



UNIVERSITY OF JAMMU

NOTIFICATION

(11/August/ ADP/ 25)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the competent bodies, is pleased to authorize adoption of the Syllabi & Courses of Study for B.E. 2nd to 5th Semester (given in annexure) for the examinations given below:

- i) 2nd Semester June 2011 onwards.
- ii) 3rd Semester December 2011 onwards.
- iii) 4th Semester June 2012 onwards.
- iv) 5th Semester December 2011 onwards.

} %age of Change is given at Annexure-I

Sd/-
REGISTRAR

No. F.Acd./I/11/ 84809-33

Dated: 16-08-2011

Copy for information and necessary action to:

1. Private Secretary to Vice-Chancellor;
2. P.S. to DAA;
3. Sr. P.A. to Registrar/Controller of Examinations;
4. Dean, Faculty of Engineering;
5. Principals of the concerned Colleges;
6. C.A. to Controller of Examinations;
7. Deputy/ Asst. Registrar (Conf./Exams. Prof./Inf./Pub./Admission); and
8. Content Manager, University Website.

ASST. REGISTRAR (ACAD)

Annexure-I

S. No.	COURSE No.	BRANCH	%AGE	REMARK
1.	COM-204	Common to all branches	0%	Reorganized into two sections.
2.	COM-301	Computer & IT Engg.	0%	Title changed from "OOAD using C++" to "Object Oriented Programming using C++".
3.	COM-302	Computer & IT Engg.	0%	Title changed from "OOAD with C++ lab" to "Object Oriented Programming lab".
4.	ECE-302	ECE & Electrical Engg.	15%	One chapter on Transmission Line added under Section-B.
5.	EE-301 (for Computer Engg.)	Computer Engg.	0%	Course code and title changed to EE-317 and "Elements of Electrical Engineering" respectively due to overlapping of course code with other disciplines.
6.	EE-315	Computer & AEI Engg.	0%	Reorganized into two sections.
7.	COM-411	E & C Engg.	0%	Title changed from "OOAD using C++" to "Object Oriented Programming using C++".
8.	COM-412	E & C Engg.	0%	Title changed from "OOAD with C++ lab" to "Object Oriented Programming lab".
9.	COM-401	Computer Engg.	0%	Reorganized into two sections with minor changes.
10.	COM-403	Computer Engg.	10%	Reorganized into two sections with certain changes.

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11.	COM-501	Computer Engg.	15%	Contents reorganized.
12.	COM-511	Electrical Engg.	0%	Title changed from "OOAD using C++" to "Object Oriented Programming using C++".
13.	COM-512	Electrical Engg.	0%	Title changed from "C++ lab" to "Object Oriented Programming lab".
14.	ECE-502	ECE Engg.	5%	Contents elaborated under the topic SSB and Receiver.

B. S. N.

Dean, Faculty of Engineering

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-II	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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BSN

UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE 2011, onwards

B.E 2ND Semester

Course No: MTH-201

Course Title: Engg. Math-II

Branch : Common to all branches

Duration of Exam: 3 hours

L	T
4	2

Maximum Marks:125	
Theory	Sessional
100	25

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 1st 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 $1/f (D,D')$, 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 Singhanian
- BSN

UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE, 2011 onwards

B.E IInd Semester (Common Course)

Course No. PHY-202

Course Title : Engineering Physics-II

Branch : Common to all branches

Duration of Exam: 3 hours

Maximum Marks:125

Theory Sessional

100 25

L T
3 1

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 ($E^2 = P^2c^2 + m_0^2c^4$).	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. De Broglie'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 semiconductor 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

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BEN

UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE-2011, onwards

B.E 2ND Semester

Course No: CHM-203

Course Title: Engg. Chem-II

Branch : Common to all branches

Duration of Exam: 3 hours

Maximum Marks:125

L	T
3	1

Theory	Sessional
100	25

SECTION-A

1. ENVIRONMENTAL CHEMISTRY :

Concept of Environmental chemistry, segments of environment (a brief idea about atmosphere, 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, O₃ 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

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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.

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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****3 1 -****SECTION-A****MARKS**

Theory	Sessionals
100	25

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 Reference – 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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UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE 2011 onwards

B87

B.E. 2nd Semester

Course No. HUM-205

Course Title: Engineering Economics

Branch: Common to all branches

Duration of Exam : 3 Hours

Maximum Marks: 125

Theory Sessional

100

25

L T

3 1

SECTION-A

UNIT-I

	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 Forecasting

SECTION-B

UNIT-III

	Theory of Production:
	a) Factors of 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

B87

	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

Course No. M-206

Course Title: Machine Drawing-I

Branch: Common to all branches

Duration of Exam : 3 Hours

Maximum Marks: 125

Theory	Sessional
100	25

L	P
1	3

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 Kannaiy |
| 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 from Section-A and one compulsory question involving assembly from Sections-B.
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UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE- 2011 onwards

B.E 2ND Semester

Course No: M-207

Course Title: Workshop Technology-II

Branch : Common to all branches

Duration of Exam : 3 Hours

Maximum Marks : 75

L	P	Prac/Lab
1	3	75

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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UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE 2011 onwards

B.E 2ND Semester

Course No: PHY-208

Course Title: Engineering Physics Lab-II

Branch : Common to all branches

Duration of Exam : 3 Hours

Maximum Marks : 50

P Prac/Lab

2 50

S.NO.	EXPERIMENT NO.	TITLE OF EXPERIMENT
1.	Exp-I	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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UNIVERSITY OF JAMMU, JAMMU**FOR EXAMINATIONS TO BE HELD IN JUNE 2011 onwards****B.E 2ND Semester****Course No: CHM-209****Course Title: Engineering Chemistry
Lab-II****Branch : Common to all branches****Duration of Exam : 3 Hours****Maximum Marks : 50**

P	Prac/Lab
2	50

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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UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATIONS TO BE HELD IN JUNE 2011 onwards

B.E 2ND Semester

Course No: COM-210

**Course Title: Computer Programming
Using C Lab.**

Branch : Common to all branches

Duration of Exam : 3 Hours

Maximum Marks : 75

P	Prac/Lab.
2	75

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

BSM

UNIVERSITY OF JAMMU, JAMMU

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 using C++ 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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UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

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

<u>L</u>	<u>T</u>	<u>P</u>
3	2	-

MARKS

Theory	Sessional
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 inheritances, 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 Reference – 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.

15/8/11

UNIVERSITY OF JAMMU, 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

$\frac{L}{3} \quad \frac{T}{2}$

MARKS

Theory	Sessionals
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, Rodrigue's formula, Recurrence formulae, generating function, Orthogonality of Legendre polynomials, Bessel function of 1st kind. Recurrence formulae, generating function, Orthogonality 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.

BSG

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

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

<u>L</u>	<u>T</u>
2	2

<u>MARKS</u>	
Theory	Sessional
100	40

SECTION – I

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

- Interpolation:** - Newton's Forward, Backward & Divided difference interpolation, Central difference interpolation formula, Stirling's & Bessel's formula, Langrange's interpolation formula. (20)
- Numerical Differentiation & Integration:-** Derivatives using Forward Difference Formula, Backward difference formula & Central difference formula, Numerical Integration using Trapezoidal Rule & Simpson's Rule (30)
- Difference equations & their solutions:** - Taylor's series method, Euler's method, Ranga kutta method, Predictor – Corrector method, Adams –Bashforth method (30)

BOOKS RECOMMENDED

- Elementary Numerical Analysis- S.D. Conte & Carl De Boor., Macgraw hill
- Numerical Method for Scientists & Engineers- M.R. Jain ,S.R.K. Iynegar & R.K Jain., Wiley Eastern
- 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.

BSK

UNIVERSITY OF JAMMU, JAMMU
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

<u>L</u>	<u>T</u>
3	2

<u>MARKS</u>	
Theory	Sessional
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, Eber'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, Characteristics and Equivalent Ckts. of JFET, MOSFET, UJT, PNP 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.

15/07

UNIVERSITY OF JAMMU, 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

<u>L</u>	<u>T</u>	<u>P</u>
3	1	-

<u>MARKS</u>	
Theory	Sessional
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.

15/5/11

UNIVERSITY OF JAMMU, 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

<u>L</u>	<u>T</u>	<u>P</u>
3	2	-

<u>MARKS</u>	
Theory	Sessionals
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, 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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UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER 2011 onwards

CLASS: B.E 3RD SEMESTER
BRANCH: COMPUTER & I.T. ENGINEERING
COURSE TITLE: OBJECT ORIENTED PROGRAMMING USING C++
COURSE No.: COM-302
DURATION OF EXAM: 3 HOURS

<u>L</u>	<u>T</u>	<u>P</u>	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 section.

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

<u>L</u>	<u>T</u>	<u>P</u>	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

<u>L</u>	<u>T</u>	<u>P</u>	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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UNIVERSITY OF JAMMU, JAMMU
FOR EXAMINATION TO BE HELD IN DECEMBER 2016

1567

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

	<u>L</u>	<u>T</u>	<u>P</u>	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.			

