comparison between mainframe, mini Computer, microcomputer.

Processing and execution:- Processing unit, execution of instructions, control step sequence, different types of instruction, ALU Design, Arithmetic Processes, Control Unit Design, Hardwired & Micro programmed Control Unit.

Input output organisation:- I/O Systems – Programmed Control, Interrupt controlled & DMA Data transfer Schemes, I/O Processors.

Section B

Memory Management:- Memory organisation, Characteristics of memory size, Access time, Read/write cycle time, Sequential and Random access semi conductor memories, Virtual memory, Cache memory, Memory Hierarchy, Secondary storage devices- Magnetic Disks, Magnetic Tapes, CD ROM's.

Parallel processing – Basic Concepts, Types of parallel Processors, Pipelined processors, Pipelined Structures,
Introduction to SAP Machines.

REFERENCES:-

1. **Computer Architecture & Organisation : John P. Hayes (Mc Graw Hill)**
2. **Computer System Architecture : Morris Mano**
3. **Computer System Architecture : V.K. Jain**
3. **Computer Organisation : Carl V. Hamacher.**
4. **Digital Electronic : Malvino Brown.**

Note:- There shall be eight questions of 20 marks each, Four from each section. Five questions have to be attempted selecting atleast two questions from each section.

UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: DATA STRUCTURES LAB
COURSE NO: COM-521
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS
-	-	2	Practicals 40

All practicals shall be based on theory syllabus. Students will be required to implement Algorithms using C and submit at least 10 practicals .

UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: MICROPROCESSOR LAB
COURSE NO: COM-522
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS
-	-	2	Practicals 40

List of experiments :-

1. Block Transfer:- Data bytes are stored in memory locations from XX50H to XX5FH To insert an additional five bytes of data, it is necessary to shift the data string by five memory location. Write a program to store a data string from XX55H To XX64H. Use any 16 bytes of data to verify your program.
2. Addition with Carry: Six bytes of data are stored in memory locations starting at XX50H. dd all the data bytes . Use register B to save any carry generated while adding the data bytes. Store the sum at two consecutive memory locations XX70H and XX71H
3. Checking for a particular data byte: A set of eight readings is stored in memory location starting at XX50H . Write a program to check whether a byte 40H exists in the set. If it does , stop checking, and display its memory location, otherwise output FFH
4. Write a program for BCD to Seven Segment LED code conversion.
5. Write a program for Binary to ASCII code conversion.
6. Write a program for BCD addition.
7. Write a program for multiplication of Two 8 bit unsigned nos.

Interfacing experiments

1) Study of 8255 interfacing card.
2) Study of 8279-interface card.
3) Study of 8257 DMA controller interface card.
4) Study of 8253 PIC Interface card.

5) Interfacing of 8085 with Stepper Motor.
6) Interfacing of 8085 with ADC and DAC.

UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE: COMPUTER NETWORKS LAB.
COURSE NO: COM-523
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS
-	-	2	Practicals 40

Case Study of LAN

Students shall be exposed to the designing & working of a LAN, along with suitable Software.

UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2010 ONWARDS

CLASS: B.E 5TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE TITLE**:** WEB TECH LAB.
COURSE NO: COM-524
DURATION OF EXAM: 3 HOURS

L	T	P	MARKS
-	-	2	Practicals 40

Database creation, Operation on the RDBMS, Normalization of Database, Relational Database SQL Commands, Data Definition, Data Manipulation, Data Control, Use of Odd set of Operators, Security in Database, Using PL- SQL.

UNIVERSITY OF JAMMU

COURSE SCHEME
FOR B.E 6TH SEMESTER COMPUTER ENGG.
FOR EXAMINATION TO BE HELD IN JUNE, 2011 ONWARDS

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Course		Curriculum Hrs/week			Marks			TOTAL
Number	**Title**	**L**	**T**	**P**	**Theory**	**Sessional**	**Practical**	
COM-601	Advanced Microprocessor.	3	2	-	100	40	-	140
COM-602	Analysis & Design of Algorithms	3	2	-	100	40	-	140
COM-603	RDBMS	3	2	-	100	40	-	140
COM-604	Multimedia	3	2	-	100	40	-	140
COM-605	Operating System.	3	2	-	100	40	-	140
COM-606	Software Engg	3	2	-	100	40	-	140
COM-607	Advanced Microprocessor Lab.	-	-	2	-	-	60	60
COM-608	Operating System Lab.	-	-	2	-	-	50	50
COM-609	RDBMS Lab	-	-	2	-	-	50	50
Total		**18**	**12**	**6**	**600**	**240**	**160**	**1000**

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER ENGG.
COURSE TITLE: ADVANCED MICROPROCESSOR.
COURSE No. COM-601
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Introduction to 16-bit Microprocessor: - 8086/8088 architecture, Concept of segmented Memory, Addressing Modes, Instruction Set, Introduction to 80186, 80286, 80386.

8086 Family Assembly Language Programming and Techniques:- Simple Sequence programs. Flags, Jumps, While- Do, Repeat-Until Implementations, Programs using Procedures.

8086 CPU Hardware Design: - 8086 Signals, Minimum and Maximum Mode of CPU model, System Bus Timing, 8086 Interrupt Vector Table, Interrupt Service Subroutine, Applications, Addressing Memory and Ports in Micro Computer System.

Section B

Numerical Data Processor (8087): - NDP's data types, Processor Architecture, Instruction set Interfacing with 8086/88.

Digital Interfacing: - Programmable Parallel Ports, Handshake I/P & O/P Interfacing a microprocessor to keyboard/alphanumeric displays, interfacing with printer, Lathe.

Multiprocessor Configuration: - Queue Status, lock facility, 8086/88 based Multiprocessor system, Coprocessor configuration, Introduction to Pentium IV, closely and loosely coupled configuration.

