JABALPUR ENGINEERING COLLEGE, JABALPUR (MP)
(An Autonomous Institute of Govt. of M.P.)
Affiliated to Rajiv Gandhi Technological University, Bhopal (MP)
Scheme of Study and Examination (w.e.f. July 2011)

BE (PTDC) First Sem. Branch : Electrical Engineering

Course Code	Subject	Periods			EVALUATION SCHEME					Credits
		L	T	P	SESSIONAL EXAM			ESE	SUB TOTAL	
					TA	CT	TOT			
MA-01	Engineering Mathematics - I	3	1	-	10	20	30	70	100	4
CS-03	Basic Computer Programming	3	1	-	10	20	30	70	100	4
EE-03	Circuit Theory	3	1	-	10	20	30	70	100	4
EE-05	Electrical Engg. Materials	3	1	-	10	20	30	70	100	4
(PRACTICAL/DRAWING/DESIGN)										
CS-04L	Computer Programming Lab	-	-	2	20	-	20	30	50	2
EE-04L	Circuits Lab	-	-	2	20	-	20	30	50	2
EE-06L	Electrical Workshop	-	-	2	20	-	20	30	50	2
EE-58L	Self Study/ Professional Activity	-	-	2	50	-	50	-	50	2
	Total	**12**	**4**	**8**	**150**	**80**	**230**	**370**	**600**	**24**

T.A. Teachers Assessment, CT- Class Test, ESE - End Semester Examination, Total Marks 600 Total Periods : 24, Total Credits : 24

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
B.E. Common	**ENGINEERING MATHEMATICS - I**	MA01	Min "D"	Min "D"	5.0

ENGINEERING MATHEMATICS-I

UNIT-I Expension of function Maclaurin's and Taylor's theorem. Partial differentiation, total differential coefficients, homogeneous function, Euler's theorem, approximation and error. Differentiation under integral sign. Maxima and Minima of two variables. Curve tracing (Cartesian and polar curve), Curvature, Radius of Curvature.

UNIT-II Definite integral as limit of a sum, Application summation of series. Double interals, Change of order of integrals. Triple integral, Length of curves, Area Voulme of surfaces using double and triple integrals Beta and Gamma functions.

UNIT-III Ordinary differential equation of first order. Linear and higher degree. Linear higher order differential equation with constant coefficients. Homogeneneous linear differential equation. Simultaneous differentia equations.

UNIT-IV Rank of Matrix Solution of simultaneous equation by elementary transformation & consistency of equation Eigen values and Eigen vactors, Cayfey Hamilton theorem and its application to find the inverse Diagnolisation of matrices.

UNIT-V Boolean algebra Algebra of logic. Principle of Duality Basic theorems, Boolean Expressions and functions. Graph theory.Graph subgraphs, degree and distance Tree,cycles and nNetwork Elementry concept of fuzzy logic.

Reference Books:-

1. Higher Engineering Mathematics by B.V. Ramana TMH.
2. Higher Engineering Mathematics- By B.S. Grewal.
3. Engineering Mathematics.By K.A.Laxminarayan. Vikas pub. House Pvt.Ltd.
4. Advance Engineering Mathematics-Erwin Kreyszig.John Willy & sons.
5. Advance Engineering Mathematics-Wylie and Barrett.TMH.
6. Differential Calculus by Gorakh Prasad pothi shala publication.
7. Integral Calculus by Chandrika Prasad pothi shala publication.

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
B.E. Common	**BASIC COMPUTER PROGRAMMING**	CS03	Min "D"	Min "D"	5.0

BASIC COMPUTER PROGRAMMING

UNIT - I

Computer Hardware - Block diagram of computer Hardware, Software and Firmware Interaction of Hardware and Software, Understanding the Boot Process, General function of CPU, ALU, Control unit and memory. The Motherboard. BIOS, Multimedia Devices and Mass Storage

UNIT- II

History of C , Characteristics of C, C Program Structure , Constants, Data types, Variables, Keywords ,Console Input/Output Statements, Compilation and Execution Operators. Arithmetic, Unary Assignment, Relational & Logical Conditional Branching & Looping Statements - if Statement ,switch Statement ,Looping Concepts , for ,while , do-while loop Jump Statements. Arrays-Array Concepts, Rules & Restrictions, Single & Multi-Dimensional arrays

UNIT - III

Functions- Types of Functions, Functions and Arrays, Function Prototyping Scope of Variables Built-in Functions, Strings- String Functions, String Manipulation Structures-Defining New Data types, Unions ,Type Casting, Enumerated Data types ,Static Variables ,Type Definition.