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UNIVERSITY OF JAMMU, JAMMU.

COURSE SCHEME

FOR B.E 3RD SEMESTER ELECTRONICS & COMMUNICATION ENGG.

FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

Course		Curriculum Hrs/Week			Marks			
Course No.	Course Name	L	T	P	Theory	Sessional	Practical	Total
ECE-301	Electronics Devices & Circuits-I	3	2	0	100	50	--	150
ECE-302	E. M. Theory	3	2	0	100	50	--	150
MTH-311	Engineering Mathematics-III	3	2	0	100	50	--	150
M-314	Thermal Engineering	3	2	0	100	50	--	150
EE-301	Principle of Electrical Engg.	3	2	0	100	50	--	150
EE-302	Network Analysis	3	2	0	100	50	--	150
EE-308	Electrical/Electronics Workshop.	0	0	3	---	--	50	50
EE-309	Basic Electrical Engg. Lab	0	0	3	---	--	50	50
	Total	18	12	06	600	300	100	1000

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

	L	T	P	MARKS	
	3	2	0	THEORY 100	SESSIONAL 50

CLASS: BE 3RD SEMESTER
BRANCH: E&C, EE, AEI
COURSE NO: ECE-301
COURSE TITLE: ELECTRONIC DEVICES & CIRCUITS-1
DURATION OF EXAM: 3 HOURS.

SECTION - I

SEMICONDUCTOR PHYSICS:

Structure of atoms, Energy band diagram, Metal, insulator and semiconductor, Intrinsic & extrinsic semiconductors, Direct & indirect semiconductors, Bond in semiconductor & effect of temperature on semiconductors, Hole & Electron description, Charge densities in semiconductor, Generation & recombination of charge carrier, Law of mobility & conductivity, Current densities in semiconductors, Mass action law, Current density, Drift & diffusion currents, Hall effect, Hall coefficient & its applications. Continuity equation, Fermi level in intrinsic and extrinsic semi conductors, Numerical problems.

SEMICONDUCTOR DIODES:

Introduction to P-N junction diodes, Equivalent circuit & symbol, P-N junction as rectifier, Ohmic contact, Short circuit & open circuit P-N junction diodes, Current components in P-N junction diode & law of junction, Volt ampere characteristics, Temperature dependence of V-I characteristics, Diode capacitances, Static & dynamic resistances, Concept of load line, Zener diode and its break down phenomena, Tunnel diode, Schottky diode, LED, photo diode, varactor diodes.

SECTION - II

RECTIFIERS & FILTERS:

Half wave, Full wave & bridge rectifiers with necessary derivations, Voltage regulation, Capacitor filter, Inductor filter, L-C filter with necessary derivation for ripple factor, Bleeder resistor, Numerical problems.

DIODE CLIPPER & CLAMPER CIRCUITS:

Diode series & shunt clippers, Clipping at two dependent levels, Diode comparator circuit, Clamping circuits, Clamping at certain voltage level, steady state output waveform for a Sq. wave input, Clamping circuit theorem, Diode sampling gates.

LINEAR WAVE SHAPING CIRCUITS:

RC (both high pass & low pass), RLC circuits & their response to various waveform such as sinusoidal step Voltage, Pulse, Square wave, Ramp etc. RC circuit as differentiation & integration.

BOOKS RECOMMENDED:

- | | |
|---|--------------------|
| 01. Integrated Electronics | By Millman Halkias |
| 02. Electronics Devices | By Bolystead |
| 03. Electronics Devices | By Malvino Leach |
| 04. Pulse, Digital & Switching Waveform | By Millman & Taub |
| 05. Pulse Circuits | By D.A. Bell |
| 06. Solid state electronics devices | By B.G.streetman |

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

BSN

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

	L	T	P	MARKS	
	3	2	0	THEORY	SESSIONAL
CLASS: BE 3 RD SEMESTER				100	50
BRANCH: E&C, EE					
COURSE NO: ECE-302					
COURSE TITLE: E.M.THEORY					
DURATION OF EXAM: 3 HOURS.					

SECTION - A

ELECTROSTATICS: Revision of vector analysis with Cartesian, Spherical & polar coordinates, Coulomb's law, Electric field, Electric flux density, Gauss's law, Divergence theorem. Electrostatics potential, Potential gradient, Gradient operator, Conductors, Method of images, Energy density in electrostatics field, Electric field in dielectric media, Capacitance, Solution of Electrostatic problems using Poisson's & Laplace equation.

MAGNETOSTATICS: Biot-Savart's & Ampere's circuital law, & their applications, Stroke's theorem, Magnetic flux density, Magnetic potential, Force on a moving charge, Torque on a closed circuit, Energy density in the magnetic field.

SECTION - B

TIME VARYING FIELD & MAXWELL EQUATION: Faraday's laws, Displacement current, Maxwell equation in point & integral form, Application of Maxwell equation to circuits, Resonant cavity, Radiation antennas, Rotating magnetic field theory.

UNIFORM PLANE WAVE: Wave motion in free space & in perfect dielectric, Plane wave in lossy dielectric, Poynting vector, Propagation in good conduction, Skin effect, Reflection of uniform plane wave, Standing wave ratio, Polarization.

TRANSMISSION LINE: Basic principles of T.L, Equivalent ckt of T.L, Basic transmission line equation, Input impedance, infinite T.L, Characteristics impedance (Z_0), Propagation constant, attenuation constant, Phase constant, open and short circuits T.L, Reflection and its coefficient, S.W.R.

BOOK RECOMMENDED:

- | | |
|-------------------------------------|------------------------|
| 01. Engineering Electromagnetic | By Jseph A. Edminister |
| 02. Introduction to Electromagnetic | By Griffith |
| 03. Foundation Electromagnetic | By Reitz et al |
| 04. Engineering Electromagnetic | By Jr. Hyat |

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.

BEN

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

<u>L</u>	<u>T</u>
3	2

<u>MARKS</u>	
<i>Theory</i>	<i>Sessionals</i>
100	50

CLASS: B.E 3RD SEMESTER
BRANCH: ELECTRONICS & COMMUNICATION ENGG.
COURSE TITLE: ENGINEERING MATHEMATICS – III
COURSE No. MTH-311
DURATION OF EXAM: 3 HOURS

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, Rodrigue's formula, Recurrence formulae, generating function, Orthogonality of Legendre polynomials, Bessel function of 1st kind. Recurrence formulae, generating function, Orthogonality 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, four from each section. Five questions have to be attempted selecting at least two questions from each section. Use of calculator is allowed.

B S G

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

HOURS / WEEK			MARKS	
L	T	P	Theory	Sessional
3	2	0	100	50

CLASS: B.E. 3RD SEMESTER
 BRANCH: ELECTR. & COMM. ENGG, ELECTRICAL ENGG.,
 COURSE TITLE: THERMAL ENGINEERING
 COURSE NO: M-314

DURATION OF EXAMINATION: 3 HOURS.

UNIT-1

Thermodynamics: Dimensions and units, Basic concepts, Zeroth Law, Temperature scale. First Law of Thermodynamics for closed system and open system, applications, general energy equation for steady flow.

Second Law of Thermodynamics, Reversible and Irreversible processes, Carnot cycle, Clausius theorem, Entropy, entropy change, Clausius inequality, Principle of increase of entropy. Ideal gases and process calculations.

UNIT-2

Principles of Refrigeration, Vapour compression cycle, Components of Vapour compression systems, COP and related calculations

UNIT-3

BOILERS: Fire tube and Water tube boilers- description and special features, fields of application.

UNIT-4

Properties of steam and process calculations.

Vapour Power Cycles: Carnot's cycle, Rankine cycle, and elementary cycle calculations.

Nozzles: Types, Nozzle efficiency, Critical pressure ratio, Throat and exit areas.

RECOMMENDED BOOKS:-

- | | | |
|-------------------------------|-------------------|-------------------------|
| 1. Heat Engineering | Vasandani & Kumar | --Metropolitan Book Co. |
| 2. Engineering Thermodynamics | Gupta & Prakash | --Nek Cahnd |
| 3. Engineering Thermodynamics | PK Nag | --Tata McGraw Hill |

NOTE: There shall be total Eight questions, Two from each Unit. Five questions have to be attempted selecting at least One from from each Unit. Use of Steam tables, Mollier diagram, Refrigeration tables & charts and a scientific calculator will be allowed in the examination hall.

B 501

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

HOURS / WEEK			MARKS	
L	T	P	Theory	Sessional
3	2	-	100	50

CLASS: B.E. 3RD SEMESTER
 BRANCH: ELECTRICAL ENGG.,
 COURSE TITLE: PRINCIPLES OF ELECTRICAL ENGINEERING
 COURSE NO.: EE-301

DURATION OF EXAMINATION: 3 HOURS.

SECTION - I

Electric Circuit Laws and D.C. Circuits, loop and Nodal methods Superposition Principle, Series Parallel transformation. Star-Delta Transformation. Thevinin's Theorem. Norton's Theorem. Maximum Power Transfer Theorem. A.C circuits: - Basic definition vector and complex number representation. Solution of sinusoidally excited R.L.C Circuits. Concept of Active and Reactive Power.