References/Texts:-

1. Microprocessor & Interfacing - Douglas V. Hall
2. Programming & Design - LIU & Gibson
3. IBM PC Programming - Peter Afzel

Note :- There shall be eight questions of 20 marks each, four from each section. Five questions have to be attempted selecting atleast two questions from each section. Use of Calculator is allowed

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER / I.T. ENGG.
COURSE TITLE: ANALYSIS AND DESIGN ALGORITHMS.
COURSE No. COM-602
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Introduction to Algorithms, Analysing the Performance of an Algorithm, Space /Time complexity, Asymptotic Notation, Recurrence Relations, Performance measurement, write Algorithms in SPARK's.

Heap & Hash Tables:- Representing a Heap, Operations on Heaps, Applications, Building a Heap, Hash Table, Hashing Functions, Resolving Collision by separate Chaining, Open Addressing, Quadratic Probing, Double Hashing, Rehashing.

Lower Bound Theory:- Comparison Trees For searching & Sorting , Parallel Comparison trees, Oracle & Adversary Arguments, Lower Bounds through Reduction.

NP-Hard and NP- Complete Problems: -Basic concepts, Non-Deterministic Algorithms, Polynomial Time Algorithms,NP-hard & NP –complete classes, Look's Theorem, Introduction to Approximation Algorithms.

Section B

Design Techniques**:-**

1. Divide and Conquer:- General methods, Binary Search, Finding the Maximum & Minimum, Mergesort, Quick Sort & Selection sort, Strassen's Matrix, Multiplication.
2. Greedy Method :- General Methods, Optimal Storage on Tapes, Knapsack Problem, Job Sequencing with Deadlines, Optimal Merge Patterns, Single Source, shortest path..
3. Dynamic Programming :- General Methods, Multistage Graphs, I/O Knapsack, Reliability Design, Traveling Salesperson problem.
4. Back Tracking :- General Method, The 8- Queens Problem, Hamiltonian Cycles, Knapsack Problem.
5. Branch & Bound :- The method, I/O Knapsack Problem, Traveling Salesperson Problem.

References:-

1. **Fundamentals of Computer Algorithms.** by Ellis Horowitz, Sartaj Sahni.
2. **Data Structure & Algorithm by J.M. Hopcraft , Ullman.**

Note :- There shall be eight questions of 20 marks each, four from each section. Five questions have to be attempted selecting atleast two questions from each section. Use of Calculator is allowed

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER ENGG.
COURSE TITLE: RDBMS
COURSE No. COM-603
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Basic Concepts:- Data Modeling-Records and files-Abstraction and data integration- Views-Data independence-Components of DBMS-Advantages and disadvantages.
Data Models:- Data associations ,Data models classification , Entity - relationship model, Relational ,Network and Hierarchical models, Comparison of these models.
File Organization :- Introduction, Serial Files, Sequential files, Index Sequential files, Direct Files , Indexing using tree structure, Logical and physical pointers, Record placement.

Section B

Relational Model and Relational Data-base Design:- Attributes and domains, Tuples, Relations and schemas, relation representation, keys, Integrity rules, Relational algebra , Relational Calculus. Data Manipulation using SQL. Normalization using functional dependency, Normalization using join dependencies, Normalization using join dependencies, Domain key normal form.
Crash Recovery:- Reliability, Transactions, Recovery in a centralized DBMS, Reflecting updates to the database and recovery, Buffer management, Virtual memory, Disaster recovery.

Distributed Databases:-Introduction, Advantages and disadvantages of DBMS, Networks Data distribution, Object naming, distributed query processing.

Reference Books:-

1. **Database System Concepts :Korth,Silberchatz - TMH**
2. **An introduction to Database Systems :Bipin C. Desai**
3. **Principles of Data Base Management Systems:Aho Ullman**
4. **Oracle :Ivan Bayross.**

Note :- There shall be eight questions of 20 marks each, four from each section. Five questions have to be attempted selecting atleast two questions from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER ENGG
COURSE TITLE: MULTI MEDIA.
COURSE No. COM-604
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

SECTION- A

Introduction to Multimedia, Multimedia Networks, Multimedia Information Representation, Media & Data Streams, Image, documents, Video & Audio File Formats & their representation, Audio & Video Compression, Text & Image Compression.

Multimedia Communications, Networks & Standards relating to Interpersonal Communication, Interactive Applications over the Internet, Reference Models, Multimedia Operating System & Synchronization.

SECTION- B

Broadband ATM Networks, Protocol Architecture, ATM LANs, ATM MAN's, High Speed PSTN, Access Technologies.
Multimedia Applications & Architecture, Multimedia Databases.

Books Recommended:

1. Mutimedia Computing, Communication & Application by Steinmetz R & K. Nahrstedt.
2. Multimedia in Practice - Technology & Application by Jeffcoate J.
3. Multimedia Communication by Fred Halsall.

Note :- There shall be eight questions of 20 marks each, four from each section. Five questions have to be attempted selecting atleast two questions from each section. Use of Calculator is allowed

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER ENGG.
COURSE TITLE: OPERATING SYSTEM.
COURSE No. COM-605
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Introduction Concepts:- Operating System functions & Characteristics, Historical Evolution of O.S., O.S. Services, User O.S. Interface, Computer System Architecture, O.S. Design and Implementation and structure, System calls, System Programs, Virtual Machines, Spooling.
Process Management:- Study of state models, process Scheduling, Job Scheduling, Scheduling Criteria, Scheduling Algorithms, Multiple Process Scheduling.
Process Coordination:
- Synchronization : Race-Conditions, critical –Section problems, semaphores, Bounded-Buffer Problem, Readers-writers Problem, Dining –Philosophers Problem

Section B

Deadlocks : Characteristics, Deadlock Prevention, Avoidance, Detection, Recovery.
Memory Management: Logical & Physical Address space, Contiguous & Non-Contiguous Memory Allocation, Paging, Structure of Page Table, Segmentation, Demand paged memory management, Page replacement, Allocation of Frames, Thrashing, Swapping & Overlays, Cache Memory.
CASE STUDY:
Introduction to UNIX, UNIX File System, Visual Editor, Essential Unix Commands, system Administration, Bourne Shell, C Shell, Process Creation, Trapping Signals, Process Termination, Inter Process Communication, shared Memory, Pipe Lines, Semaphores, Messages.

