

Shree Ramkrishna Institute of Science & Technology

Lesson Plan

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Designation: Asst Professor

Dept : Electrical Engg

Academic Year :2014-2015

Target Student: 3rd Sem EE

Subject: Circuit Theory

SL No	Subject	Period
	<u>Group A (NETWORKS & A.C. FUNDAMENTALS)</u>	Total - 18
1	Definitions & explanation: Active & passive elements as well as networks – Linear & non-linear networks – Unilateral & bilateral networks, Voltage source and Current source –their conversion.	3
2	Statement, explanation, limitation & problems on Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, Star-delta conversion.	5
3	Single-phase A.C. Circuits: Concept of complex impedance – Rectangular & polar form.	3
4	R-L-C Series Circuit: Representation of impedance, voltage, current and power in complex form phasor diagram Impedance triangle – problems.	4
5	Parallel Circuit: Phasor diagram, problems (maximum 3 branches).	3
	<u>Group B (RESONANCE & SELECTIVITY)</u>	Total - 6
6	SERIES RESONANCE: General aspects – Impedance & phase angle of series resonant circuit – Voltages & current in series resonant circuit – Study of different curves – Quality factor – Selectivity & bandwidth – Voltage magnification – Problems – Acceptor Circuit (concept only).	2
7	PARALLEL RESONANCE: Resonant frequency for a tank circuit study of curves attaining resonance by varying frequency & R_L – Current magnification – Quality Factor – Selectivity & bandwidth – Applications – Problems – Rejector circuit (concept only).	3
8	Comparison between series & parallel resonance.	1
	<u>Group C TRANSIENTS</u>	Total - 12

9	Steady State & Transient Response – Initial & Steady-state condition – Time constant and DC response of RC circuit – problems. supports	4
10	Sinusoidal response of R-L & R-C circuits – problems.	3
11	POLYPHASE CIRCUITS: 3 phase system – Phase sequence – Advantages over 1-phase system – Inter connection of 3-phase sources & loads – Relation between line & phase values of voltage & current both in star & delta connections – 3-phase power – Problems on balanced as well as unbalance (3-phase 4-wire) system.	5
<u>Group D</u> COUPLED CIRCUITS & FILTERS		Total - 12
12	COUPLED CIRCUITS: Introduction, mutual coupled circuits & mutual imp, dot convention, coefficient of coupling, series & parallel connection of coupled inductors.	3
13	LAPLACE TRANSFORMATIONS: Definition & properties – Laplace transform of unit step, impulse, ramp, exponential, sine cosine function and periodic functions (no deviation – only formula) – Laplace transform theorems – Differential, integral, initial value & final value – The inverse transformation – Convolution Integral – Applications of Laplace Transformations for solving differential equations describing simple electric circuits – problems.	6
14	Idea about Fourier series, FILTERS: Low pass, High pass, Band pass and Bond stop (conceptions & applications only).	3
15	Class test	5

Total= 48 class

Signature of The faculty & date

Signature of The Respective HOD & date

Reviewed by principal & date