UNIT – IV

Pointers-Pointer Concepts, Pointers and Functions, Pointers and Arrays, Array of Pointers Static Initialization, Pointers and Structures, Illegal indirection Dynamic Memory Allocation and Data Structures-malloc(),sizeof() and free() calloc() and realloc()

UNIT - V

C++ Characteristics Object-Oriented Terminology. Differences between Object-Oriented programming and Procedure oriented programming Object, Class, Encapsulation, Inheritance, Polymorphism, Object-Oriented Paradigm Abstract Data Types. Member Functions Class structure, Class scope, this pointer. Friend function.

Reference Books:

1. C Programming Language by Karnighan & Ritchie, TMH Pub.
2. Complete Reference in C, by Herbert Schield TMH Pub.
3. Mastering Turbo C by Kelly & Bootle – BPB Pub.
4. Practical C Programming by Steve Oualline, O'Reilly. Shroff Pub. & Distributors Pvt. Ltd.
5. Let us 'C' by Yashwant Kanetkar, BPB Publication
6. C Language Programming by Byron Gottfried – TMH Pub.
7. Programming in ANSI C by Balaguruswamy, TMH Pub.
8. Pointers in C by Yashwant Kanetkar
9. The Complete PC Upgrade &Maintenance Guide by Mark Minasi - BPB Pub

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	CIRCUIT THEORY	EE03	Min "D"	Min "D"	5.0

CIRCUIT THEORY

UNIT – I :

Review of Circuit Elements and energy sources : Basic laws like KVL, KCL, current & voltage distribution : source conversion, star-delta transformation etc, different methods of circuit analysis.

UNIT – II :

Network theorems applicable in AC & DC circuits, Thevenin's Theorem, Norton's theorem, Superposition, maximum power transfer, Milliman's theorem, reciprocity, Substitution theorem, Compensation theorem, Tellegen's theorem.

UNIT – III :

Graph Theory (Network Topology)

Introduction, Concept of Network graph, Terminology , Twig, linka, tree formation, incidence matrix, Tie-set matrix. Cut set matrix, duality, Network equilibrium.

UNIT- IV :

Resonance Selectivity :

Introduction, Series resonance, parallel resonance , physical interpretations of selectivity.
Analysis of coupled circuits,
Self inductance, mutual inductance, coefficient of coupling modeling, Dot convention, tuned coupled circuit, Conductivity coupled equivalent circuits.

UNIT- IV :

Analysis of three phase circuit, Balanced & unbalanced system, Power measurement of 3 phase circuits.

References :

1. Network Analysis and Synthesis by ME Van-Valkeburg.
2. Network and Systems by D.Roy Choudhury Wiley Eastern Limited.
3. Circuit Theory (Analysis & Synthesis) by A.Chakrabarti :Dhanpat Rai & Co.P.Ltd.
4. Network Analysis by G.K.Mithal, Khanna : Pub. Delhi.

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	ELECTRICAL ENGINEERING MATERIALS	EE05	Min "D"	Min "D"	5.0

ELECTRICAL ENGINEERING MATERIALS

UNIT – I : CONDUCTING MATERIALS :

Electron theory, conductivity, factor affecting conductivity, classification & properties of conducting materials. Effect of temperature variation, Alloys and their properties. Application of conducting materials with their suitability in – Electrical Machines, power Systems, Electrical instruments etc. super conducting materials, their properties & Applications.

UNIT – II : SEMICONDUCTING MATERIALS :

General concepts , variation of electrical conductivity, Elements having semiconducting properties, general application, Hall effect & energy levels, conduction in semiconductors, Impurities, mobility, current flow in semi conductors, P-N Junction formation by alloying, Zener effect, Hall effect & its applications.

UNIT – III MAGNETIC MATERIALS :

Magnetism, classification of magnetic materials, properties & applications of magnetic materials, magnetic hysteresis, eddy currents, magnetostriction, Hysteresis loop for hard and soft magnetic materials.

