

The Maharaja Sayajirao University of Baroda Polytechnic Diploma in Electronics & Communication Engg. (HPP)			ACADEMIC YEAR 2022-23		
Year	II	LINEAR NETWORK THEORY (ELE3335)	Lecture/Lab Hrs per week	4/2	
Semester	I		Max marks	100	
Pre-Requisite: Basic Mathematics, Basic Electronics					
CO1	Solve networks using node/mesh methods, source transformations, and duality.				
CO2	Interpret superposition, reciprocity, Thevenin, Norton, and maximum-power-transfer theorems.				
CO3	Analyse steady-state network behavior using Laplace transforms and related properties.				
CO4	Determine RC, RL, and RLC responses with or without initial conditions using Laplace techniques.				
CO5	Explain resonance in RLC circuits and fundamentals of two-port network interconnections.				
COURSE CONTENT/SYLLABUS					
Unit	Unit Name		Hrs	Weightage	CO
1	Node and Mesh Analysis: Node and mesh equation, matrix approach of network containing voltage and current sources, and reactances, source transformation and duality.		10	19	CO1
2	Network theorem: Superposition, reciprocity, Thevenin’s, Norton’s, Maximum power Transfer,		10	27	CO2
3	Steady state response of a network. Laplace transforms and properties: Partial fraction, singularity functions.		10	27	CO3
4	Solution of RC, RL, and RLC networks with and without initial conditions with Laplace transforms evaluation of initial conditions. Behaviors of series and parallel resonant circuits, Two port network and interconnections		15	27	CO4, CO5
			55	100	
REFERENCE BOOKS:					
1.	Network analysis By Van, Valkenburg. Prentice hall of India, 2000				
2.	Circuits and Network By Sudhakar, A., Shyammohan, S. P Tata Mcgraw-Hill New Delhi, 1994				