**20EE21P4 – ELECTRICAL CIRCUITS LAB**

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| **Course Category:** | Program Core | **Credits:** | 1.5 |
| **Course Type:** | Practical | **Lecture-Tutorial- Practice:** | 0 - 0 - 3 |
| **Prerequisite:** | Basic concepts of Ohm’s Law, Kirchhoff’s Laws. Basic knowledge of Network Theorems is required. | **Sessional Evaluation:**  **External Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course**  **Objectives** | Students undergoing this course are expected to understand: | |
| 1. The design and analysis of various electronic circuits.  2. The behaviour of various rectifiers and amplifiers. | |
| **Course Outcomes** | Upon successful completion of the course, the students will be able to: | |
| CO1 | Analyse and design electrical circuits using circuit elements. |
| CO2 | