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DEPARTMENT OF ELECTRICAL ENGINEERING

Govt. Polytechnic, Balasore

LESSON PLAN FOR ACADEMIC SESSION - 2025-26 ELECTRIC CIRCUITS & NETWORKS

Course Code : ETCPC201 (Th-1)	Semester : 3rd
Total Periods : 45 Hours	Examination : 3 Hours
Theory Periods : 3 P/Week	Progressive Assessment: 30 Marks
Maximum Marks : 100	End Semester Examination : 70 Marks
Semester From Date : 14/07/2025	To Date : 15/11/2025 (approx.)
Name of the Teaching Faculty: Er. Bikash Jena, Lect Stage-I (ELECT)	

WEEK	PERIOD	TOPIC
1st	1 st	Network Theorems in DC Circuits Node & Mesh Analysis of Electrical Circuits with simple problem.
	2 nd	Thevenin's Theorem, Norton's Theorem Statement, Explanation & applications
	3 rd	Maximum Power transfer Theorem, Superposition Theorem Statement, Explanation & applications
2 nd	1 st	Millman Theorem, Reciprocity Theorem-Statement, Explanation & applications
	2 nd	Simple numerical problems on above.
	3 rd	A. C. Fundamentals & Sinusoidal Steady State Analysis
3 rd	1 st	Definitions & explanation of Active & Passive elements.
	2 nd	Concept of complex impedance, Rectangular & polar form. Simple problems.
	3 rd	Idea on Apparent, real, and active power.
4 th	1 st	Sinusoidal response of a series R-L, R-C circuit
	2 nd	Sinusoidal response of a series R-L-C circuit
	3 rd	Sinusoidal response of a parallel R-L, R-C circuit
5 th	1 st	Sinusoidal response of a parallel R-L-C circuit
	2 nd	Resonance Introduction to resonance circuits & Resonance tuned circuit, Series & Parallel resonance.
	3 rd	Expression for series resonance, Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor
6 th	1 st	Power Factor of Resonance, Bandwidth in term of Q. Voltage Magnification, Acceptor Circuit.
	2 nd	Parallel Resonance Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor
	3 rd	Power Factor of Resonance, Bandwidth of resonant circuit / Tank circuit Current magnification, Rejector Circuit,

7 th	1 st	Comparisons of Series resonance & applications
	2 nd	Comparisons of Parallel resonance & applications
	3 rd	Simple problems on above Circuits
8 th	1 st	Passive Filter Idea of Passive & Active Filter, Their relative advantages and disadvantages
	2 nd	Idea of Fourier Series & frequency spectrum. (concept only
	3 rd	Construction, Principle of operation, Characteristics of Low pass & High pass filter.
9 th	1 st	Construction, Principle of operation, Characteristics of Band pass & Band stop filter.
	2 nd	Design of Low pass filter.
	3 rd	Design of High pass filter.
10 th	1 st	Numerical problems on the above
	2 nd	Composite filter (concept only).
	3 rd	Laplace transform and its applications Definition & properties of Laplace Transform (LT)
11 th	1 st	LT of unit step, impulse, ramp, exponential, sine, cosine, pulse, impulse, Dirac delta function.
	2 nd	Explanation of Laplace Transform theorems like Differential, integral, Time displacement, initial value & final value
	3 rd	Inverse Laplace Transformation.
12 th	1 st	Simple problem
	2 nd	Simple problem
	3 rd	Application of Laplace transformation in circuit theory
	13 th	Two Port Network Idea on Linear & Non linear networks
	2 nd	Unilateral & Bilateral networks
	3 rd	Explanation of Z parameter (Open Circuit Impedance Parameter)
	14 th	1 st
	2 nd	Simple problem on above parameters
	3 rd	Explanation of h -parameter (Hybrid Parameter)
	15 th	1 st
	2 nd	Inter Connection of Two Port Network
	3 rd	Simple problem on above parameters

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19/11/25

Lect. Stage-I, Elect Dept.
Government Polytechnic, BLS
Teaching Faculty

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19/11/25

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