Reference/ Books Recommended :-
1. Operating System by Stuart E. Madnik, Jhon J. Donovan.
2. Operating System by J.L. Peterson & Silberschtz .
3. Operating System Principle by H.D. Deitel.
4. Design of UNIX Operating system by Maurice J. Bach.

Note :- There shall be eight questions of 20 marks each, four from each section. Five questions have to be attempted selecting atleast two questions from each section. Use of Calculator is allowed

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER / I.T. ENGG.
COURSE TITLE: SOFTWARE ENGG.
COURSE No. COM-606
DURATION OF EXAM: 3 HOURS

L	T	MARKS	
		Theory	Sessionals
3	2	100	40

Section A

Introduction to Software Engineering:- Software Considerations: Software characteristics Software crisis Software myths, Software Engineering paradigms**.**

System and software Planning :- Planning phase of system definition, system analysis, Modeling the system architecture, system specification, Software planning objectives, Software scope ,Software project estimation, Decomposition techniques, Empirical estimation models ,Automated estimation models, Software project scheduling , Software acquisition, Software re-engineering.

Software requirement analysis :- Requirement analysis, Analysis principles, specifications requirement analysis tools, Data flow diagrams**.**

Software Design Fundamentals :- The design process, Design fundamentals ,Effective modular design, Data design, Architectural design, procedural design, Design documentation.

Section B

Data flow oriented design : Design and information flow, design process considerations, transform analysis, transaction analysis, Design post processing ,
Design optimization. Design process considerations. Jackson System development**.**

Software Quality Assurance:- Software quality and software quality assurance, Software reviews, software quality metrics, software reliability, complexity measures, storage and processing time analysis.

Software testing and maintenance:- Software Testing Fundamentals, Whitebox Testing, Basic Path Testing , Control Structure Testing , Black Box Testing **.** Software Testing Strategies, Unit Testing Integration Testing , Validation Testing , System Testing .

Software maintenance: Definition , Maintenance characteristics, Maintainability, Maintenance Tasks, Maintenance Side Effects, Reverse Engineering and Re-engineering**.**

Reference books:-

1. **Software Engineering, A practitioner's approach: R.S. Pressman.**
2. **Integrated approach to Software Engineering : Pankaj Jalote**
3. **Software Engineering : M.L. Shooman.**

Note :- There shall be eight questions of 20 marks each, four from each section. Five questions have to be attempted selecting atleast two questions from each section. Use of Calculator is allowed

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER
COURSE TITLE: **ADVANCED MICROPROCESSOR LAB.**
COURSE NO: COM-607
DURATION OF EXAM: 3 Hrs

L	T	P	MARKS
-	-	2	PRACTICALS 60

Following are the programs in Assembly Language

1.Write a program for comparison of two strings.
2.Write a program for converting BCD to binary (hex) number.
3.Write a program for multiplying two 8-bit numbers and display their 16-bit product.
4.Write a program for addition of 2 numbers.
5.Write a program for division of two numbers.
6.Write a program to display a message on monitor.
7.Write a program to perform subtraction using 2's complement.
8.Write a program to count the number of words in a string.
9.Write a program to calculate the factorial of n number.
10. Write a program to multiply nos. without using MUL instruction.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER
COURSE TITLE: **OPERATING SYSTEM LAB.**
COURSE NO: COM-608
DURATION OF EXAM: 3 Hrs

L	T	P	MARKS
-	-	2	PRACTICALS 50

- Implementation of UNIX and DOS Commands.
- Designing Programs using the concept of Shell Programming.
- Usage of Vi Editor of UNIX.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD FROM JUNE 2011 ONWARDS

CLASS: B.E 6TH SEMESTER
BRANCH: COMPUTER
COURSE TITLE: **RDBMS LAB.**
COURSE NO: COM-609
DURATION OF EXAM: 3 Hrs

L	T	P	MARKS
-	-	2	PRACTICALS 50

Database creation, Operation on the RDBMS, Normalization of Database, Relational Database SQL Commands, Data Definition, Data Manipulation, Data Control, Use of Odd set of Operators, Security in Database, Using PL- SQL.

UNIVERSITY OF JAMMU, JAMMU.

COURSE SCHEME
FOR B.E 7TH SEMESTER COMPUTER ENGINEERING
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Course No.	Name of the Course	Hours Per Week			Marks			
		L	T	P	Theory	Sess.	Practical	Total
HUM-711	Industrial Management.	3	2	-	100	50	-	150
ELECTIVE-I COM-701	A) Soft Computing B) Network Security (for Computer Engg.) C) Mobile computing (for Computer Engg.)	3	2	-	100	50	-	150
COM-702	Distributed Systems	3	2	-	100	50	-	150
ELECTIVE-II COM-703	A) Computer Graphics B) Digital Image Processing	3	2	-	100	50	--	150
COM-704	A) Soft Computing Lab B) Network Security Lab C) Mobile computing Lab	-	-	4	-	-	50	50
COM-705	Computer Graphics Lab	-	-	4	-	-	50	50
COM-706	Seminar	-	-	4	-	-	100	100
COM-707	Industrial Training	-	-	-	-	-	50	50
COM-708	Minor Project	-	-	4	-	-	150	150
Total		**12**	**8**	**16**	**400**	**200**	**400**	**1000**

Note: Students have to select one course each from Elective I and Elective-II .

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING/ ECE
COURSE NO: HUM-711
COURSE TITLE: INDUSTRIAL MANAGEMENT
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

Section A

Entrepreneurship: - Definition and types, Qualities of good Entrepreneurs - Role of Entrepreneurs in the economic development of a country. Entrepreneurship as a career option for technocrats in India, Schemes and policies for entrepreneurship development, Product Selection.

Legal Forms of Industrial Ownership:

a) Sole Proprietorship.
b) Partnership.
c) Joint Stock Company.

Industrial Development in India after Independence: Scope for further growth of Industry, Industrial Policy of India. Economic reforms - to accelerate Industrial development, Eco- reforms.

Industrial Relations :

1) Workers participation in management.
2) Trade Union: Objectives, Present Position, and Weakness.
3) Industrial Conflict, Sources and managing conflict
4) Collective Bargaining.