SECTION - II

Steady state A.C three phase's circuits. Measurement of power in three phase balance circuits. Single phase transformers; no load and on load vector diagrams; regulation and efficiency.

BOOKS RECOMMENDED:

1. Principle of Electrical Engineering by Del Toro
2. Electrical Technology by H. Cotton
3. Basic Electrical Engineering by Higgin Bootham et al.
4. Electrical Technology by E. Hughes
5. Elements of Electrical Engineering by M.M.Louis
6. Electric Circuit Theory by J.A. Edminister

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

PSM

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

HOURS / WEEK			MARKS	
L	T	P	Theory	Sessional
3	2	-	100	50

CLASS: B.E. 3RD SEMESTER
 BRANCH: ELECTRONICS & COMM ENGG.,
 COURSE TITLE: NETWORK ANALYSIS
 COURSE NO.: EE - 302

DURATION OF EXAMINATION: 3 HOURS.

SECTION - I

Network elements and circuits, Topological description of network. Formulation of network equation. Laplace transforms technique. Network functions for one-port and two-port network.

SECTION II

Pole zero configurations. Parameters of two-port networks. Response of networks for step and sinusoidal inputs, Filters. Foster's reactance theorem and Cauer forms: response analysis.

BOOKS RECOMMENDED:

- | | | |
|----|-----------------------------------|-------------------|
| 1. | Networking Analysis and Synthesis | by Kuo |
| 2. | Network Analysis | by Van Valkenburg |
| 3. | Network Fields and lines | by Ryder |

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

1587

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

HOURS / WEEK				MARKS
L	T	P		
-	-	3		50

CLASS: BE 3RD SEMESTER
 BRANCH: E&C
 COURSE NO: EE-308
 COURSE TITLE: ELECTRICAL & ELECTRONICS WORKSHOP

Unit-I

Study of Wires & Cables: Study of various type of wiring, Cost estimation for wiring of a single storied building having light & power circuits, Method of earthing & measurement of earth resistance, Electrical shock precautions & treatment, jointing of wires & cables, Soldering of joints, Wiring practices in PVC, Conduit system of wiring, Control of fluorescent lamp circuit power & ordinary circuits suitable for domestic wiring.

Unit-II

Familiarization with Various Electronic Components: Resistor, Capacitors, Transistors, Diodes IC's, Transformer, Assembly of signal phase, Full wave rectifier circuit with capacitor filter, Assembling the common emitter amplifier circuit, Assembling the following circuit comprising of IC's on a bread board, Like timer circuit using IC 555 & Fabrication on General purpose PCB (to get familiar with soldering techniques).

BOOK RECOMMENDED:

01. Electrical Wiring & Estimation By S.I. Uppal

NOTE: The Electronic circuit diagram may be provided to the students. The operation of the circuit need to be explained. The purpose of the exercise is to familiarize the student to assemble a given Electronic circuits & to solder the joints

15801

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

HOURS / WEEK

L	T	P
-	-	3

MARKS

50

CLASS: BE 3RD SEMESTER

BRANCH: ELECTRONICS & COMMUNICATION ENGG.

COURSE NO: EE-309

COURSE TITLE: BASIC ELECTRICAL ENGINEERING LAB.

- 1) Verification of Kirchoff's Laws.
- 2) Verification of Superposition Theorem.
- 3) Verification of Thevinin's Theorem.
- 4) Verification of Reciprocity Theorem.
- 5) Verification of Maximum Power Transfer Theorem.
- 6) Measurement of current in various branches of RLC series-parallel circuit.
- 7) Single phase power measuring by using a Wattmeter.
- 8) Study of three-phase A.C Circuits with Star and Delta connected Load.
- 9) Study of single phase transformers. Determination of voltage Ratio, Turns Ratio and Polarity Test. Open circuit and short circuit test of given single phase transformer. Determination of regulation and efficiency.

BEN

UNIVERSITY OF JAMMU, JAMMU.

COURSE SCHEME

FOR B.E 4TH SEMESTER ELECTRONICS & COMMUNICATION ENGG.

FOR EXAMINATION TO BE HELD IN JUNE 2012 ONWARDS

Course		Curriculum Hrs/Week			Marks			
Course No.	Course Name	L	T	P	Theory	Sessional	Practical	Total
ECE-401	Electronics Devices & Circuits-II	3	2	0	100	40	--	140
MTH-411	Engg. Mathematics-IV	3	2	0	100	40	--	140
COM-411	Object Oriented Programming using C++	3	2	0	100	40	--	140
EE-411	Electrical M/C,s	3	2	0	100	40	--	140
M-413	Electrical Engg. Material	3	2	0	100	40	--	140
EE-402	Control System	3	2	0	100	40	--	140
COM-412	Object Oriented Programming Lab	0	0	2/2	---	--	40	40
EE-408	Control System Lab	0	0	2/2	---	--	40	40
EE-412	Electrical Machine Lab	0	0	2/2	---	--	40	40
ECE410	Electronics Devices & Circuits-II Lab	0	0	2/2	---	--	40	40
	Total	18	12	06	600	240	160	1000

15/5/11

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

	L	T	P	MARKS	
	3	2	0	THEORY	SESSIONAL
				100	40
CLASS: BE 4 TH SEMESTER					
BRANCH: ECE, EE, AEI					
COURSE NO: ECE-401					
COURSE TITLE: ELECTRONIC DEVICES AND CIRCUITS-II					
DURATION OF EXAM: 3 HOURS					

SECTION - I

BIPOLAR JUNCTION TRANSISTOR: Introduction, Transistor basics (unbiased & biased transistor), Generalized transistor equation, Transistor current components, Early effect, Eber-Moll Model, Transistor configurations & characteristics, Reach through & avalanche phenomena, numerical problems.

TRANSISTOR BIASING: Introduction, Need for Biasing, Type of biasing circuits with necessary derivations, Load line concept t (AC & DC), Bias stabilization (S, S' S''), Thermal runaway, Bias Compensation Techniques.

FIELD EFFECT TRANSISTOR: Introduction, Construction of JFET, Operation, Symbol, JFET- Characteristics, JFET Parameters and their relationship, Biasing methods of FET, with necessary derivations. Comparison between JFET and BJT & MOSFET, FET small signal model, Frequency response of FET amplifier, Low frequency model of Common Source & Common drain Amplifiers & their analysis. MOSFET (Depletion & enhancement), Characteristics, Symbol and Operation.

SECTION - II

HYBRID PARAMETERS: Introduction, Two port network, hybrid model for CE, CB, & CC configuration with necessary derivations, Analysis of transistor CE amplifier with & without emitter resistance, Determination of h-parameters from characteristics, Miller theorem, approximation model of h- Parameter, Amplifiers and their analysis using h-parameters.

SINGLE & MULTISTAGE AMPLIFIERS: Need for cascading, Two stage cascade amplifiers, N-stage cascade amplifiers, Gain of multistage amplifiers in decibels, Techniques for improving input resistance (Darlington transistor, Bootstrap emitter follower, Cascode amplifiers), Method of coupling multistage amplifiers (RC coupling, DC coupling, transformer coupling), Frequency response of an amplifiers, Effect of emitter & bypass capacitors on the bandwidth & frequency response of a cascaded amplifiers, Square wave testing of an amplifier, Bandwidth of multistage amplifiers.

BOOKS RECOMMENDED:

- | | |
|----------------------------|--------------------|
| 01. Integrated Electronics | By Millman Halkais |
| 02. Electronics Devices | By Bolystead |
| 03. Electronics Devices | By Malvino Leach |

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

BSN

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

	MARKS				
	L	T	P	THEORY	SESSIONAL
	3	2	0	100	40
CLASS: BE 4 TH SEMESTER					
BRANCH: ECE, EE					
COURSE NO: MTH-411					
COURSE TITLE: ENGINEERING MATHEMATICS - IV					
DURATION OF EXAM: 3 HOURS					

SECTION - I

THEORY OF COMPLEX VARIABLES: Functions of a complex variable, Limits, Continuity, Derivative, Analytic function, Cauchy-Riemann equations, Conformal mappings, Standard Transformation, Bilinear transformation, Line integral, Cauchy's theorem, Cauchy's integral formula, Cauchy's inequality, Liouville's theorem, Taylor and Laurent series expansions, Poles and singularities, Contour integration, Residue theorem, Evaluation of Real Integrals using residue theorem, and Contour integration.

SECTION - II

NUMERICAL METHODS: Definition of operators, Finite and divided difference, Newton's and Lagrange's Interpolation formulas, Numerical differentiation and Numerical integration, Trapezoidal and Simpson's one-third Rule.

Numerical Solutions of Algebraic and Transcendental Equations by Regula Falsi, Newton-Raphson and direct iterative methods, Solution of difference equations, solution of differential equations by Picard's method, Euler's method, Modified Euler's method, Taylor's method, Runge-Kutta method.

