UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA

LESSON PLAN

SESSION: 2023-2024

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

SUBJECT CODE: TH.2

NAME OF THE SUBJECT: CIRCUIT THEORY

BRANCH: ELECTRONICS & TELECOMMUNICATION ENGG.

SEMESTER: DIPLOMA 3RD SEM

NUMBER OF CLASSES ALLOTED PER WEEK: 4

TOTAL PERIODS ALLOTED TO THE SUBJECT ACCORDING TO SCTEVT: 60

NAME OF THE FACULTY: KAMALA KANTA NATH

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SUBJECT CODE: **TH.2**

SUBJECT NAME: **CIRCUIT THEORY**
BRANCH: **ELECTRONICS & TELECOMMUNICATION ENGG.**
SEMESTER: **DIPLOMA -III**

PERIODS PER WEEK: **4**

NAME OF THE FACULTY: **KAMALA KANTA NATH**

NO OF CLASSES ALLOTTED PER WEEK OFF-LINE: **4(01/08/2023 to 30/11/2023)**

Week/Date	Lecture	Topic to be covered	Remarks
1st week 01/08/2023 To 05/08/2023	1st(TUE)	**Unit-1: CIRCUIT ELEMENTS& ENERGY SOURCES** Circuit elements (Resistance, Inductance, Capacitance)	
	2nd(THU)	Scope of network analysis & synthesis	
	3rd(FRI)	Voltage Division rule & Current Division rule with examples	
2nd week 07/08/2023 To 12/08/2023	1st(TUE)	Energy Sources and it's types	
	2nd(THU)	Electric charge, electric current, Electrical energy, Electrical potential, R-L-C parameters, Active& Passive Elements.	
	3rd(FRI)	Current and voltage sources and their transformation	
	4th(SAT)	Mutual inductance with examples	
3rd week 14/08/2023 To 19/08/2023	1st(TUE)	HOLIDAY	15 indepedence day
	2nd(THU)	Star – Delta transformation	
	3rd(FRI)	**Unit-2: NETWORK THEOREMS** Nodal analysis with examples	
	4th(SAT)	Mesh analysis with examples	
4th week 21/08/2023 To 26/08/2023	1st(TUE)	Thevenin's Theorem with examples	
	2nd(THU)	Norton's Theorem with examples	
	3rd(FRI)	Maximum Power transfer Theorem with examples	
	4th(SAT)	Superposition Theorem with examples	

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5th week 28/08/2023 To 02/09/2023	1st(TUE)	Millman Theorem with examples	30aug jhulan purnima
	2nd(THU)	Reciprocity Theorem with examples	
	3rd(FRI)	Problems based on Thevenini's Theorem	
	4th(SAT)	Problems based on Superposition's Theorem	
6th week 04/09/2023 To 09/09/2023	1st(TUE)	Problems based on Norton's Theorem	
	2nd(THU)	Problems based on Maximum Power Transfer Theorem	
	3rd(FRI)	**Unit-3:Power Relation in AC circuits & Transient Response of passive circuits** AC wave and it's parameters	
	4th(SAT)	Apparent power, Reactive power, power Triangle of AC Wave	
7th week 11/09/2023 To 16/09/2023	1st(TUE)	Phasor representation of alternating quantities	
	2nd(THU)	A.C. through pure Resistor with phasor diagram	
	3rd(FRI)	A.C. through pure Inductor with phasor diagram	
	4th(SAT)	A.C. through pure Capacitor with phasor diagram	
8th week 18/09/2023 To 23/09/2023	2nd(THU)	DC Transients-Behaviors of R-L with phasor diagram	19 sep Gaensh puja 20 sep nuakhai
	3rd(FRI)	DC Transients-Behaviors of R-C with phasor diagram	
	4th(SAT)	DC Transients-Behaviors of R-L-C with phasor diagram	

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9th week 25/09/2023 To 30/09/2023	1st(TUE)	Solve numerical simple problems	29 SEP Prophet Mohamad
	2nd(THU)	**Unit-4:RESONANCE AND COUPLED CIRCUITS** Introduction to resonance circuits & Resonance tuned circuit	
	4th(SAT)	Series& Parallel resonance	
10th week 02/10/2023 To 07/10/2023	1st(TUE)	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.	2 oct Gandhi jayanti
	2nd(THU)	INTERNAL ASSESSMENT	
	3rd(FRI)	Expression for parallel resonance, Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth in term of Q.	
	4th(SAT)	Parallel Resonance (RL, RC& RLC)& derive the expression	
11th week 09/10/2023 To 14/10/2023	1st(TUE)	Comparisons of Series & Parallel resonance& applications	
	2nd(THU)	simple problems of above Circuit	
	3rd(FRI)	**Unit-5: LAPLACE TRANSFORM AND ITS APPLICATIONS** Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L circuit	
	4th(SAT)	Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-C circuit	
12th week 16/10/2023 To 21/10//2023	1st(TUE)	Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L-C circuit	21 oct Durga Puja Holiday
	2nd(THU)	Analysis and derive the equations for circuit parameters of Impulse response of R-L circuit	
	3rd(FRI)	Analysis and derive the equations for circuit parameters of Impulse response of R-C circuit.	

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13th week 23/10/2023 To 28/10/2023	1st		21 oct -28 oct Durga Puja holiday
	2nd		
	3rd		
	4th		
13th week 30/10/2023 To 04/11/2023	1st(TUE)	Analysis and derive the equations for circuit parameters of Impulse response of R-L, R C, R-L-C	
	2nd(THU)	Problems solve for above circuit.	
	3rd(FRI)	**Unit-6: Two Port Network Analysis** Network elements, ports in Network (One port, two port), Network Configurations (T & pie).	
	4th(SAT)	Open circuit (Z-Parameter) explanation	
15th week 06/11/2023 To 11/11/2023	1st(TUE)	Short Circuit(Y-Parameter) Parameters explanation	
	2nd(THU)	h- parameter (hybrid parameter) Representation explanation	
	3rd(FRI)	Relation between Z and Y parameter	
	4th(SAT)	Relation between Z and H parameter	
16th week 13/11/2023 To 18/11/2023	1st(TUE)	Relation between H and Y parameter	
	2nd(THU)	Problems solve for Z parameter	
	3rd(FRI)	Problems solve for Y parameter	
	4th(SAT)	Problems solve for h parameter	

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17th week 20/11/2023 25/11/2023	1st(TUE)	**Unit-7: FILTERS& ATTENUATORS** Ideal &Practical filters and its applications, cut off frequency, passband and stop band	
	2nd(THU)	Classify filters- low pass, high pass, band pass, band stop filters & study their Characteristics.	
	3rd(FRI)	Butterworth Filter Design	
	4th(SAT)	Attenuation and Gain, Bel , Decibel & neper and their relations.	
18th week 27/11/2023 30/11/2023	1st(TUE)	Attenuators& its applications. Classification-T-Type & PI – Type attenuators	27 nov rasa purnima
	2nd(THU)	Doubt clearing class	
	3rd(FRI)	VST	