

COURSE PLAN

Name of the Course Teacher : Shashi Kant Dargar
 Subject : Basics of Electrical Engineering
 Branch : ME
 Semester : II
 Year : I
 Course Code : EC 101
 L-T-P-C : 3-1-1-5 w.e.f. 29.12.2009

Sr. No.	Topic	Contact Hours (Lectures)
1.	BASIC ELECTRICAL COMPONENTS: Resistor -Material types and construction, operating principles and characteristics, applications.	1
2.	Inductor - Material types and construction, operating principles and characteristics, applications.	1
3.	Capacitor-Material types and construction, operating principles and characteristics, applications.	1
4.	2. DC CIRCUITS AND NETWORK THEOREMS : Classification of Network Elements Source Conversion, Kirchoff's Laws	1
5.	Node Voltage	1
6.	Mesh Current Analysis	1
7.	Delta-Star and	1
8.	Star-Delta Transformation	1
9.	Thevenin's Theorems	1
10.	Norton's theorems	1
11.	Super position theorem	1
12.	Compensation theorem	1
13.	Reciprocity theorem	1
14.	Maximum power transfer theorem,	1
15.	Millman's theorem	1
16.	3. SINGLE PHASE A.C. CIRCUITS: Generation of Single Phase AC Voltage, EMF Equation,	1
17.	Average, RMS and Effective Values.	1
18.	R, L, C Series circuit	1
19.	R-L series circuits	1

20.	R-C series circuits	1
21.	Parallel and Series-Parallel Circuits	1
22.	Complex Representation of Impedances	1
23.	Phasor Diagram,	1
24.	Series resonance	1
25.	Quality factor and Bandwidth	1
26.	Power and Power Factor	1
27.	4. THREE PHASE A.C. CIRCUITS: Generation of Three-Phase,	1
28.	AC Voltage, Delta and Star-Inter-connection	1
29.	Line & Phase Quantities, 3-Phase Balanced Circuits, Phasor Diagram	1
30.	Measurement of Power in Three Phase Balanced Circuits.	1
31.	5. MAGNETIC CIRCUITS AND INDUCTION: Magnetic circuit , magnetic effect of electric current,	1
32.	Faraday's Law of Electromagnetic Induction	1
33.	B-H relationship, Magnetization characteristics of magnetic Materials	1
34.	electromagnetic induction and force: self and mutual inductances, energy stored in magnetic field	1
35.	Transformer-Construction and Operation of Single Phase Transformer, EMF Equation	1
36.	Voltage & Current relationship and Phasor Diagram of Ideal Transformer	1
37.	hysteresis and eddy current losses , efficiency of transformer and regulation	1
38.	OC and SC tests , efficiency calculation.	1
39.	DC & AC MACHINES : Constructional features of dc machine, emf and torque equation	1
40.	circuit models, methods of excitation, dc motor starting and efficiency of dc motors	1
41.	Constructional features & circuit model of synchronous machine, induction machine.	1
TOTAL		41

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(Shashi Kant Dargar)

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Head (E&CE)