BOOKS RECOMMENDED:

- | | | |
|-----|--------------------------------------|-------------------|
| 01. | Advance Engineering Mathematics | by Jain & Iyengar |
| 02. | Numerical Methods in Engg. & Science | by B.S. Grewal |
| 03. | Difference Calculus (New Edition) | by S.C. Sexena |
| 04. | Engineering Mathematics | by S.S. Sastry |

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

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FOR EXAMINATION TO BE HELD IN JUNE 2012 ONWARDS

L	T	P	MARKS	SESSIONAL
3	2	0	THEORY 100	40

CLASS: B.E 4TH SEMESTER
BRANCH: ELECTRONICS & COMMUNICATION ENGG.
COURSE TITLE: OBJECT ORIENTED PROGRAMMING C++
COURSE NO. COM -411
DURATION OF EXAM: 3 HOURS

SECTION - 1

1. **Review of Pointers:** Passing parameters, Array of Pointers, Character Pointers. Programming Techniques: Unstructured, Procedural, Modular. Introduction to objects, object & cohesion. (30)
2. 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. (50)

SECTION-II

1. Function Overloading, Overloading Constructor Functions, Operator overloading, Overloading Binary and Unary Operators, Overloading Relational & logical Operators. (30)
2. Inheritance, Using Protected Members, multiple inheritance, Virtual Base Classes, Introduction to Virtual Functions. (30)
3. C++, I/O Basics, Ifstream, Ofstream, Fstream, Open(), Close(), EOF(), Binary I/O, Get(), Put(), Read(), Write(), Random Access, Seekg(), Seekp(), Tellg(), Tellp(). (20)

BOOKS RECOMMENDED:

1. Turbo C++ by Robert Lafore.

REFERENCE BOOKS:

1. Programming in C++ by Balaguruswamy.
2. C++ the Complete Reference by Herbert Schildt.
3. Mastering C++ by K.R. Venugopal & T. Ravishankar & Raj Kumar.

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

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

L	T	P	MARKS	
			THEORY	SESSIONAL
3	2	0	100	40

CLASS: B.E 4TH SEMESTER
BRANCH: ELECTRONICS & COMMUNICATION ENGG.
COURSE TITLE: ELECTRICAL MACHINES
COURSE NO. EE -411
DURATION OF EXAM: 3 HOURS

SECTION - I

D.C. GENERATORS: Operating principle, constructional features, E.M.F equation, Armature reaction and commutation, operating characteristics losses and efficiency.

D.C. MOTORS: Operating principle, back EMF, Torque equation, Starters, speed control, operating characteristics, and their applications.

TRANSFORMERS: Principle of operation, Vector diagram, Regulation efficiency parallel operation tap changing auto transformer.

SECTION - II

SYNCHRONOUS GENERATORS: Principle of operation, E.M.F equation, Leakage reactance, Vector diagram, Voltage regulation by EMF and MMF method.

SYNCHRONOUS MOTORS: Principle of operation, Vector diagram, V-curves and inverted V-curves, method of starting and their applications.

INDUCTION MOTORS: Principle of operation, TYPES OF MOTORS, Equivalent circuits, Torque and power calculations, No load and blocked rotor test, speed control, Method of starting and their applications.

SPECIAL A.C. MACHINES: Repulsion motors, A.C series motors, Universal motor, single phase induction motor and their applications.

BOOKS RECOMMENDED:

- | | | |
|----|---------------------|--|
| 1) | A.Langsdrof | Theory of A.C Machines |
| 2) | Clayson and Hancock | Principles of D.C. Machines |
| 3) | M.G. Say | Performance and design of A.C Machines |
| 4) | H.A. Cotton | Advanced Electrical Technology |

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

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

L	T	P	MARKS	
			THEORY	SESSIONAL
3	2	-	100	40

CLASS: B.E 4TH SEMESTER

BRANCH: ELECTRONICS & COMMUNICATION ENGG.

COURSE TITLE: ELECTRICAL ENGINEERING MATERIALS

COURSE NO. M-413

DURATION OF EXAM: 3 HOURS

UNIT-1

Classification of Engineering materials (with special reference to Electrical and Electronics engineering materials), Engineering requirements of materials.

Crystal structure-- space lattice, Bravais lattice, Miller indices of cubic and hexagonal systems, closed-packed plane and directions, Packing in solids, voids, diamond cubic structure, packing in conic solids, crystal imperfections, point defect, line defect, surface defects (in brief).

UNIT-2

Solid solutions, Hume-Rothery rule, phase diagrams, binary phase diagrams, Fe-C phase diagrams, Alloys, alloys transformations, properties of various alloys, applications of Iron - silicon, Iron-nickel and Iron-cobalt alloys, heat treatment processes- annealing, normalizing, hardening, case-hardening etc.

UNIT-3

Conductors- Free electron theory, equation of conductivity, conducting materials, material requirement for contact resistors, precision resistors, thermometers, heating elements, transmission line etc.

Semi-conductors - Band theory, equation for conductivity, zone theory (for explaining energy gaps), types of semi-conductors, semi-conductor materials, method of growing, technique for producing single crystal, zone refining technique.

UNIT-4

Magnetism, types of magnetisms, dipole moment, domains, ferrimagnetism, anti-ferromagnetism, ferrite magnets, soft and hard magnetic materials and heat treatment cycles.

Dielectric materials, polarization, types, dielectric strength, dielectric losses etc., Piezo-electric effect, ferro-electric materials, optical properties of materials.

RECOMMENDED BOOKS:-

- | | | |
|----|----------------------------------|----------------|
| 1. | Electrical Engineering Materials | AJ Dekker. |
| 2. | Material Science and Engineering | V Rahghvan. |
| 3. | Electrical Engineering Materials | PC Kapoor. |
| 4. | Electrical Engineering Materials | NITTTR, Madras |

NOTE: There shall be total Eight questions, Two from each Unit. Five questions have to be attempted selecting at least One from each Unit. Use of calculator is allowed.

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FOR EXAMINATION TO BE HELD IN JUNE 2012 ONWARDS

L	T	P	MARKS	
			THEORY	SESSIONAL
3	2	-	100	40

CLASS: B.E 4TH SEMESTER
 BRANCH: ELECTRONICS & COMMUNICATION ENGG.
 COURSE TITLE: CONTROL SYSTEM
 COURSE NO. EE-402
 DURATION OF EXAM: 3 HOURS

SECTION-I

Introduction to linear control systems, open loop and closed loop control systems. Modeling of physical systems, transfer functions.
 Block diagram representation of control systems and signal flow graphs. Time domain analysis for first and second order control systems. Performance specification for K_p, K_a, K_v, PID controllers.

SECTION-II

Stability study by means of Routh-Horowitz criterion, Nyquist criterion blue plot and Bode diagram approach, Frequency domain analysis Nichol's chart.
 Servo components DC and AC servo meters, AC tachometers, Synchro-transmitters-receivers and synchro control transformer magnetic amplifiers.

BOOKS RECOMMENDED:

- | | | |
|------------------------|---------------------------|-------------|
| 1) OGATA, | Modern control Engg. | P.HALL PUB. |
| 2) KUO, | Automatic control systems | P.HALL PUB. |
| 3) NAGRATH & M. GOPAL, | Control system Engg. | |

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

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

L	T	P	MARKS
-	-	2	40

CLASS: B.E 4TH SEMESTER
 BRANCH: ELECTRONICS & COMM. ENGG.
 COURSE TITLE: OBJECT ORIENTED PROGRAMMING LAB.
 COURSE NO. COM-412

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.

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FOR EXAMINATION TO BE HELD IN JUNE 2012 ONWARDS

<u>L</u>	<u>T</u>	<u>P</u>	<u>MARKS</u>
-	-	2/2	40

CLASS: B.E 4TH SEMESTER

BRANCH: ELECTRONICS & COMM. ENGG.

COURSE TITLE: CONTROL SYSTEM LAB.

COURSE NO. EE - 408

1. Transient response of Second order system comprising R.L&C finding therefore maximum overshoot, rise time, settling time, damping factor/ratio natural undamped frequency.
2. Frequency response of a first order and second order system comprising RC, RLC and draw the Bode plots and Nyquist Plots.
3. Transient response of a first, second and higher order Pneumatic servo system.
4. Transient response of a first, second and higher order Hydraulic system.
5. To find the torque speed, torque voltage characteristics of a servo motor and determine its transfer function.
6. Study of synchros, transmitter, receiver and control transformer. Voltage angular wave forms and zeroing.
7. To simulate a second and higher order system on an analog simulator and find its transient response to step, ramp and other input functions.
8. Study of a demonstration servo system (both open & closed) loop comprising error detector, amplifier, a motor cum load having a tachofeed back.
9. Study of phase lag and phase lead networks.

