REE VIDYANIKETHAN ENGINEERING COLLEGE

(Autonomous)

SreeSainath Nagar, A. Rangampet-517 102

Department of Electrical and Electronics Engineering

Lesson Plan

Name of the Subject : NETWORK ANALYSIS (14BT30232)
Class & Semester : IIB. Tech (ECE and) EIE – I Semester
Name(s) of the faculty Member(s) :Ms.S.B.Aruna

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
UNIT – I:INTRODUCTON TO ELECTRICAL CIRCUITS				
1.	Concepts of Charge, current, voltage, power	1	T1	Concepts of energy,work done, potential difference, capacitor plates
2.	Circuit elements, Ohm's law,Kirchhoff Laws- problems	1	T1,T2	
3.	Network reduction techniques –voltage and current division	1	T1	
4.	Series parallel circuits-problems	1	T1	
5.	star-delta and delta-star transformations	1	T1,R1	
6.	Source transformation-problems	1	T1,T2	
7.	Basic definitions: Node, Path, Loop, Branch with examples	1	T1	
8.	Nodal analysis and super node concept	1	T1	
9.	Mesh analysis and super mesh concept	1	T1	
10.	Problems	1	T1	
11.	Formative test			
Total periods required:		**10**		
UNIT – II:SINGLE PHASE AC CIRCUITS				
12.	Introduction of AC supply ,importance	1	T1	Power measurement
13.	Basic definitions: waveforms, cycle, time period, frequency, amplitude	1	T1,T2	
14.	Determination of average value, RMS value, form factor & peak factor for different alternating waveforms	1	T1	
15.	Phase and phase difference, phase relations between R, L & C parameters	1	T1	
16.	Concept of Impedance and power triangle, power factor- problems	1	T1	
17.	Series and parallel Resonance–Quality factor and bandwidth	1	T1	
18.	Current locus diagram	1	T1	
19.	Problems	1	T1,R1	
20.	Formative test			
Total periods required:		**8**		
UNIT -III: TRANSIENT ANALYSIS				
21.	Transient response of R-L for DC excitation- Problems	1	T1	
22.	Transient response of R-C for DC excitation –Problems	1	T1,T2	

S. No.	Topic	No. of periods	Book(s) followed	Topics for self study
23.	Transient response of R-L-C for DC excitation – Problems	2	T1	
24.	Transient response of R-L for sinusoidal excitation – problems	1	T1	
25.	Transient response of R-Cfor sinusoidal excitation – problems.	1	T1	
26.	Transient response of R-L-C for sinusoidal excitation – problems.	2	T1,R1	
27.	Formative test			
Total periods required:		**08**		
UNIT – IV: TWO PORT NETWORKS AND FILTERS				
28.	Impedance parameters-problems	1	T1	Symmetry and reciprocity conditions of matrices
29.	Admittance parameters, hybrid parameters	1	T1	
30.	Transmission (ABCD) parameters, conversion of one parameter to another	1	T1	
31.	Problems	1	T1	
32.	conditions for reciprocity and symmetry, Interconnection of two port networks	1	T1	
33.	Image parameters –problems	1	T1,T2	
34.	Classification of filters, classification of pass band and stop band, equations of filter networks	1	T1	
35.	constant-k Low pass filter, high pass filter	1	T1	
36.	M-derived T-section, band pass filter and band elimination filter -problems	2	T1	
37. F	Formative test			
Total periods required:		**10**		
UNIT – V: NETWORK THEOREMS				
38.	Thevenin's theorem – problems	1	T1	
39.	Norton's theorem – problems	1	T1,T2	
40.	Superposition theorem – problems	1	T1	
41.	Tellegen's and Millman's theorem	2	T1	
42.	Maximum Power transfer theorem-Problems	2	T1	
43.	Reciprocity theorem –Problems	2	T1,T2	
44.	Formative test			
Total periods required:		**09**		
Grand total periods required:		**45**		

TEXT BOOKS

T1. A. Sudhakar, S.P.Shyam Mohan, *Circuits and Networks analysis and synthesis*, 4th edition, Tata McGraw Hill publishing company Ltd., New Delhi, 2007.

T2. A.Chakrabarthi, *Circuit Theory (analysis and synthesis)*, 6thedition, Dhanpat Rai & Co, New Delhi, 2014.

REFERENCE BOOKS

R1. M.E. Van Valkenberg, *Network Analysis,* Pearson Publications, 3rd edition, New Delhi 2006.

R2. W H Hayt, J E Kemmerly, S M Durbin, *Engineering Circuit Analysis*, 6th edition, Tata McGrawHill publishing company Ltd., New Delhi, 2008.