SREE VIDYANIKETHAN ENGINEERING COLLEGE

(Autonomous)

Sree Sainath Nagar, A. Rangampet-517 102

Department of Electrical and Electronics Engineering

Lesson Plan

Name of the Subject : FOUNDATIONS OF ELECTRICAL ENGINEERING (14BT30236)
Class & Semester : IIB. Tech – I Semester
Name(s) of the faculty Member(s): Mr. I.Kumaraswamy

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
UNIT – I: BASICS OF ELECTRICAL ENGINEERING				
1.	Sources of Electricity,basic definitions of commonly used terms Basic circuit components	1	T1	Network theroms
2.	Resistive networks	1	T1	
3.	Inductive networks, capacitive networks	1	T1	
4.	TUTORIAL 1	1	T1	
5.	Kirchoff's laws, series parallel circuits	1		
6.	Nodal analysis	1	T1	
7.	Mesh analysis –Problems	1	T1	
8.	TUTORIAL 2	1		
9.	Star-delta and delta -star transformations, Formative Test	1	T1	
Total periods required:		**09**		
UNIT – II: AC CIRCUITS				
10.	Principle of AC voltage, Wave form and Basic definitions	1	T1	Waveform analysis
11.	RMS and Average values of alternating currents and voltage, Form factor and Peak factor	1	T1	
12.	TUTORIAL 3	1		
13.	Phasor representation of alternating quantities	1	T1	
14.	J Operator and phasor algebra	1	T1	
15.	Analysis of AC circuits (1)	1	T1	
16.	TUTORIAL 4	1		
17.	Analysis of AC circuits (2),Single phase Series and parallel circuit	1	T1	
18.	Fundamentals of 3-phase supply, Formative Test	1		
Total periods required:		**09**		
UNIT – III: DC MACHINES				
19.	Constructional details of a DC machine	1	T1 & R1	Need of starters for starting DC motors
20.	TUTORIAL 5	1		
21.	Principle of operation of a DC generator	1	T1 & R1	
22.	Types of DC generators	1	T1 & R1	
23.	EMF equation of a generator – Applications.	1	T1 & R1	
24.	TUTORIAL 6	1		
25.	Principle and operation of DC motor	1	T1 & R1	

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
26.	Types of DC motors (1)	1	T1 & R1	
27.	Types of DC motors (2)	1	T1 & R1	
28.	TUTORIAL 7	1		
29.	Torque equation, losses and efficiency- Applications, Formative Test	1	T1 & R1	
Total periods required:		**11**		
UNIT – IV: AC MACHINES				
30.	Transformers- principle of operation, constructional details (1)	1	T1 & R1	OC & SC test on transformer.
31.	Transformers- principle of operation, constructional details (2)	1	T1 & R1	
32.	Tutorial 8	1		
33.	Losses and efficiency	1	T1 & R1	
34.	regulation of transformer	1	T1 & R1	
35.	Principle of operation of three phase induction motors	1	T1 & R1	
36.	TUTORIAL 9	1		
37.	slip ring and squirrel cage motors	1	T1 & R1	
38.	Principle of operation of Alternator (salient and non-salienttype)	1	T1 & R1	
39.	AC servo motor	1	T1 & R1	
40.	Tutorial 10	1		
41.	Synchros	1	T1 & R1	
42.	stepper motor, Formative Test	1		
Total periods required:		**13**		
UNIT – V: CONTROL SYSTEMS				
43.	Introduction, classification of Control Systems- Open loop and closed loop systems	1	T2	Time response analysis
44.	Tutorial 11	1		
45.	Temperature and traffic control systems	1	T2	
46.	Linear and non-linear systems, time variant and time invariant systems	1	T2	
47.	Feedback and effect of feedback systems	1	T2	
48.	TUTORIAL 12	1		
49.	Transfer Functions	1	T2	
50.	formation of transfer functions for Mechanical and Electrical systems	1		
51.	Block diagram reduction technique	1	T2	
52.	Tutorial 13	1		
53.	Signal flow graphs- Mason's gain formula (elementary treatment only), Formative Test.	1	T2	
Total periods required:		**11**		
Grand total periods required:		**53**		

TEXT BOOKS:

T1. V.K.Mehta, Rohit Mehta, *Principles of Electrical Engineering*, S. Chand and Company Ltd., New Delhi, 2006.
T2. A. NagoorKani, *Control Systems*, 2nd edition ,RBA Publications, Chennai, 2007.

REFERENCE BOOKS:

R1.M.S. Naidu, S. Kamakshaiah, *Basic Electrical Engineering*, Tata McGraw Hill Publishing CompanyLtd, New Delhi, 2009.

R2. T.K. Nagasarkar and M.S. Sukhija, *Basic Electrical Engineering*, Oxford University Press, New Delhi, 2005.