Section B

Meaning & Scope of Management: Scientific Management, Functions of Management, Features of management, Administration Vs Management**.**

Management Objectives: Definition of Objectives, Characteristics, Types, MBO – Definition, Process, Benefits & Limitations**.**

Authority: Sources of Authority, Limits to authority, Delegation of authority, Process, Advantages, Obstacles.

Decision Making: - Meaning, Importance & steps in Decision making.

Departmentation: Need & Importance, Basis or pattern of Departmentation- Organization lines, staff, functional.

Personnel Management: Importance & main functions of Personal department**.**

Wage Administration & Job Enrolment: - Methods of wage payments, Job Analysis, Job Specification and Description, Job Evaluation. Methods of job evaluation.

Books Recommended:

1. George Terry – Principles of Management.
2. M.C. Shukla. – Business & Industrial Organisation.
3. Kortz & O'Donnel - Management

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-701(A) (ELECTIVE-I)
COURSE TITLE: SOFT COMPUTING
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

SECTION- A

Artificial Neural Networks: Basic concepts - Single layer perception - Multilayer Perception - Supervised and Unsupervised learning – Back propagation networks - Kohnen's self organizing networks - Hopfield network, Feed forward network, Hopfield network

Neural network models: neural network models, layers in neural network and their connections. Instar, outstar, weights on connections, threshold function, application- Adaline and madaline

Back propagation: feed forward back propagation network- mapping, layout, training, BPN applications

Learning and training: objectives of learning, Hebb's rule, delta rule, learning vector quantizer, associative memory models, one-shot learning, resonance, stability, training and convergence

SECTION-B

Fuzzy Systems: Fuzzy sets and Fuzzy reasoning - Fuzzy matrices - Fuzzy functions - Decomposition -Fuzzy automata and languages - Fuzzy control methods - Fuzzy decision making.

BAM- Bidirectional associative memory, inputs and outputs, weights and training. FAM-fuzzy associative memory, association.

Neuro - Fuzzy Modeling: Adaptive networks based Fuzzy interface systems - Classification and Regression Trees -Data clustering algorithms - Rule based structure identification - Neuro-Fuzzy controls -Simulated annealing – Evolutionary computation.

Genetic Algorithms: Survival of the Fittest - Fitness Computations - Cross over - Mutation - Reproduction -Rank method - Rank space method.

BOOKS RECOMMENDED:

1. Jang J.S.R., Sun C.T. and Mizutani E, "Neuro-Fuzzy and Soft computing", Prentice Hall 1998.
2. Laurene Fausett, "Fundamentals of Neural Networks", Prentice Hall, 1994.
3. George J. Klir and Bo Yuan, "Fuzzy sets and Fuzzy Logic", Prentice Hall, USA 1995.
4. N. J. Nelsson, "Artificial Intelligence - A New Synthesis", Harcourt Asia Ltd., 1998.
5. D.E. Goldberg, "Genetic Algorithms: Search, Optimization and Machine Learning", Addison Wesley, N.Y, 1989.

NOTE: There shall be total Eight Questions of 20 marks each, Four questions from each section and students have to attempt Five questions selecting at least two from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-701(B) (ELECTIVE-I)
COURSE TITLE: NETWORK SECURITY (FOR COMPUTER ENGG.)
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

SECTION-A

Introduction

Introduction to N/w Security, Security Approaches, Security Policies, Principle of Security, Introduction to common attacks, IP-Spoofing, Model for N/w Security, Encryption & Decryption.

Cryptography: Concepts & Techniques

Introduction to Cryptography, Private/Public Key Cryptography, Plain Text, Cipher Text, Substitution and Transposition techniques, Steganography.

Symmetric Key Cryptography

Overview, Algorithm Types & Modes, DES Scheme, RC5, Blowfish, AES Scheme, Differential and Linear Crypto analysis, Key Distribution and Management.

SECTION-B

Asymmetric Key Cryptography

Overview, Key Management basics, RSA Algorithm, Digital Signatures, Message Digest, Hash Function(SHA), Message Authentication Code(MAC), Authentication protocols**.**

IP Security

Architecture, Authentication Header, Encapsulating, Security Payload, Security Associations, Key Management, E-mail Security, Web Security, Viruses & related threats.

Firewalls & Intrusions

Design Principles, Characteristics, Types of Firewalls, Intruders, Audit Records, Intrusion Detection Systems

Computer Lab Work:-

1. Implementation of Encryption/Decryption Algorithm using **C/C++**.
2. Implementation of Symmetric Cryptography Algorithm using **C/C++.**
3. Implementation of Asymmetric Cryptography Algorithm using **C/C++.**
4. Implementation of Firewalls.

Books Recommended:-

1. Cryptography & Network Security by Atul Kahate
2. Cryptography & Network Security by William Stallings
3. Computer Networks(Latest Edition) by Andrew S. Tanenbaum

NOTE: There shall be total Eight Questions of 20 marks each; four questions from each section and students have to attempt five questions selecting at least two from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-701(C) (ELECTIVE-I)
COURSE TITLE: MOBILE COMPUTING (FOR COMPUTER ENGG.)
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

SECTION A

WIRELESS COMMUNICATION FUNDAMENTALS: Introduction – ITU-T, Wireless transmission, Frequencies for radio transmission, Signals, Antennas, Signal Propagation, Multiplexing, Modulations, Spread spectrum, MAC, Space Division Multiple Access (SDMA), Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), Cellular Wireless Networks.

TELECOMMUNICATION NETWORKS: Telecommunication systems – Global System for Mobile Communication (GSM), General Packet Radio Service (GPRS), Digital Enhanced Cordless Telecommunications (DECT), Universal Mobile Telecommunications System (UMTS), International Mobile Telecommunications 2000 (IMT2000).

WIRLESS LAN: Wireless LAN - IEEE 802.11 Family of Standards, Architecture, Services. HiperLAN. BlueTooth Protocol Stack

SECTION B

MOBILE NETWORK LAYER : Mobile IP, Dynamic Host Configuration Protocol (DHCP), Routing Protocols – Destination Sequenced Distance Vector (DSDV), Dynamic Source Routing (DSR).