UNIT – IV : INSULATING MATERIALS :

Electrical, mechanical & chemical properties of insulating materials, volume & surface resistivity, classification of insulating materials . Dielectric materials : their properties & application.

UNIT – V :

General properties of transformer oil, commonly used varnishes, solidifying insulating materials, resins, bituminous waxes, drying oils, insulating textiles, varnished adhesive tapes, inorganic fibrous materials & other insulting materials such as mica, ceramic, Bakelite, abonite, glass, PVC, Rubber, and other plastic molded materials.

References :

1. Electrical Engineering Materials by Kortisky
2. Electrical Engineering Materials by A.J. Deccker
3. Di-electrics by Anderson
4. Materials for Electrical Engineering by B.M. Tareev

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
B.E.	**COMPUTER PROGRAMMING LAB**	CS04L			

COMPUTER PROGRAMMING LAB
(Suggested Exercise)

1. Write a program in C to CALCULATE Cos(X)=1-X^2/2!+X^4/4!-……..
2. Write a program in C to convert sentence lower case to upper case
3. Write a program in C for COUNTING THE NUMBER OF OCCURRENCE OF CHARACTER IN A STRING.
4. Write a program in C to SUM OF POSITIVE AND NEGATIVE ELEMENTS IN AN ARRAY
5. Write a program in C to reverse a string.
6. Write a program in C to calculate the string length
7. Write a program in C to count vowels
8. Write a program in C to calculate x power n
9. Write a program in C fir swapping 2 numbers (using2 variables)
10. Write a program in C to SWAP FIRST AND SECOND WORDS in a sentence.
11. Write a program in C to CHANGE THE CASE OF FIRST LETTER
12. Write a program in C for GENERATION OF ARMSTRONG NUMBERS.
13. Write a program in C for GENERATION OF FIBONACCI SERIES
14. Write a program in C to SUM OF DIGITS OF NUMBER
15. Write a program in C to FIND THE OF NCR A NUMBER.

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	CIRCUIT LAB	EE04L	Min "D"	Min "D"	5.0

CIRCUIT LAB
(Suggested Exercise)

1. Verification of KCL in DC circuit
2. Verification of KVL in DC circuit
3. Verification of Thevenin's Theorem in DC circuit
4. Verification of Newton's Theorem in DC circuit
5. Verification of Super position theorem
6. Measurement of Real, reactive and Apparent power in 3P circuits.
7. Find out the resonance frequency in RLC series circuit.
8. Find out the resonance frequency in RL, RC parallel circuits.
9. Verification of Faradey's law.
10. Comporision of Rac and Rdc
11. Verification of Telegence Theorem.
12. Verification of KCL in AC circuit
13. Verification of KVL in AC circuit
14. Verification of Thevenin's Theorem in AC circuit
15. Verification of Newton's theorem in AC circuit
16. Verification of Super position theorem in AC circuit
17. Study of filters.
18. Maximum power transfer theorem using two port network
19. Two port network ADCD parameter.
20. Two port network Y parameter.
21. Two port network Z parameter.
22. Two port network LC parameter.

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	ELECTRICAL WORKSHOP	EE06L	Min "D"	Min "D"	5.0

ELECTRICAL WORKSHOP

(Suggested Exercise)

1. Study of different types of wires and determination of gauge of wire through SWG.
2. Study of different types of LT & HT cables
3. Study and practice of wire joints.
4. Study and practice of cable laying and joints of cable
5. Description of various insulators.
6. Study of various types of wirings.
7. Study of various types of LT and HT poles/Towers.
8. Study and practice of DC machine winding.
9. Development of tube light circuit using thermal/Bimetallic starter.
10. Development of series circuit band.
11. Development of circuit of two lamps operating with single switch.
12. Study of DC/AC machine starters.

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	SELF STUDY/ PROFESSIONAL ACTIVITY	EE58L	Min "D"	Min "D"	5.0

Objective of Self Study : is to induce the student to explore and read technical aspects of his area of interest/ hobby or new topics suggested by faculty.

Evaluation will be done by assigned faculty based on report/seminar presentation and viva.