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

<u>L</u>	<u>T</u>	<u>P</u>	<u>MARKS</u>
-	-	2/2	40

CLASS: B.E 4TH SEMESTER
 BRANCH: ELECTRONICS & COMM. ENGG.
 COURSE TITLE: ELECTRICAL MACHINE LAB.
 COURSE NO. EE - 412

1. To study the magnetic characteristics of a D.C. Machines at various operating speeds and finds the operating point of D.C. shunt machine from the same.
2. To determine the load characteristics of a D.C. Shunt generator and find its overall efficiency.
3. To determine the Torque speed characteristics of a D.C. Shunt motor and compound motor (Short & long shunt). Also study of these using armature control and field control.
4. To study the torque/speed characteristics of a D.C. series motor using various field tappings.
5. To find the efficiency and study various losses of D.C. Machines using Hopkinson test.
6. To study a single phase transformer, its Voltage ratio and turns ratio relationship. Perform open & short circuit test to determine losses, efficiency and voltage regulation and also its various parameters.
7. To perform polarity test on single phase transformers for parallel operation and study the load sharing of two parallel operated transformers.

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

<u>L</u>	<u>T</u>	<u>P</u>	<u>MARKS</u>
-	-	2/2	40

CLASS: BE 4TH SEMESTER
 BRANCH: ECE, EE, AEI
 COURSE NO: ECE-410
 COURSE TITLE: ELECTRONICS DEVICES & CIRCUITS-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 Characteristics).
2. To study the operation characteristics of Zener diode (Forward & Reverse Characteristics).
3. Half wave Rectifier.
4. Full wave / Bridge Rectifier.
5. To study the operation characteristics (Input / Output) of PNP / NPN Transistor (Common Emitter / Common Base).
6. To study the frequency response of signal amplifier (CE/CB).
7. To study the characteristics of FET.
8. Determination of h parameter from transistor characteristics.

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UNIVERSITY OF JAMMU, JAMMU

COURSE SCHEME
FOR B.E. 4TH SEM COMPUTER ENGG.
FOR EXAMINATION TO BE HELD IN JUNE 2013 ONWARDS

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

BGM

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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN JUNE 2013 ONWARDS

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

<u>L</u>	<u>T</u>
3	2

<u>MARKS</u>	
Theory	Sessionals
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.

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UNIVERSITY OF JAMMUFOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

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

$\frac{L}{2} \quad \frac{T}{2}$

MARKS

Theory Sessionals
 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 control, 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 & Zelkowitz

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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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

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

<u>L</u>	<u>T</u>	<u>P</u>
3	2	-

<u>MARKS</u>	
Theory	Sessionals
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. Donovan—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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UNIVERSITY OF JAMMUFOR EXAMINATION TO BE HELD IN JUNE 2014 ONWARDS

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

<u>L</u>	<u>T</u>
3	2

<u>MARKS</u>	
Theory	Sessional
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 propositional 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, Chinese 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.

UNIVERSITY OF JAMMUFOR EXAMINATION TO BE HELD IN JUNE 2012 ONWARDS

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

L	T	P	Theory	Marks 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, Barkhausen 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 S_v & R_o . 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 JAMMUFOR EXAMINATION TO BE HELD IN JUNE 2013 ONWARDSClass: BE 4th Semester

Branch: COMPUTER ENGINEERING

Course No:- ECE-412

Course Title:- Communication Engg.

Duration of Exam: 3 Hours

Marks					
L	T	P	Theory	Sessional	Practical
2	2	-	100	40	--

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 2011 ONWARDS

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

L T P
2

MARKS
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.

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

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

L T P
- - 2

MARKS
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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UNIVERSITY OF JAMMUFOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

Class: BE 4th Semester

Branch: Computer Engg.

Course No: ECE-413

Course Title: Electronics-II Lab

Duration of Exam: 3 Hours

L	T	P	Practical
-	-	2	40

List of Practicals

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

UNIVERSITY OF JAMMUFOR EXAMINATION TO BE HELD IN JUNE 2011 ONWARDS

CLASS: B.E.4TH SEMESTER

BRANCH: COMPUTER ENGG

COURSE TITLE: COMMUNICATION ENGG. LAB.

COURSE NO. ECE-414

<u>L</u>	<u>T</u>	<u>P</u>	<u>MARKS</u>
-	-	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.

B501

UNIVERSITY OF JAMMU
COURSE SCHEME
FOR B.E 5TH SEMESTER COMPUTER ENGINEERING
FOR EXAMINATION TO BE HELD IN DECEMBER-2011 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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UNIVERSITY OF JAMMUFOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

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

<u>L</u>	<u>T</u>	<u>P</u>
3	2	-

MARKS

Theory	Sessionals
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.

UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 ONWARDS

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

<u>L</u>	<u>T</u>
3	2

MARKS

Theory	Sessionals
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 - Horowitz 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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UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 ONWARDS

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

<u>L</u>	<u>T</u>
3	2

MARKS

Theory	Sessionals
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.

15/6/11

UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 ONWARDS

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

<u>L</u>	<u>T</u>
3	2

MARKS

Theory	Sessionals
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. Hopcroft & 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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UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 ONWARDS

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

<u>L</u>	<u>T</u>
3	2

MARKS

Theory	Sessionals
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 William L. Schweber. |
| 2. Computer Networks | - By Andrew S. Tanenbaum. |
| 3. Communication Network System for Computer | - By Davies & Barba |

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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UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 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
3 2

MARKS

Theory	Sessionals
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.

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UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 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
-	-	2

MARKS
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 2011 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
-	-	2

MARKS
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. do 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.

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UNIVERSITY OF JAMMU
FOR EXAMINATION TO BE HELD FROM DECEMBER 2011 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
-	-	2

MARKS
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 2011 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
-	-	2

MARKS
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.

15/6/11

UNIVERSITY OF JAMMU

COURSE SCHEME FOR B.E 5TH SEMESTER ELECTRONICS & COMMUNICATION ENGG. FOR EXAMINATION TO BE HELD IN DECEMBER-2011 ONWARDS

Course		Curriculum Hrs/Week			Marks			
Course No.	Course Name	L	T	P	Theory	Sessional	Practical	Total
ECE-501	Electronics Devices & Circuits-III	3	2	0	100	40	--	140
ECE-502	Communication Engg.-I	3	2	0	100	40	--	140
ECE-503	Digital Electronics	3	2	0	100	40	--	140
ECE-504	Linear Integrated Circuits	3	2	0	100	40	--	140
ECE-505	Random Process & Noise	3	2	0	100	40	--	140
ECE-506	Electronic Meas. & Instrumentation	3	2	0	100	40	--	140
ECE-511	E.D.C.- III Lab	0	0	2	---	--	40	40
ECE-512	Digital Electronic Lab	0	0	2/2	---	--	40	40
ECE-513	L.I.C. Lab	0	0	2	---	--	40	40
ECE-514	Electronic Meas. & Instrumentation Lab	0	0	2/2	---	--	40	40
Total		18	12	06	600	240	160	1000

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

Class: BE 5th Semester

Branch: ECE/AEI

Course No: ECE-501

Course Title: Electronic Devices and Circuits-III

Duration of Exam: 3 Hours

Marks

L	T	P	Theory	Sessional
3	2	0	100	40

Section-A

Transistor at High Frequencies: Introduction, Hybrid (Pie) model, Relation between hybrid pie & h-parameters, Validity of hybrid-pie-model, Variation of hybrid-pie-parameters, Current gain with & without resistive load, Gain bandwidth product, Single stage CE transistor amplifiers response, Emitter Follower at high frequency, Common Drain amplifier at high frequency.

Feedback Amplifier: Classification of amplifiers, Limitation of basic amplifier, Distortion in amplifier, need for feedback, Feedback concept, Advantages of negative feedback, Ways of introducing negative feedback in amplifiers, Gain with & without feedback, Effect of negative feedback on input – output resistance & bandwidth amplifiers, Their respective analysis for feedback amplifiers, Procedure for analysis of feedback amplifiers, Analysis of different Topologies.

Oscillators: Introduction, Necessity of oscillator, Gain with feedback, Barkhausen criteria, Requirements of oscillator, Types of oscillators, RC oscillators & phase shift oscillators, Wien bridge oscillators, LC oscillators, with necessary derivations to determine gain required for oscillation & frequency of oscillation, Amplitude & frequency stability of oscillators, Crystal oscillators, Multivibrators: Monostable, Astable, Bistable, (with necessary derivations), using transistors.

Section-B

Power Amplifiers: Introduction, General features of power transistor, Difference between power transistor & a voltage amplifier, Need for power amplifier, Classification of power amplifiers with necessary load lines concept & derivations (Efficiency, power dissipation), Class A, B & AB amplifier, their types & analysis, Cross over distortion & its remedy, Determination of harmonic distortion, Heat sinking for power transistor, Monolithic power amplifier, Tuned amplifier – Introduction, Classification of tuned amplifiers (single tuned & double tuned) with respective analysis.

Voltage Regulator: Introduction & necessity of voltage regulators, Difference between unregulated & regulated power supply, Factor affecting unregulated power supply, Stabilization, Basic representation of voltage regulators Type of voltage regulators-series & shunt voltage regulators, Series voltage regulators using emitter follower & its expressions for S_v & R_o , Preregulators, Short circuit protection-simple & fold back current limiting, Zener regulators, & its analysis, Monolithic regulators.