TRANSPORT AND APPLICATION LAYERS:TCP in Wireless Mobile Networks – Indirect TCP, Snooping TCP, Mobile TCP, Fast Retransmit/Recovery, Freezing, Selective Retransmission, Wireless Application Protocol (WAP), WAP 2.0, Wireless Transport Layer Security (WTLS)

MOBILE COMMUNICATION ISSUES: Security Issues, Health Issues, Mobile E-Commerce Issues

TEXT BOOKS

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, Second Edition, 2003. (Unit I Chap 1,2 &3- Unit II chap 4,5 &6-Unit III Chap 7 Unit IV Chap 8- Unit V Chap 9&10.)
2. William Stallings, “Wireless Communications and Networks”, PHI/Pearson Education, 2002. (Unit I Chapter – 7&10-Unit II Chap 9)
3. A. Mehrotra. GSM System Engineering. Artech House, 1997.
4. Charles Perkins. Mobile IP. Addison Wesley, 1999.
5. Charles Perkins (ed.) Adhoc Networks. Addison Wesley, 2000

REFERENCES

1. Kaveh Pahlavan, Prasanth Krishnamoorthy, “Principles of Wireless Networks”, PHI/Pearson Education, 2003.
2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, New York, 2003.
3. Hazysztof Wesolowshi, “Mobile Communication Systems”, John Wiley and Sons Ltd, 2002.

NOTE: There shall be total Eight Questions of 20 marks each; four questions from each section and students have to attempt five questions selecting at least two from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-702
COURSE TITLE: DISTRIBUTED SYSTEMS
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

Section-A

Introduction: - Definition, Goals, Hardware Concepts, Software Concepts, the Client Server Model, Layered Protocols. Characterization of Distributed Systems, Design issues and user requirements, Interprocess Communication-Synchronous and Asynchronous.

Remote Procedure Call, Remote Object Invocation, Message oriented Communication.

Processes: - Threads, Clients, Servers, Code, Migration, Naming Entities, Locating Mobile Entities.

Synchronization: Clocks, Logical Clocks, Global State, Election Algorithms, Mutual Exclusion, Distributed Transaction.

Section – B

Consistency & Replication: Data Centric, Consistency Model, Distribution Protocols, Consistency Protocols, casually-consistent, Lazy replication.

Fault Tolerance: Basic Concepts, process, Resilience, Reliable Client- Server communication, Group Communication, distributed Commit, Recovery.

Security: Design issues, Secure Channel, Management, Distributed File Systems SUN, NFS, JINI**.**

Books Recommended:-

1. Distributed Systems: "Principles & Paradigms" by Andrew S. Tannenbaum, Martin Ransteen.
2. Distributed Systems: "Concepts & Design" by Couloris G., Dollimore and Kindberg T, P.K.Sinha.
3. **Distributed Operating System,PHI,IEEE Press.**
4. **Singhal & Shivaratri , "Advanced concepts in OS",TMH Tanenbaum**

NOTE: There shall be total Eight Questions of 20 marks each; four questions from each section and students have to attempt five questions selecting at least two from each section. Use of Calculator is allowed.

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-703(A) (ELECTIVE-II)
COURSE TITLE: COMPUTER GRAPHICS
DURATION OF EXAM: 3 HOURS.

				MARKS	
L	T	P		THEORY	SESSIONAL
3	2	0		100	50

SECTION A

Computer Graphic Systems:- Video display devices, Raster scan displays, Video controller, Display Processors, Random Scan displays, Color CRT monitors , Graphics monitors and workstations, Direct View storage tubes, Flat Panel Displays. Three-dimensional viewing devices. Input devices :- Keyboards , Mouse, Trackball and space ball , Joysticks, Data glove, digitizers, image scanners, touch panels, Light pens, Voice systems, Hard copy Devices. Graphic software, Co-ordinate representations, Functions standards, PHIGS WORKSTATIONS.
Graphic Output primitives & their Attributes:- Points and lines, lines drawing algorithms : DDA algorithm, Bresenham's line algorithm, Parallel line, Line Attributes, type, width, pen and brush options, line color, circle generation algorithm, properties of circle, Midpoint circle Algorithm
Geometric Transformations: - 2-D and 3-D Transformation: Translation, Scaling, Rotation, Matrix Arithmetic and Matrix Composition, Three dimensional viewing

SECTION B

Two Dimensional Viewing:- The viewing pipeline, Viewing coordinate reference frame, Window to Viewport coordinate transformations, 2-D viewing functions ,Clipping Operations, point clipping, line clipping procedures like Cohen -Sutherland line clipping, line clipping using non rectangular clip windows. Polygon clipping procedures: Sutherland Hodgeman polygon clipping, polygon filling Algorithms

Parallel and Perspective Projections: -Parallel projections, Perspective projections, Shading, Shadows, Shading modes

Books Recommended:-

1. Computer Graphics :Donald Hearn,M.pauline Baker-phi
2. Interactive Computer graphics : Newman and Sprowll-Tmh
3. Computer Graphics :A Programming approach :Stevan Harrington
4. Fundamentals of ICG: J.D Foley+ and A.v Dam,Addition Wesle
5. Schaum series

NOTE: There shall be total Eight Questions of 20 marks each; four questions from each section and students have to attempt five questions selecting at least two from each section. Use of Calculator is allowed.

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FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER

BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-703(B) (ELECTIVE-II)
COURSE TITLE: DIGITAL IMAGE PROCESSING
DURATION OF EXAM: 3 HOURS.

				MARKS	
L	T	P		THEORY	SESSIONAL
3	2	0		100	50

Section A

Introduction and Fundamental to Digital Image Processing: What is Digital Image Processing, Origin of Digital Image Processing, Examples that use Digital Image Processing, Fundamental steps in Digital Image Processing, Components of Digital Image Processing System, Image sensing and acquisition, Image sampling, quantization and representation, Basic relationship between pixels.

Image Enhancement in the Spatial Domain & Frequency domain: Background, Basic gray level transformation, Histogram processing, Basics of spatial filtering, Introduction to Fourier Transform and the Frequency Domain, Discrete Fourier Transform. Frequency-Domain filters.

