

## 1/4 B.Tech - SECOND SEMESTER

EC2L2

Networks Lab

Credits: 2

Lecture : -----

Lab : 3 periods/week

Internal assessment: 25 marks

Semester end examination: 50 marks

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### Course Objectives:

- To understand and study various network parameters
- To implement various network theorems

### Learning Outcomes:

- Students learn the fundamental laws associated with circuit analysis and apply them to the design and analysis of circuits.
- Students learn how to analyze linear electrical circuits using the modified nodal analysis, mesh analysis and network theorems.
- Students learn how to analyze the input-output properties of interconnected two-port networks.

### LIST OF EXPERIMENTS:

#### PART – A

1. Serial and Parallel Resonance – Timing, Resonant frequency, Bandwidth and Q-factor determination for RLC network.
2. Time response of first order RC/RL network for periodic non-sinusoidal inputs – time constant and steady state error determination.
3. Two port network parameters – Z-Y Parameters, chain matrix and analytical verification.
4. Verification of Superposition and Reciprocity theorems.
5. Verification of maximum power transfer theorem. Verification on DC, verification on AC with Resistive and Reactive loads.
6. Experimental determination of Thevenin's and Norton's equivalent circuits and verification by direct test.
- 7 Constant K - LP, HP, BP Filters
8. m derived filters
9. Composite Filters

#### PART – B

1. Magnetization characteristics of D.C. Shunt generator. Determination of critical field resistance.
2. Swinburne's Test on DC shunt machine (Predetermination of efficiency of a given DC Shunt machine working as motor and generator).
3. Brake test on DC shunt motor. Determination of performance characteristics.
4. OC & SC tests on Single-phase transformer (Predetermination of efficiency and regulation at given power factors and determination of equivalent circuit).
5. Brake test on 3-phase Induction motor (performance characteristics).
6. Regulation of alternator by synchronous impedance method