ACADEMIC LESSON PLAN OF WINTER 2024

Discipline: ELECTRONICS AND TELECOMMUNICATION	Semester: 3rd Sem	Name of the Teaching Faculty: Amit Kumar Bisoyi	
Subject: Circuit Theory	No. of days/per week class allotted:4p/week	Semester From: 1st July 2024to 8th Nov 2024 No. of weeks: 19 weeks	
Week	Class Day	Theory Topics	
1st	1st	1.1 Circuit elements (Resistance, Inductance, Capacitance), Scope of network analysis & synthesize.	
	2nd	1.2 Voltage Division & Current Division, Energy Sources (Conti…)	
	3rd	1.2 Voltage Division & Current Division, Energy Sources	
	4th	1.3 Electric charge, electric current, Electrical energy, Electrical potential, R-L-C parameters, Active& Passive Elements.	
2nd	1st	1.4 Energy Sources, Current and voltage sources and their transformation & mutual inductance	
	2nd	1.5 Star – Delta transformation	
	3rd	2.1 Nodal & Mesh Analysis of Electrical Circuits (Conti…)	
	4th	2.1 Nodal & Mesh Analysis of Electrical Circuits with simple problem.	
3rd	1st	2.2.1 Thevenin's Theorem Statement, Explanation (Conti..)	
	2nd	2.2.1 Thevenin's Theorem problem solved	
	3rd	2.2.2 Norton's Theorem Statement, Explanation (Conti…)	
	4th	2.2.2 Norton's Theorem problems solved	
4th	1st	2.2.3 Maximum Power transfer Theorem Statement, Explanation and simple problems	
	2nd	2.2.4 Superposition Theorem Statement, Explanation (Conti…)	
	3rd	2.2.4 Superposition Theorem with simple problems	
	4th	2.2.5 Millman Theorem Statement, Explanation with problems	
5th	1st	2.2.6 Reciprocity Theorem -Statement, Explanation & simple problems	
	2nd	2.3 Solve numerical problems of above.	
	3rd	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.(Conti….)	
	4th	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. (Conti….)	
6th	1st	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.	
	2nd	3.2 Phasor representation of alternating quantities	
	3rd	3.3 Single phase Ac circuits-Behaviors of A.C. through pure Resistor, Inductor & Capacitor. (Conti….)	
	4th	3.3 Single phase Ac circuits-Behaviors of A.C. through pure Resistor, Inductor & Capacitor.	
7th	1st	3.4 DC Transients-Behaviors of R-L, R-C, R-L-C series circuit & draw the phasor diagram and voltage triangle. (Conti….)	
	2nd	3.4 DC Transients-Behaviors of R-L, R-C, R-L-C series circuit & draw the phasor diagram and voltage triangle	
	3rd	3.4 DC Transients-Behaviors of R-L, R-C, R-L-C series circuit & draw the phasor diagram and voltage triangle	
	4th	3.5 Define Time Constant of the above Circuit	
8th	1st	3.6 Solve numerical simple problems of above Circuit. (Conti….)	
	2nd	3.6 Solve numerical simple problems of above Circuit.	

	3rd	4.1 Introduction to resonance circuits & Resonance tuned circuit (Conti….)
	4th	4.1 Introduction to resonance circuits & Resonance tuned circuit.
9th	1st	4.2 Series& Parallel resonance
	2nd	4.3 Expression for series resonance, Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth in term of Q. (Conti….)
	3rd	4.3 Expression for series resonance, Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth in term of Q. (Conti….)
	4th	4.3 Expression for series resonance, Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth in term of Q.
10th	1st	4.4 Parallel Resonance (RL, RC&RLC)& derive the expression (Conti….)
	2nd	4.4 Parallel Resonance (RL, RC&RLC)& derive the expressions
	3rd	4.5 Comparisons of Series & Parallel resonance& applications (Conti….)
	4th	4.5 Comparisons of Series & Parallel resonance& applications 4.6 simple problems of above Circuit
11th	1st	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, R-C &R-L-C (Conti….)
	2nd	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, R-C &R-L-C
	3rd	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, RC, R-L-C (Conti….)
	4th	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, , R-L-C
12th	1st	5.2Analysis and derive the equations for circuit parameters of Impulse response of RC
	2nd	5.2Analysis and derive the equations for circuit parameters of Impulse response of RLC
	3rd	Problems solve for Laplace transformation
	4th	Problems solve for Laplace transformation (Conti…)
13th	1st	6.1 Network elements, ports in Network (One port, two port)
	2nd	6.2 Network Configurations (T & pie).
	3rd	6.3 Open circuit (Z-Parameter)& Short Circuit(Y-Parameter) Parameters- Calculate open & short Circuit Parameters for Simple Circuits & its conversion
	4th	6.4 h- parameter (hybrid parameter) Representation
14th	1st	6.5 Define T-Network & pie – Network
	2nd	7.1 Ideal &Practical filters and its applications, cut off frequency, pass band and stop band.
	3rd	7.2 Classify filters- low pass, high pass, band pass, band stop filters & study their Characteristics.
	4th	7.3 Butterworth Filter Design
15th		Puja Holiday
16th	1st	7.4 Attenuation and Gain, Bel , Decibel & neper and their relations.
	2nd	7.5 Attenuators& its applications. Classification-T- Type & PI – Type attenuators(CONT)
	3rd	Attenuators& its applications. Classification-T- Type & PI – Type attenuators(CONT)
	4th	Attenuators& its applications. Classification-T- Type & PI – Type attenuators.
17th	1st	Revision Class
	2nd	Revision Class
	3rd	Revision Class
	4th	Revision Class
18th	1st	Revision Class
	2nd	Revision Class
	3rd	Revision Class
	4th	Revision Class
19th	1st	Revision Class
	2nd	Revision Class
	3rd	Revision Class
	4th	Revision Class

Amit Kumar Bisoi