ELECTRICAL CIRCUIT ANALYSIS AND SIMULATION LAB

Course Code: 22EE1105

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Prerequisites: Circuit Analysis, Mathematics.

Course Outcomes: At the end of the Course the student shall be able to

CO1: Apply the knowledge of Basic Network Analysis in solving and verifying various Network Laws and Theorems.
CO2: Analyze the coupling circuits.
CO3: Analyze the resonant Frequency and Draw the Locus Diagrams of RL and RC Circuits.
CO4: Analyze the Transient behavior and Harmonic Content of RLC Circuits.
CO5: Calculate the Time Response and Form Factor of a signal.

(Any TWELVE experiments shall be conducted)

List of Experiments:

1. Verification of KIRCHHOFF'S laws
2. Verification of THEVENIN's & NORTON's Theorems.
3. Verification of Superposition & Reciprocity Theorems.
4. Verification of Maximum Power Transfer Theorem.
5. Locus Diagrams of RL and RC Series Circuits.
6. Series and Parallel resonance RLC circuits.
7. Determination of Self, Mutual Inductances and Coefficient of Coupling.
8. Harmonic Analysis of Non-Sinusoidal Waveform Signal.
9. Transient Analysis of RLC circuit.
10. Determination of Form factor of a Non-Sinusoidal Input.
11. Measurement of Average Power Using Two wattmeter method in a three phase circuit.
12. Time response of RL and RC circuits.
13. Harmonic Analysis of Non-Sinusoidal Waveform Signal.
14. Determination of transient response of current in RL series circuit with step input voltage.
15. Determination of transient response of current in RC series circuit with step input voltage.
16. Determination of Z and Y parameters for a given Two Port Network.

TEXT BOOK:

1. Charles K. Alexander and Mathew N.O. Sadiku, *Fundamentals of Electric Circuits*, 6th Edition, Tata McGraw Hill Publications, 2019.

REFERENCES:

1. M.E Van Valkenburg, *Network Analysis*, Prentice Hall of India Pvt. Ltd., 3rd Edition, 2019,New Delhi.
2. Hayt and Kemmerly, *Engineering Circuit Analysis*, McGraw Hill Publication, 9th Edition, 2019