Image Restoration: Image Degradation/Restoration Process, Noise models, Restoration in presence of noise, Inverse Filtering, Minimum Mean Square Filtering, Geometric mean filter, Geometric transformations.

Section B

Color Image Processing: Color Fundamentals, Color models, Basis of full color image processing, Color transformations.

Image Compression: Image encoding and segmentation, Encoding: Mapping, Quantizer, Coder, Error free compression, Lossy compression schemes, JPEG Compression standard.

Image Segmentation & Representation: Detection of discontinuities, Mathematical morphology-Binary, Dilation, crosses, Opening and closing, simple methods of representation, Signatures, Boundary segments, Skeleton of a region.

BOOKS RECOMMENDED:

1. PRATT N.K. "Digital Image Processing"
2. ROSENFELD AND KAK. "Digital Picture Processing"
3. PRATT "Image Transmission"
4 ANDREWS & HUNT "Digital Image Restoration"

NOTE: There shall be total Eight Questions of 20 marks each; four questions from each section and students have to attempt five questions selecting at least two from each section. Use of Calculator is allowed

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-704
COURSE TITLE: A) SOFT COMPUTING LAB.
B) NETWORK SECURITY LAB.

C) MOBILE COMPUTING LAB.

DURATION OF EXAM: 3 HOURS.

L	T	P	MARKS
0	0	4	50

NOTE: THERE SHALL BE 6 TO 8 PRACTICALS BASED UPON THE THEORY COURSE.

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CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-705
COURSE TITLE: COMPUTER GRAPHICS LAB
DURATION OF EXAM: 3 HOURS.

L	T	P	MARKS
0	0	4	50

The practicals will be based on theory Syllabus. The students are required to submit at least following 10 programs

(Implement using C/C++)

1. Simple DDA line drawing program.
2. Shaded simple DDA line drawing program.
3. Bresenham's line drawing program.
4. Draw a given scene on a given viewport.
5. Draw and fill shapes.
6. Animation of picture.
7. Bresenham's circle drawing algorithm.
8. Cohen Sutherland line clipping program.
9. Mouse interfacing program.
10. Create a mirror image of a polygon & scale it.

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FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-706
COURSE TITLE: SEMINAR

L	T	P	MARKS
0	0	4	100

This will involve a detailed study of a topic of interest reproduced in the candidate's own style. For this, a student has to prepare a seminar by doing proper survey of literature, compilation of information so gathered and then presentation of the same followed by question-answer session. The report of which has to be submitted by the student well before the conduct of seminar. The handout submitted by the student will be in accordance with the standards of technical papers.

Guidelines and evaluation of Seminar in 7th semester:
The topic of the Seminar is to be finalized and approved by the departmental committee by the end of 6th Semester. The committee shall have a convener and atleast two members.

Distribution of Marks:
Total Marks for Seminar Evaluation = 100 marks
1) Project Report = 30 marks
2) Presentation = 50 marks
3) Attendance = 20 marks.

Award of Marks:
- Marks Under (1) will be awarded by the Seminar Incharge.
- Marks Under (2) and (3) will be awarded by the Departmental committee constituted for the purpose.

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FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-707
COURSE TITLE: INDUSTRIAL TRAINING

L	T	P	MARKS
0	0	0	50

Students are required to undertake 4 to 6 weeks Practical Training during the summer vacations in the field of Computer Engineering and applications in Govt./Semi-Govt./Private sector. Thereafter, each student shall be required to submit a report on the practical training to the concern HOD for evaluation.

Guidelines for evaluation of Practical Training:

The evaluation shall be done by the departmental committee by the end of 7th semester. The committee shall have a convener and atleast two member.

Distribution of Marks as per the University statues:

Total Marks for Evaluation = 50 marks

i)	Report	= 20	40%
ii)	Viva-Voce	= 15	30%
iii)	Miscellaneous Marks	= 15	30%

Due weightage will be given to those who have opted for Industrial Training outside the State as well as keeping in view the profile of that Industry.

Award of the Marks:

Marks under (i), (ii) & (iii) will be awarded by the departmental committee constituted for the purpose.

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FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARD

CLASS: BE 7TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-708
COURSE TITLE: MINOR PROJECT

L	T	P	MARKS
0	0	4	150

The project will be assigned to the students towards the end of 6th semester and will start working on those projects at the commencement of their 7th semester. The topic of the project will be decided as per the developments taking place in the field of Computer Engineering.
This may require complete literature survey, design, fabrication, simulation of some models and/or some preliminary laboratory experiments etc. The same project shall be extended to 8th semester.

Distribution of Marks as per University statues:

Total Marks for End semester Evaluation	= 150 marks		
1) Presentation/ Demonstration	=	45 marks	30%
2) Viva-voce	=	45 marks	30%
3) Actual work done	=	60marks	40%

Award of Marks

- Marks under (1) and (2) will be awarded by the Departmental committee constituted comprises of convener and atleast two members.
- Marks under (3) will be awarded by the Project Guide/supervisor concern.

UNIVERSITY OF JAMMU, JAMMU.

COURSE SCHEME
FOR B.E 8TH SEMESTER COMPUTER ENGINEERING
FOR EXAMINATION TO BE HELD IN JUNE, 2012 ONWARDS

Course No.	Name of the Course	Hours Per Week			Marks			
		L	T	P	Theory	Sessional	Practical	Total
(Elective-I) HUM-812	A) Organization Behaviour B) Business Policy and Strategic management	3	2	--	100	50	--	150
(Elective-II) COM- 801	A) Advanced Computer Architecture B) Data Warehousing & Data Mining (for Computer Engg.)	3	2	--	100	50	--	150
COM-802	Artificial Intelligence (for Computer Engg.)	3	2	--	100	50	--	150
(Elective-III) COM-803	A) Compiler Design B) Distributed Databases	3	2	--	100	50	--	150
COM-804	Major Project.	--	--	12		--	400	400
Total		**12**	**8**	**12**	**400**	**200**	**400**	**1000**

Note: Students have to select one course each from Elective I, Elective-II and Elective-III

UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN JUNE, 2012 ONWARDS

CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: HUM-812(A) (ELECTIVE- I)
COURSE TITLE: ORGANIZATIONAL BEHAVIOUR
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

Section A

Fundamental Concepts of Organizational Behavior: What is an organization? Major types of organizations, Formal and Informal organization, Need to study O.B and some basic ideas about O.B. introduced by Maslow, Herzberg. Models of organizational behavior.
Individual behavior and its determinants: - Personality, Perception, Learning ability, attitude, beliefs, values, stress and counseling, Interpersonal behavior, Types and sources of conflict, Resolution of conflict.
Communication: - Communication within an organization, Importance, Types of communication- Electronic communication, Effective Communication.