NOTE:- There shall be total 8 questions, four from each section. Five questions have to be attempted by the students selecting atleast two questions from each section.

Books Recommended:

- | | |
|----------------------------|--------------------|
| 01. Integrated Electronics | By Millman Halkias |
| 02. Electronics Devices | By Boylestad |
| 03. Electronics Devices | By Malvino Leach |

18/5/11

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

Class :BE 5th Semester

Branch: ECE

Course No: ECE-502

Course Title: Communication Engg- I

Duration of Exam: 3 Hours

			Marks	
L	T	P	Theory	Sessional
3	2	0	100	40

Section-A

AM Modulation: Introduction to Elect. Comm. System, Concept & need for modulation, Definition of signal to noise ratio & noise figure, (periodic & non-periodic signals), 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 including VSB, ISB, Modulation & Demodulation of SSB signals.

Angle Modulation: 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.

Receiver: TRF receivers, Superhetrodyne receiver, Receiver characteristics- sensitivity, selectivity, Image frequency & its Rejection, Double spotting.

Section-B

Pulse Modulation: Techniques, sampling theorem, Natural & flat top sampling, principle, generation & detection of PAM, PWM, PCM, DM, ADM, Time division multiplexing, Frequency division multiplexing.

T.V. Engg: Element of a T.V systems, Pick up & Display tube of monochrome T.V Image Continuity-Interlace scanning, VSB modulation & its need in T.V. system. Essential of colour T.V. Three colour theory, Luminance Hue & saturation, Pick up (i.e. Camera) & Display tube of colour T.V system.

Books Recommended:

- | | |
|--------------------------------|---------------------|
| 01. Electronics Comm. System | By G. Kennedy |
| 02. Principles of Comm. System | By Taub & Schilling |
| 03. Monochrome & Coloured T.V. | By R.R. Gulati |

Reference Book:

Communication System

By Simon Haykins

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.

PSM

UNIVERSITY OF JAMMU, JAMMUFOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDSClass :BE 5th Semester

Branch: ECE / AEI

Course No: ECE-503

Course Title: Digital Electronic

Duration of Exam: 3 Hours

L
3T
2P
0Theory
100

Marks

Sessional
40

Section-A

Number System, Radix conversion, Arithmetic with base other than ten, Data representation – fixed & floating points, Binary codes – weighted/Non weighted codes, Error detecting & correcting code (Hamming code), Alphanumeric code, Subtraction of signed/unsigned number.

Logic Gates, Boolean algebra, Simplification of Boolean expressions, Minimization techniques, Karnaugh map (up to five variables), Simplification of Logic families – RTL, DTL, TTL, ECE & MOS families and their characteristics.

Section-B

Combinational logic circuits: Half and Full adders, Subtractors, BCD Adder, Comparators, Multiplexer, Realization of function using MUX, Demultiplexer, Decoder, Encoder, Code converters, General problems, PLA, Design of combinational circuit using PLA & PAL.

Introduction to sequential logic circuits, Synchronous and Asynchronous operation, Flip-Flops – R-S, J-K, D, T & Master-Slave flip-flop, Conversion of flip-flops, Shift registers, Analysis of asynchronous & synchronous sequential counter, Design of sequential logic circuits, Problem formulations, State minimization techniques.

NOTE:- There shall be total 8 questions, four from each section. Five questions have to be attempted by the students selecting atleast two questions from each section.

Books Recommended:

- | | |
|---|---------------------------|
| 01. Digital Electronics | By R.P Jain |
| 02. Digital Electronics & Microcomputer | By R.K. Gaur |
| 03. Computer System Architecture | By M.M. Mano |
| 04. Digital Electronics | By Jamini & K.M. Backward |

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

Class :BE 5th Semester

Branch: ECE / AEI

Course No: ECE-504

Course Title: Linear Integrated Circuits

Duration of Exam: 3 Hours

L	T	P	Theory	Marks	
				Sessional	
3	2	0	100	40	

Section-A

Basic Operational Amplifier: Basic differential amplifiers, Its working & types, Transfer characteristics, small signal analysis of differential amplifier, Using h-parameter, Differential gain & common – mode gain, Constant current basic circuit, Constant current source/current mirror circuit, Level shifting techniques active load, Output stage.

Ideal & Practical Op-Amp & their Characteristics: Ideal voltage transfer curve, Open – loop Op-amp configurations, Op-amp as inverting, Non-inverting amplifier, Differential amplifiers using one and two Op-amp, Op-amp Characteristics, Measurement of Op-amp parameters, Offset voltage compensating n/w, Frequency response of internally compensating Op-amp, High frequency Op-amp equivalent circuit, Open loop & close loop frequency response, Circuit stability, Slew rate its cause.

Section-B

Op-Amp & its Applications, DC & AC Amplifier, AC amplifier with single power supply, Peaking amplifier, Summing, Scaling & Averaging amplifiers, Differential input / Differential output amplifier, High input impedance circuit, Active filters, Integrator, Differentiator, Instrumentation amplifier,

Waveform generators Sq. wave, Triangular, saw tooth, Sine wave generator, Op-amp, as clipper, Clamper & comparator circuits, Sample / hold circuit, Comparator characteristics, Voltage limiter, Zero crossing detector, Digital & analog converter, Binary weighted resistor, R-2R resistor type D/A converters, A/D converters & its types-successive approximation type,

Phase-Locked Loops & Timers: Block diagram, Operation & applications.

NOTE:- There shall be total 8 questions, four from each section. Five questions have to be attempted by the students selecting atleast two questions from each section.

Books Recommended:

- | | |
|--|-----------------------------|
| 01. Op-Amp & Linear Integrated Circuit | By Ramakant A. Gayakwad |
| 02. Linear Integrated Circuit | By Wixer |
| 03. Linear Integrated Circuit | By Tobey Graeme & Huelsomen |
| 04. Op-Amp Design Application | By Dailey |
| 05. Design with Op-Amp | By Franco |

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UNIVERSITY OF JAMMU, JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER 2011 ONWARDS

Class :BE 5th Semester

Branch: ECE

Course No: ECE-505

Course Title: Random Processes & Noise

Duration of Exam: 3 Hours

Marks

L	T	P	Theory	Sessional
3	2	0	100	40

Section-A

Spectral Analysis: Fourier series, Representation of Signal & System, Sampling function, Response of a linear system, Normalised power, Power spectral, Density, Fourier transformer, convolution, Parseval's theorem, Correlation (Auto & cross)

Random Variable & Processes: Probability, Random variable, Probability density function, Variance, Tchebyscheff's inequality, Gaussian probability density, Rayleigh probability density, Correlation between random variable, Central-limit theorem, Random process.

Section-B

Noise: Source of Noise, Type of Noise, Frequency domain representation of Noise, Superposition of Noise, Mixing involving Linear filtering, noise effect of a filter on spectral density of Noise, Noise bandwidth, quadrature components of Noise, Resistor Noise, Noise temperature, Noise filter, Probability of error, Optimum filter, White Noise, The matched filter, Probability of error of the matched filter.

Information Theory: Discrete Messages, The concept of amount of information, Entropy, Shannon's theorem, Channel-Capacity, Bandwidth & S/N tradeoff, information rate, Capacity of a Gaussian channel.

NOTE:- There shall be total 8 questions, four from each section. Five questions have to be attempted by the students selecting atleast two questions from each section.

Book Recommended:-

- | | | |
|-----|-----------------------------------|-----------------|
| 01. | Principle of Communication System | Taub & Shilling |
| 02. | Communication System | Lathi |
| 03. | Communication System | Haykin |

Reference Book:-

- | | | |
|-----|----------------------|---------------|
| 01. | Random Process | Peebles |
| 02. | Communication System | Singh & Sapre |

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

Class :BE 5th Semester

Branch: ECE

Course No: ECE-506

Course Title: Electronic Meas. & Inst.

Duration of Exam: 3 Hours

Marks

L	T	P	Theory	Sessional
3	2	0	100	40

Section-A

Measurement & Error: Introduction to Measurement & Instrumentation, Types of instrumentation & measurement, Sensitivity, resolution, Accuracy, Precision, significant figures, Absolute & relative errors, Types of errors, Probability of errors, Limiting errors, Linearity.

Analog Instruments: Analog multimeter, Analog voltmeter, Analog ammeter, Analog ohmmeters & their design analysis, Ac voltmeter using rectifiers, True RMS responding voltmeter, Wave analyzers, (simple & heterodyne), Harmonic distortion analyzer (Tuned circuits heterodyne), Loading effect of voltmeter, Electronic multimeter,

Digital Instruments: Digital voltmeter, Digital multimeter, Digital LCR & measurements, Special frequency meters & application, Shielding & grounding, Q meter, Vector impedance meter, Vector voltmeter, RF power & Voltage measurement.

