**23EE12P1- ELECTRICAL CIRCUITS LAB**

**(EEE)**

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| **Course Category:** | Professional core | **Credits:** | 1.5 |
| **Course Type:** | Laboratory | **Lecture-Tutorial-Practical:** | 0-0-3 |
| **Pre-requisite:** | Basic concepts of Ohm’s Law, Kirchhoff’s Laws. Basic knowledge of Network Theorems | **Sessional Evaluation:**  **External Exam Evaluation:**  **Total Marks:** | 30  70  100 |

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| **Course Objectives:** | Students undergoing this course are expected to learn : | |
| 1. The study and analysis of electric circuits.  2. To verify Kirchoff’s laws.  3. To study resonance characteristics and design resonant circuit for given specifications.  4.The self, mutual inductances, and coefficient of coupling of coupled coils.  5. To plot the locus diagram of the given circuit experimentally.  6. To analyze a given network by applying various network theorems. | |
| **Course Outcomes:** | After completing the course the student will be able to: | |
| CO1 | Analyse the electric circuits experimentally. |
| CO2 | Acquire hands on experience in verifying Kirchoff’s laws. |
| CO3 | Design resonant circuit for given specifications. |
| CO4 | Evaluate the self, mutual inductances, and coefficient of coupling. |
| CO5 | Understand and plot the locus diagram of the given circuit experimentally. |
| CO6 | Analyze a given network by applying various network theorems. |
| **Course Content:** | Any 10 of the following experiments to be conducted :  **List of Experiments**   1. Verification of Kirchhoff's circuit laws. 2. Verification of node and mesh analysis. 3. Verification of network reduction techniques. 4. Determination of cold and hot resistance of an electric lamp. 5. Determination of Parameters of a choke coil. 6. Determination of self, mutual inductances, and coefficient of coupling 7. Series and parallel resonance 8. Locus diagrams of R-L (L Variable) and R-C (C Variable) series circuits 9. Verification of Superposition theorem 10. Verification of Thevenin’s and Norton’s Theorems 11. Verification of Maximum power transfer theorem 12. Verification of Compensation theorem 13. Verification of Reciprocity and Millman’s Theorems | |
| References: | References:  1. Engineering Circuit Analysis by William Hayt and Jack E. Kemmerley, Mc Graw Hill Company,6th edition. 2. Network Analysis: Van Valkenburg; Prentice-Hall of India Private Ltd | |