Section B

Organization as a Social system: Concept of Organization Development, Characteristics of Organization Development, Organization Development Process, Organizational Change, Resistance to Change, Managing change, Management Development, Education & Training.
Leadership and Organization Development: - Meaning and nature of Leadership, Leadership style, Traits of effective leaders, Employees Participation in Management, Organization development and change, training and managing development.
Quality of work life: Concept of Management Information System.

Books Recommended:

1. Organisational Behaviour - Keith Davis
2. Organisation and Management -Mullers.
3. Organisational Behaviour – Robbins

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: HUM-812(B) (ELECTIVE- I)
COURSE TITLE: BUSINESS POLICY AND STRATEGIC MANAGEMENT
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

Section A

Introduction to business policy, the corporate strategy – concepts and objectives, formulation of corporate strategy, environmental scanning opportunity and threats.

Corporate profile strategies and weakness strategic alterations, concepts of distinction competence, strategy and personnel values, strategy and social values, strategy and technological change of choice or strategy and corporate planning in India.

Section B

Implementation of strategy, strategy and organizations design, mobilization of physical and human resources management information and control.

Role of motivation, corporate culture and organizational commitment, mergers and acquisitions, Performance appraisal.

Leadership and its various styles, stress, evaluation of strategy, strategic management in the non-profit organizations, strategic management in international environment.

Books Recommended:

1. Gluck, William F. : Strategic Management and Business Policy.
2. Sehellenberger, Rober & Bozeman, F. Glenn : Policy Formulation and Strategy Management.
3. Chopra, K.S. : Business Policy for Indian Industries.
4. Rogers, David C.D. : Business Policy and Planning.
5. Thompson, Arthur A & Strickland, A.J. : Strategy and Policy.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-801(A) (ELECTIVE-II)
COURSE TITLE: ADVANCED COMPUTER ARCHITECTURE
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

SECTION – A

Introduction to advanced Architecture: Parallel Processing, Architectural classification schemes, Characteristics and organization of Cache memories, characteristics of I/O subsystems.
Pipelining and Vector Processing: Classification of Pipeline Processors, General pipelines and reservation tables, interleaved memory organizations, Principles of Designing pipeline processors, Characteristics of vector Processing.
Array Processing: SIMD Computers and Processor enhancements, SIMD Array Processors, Masking and Data Routing Mechanisms, SIMD interconnection Networks, Performance evaluation methods.

SECTION – B

Multiprocessor Systems: Loosely Coupled and Tightly Coupled multiprocessors, Processor characteristics for multiprocessing, interconnected Networks for multiprocessors.
Parallel Memory Organization: Interleaved Memory Configurations, Multicache Problems, Modeling for evaluation of Virtual memory.
Parallel computer models and Program Parallelism: Models of parallel computers, Introduction to Parallel Algorithms, Parallel Programming Paradigms, Issues in implementing algorithms on Parallel Computers.

Books Recommended:-

1. Computer Architecture: A Qualitative Approach by Hennessey & D.A. Patterson.
2. Computer Architecture: Pipelined & Parallel Processor Design by Michael J. Flynn.
3. Advanced Computer Architecture by Kai Hwang & Briggs.
4. Foundations of Parallel Processing by R.K.Ghose, Rajan Moona and Phalguni Gupta.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-801(B) (ELECTIVE-II)
COURSE TITLE: DATA WAREHOUSING & DATA MINING (FOR COMPUTER ENGG.)
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

SECTION A

Introduction to Data Warehousing & Data Mining: Need for data Warehousing & Data Mining, Data Mining on different kinds of Data, Data Mining Functionalities - Characterization and Discrimination, Association Analysis , Classification and Prediction , Cluster Analysis, Outlier Analysis , Evolution Analysis, Classification of Data Mining System, Data Mining Applications.

Data Warehouse and OLAP Technology for Data Mining: Differences between Operational database systems and Datawarehouse , Multidimensional Data Model- Data Cubes, Star , Snowflakes & Fact Constellations Schemes, Concept Hierarchies , OLAP Operations, Starnet Query Model, Data Warehouse, 3-Tier Architecture ,Types of OLAP Servers: ROLAP,MOLAP,HOLAP, Data Warehouse Usage, On-Line Analytical Processing to On-Line Analytical Mining, Data Marts, Meta Data.

SECTION B

Data Preprocessing and Mining: Data Cleaning, Data Integration & Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.
Kinds of Knowledge to be Mined, Concept Hierarchies, Interesting measures, Presentation & Visualization of Discovered Patterns.

Concept Description and Association Rules Mining: Concept Description, Data Generalization and Summarization based Characterization, Analytical Characterization, Attribute Relevance Analysis.
Association Rules Mining Basic Concepts, Mining Single Dimensional Boolean Association Rules from Transactional databases- Apriori Algorithm

Intoduction to classification and Prediction: Basic Concepts, Classification by Decision Tree Induction, Linear and multiple Regression, Non Linear Regression

Books Recommended:

1. Data Mining: Concepts & Techniques - Jiawei Hun, Micheline Kamber, Academic Press, by Morgan Kanfman Publishers, 2001.

2. Modern Data Warehousing Mining & Visualization Core Concept by George M. Marakas , Pearson Education.
3. Data Mining by Pieter Adrians, Dolf Zantinge, Addison Wesley 2000.
4. Data Mining with Microsoft SQL Server by Seidman, Prentice Hall of India. 2001.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-802
COURSE TITLE: ARTIFICIAL INTELLIGENCE (FOR COMPUTER ENGG.)
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

Section-A

Artificial Intelligence: - The AI problems, AI techniques, The level of the model, criteria for success, AI tasks. Problems, problem spaces & Research: - Defining the problem as a space, search, production system problem characteristics, Production system characteristics, Issues in the design of search programs, two path problems.