Section-B

Oscilloscopes: Block Diagram, CRT, Probes, Deflection amplifier & delay line, Automatic time base, Dual trace Oscilloscope, Sweep modes, Measurement of voltage, Frequency & phase pulse measurement,

Special Oscilloscope: CRT storage target characteristics, Sampling Oscilloscope, Digital storage Oscilloscope, Spectrum analysis.

Transducers: Introduction, Selection of transducers, Resistive transducers, Strain gauges, Thermistor & thermometer, LVDT, Load cells, Piezo Electric transducers, Photo voltaic, Frequency generation transducer.

Bridge: Introduction, Wheat stone bridge, Kelvin bridge, Guarded wheat stone bridge, AC bridge & their application, Maxwell bridge, Hay bridge, Schering bridge, Wagner ground connection, Unbalance conditions.

NOTE:- There shall be total 8 questions, four from each section. Five questions have to be attempted by the students selecting atleast two questions from each section.

Books Recommended:

- | | |
|---|----------------------------|
| 01. Electronic Instrument & Measurement Technique | By Copper W.D & Helfric A. |
| 02. Electrical & Elect. Measurement Instrumentation | By A.K.Sawhney |
| 03. Electronic instrumentation | By H.S. Kalsi |

Reference Book

Electronic Instrumentation & Measurement

By Oliber B.M & Cage J.M

BSN

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

Class :BE 5th Semester
Branch: ECE/AEI
Course No: ECE-511
Course Title: E.D.C Lab
Duration of Exam: 3 Hours

L	T	P	Practical
0	0	2	40

List of Practical

01. Determination of voltage gain, Input / output resistance of amplifiers using with & without feedback.
02. Determination of Distortion output power incase of push pull class-B amplifier.
03. Determination of frequency response of class-C tuned amplifier.
04. Study of signal stage class-A power amplifier & determine output power & efficiency.
05. Study of complimentary symmetry pushpull amplifier.
06. Design & determination of stability factor series of zener shunt Regulator / IC Regulator.
07. Design of voltage regulator using series pass transistor.
08. Study of Collpitt, Clapp, Hartley, Weinbridge, Phase regulator & Determine the frequency of output waveform.

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

Class :BE 5th Semester
Branch: ECE/AEI
Course No: ECE-512
Course Title: Digital Electronic Lab
Duration of Exam: 3 Hours

L	T	P	Practical
0	0	2/2	40

List of Practical

01. Verification of truth tables of logical gates AND / OR / NOT, NAND, NOR, EXOR, EXNOR, gates.
02. Implementation of Boolean expression using AND, OR, NOT, NAND, & NOR logic.
03. Implementation of Decoder, Encoder using IC's & gates.
04. To implement half adder, half subtractor, full adder, full subtractor using different IC's & gates.
05. Implementation of multiplexer, Demultiplexer using IC's & gates.
06. Design of BCD to seven segment display using logical gates & IC's.
07. To design & verification of truth table of SR, JK, MS-JK Flip Flops.
08. To design various asynchronous counters using flip flops, gates & IC's.

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

Class :BE 5th Semester
Branch: ECE
Course No: ECE-513
Course Title: L.I.C Lab
Duration of Exam: 3 Hours

L	T	P	Practical	
	0	0	2	40

List of Practical

01. Design of OP-amp as closed loop Inverting, Non-Inverting, amp voltage follower & Inverter.
02. Design of Op-Amp as summer, Scaling, Averaging using Inverting amplifier & Non-Inverting amplifier.
03. Design & study of Op-Amp as clipper, clamper circuit.
04. Design of Op-Amp as Square wave generator.
05. Design of Op-Amp as Integrator & Differentiator.
06. Design of Op-Amp as low pass filter & high pass filter.
07. Design of IC 555 timer as Monostable Multivibrator & Astable Multivibrator.
08. Study of IC – LF 398 N sample & hold circuit & show the waveform on CRO.
09. Design of OP-Amp as Schmitt trigger.

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

Class :BE 5th Semester
Branch: ECE
Course No: ECE-514
Course Title: Electronic Meas. & Inst. Lab
Duration of Exam: 3 Hours

L	T	P	Practical	
	0	0	2/2	40

List of Practical

01. Study of analog multimeter (Voltmeter, Ammeter, & Current meter)
02. Study of Rectifier type instruments
03. Study of Analysers (Wave, Spectrum & Distortion)
04. Study of Digital multimeter
05. Study of LCR Q meter
06. Study of frequency meter
07. Study of Oscilloscope, Measurement of frequency, Phase, Amplitude using lissajous pattern, Digital storage & Sampling Oscilloscope

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UNIVERSITY OF JAMMU
COURSE SCHEME
FOR B.E. 5 TH SEMESTER ELECTRICAL ENGINEERING
FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

COURSE NO	Course Name	HOURS/ WEEK			MARKS THEORY	SESSI ONAL	PRACT- ICALS
		L	T	P			
EE-501	Electrical Machines-II	3	2	-	100	40	-
EE-502	Design of Power Apparatus	3	2	-	100	40	-
ECE-507	EDC-II	3	2	-	100	40	-
COM-511	Object Oriented Programming using C++	3	2	-	100	40	-
ECE-509	Communication Engineering	3	2	-	100	40	-
C-507	Hydraulic & Hydraulics Machine	3	2	-	100	40	-
EE-503	Electrical machine-II Lab.	-	-	2/2	-	-	40
ECE-516	EDC -II Lab.	-	-	2	-	-	40
COM-512	C++ Lab	-	-	2	-	-	40
ECE-515	Comm. Engg. Lab	-	-	2/2	-	-	40
	Total:	18	12	6	600	240	160

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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester
Branch: Electrical Engineering
Course No: EE-501
Course Name: ELECTRICAL MACHINES-II
Duration of Exam: 3 Hours

L	T	P
3	2	0

Marks:
Theory: 100
Sessional: 40

SECTION-A

Alternators: Types and constructional features –emf equation-rotating magnetic field-armature reaction-load characteristics-predetermination of regulation by synchronous impedance method, Ampere turn method, zero power factor method and ASA method.

Basic ideas of two reactor theory-direct and quadrature axis reactance and their determination-phasor diagram and regulation of salient pole alternators-Expression for power developed as function of torque angle-Parallel operation of alternators.

Synchronous Motors: Synchronous machines on infinite bus bars-phasor diagram-V and inverted-V curves, current and power circle diagrams-Hunting and its suppression, starting methods, synchronous condenser, reluctance motors.

SECTION-B

Polyphase induction motors: types and constructional features, principle of operation, phasor diagram, equivalent circuit, slip- torque characteristics, effect of rotor resistance, circle diagram, starting and speed control, induction generator.

Single phase induction motors- types and constructional features- principle of operation-equivalent circuit based on double revolving field theory-universal motor-F.H.P. motor.

TEXT Books

1. Punchetin, Lloyd and Cenrad. Alternating current machines M/s Asia Publishing Home.
2. P.K. Mukerjee & S. Chakarvati –Electrical Machines- Dhanpat & Sons.
3. A.S. Langsdrof, Theory of alternating current machinery, M/s McGraw Hill Book Co.,
4. S.K. Sen- Rotating Electrical Machinery, Khanna Publishers, New Delhi.
5. Del Toro 'E' Machines.

REFERENCE BOOK

M.G. Say, Alternating Current Machines- Asia Publishing Home.
 Fizerald and Kingsley, Electrical Machines, McGraw Hill Co.

NOTE: There will be eight questions of 20 marks each, four from each section. Five questions are to be attempted selecting at least two questions from each section.

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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester

Branch: Electrical Engineering

Course No: EE-502

Course Name: DESIGN OF POWER APPARATUS

Duration of Exam.: 3 Hours

L	T	P
3	2	0
Marks		
Theory:	100	
Sessional:	40	

SECTION: A

Design of Transformers:

Design of single phase transformer :- Output of transformer, Output equation, Relation between Core area and weight of Iron & Copper, Design for minimum cost, Method adopted for securing voltage distribution, width of window for optimum output, Window dimension.

Design of three phase transformer :- Output of transformer, Output equation, Ratio of iron loss to copper loss, Relation between core area and weight of iron and copper, Design for minimum cost, Design for minimum loss or maximum efficiency, Design of core, Design of windings, window space factor, window dimension, design of yoke, Design of Tank with tubes.

Design of D.C. Machines:

Basic Design Principles, Armature Design, Design of Field system, Design of Inter poles, Design of Commutation and Brushes, Losses and efficiency.

SECTION-B

Induction Motors:

Design of 3-phase Induction Motor: Output equation, choice of average flux density in air gap, Choice of ampere conductors per meter, Efficiency and power factor, Main dimensions, stator Winding, Turn per phase, stator conductors, Area of stator slots, Length of mean turn.

Design of 1-Phase Induction Motor: Output equations, Choice of specific loading, Main dimensions.

Synchronous Machines:

Design of salient Pole Machine: output equation, Choice of specific Magnetic Loading, Choice of specific electric loading, Main dimensions, length of air gap, Armature design, length of mean turn, Elimination of Harmonics, Estimation of air gap length, Design of rotor, height of pole, Design of field winding.

