Scheme of Examination B.E. First year (All Branches of Engineering)

Second Semester

Sub Code	Subjects	Workload in hrs			Credits	Marks				Total	Minimum Passing Marks	
		L	T/A	P		Theory		Practical				
						Internal	Uni	Internal	Uni		Theory	Practical
BSE2-1T	Mathematics-II	3	1	-	4	30	70	-	-	100	45	-
BSE2-2T	Advanced Engineering Materials	2	2	-	3	30	70	-	-	100	45	-
BSE2-3T	Applied Chemistry	3	2	-	4	30	70	-	-	100	45	-
BSE2-4T	Computational Skills	2	-	-	2	15	35	-	-	50	23	-
BSE2-6T	Basics of Electrical Engineering	2	-	-	2	15	35	-	-	50	23	-
BSE2-7T	Engineering Mechanics	2	-	-	2	15	35	-		50	23	-
BSE2-8T	Indian Culture & Constitution	2	-	-	Audit	50	-	-	-	Audit	-	-
BSE1-5P	Workshop Practices	-	-	4	2	-	-	50	50	100	-	50
BSE2-2P	Advanced Engineering Materials	-	-	2	1	-	-	25	25	50	-	25
BSE2-3P	Applied Chemistry			3	1.5	-	-	25	25	50	-	25
BSE2-4P	Computational Skills			2	1	-	-	25	25	50	-	25
Three weeks Induction Program												
	Total	**16**	**5**	**11**	**22.5**	**135***	**315**	**125**	**125**	**700**		

- L- Lecture , P-Practical, T- Tutorial, A- Activity (Half Credit per Hour)
* Audit course marks are not counted in total marks

Guidelines
- Energy and Environment shall be taught by faculty of Chemistry and will come under board of Applied Science and Humanities (only by Chemistry Dept)
- Advance Engineering Materials shall be taught by faculty of Physics and will come under board of Applied Science and Humanities (only by Physics Dept)

Basic Electrical Engineering (BSE2-6T)
(Total Credits: 02)

Teaching Scheme
Lectures: 2 Hours/ Week

Examination Scheme
Theory
T (U) :35 Marks T (I) : 15 Marks
Duration of University Exam. : 02 Hours

Unit – I: Electric Circuits   (8 Hrs)
EMF, Potential difference, current, power, Energy (Definition & Units SI), Ohms Law, types of sources (Current & Voltage), Ideal and Practical Sources (Independent Sources only), Source Conversion, Superposition theorem with DC source.
Circuit element resistance, factors affecting resistance, series & parallel combination of resistances, Kirchhoff's Laws (KVL, KCL) statement & Numerical, star Delta transformation, Circuit Element Inductance, Self and Mutual Inductance, Circuit Element Capacitance.

Unit – II: Magnetic Circuits   (6 Hrs)
Types of Magnetic Materials, flux, flux density, flux intensity, MMF, reluctance, permanence, permeability, analogous electric circuit, calculation for composite magnetic circuit, concept of leakage flux and fringing, B-H curve, phenomena of magnetic hysteresis.

Unit - III: AC Circuits   (8 Hrs)
Generation of single phase voltage, average and RMS value for sinusoidal waveform, periodic function, phasor representation of sinusoidal electrical quantities, steady state behavior of RLC circuit with excitation, reactance, impedance, power and energy in AC circuit, simple numerical on series and parallel AC circuit, concept and importance of power factor, resonance in series circuits. Principal of Generation of three phase voltage, Phase sequence, Star & Delta Connected three phase system, Voltage, Current & Power relations for Balanced three phase system only (With numerical).

Unit – IV : Single Phase Transformer   (8 Hrs)
Basic construction of Transformer (core & shell type), Principle of operation, EMF equation, Transformer ratings, No load & On load operation with leakage reactance, losses, efficiency, Definition & formula for voltage regulation, OC & SC test, equivalent circuit of the Transformer.

Books Recommended:
1) *Basic Electrical Engineering: D.C. Kulshreshtha, Tata Mc-Graw Hill Pvt. Ltd.*
2) *A Text Book of Electrical Technology: B. L. Thareja and A. K. Thareja, S. Chand Publication.*
3) *Generation of Electrical Energy: B. R. Gupta 4th Edition, S Chand Publication*
4) *Art & Science of Utilization of Electrical Energy: H. Pratab, III Edition, Dhanpat Rai and Sons.*
5) *Electric Circuits & Network: K. Suresh Kumar, Pearson Publication.*

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Dr M.N. Gaiyya