Symbolic reasoning under uncertainty:- Introduction to non - monotonic Reasoning, Logics for non-monotonic reasoning, Implementation Issues, Augmenting a Problem Solver. Implementation by:
a) Depth - First Search b) Breadth - First Search

Statistical reasoning :- Probability & Bayes Theorem, Certainty Factors & Rules Based Systems, Bayesian networks, Dempster Shafer Theory , Fuzzy logic , Introduction to Expert System development.

Section-B

Using Predicate logic:- Representing simple facts, Its Logic representing instances and its relationship , Computable Functions & Predicates, Resolution, Natural Deduction, Conversion to Clause Form.
Representing knowledge using rules: - Procedural Vs Declarative Knowledge, Logic Programming Forward Vs Backward Searching, Matching, Control Knowledge**.**

Heuristic Search Techniques: - Generate & test, Hill Climbing, Best First Search, Problem reduction, Constraint, Satisfaction, Means and analysis.

Knowledge Representation Issues: - Representation and mappings, approaches to knowledge representation, Issues of knowledge representation, the frame problem, Semantic networks.

Books Recommended:-

1. Artificial Intelligence -- Elaine Rich Kevin Knight
2. Principles of A.I Expert system development -- David W. Rolston.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-803(A) (ELECTIVE-III)
COURSE TITLE: COMPILER DESIGN
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

Section-A

Introduction –Languages Processors, the typical structure of a Complier.

Programming Language – High level programming languages, definition of programming languages, the syntax and semantics of basic data and control structures in high level programming languages.

Lexical analysis – Role of Lexical Analyzer ,Input buffering, A simple approach to Design of Lexical Analyzers, Regular Expressions ,Finite Automata, Regular expression to Finite Automata, Conversion of NFA to DFA, Minimizing the number of states of a DFA .

The Syntactic Specification of Programming Languages – Definition of Grammars (Context free grammar), derivation, parse tree, ambiguity, non-context free language constructs.

Basics Parsing Techniques – Parsers- Shift reduce parsing, Operator precedence parsing, top -down parsing, Predicative parsers, LR parsers.

Section-B

Syntax directed translation- Syntax directed translation schemes. Implementation of syntax directed translators.

Intermediate code Generation - Intermediate code, postfix notation, three address code- quadruples triples, translation of Assignment statement, Boolean Expression, Statements that alter the flow of control.

Symbol Table Organization – The content of symbol table, Data structure of symbol table

Run- Time memory allocation -Static and Dynamic memory allocation, Static allocation of space – Activation trees, activation records, Procedure calls, parameter passing.

Error Detection and Recovery-Errors, lexical phase errors, syntactic phase errors, semantic errors.

Code optimization- Loop optimization, DAG Representation of basic blocks, Global data flow Analysis.

Code generation- Issues in the design of code generator, Peephole optimization, a simple code generator Register Allocation & Assignment.

Books Recommended:-

1. Principles of compiler design - Alfred V.Aho, Jeffrey D Ullman
2. Principles of compiler design - Aho v. Ullman, Sethi
3. Theory of parsing Translation & Compiling - Aho . ullman
4. Compiler construction-Munish Jha
5. Compilers Principles, Techniques & Tools-Alfred V. Aho, Monika S Lam, Ravi Sethi, Jeffrey D Ullman.

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: BE 8TH SEMESTER
BRANCH: COMPUTER ENGINEERING
COURSE NO: COM-803(B) (ELECTIVE-III)
COURSE TITLE: DISTRIBUTED DATABASE
DURATION OF EXAM: 3 HOURS.

			MARKS	
L	T	P	THEORY	SESSIONAL
3	2	0	100	50

SECTION A

Transaction and schedules, concurrent execution of transaction, conflict and views serializability, testing for serializability, concepts in recoverable and cascadeless schedules.
Lock based protocols, time stamp based protocols, multiple granularity and multiversion techniques, enforcing serializability for locks, locking system with multiple lock modes, architecture for locking scheduler.
Distributed transaction management, data distribution, fragmentation and replication techniques, distributed commit, distributed locking schemes, long duration transactions, moss concurrency protocol.

SECTION B

Issues of recovery and atomicity in distributed database, traditional recovery technique, log based recovery, recovery with concurrent transactions, recovery in message passing systems, checkpoints, algorithm for recovery line, concepts in orphan and inconsistent messages.
Distributed query processing, multiway joins, semi joins, cost based query, optimization for distributed database, updating replicated data, protocols for distributed deadlocks detection, eager and lazy replication techniques.

Books Recommended:

- **M Tamer Ozsu Patrick Valdureiz, "Principles of distributed database systems",Ray.**
- **David A. Bell,Jane B.Grimson, "Distributed database system"**
- **Donald K.Burleson," Managing Distributed Database"**
- **Felix F.Romas,"Advanced Distrubuted Systems".**

NOTE: There will be eight questions of 20 marks each, four from each section. Students are required to attempt five questions selecting atleast two questions from each section. Use of Calculator is allowed.

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CLASS: B.E 8th SEMESTER
BRANCH: COMPUTER ENGINEERING
Course No. COM – 804
COURSE TITLE: MAJOR PROJECT

L	T	P	MARKS
0	0	12	400

The student will complete their assigned project work initiated in 7th semester under course No.COM-708 and submit a detailed project report individually to the Head of the department.

Guidelines for evaluation of Project work in 8th semester:
There shall be a mid semester evaluation, followed by a End Semester (Final) Evaluation

Sub-distribution of marks:

- For External Examiner : 100
- For Internal Examiner : 300

Sub-distribution of internal Marks:

- Mark distribution of internal Project work as per the University statues shall be based on:

a.	Viva-Voce	=	90	30%
b.	Presentation	=	90	30%
c.	Report	=	120	40%
	Total	=	300	