



GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ ଦଲିପାଲି, ସୁନ୍ଦରଗଡ଼

GOVERNMENT OF ODISHA | ଓଡ଼ିଶା ସରକାର

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DEPARTMENT OF AE&I ENGINEERING

LESSON PLAN(2025-26)

Discipline: AE&I ENGINEERING		Semester: 3rd	Name of the Teaching faculty: Sidharth Sekhar Mallick
Subject: Electric Circuits & Networks Subject Code: AEIEPC203 (TH:2)		No of Days/Week class allotted: 3	Semester from Date: 14/7/2025 to 15/11/2025 No of weeks: 17 No. of Period Available: 45
Month	Week	No of periods available	Class Day Theory topics to be covered
JULY	1st	3P	Introduction, Syllabus Discussion
			Unit- Circuit Elements & Energy Sources: 1.1 Active & Passive Components
			1.2 Application, Specification of Carbon Resistor. Idea of Potentiometer, Preset, Multi turn Potentiometers
	2nd	3P	1.3 Application, Specification of Paper Capacitor, Mica Capacitor, Ceramic Capacitor, Plastic Film Capacitor, Electrolytic Capacitor.
			1.4 Fundamental idea of Inductor. Application, Specification of Ferrite Core Inductor, Pot Core Inductor, Air Core Inductor, Self and & mutual inductance
			1.5 Energy Sources, Current and voltage sources and their transformation
	3rd	3P	1.6 Series and Parallel circuits,
			1.7 Kirchhoff's Current Law and Kirchhoff's Voltage Law
			1.8 Star – Delta transformation
AUGUST	4th	3P	Network Theorems in DC Circuits
			1.8 Node & Mesh Analysis of Electrical Circuits with simple problem.
			1.9 Thevenin's Theorem, Norton's Theorem, Maximum Power transfer Theorem, Superposition Theorem, Millman Theorem, Reciprocity Theorem-Statement, Explanation & applications
	5th	3P	1.10 Thevenin's Theorem, Norton's Theorem, Maximum Power transfer Theorem, Superposition Theorem, Millman Theorem, Reciprocity Theorem-Statement, Explanation & applications
			1.11 Simple numerical problems on above
			Revision Unit-1
	6th	3P	Unit-2 A. C. Fundamentals & Sinusoidal Steady State Analysis: 2.1 Concept of complex impedance, Rectangular & polar form. Simple problems.
			2.2 Idea on Apparent, real, and active power.
			2.3 Sinusoidal response of a series R-L, R-C, R-L-C circuit
			2.4 Sinusoidal response of a parallel R-L, R-C, R-L-C circuit

			Revision Unit- 2
	7th	2P	Class Test-I
			Unit-3 Resonance: 3.1 Introduction to resonance circuits & Resonance tuned circuit, 3.2 Series & Parallel resonance
SEPTEMBER	8th	3P	3.3 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. Voltage Magnification, Acceptor Circuit. 3.4 Parallel Resonance Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth of resonant circuit / Tank circuit Current magnification, Rejactor Circuit, 3.5 Comparisons of Series & Parallel resonance & applications
	9th	3P	3.6 Simple problems on above Circuits Unit-4 Passive Filter: 4.1 Idea of Passive & Active Filter, Their relative advantages and disadvantages 4.2 Idea of Fourier Series & frequency spectrum. (concept only)
	10th	3P	4.3 Construction, Principle of operation, Characteristics of Low pass, High pass, Band pass & Band stop filter. 4.4 Design of Low pass filter & High pass filter. Internal Assessment-I
	11th	3P	Internal Assessment-I 4.5 Numerical problems on the above 4.6 Composite filter (concept only).
	12th	2P	Revision Unit-4 Class Test-II
	13th	3P	Unit-5 Laplace transform and its applications 5.1 Definition & properties of Laplace Transform (LT) 5.2 LT of unit step, impulse, ramp, exponential, sine, cosine, pulse, impulse, Dirac delta function. 5.3 Explanation of Laplace Transform theorems like Differential, integral, Time displacement, initial value & final value 5.4 Inverse Laplace Transformation. Simple problem 5.5 Application of Laplace transformation in circuit theory Revision Unit-5
	14th	2P	Class Test-III Internal Assessment-II
	15th	3P	Internal Assessment-II Unit-6 Two Port Network: 6.1 Idea on Linear & Non linear networks, Unilateral & Bilateral networks 6.2 Explanation of Z parameter (Open Circuit Impedance Parameter) 6.3 Explanation of Y parameter (Short Circuit Admittance Parameter)
	16th	3P	6.4 Explanation of h -parameter (Hybrid Parameter)

	17th	3P	6.5 Interrelation of above parameters
			6.5 Inter Connection of Two Port Network
			6.4 Simple problem on above parameters.
			Revision Unit-6
			Revision & Previous year question & answer discussion
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