Books Recommended:

01. Electrical Machine Design by A.K. Sawhney
02. Electrical Machine Design by R.K. Aggarwal

NOTE: There will be eight questions of 20 marks each, four from each section. Five questions are to be attempted selecting at least two questions from each section.

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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester

Branch: Electrical Engineering

	L	T	P	Marks	
				Theory	Sessional
Course No: ECE-507	3	2	0	100	40
Course Title: Electronics Devices & Circuits-II					
Duration of Exam: 3 Hours					

Section-A

Feedback Amplifier: Classification of amplifiers, Limitation of basic amplifier, Distortion in amplifier, need for feedback, Feedback concept, Advantages of negative feedback, Ways of introducing negative feedback in amplifiers, Gain with & without feedback, Effect of negative feedback on input – output resistance & bandwidth amplifiers, Their respective analysis for feedback amplifiers, Procedure for analysis of feedback amplifiers, Analysis of different Topologies.

Oscillators: Introduction, Necessity of oscillator, Gain with feedback, Barkhausen criteria, Types of oscillators, Colpitts clapp, Hartley, phase shift oscillators & wein bridge oscillator with necessary derivations to determine gain required for oscillator & frequency of oscillation, Crystal oscillators.

Power Amplifiers: Introduction, General features of power transistor, Difference between power and voltage amplifier, Need for power amplifier, Classification of power amplifiers with necessary load lines concept & derivations (Efficiency, power dissipation), Crossover distortion & its remedy, Determination of harmonic distortion, Single ended, & push-pull amplifiers, Monolithic power amplifier,

Section-B

Voltage Regulator: Introduction & necessity of voltage regulator, Difference between unregulated & regulated power supply, Factor affecting unregulated power supply, Stabilization, Basic representation of voltage regulators Type of voltage regulators-series voltage regulator using emitter follower & its expressions for S_v & R_o , Pre regulator protection-simple & fold back current limiting, Zener as shunt, & its analysis, Monolithic regulators.

Operational Amplifiers: Operational amplifiers, Block diagram characteristics of ideal & practical operational amp, Inverting & non-inverting amplifier configuration, Application of Op-amp, Summing & difference amplifier, Voltage follower, Differentiator, Integrator, Peak detector, comparator, zero crossing detector, Schmitt trigger, Square wave generator, Triangular wave generator, Saw tooth wave generator.

NOTE: There will be eight questions of 20 marks each, four from each section. Five questions are to be attempted selecting at least two questions from each section.

Books Recommended:

- | | |
|------------------------------------|------------------------------|
| 01. Integrated Electronics | By J. Millman & C.C. Halkias |
| 02. Electronics Devices & Circuits | By Millman & Halkias |
| 03. Electronics Devices & Circuits | By Robert Bolysted |
| 04. Op-Amp. & Linear IC,s | By Ramakant & Gayakwad |
| 05. Design with Op-Amp. | By Franco |

18/11

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

CLASS: B.E 5TH SEMESTER

BRANCH: ELECTRICAL ENGINEERING

COURSE TITLE: OBJECT ORIENTED PROGRAMMING USING C++

COURSE No. : COM-511

DURATION OF EXAM: 3 HOURS

<u>L</u>	<u>T</u>	<u>P</u>
3	2	-

MARKS

Theory	Sessionals
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 Reference – 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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UNIVERSITY OF JAMSHEDPUR

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester

	L	T	P	Marks
Branch: Electrical Engg.	3	2	0	Theory Sessional
Course No: ECE-509	3	2	0	100 40
Course Title: Communication Engg.				
Duration of Exam: 3 Hours				

SECTION-A

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-B

Pulse modulation techniques, Sampling & sampling theorem, Natural & flat top sampling principle generation & detection of PAM, PWM, PCM, DM, ADM, Time division multiplexing, Frequency division multiplexing, Introduction of Digital Modulation Techniques.

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

NOTE: There will be eight questions of 20 marks each, four from each section. Five questions are to be attempted selecting at least two questions from each section.

Books Recommended:

- | | |
|--------------------------------|----------------------|
| 01. Electronics Comm. System | By G. Kennedy |
| 02. Principles of Comm. System | By. Taub & Schilling |

Reference Book

- | | |
|--------------------------|------------------|
| 01. Communication System | By Simon Haykins |
|--------------------------|------------------|

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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester

Branch: Electrical Engineering

Course No: C-507

Course Name: HYDRAULIC & HYDRAULIC MACHINES

Duration of Exam.: 3 Hours

	L	T	P
	3	2	0
Marks			
Theory:		100	
Sessional:		40	

SECTION: A

Pressure exerted by liquids, hydrostatic pressure on immersed bodies, simple manometers, kinematics of flow, Bernoulli's theorem, flow measuring devices like venturimeter, Pitot tube orifice plate. Discharge measurement- flow through orifice and mouthpiece, coefficients of discharge and velocity.

Flow through pipes, hydraulic gradient, Darcy-Weisback formula, equivalent diameter of pipes, transmission of power through pipes, two- reservoir and three reservoir problem etc.

Flow through open channels, Chzy's and Manning's formulae, design of economic section etc.

SECTION: B

Impact of jets on flat and curved surfaces, impact of jets on fixed and moving vanes, velocity triangles, work done and efficiency.

Turbines- their types, unit quantities, specific speed, work done, power & efficiency, selection of turbines, penstocks. Dimensional analysis, principles of similarity, models & prototypes.

Typical turbine installation, layout of power house, pumps-types, working of centrifugal pump, selection of pumps.

TEXT BOOKS:

1. Fluid Mechanics by Victor L. Streeter & Benjamin Wylie
2. Engineering fluid mechanics by R.J. Garde & A.C. Mirajgaoker
3. Theory of application to fluid mechanics by K. Subramaniam
4. Fluid Mechanics by Shames.

NOTE: There will be eight questions of 20 marks each, four from each section. Five questions are to be attempted selecting at least two questions from each section.

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UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester

Branch: Electrical Engineering

Course No: EE-503

Course Name: ELECTRICAL MACHINES-II LAB.

L	T	P
-	-	2/2

Marks:

Sessional: 40

SYLLABUS

UNIT-I: Synchronous Machines:

1. Determination of voltage regulation of a 3-phase synchronous generator/alternator by E.M.F., M.M.F. & A.S.A. method (Non-Salient Pole type).
2. Determination of positive, negative and zero sequence reactance's of 3-phase synchronous machine.
3. Determination of V curves of a 3-phase synchronous Motor.
4. Power Angle characteristics of a 3-phase synchronous machine.
5. Determination of various direct and quadrature Axis reactance's of an Alternator.
6. Study of parallel operation & synchronization of 3-phase synchronous generators.

UNIT-II: Induction Machines:

7. Determination of operating characteristics of a single phase induction motor.
8. Speed control of 3-phase Induction motor by varying supply frequency & of 3-phase slip Ring Induction motor by Rotor Impedance Control.
9. Determination of complete Torque/Slip or Torque/Speed characteristics of a 3-phase Induction-motor.
10. To study the Torque/Speed, Voltage/Speed, characteristics of a single phase repulsion motor & universal motor.

18/5/11

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester
Branch: Electrical Engineering

Course No: ECE-516
Course Title: EDC-II Lab

L	T	P	Practical
3	2	0	40

List of Practicals

01. Determination of voltage gain, Input / output resistance of amplifiers Using with & without feedback
 02. Determination of Distortion output power incase push pull class-B.
 03. Determination of frequency response of class-C tuned amplifier.
 04. Study of single stage class-A power amplifier & determine output power & efficiency.
 05. Study of complimentary symmetry pushpull amplifier.
-
06. Design & determination of stability factor series of zener shunt Regulator / IC Regulator.
 07. Design of voltage regulator using series pass transistor.
 08. Study of Collpitt, Clapp, Hartley, Weinbridge, Phase shift oscillator & Determine the frequency of output waveform.
 09. Study of Op-amp as Adder, Subtractor, Differentrator, Integrator, Differential Amp, Comparator, Invertor, Non-Inverting amplifier, Peak detector, Sq. wave generator.

BSA

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester
Branch: Electrical Engineering

Course No: ECE-515

Course Title: Communication Engg. Lab

L	T	P	Practical
0	0	2/2	40

List of Experiments

01. To plot the response of RF Tuned Amp.
02. To find the modulation under of AM signal
03. Hardware realization of AM demodulation circuit
04. Hardware realization of FM modulation circuit using IC 8038
05. To plot the response of IF transformer
06. Hardware realization of sample & hold circuit
07. Hardware realization of ASK modulation
08. Study of PCM signal

UNIVERSITY OF JAMMU

FOR EXAMINATION TO BE HELD IN DECEMBER, 2011 ONWARDS

Class: B.E. 5th Semester
Branch: Electrical Engineering

Course No: COM-512

Course Title: Object Oriented Programming using C++ Lab

L	T	P	Practical
0	0	2	40

The Practical's 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 of Theory Course.