Lesson Plan of Circuit Theory

Discipline:- ETC	Semester:- 3rd	Name Of The Teaching Faculty:- Manmohan Panda
Subject:- Circuit Theory	No Of Days Per week Class Allotted:-4	No Of Weeks:-15
No. of week	No. of class	Topic to be taught
1st	1	**CIRCUIT ELEMENTS& ENERGY SOURCES** Circuit elements (Resistance, Inductance, Capacitance), Scope of network analysis &synthesize
	2	Voltage Division & Current Division, Energy Sources
	3	Electric charge, electric current, Electrical energy, Electrical potential
2nd	4	R-L-C Parameters, Active& Passive Elements
	5	Current and voltage sources and their transformation & mutual inductance
	6	Star – Delta transformation with Numericals
	7	**NETWORK THEOREMS (Applications in dc circuits)** Mesh Analysis of Electrical Circuits
3rd	8	Simple Problems regarding Mesh Analysis
	9	Nodal Analysis of Electrical Circuits
	10	Simple Problems regarding Nodal Analysis
	11	Thevenin's Theorem (Explanation & Applications)
	12	Simple Problems Regarding Thevenin's Theorem
4th	13	Norton's Theorem (Explanation & Applications)
	14	Simple Problems
	15	Maximum Power transfer Theorem with Problems
	16	Superposition Theorem with Problems
5th	17	Millman Theorem with Problems
	18	Reciprocity Theorem with Problems
	19	**Power Relation in AC circuits & Transient Response of passive circuits** Definition of frequency, Cycle, Time period, Amplitude, Average value, RMS value,
	20	Instantaneous power & Form factor
6th	21	Apparent power, Reactive power, Power Triangleof AC Wave
	22	Phasor representation of alternating quantities
	23	**Single phase Ac circuits**-Behaviors of A.C. through pure Resistor
	24	Behaviors of A.C through a pure Inductor
7th	25	Behaviors of A.C through a pure capacitor

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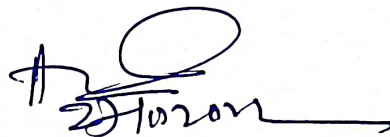|			
		26	DC Transients-Behaviors of R-L Series circuit with Phasor diagram and Voltage Triangle
		27	DC Transients-Behaviors of R-C series circuit with phasor diagram and voltage triangle
		28	DC Transients-Behaviors of R-L-C series circuit with Phasor diagram and voltage triangle
8th		29	Define Time Constant of the R-L, R-C & R-L-C series circuit with Simple Numericals
		30	Solve numerical simple problems of above Circuit
		31	**RESONANCE AND COUPLED CIRCUITS** Introduction to resonance circuits & Resonance tuned circuit
		32	Series& Parallel resonance
9th		33	Expression for series resonance, Condition for Resonance, Frequency of Resonance
		34	Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance,
		35	Bandwidth in term of Q
		36	Parallel Resonance RL Circuit & derive the expression
10th		37	Parallel Resonance of RC circuit & derive the expression
		38	Parallel Resonance of RLC circuit & derive the expression
		39	Comparisons of Series & Parallel resonance& applications
		40	Simple Numerical Problems of above circuit
11th		41	**LAPLACE TRANSFORM AND ITS APPLICATIONS** Introduction to Laplace Transformation
		42	Analysis and derive the equations for circuit parameters of Step response of R-L Circuit
		43	Analysis and derive the equations for circuit parameters of Step response of R-C Circuit
		44	Analysis and derive the equations for circuit parameters of Step response of R-L-C Circuit
12th		45	Analysis and derive the equations for circuit parameters of Impulse response of R-L Circuit
		46	Analysis and derive the equations for circuit parameters of Impulse response of R-C Circuit
		47	Analysis of circuit parameters of Impulse response of R-L-C circuit
		48	Derive the equations for circuit parameters of Impulse response of R-L-C circuit
13th		49	**Two Port Network Analysis** Network elements, ports in Network (One port, two port) Network Configurations (T & Pie)
		50	Open circuit (Z-Parameter) & Short Circuit (Y-Parameter)
		51	

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	52	Calculate Open & Short Circuit Parameters for Simple Circuits & its Conversion
14th	53	h- parameter (hybrid parameter) Representation Define T-Network & Pie – Network
	54	**FILTERS& ATTENUATORS** Ideal &Practical filters and its applications, cut off frequency, pass band and stop band
	55	Classify filters- low pass, high pass filters & study theirCharacteristics.
	56	Classify filters Band pass, band stop filters & study their Characteristics.
15th	57	Butterworth Filter Design
	58	Attenuation and Gain, Bel , Decibel & neper and their relations
	59	Attenuators& its applications
	60	Classification-T- Type & PI – Type attenuators

M.M.Panda
27/10/2022

Teaching Faculty

27/10/2022

H.O.D

PRINCIPAL
GOVT. POLYTECHNIC, DHENKANAL
Principal
Govt. Polytechnic
Dhenkanal