

Discipline:- ETC	Semester:- 3rd	Name Of The Teaching Faculty:- Aishwarya Dash
Subject:- CIRCUIT THEORY	No Of Days Per week Class Allotted:-4	<u>01.07.2024 To:- 08.11.2024</u>
No. of week	Class Day	Topic to be taught
1 st	1 st	1.1 Circuit elements (Resistance, Inductance, Capacitance), Scope of network analysis & synthesize
	2 nd	1.2 Voltage Division & Current Division, Energy Sources
	3 rd	1.3 Electric charge, electric current, Electrical energy, Electrical potential, R-L-C parameters, Active & Passive Elements.
	4 th	1.4 Energy Sources, Current and voltage sources and their transformation & mutual inductance
2 nd	1 st	1.5 Star – Delta transformation
	2 nd	Problems
	3 rd	2.1 Nodal & Mesh Analysis of Electrical Circuits with simple problem.
	4 th	2.2 Thevenin's Theorem,
3 rd	1 st	Norton's Theorem Statement, Explanation & applications
	2 nd	Maximum Power transfer Theorem
	3 rd	Problems
	4 th	2.2.1 Superposition Theorem,
4 th	1 st	do
	2 nd	Problems
	3 rd	Millman Theorem,
	4 th	Reciprocity Theorem-Statement, Explanation & applications
5 th	1 st	Problems
	2 nd	Problems
	3 rd	3.1 Definition of frequency, Cycle, Time period, Amplitude, Average value, RMS value, Instantaneous power & Form factor, Apparent power, Reactive power, power Triangle of AC Wave.
	4 th	3.2 Phasor representation of alternating quantities
6 th	1 st	3.3 Single phase Ac circuits-Behaviors of A.C. through pure Resistor,
	2 nd	3.3 Single phase Ac circuits-Behaviors of A.C. through pure Inductor
	3 rd	3.3 Single phase Ac circuits-Behaviors of A.C. through pure Capacitor.
	4 th	3.4 DC Transients-Behaviors of R-L, R-C, R-L-C series circuit & draw the phasor diagram and voltage triangle
7 th		3.4 DC Transients-Behaviors of R-L, R-C, R-L-C series circuit & draw the phasor diagram and voltage triangle
	1 st	3.4 DC Transients-Behaviors of R-L, R-C, R-L-C series circuit

		& draw the phasor diagram and voltage triangle
	2 nd	3.5 Define Time Constant of the above Circuit
	3 rd	Problems
	4 th	Problems
8 th	1 st	4.1 Introduction to resonance circuits & Resonance tuned circuit,
	2 nd	4.2 Series & Parallel resonance
	3 rd	4.3 Expression for series resonance, Condition for Resonance,
	4 th	Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth In term of Q.
9 th	1 st	Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth In term of Q.
	2 nd	4.4 Parallel Resonance (RL, RC & RLC) & derive the expression
	3 rd	4.4 Parallel Resonance (RL, RC & RLC) & derive the expression
	4 th	Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth in term of Q.
10 th	1 st	4.5 Comparisons of Series & Parallel resonance & applications
	2 nd	4.6 simple problems of above Circuit
	3 rd	
	4 th	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, R-C & R-L-C
11 th	1 st	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, R-C & R-L-C
	2 nd	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, R-C & R-L-C
	3 rd	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, R-C & R-L-C
	4 th	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, RC, R-L-C
12 th	1 st	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, RC, R-L-C
	2 nd	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, RC, R-L-C
	3 rd	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, RC, R-L-C
	4 th	6.1 Network elements, ports in Network (One port, two port),
13 th	1 st	6.2 Network Configurations (T & pie)
	2 nd	6.3 Open circuit (Z-Parameter) & Short Circuit (Y-Parameter) Parameters- Calculate open & short Circuit Parameters for Simple Circuits & its conversion

	3 rd	6.4 h- parameter (hybrid parameter) Representation
	4 th	6.5 Define T-Network & pie – Network
14 th	1 st	6.3 Open circuit (Z-Parameter)& Short Circuit(Y-Parameter) Parameters- Calculate open & short Circuit Parameters for Simple Circuits & its conversion
	2 nd	7.1 Ideal & Practical filters and its applications, cut off frequency, pass band and stop band.
	3 rd	7.2 Classify filters- low pass, high pass, band pass, band stop filters & study their Characteristics
	4 th	7.2 Classify filters- low pass, high pass, band pass, band stop filters & study their Characteristics.
15 th	1 st	7.3 Butterworth Filter Design
	2 nd	7.4 Attenuation and Gain, Bel, Decibel & neper and their relations.
	3 rd	7.5 Attenuators& its applications. Classification-T- Type & PI – Type attenuators
	4 th	7.1 Ideal & Practical filters and its applications, cut off frequency, pass band and stop band.

Alizash
16-6-24

Teaching Faculty

[Signature]

HOD, ETC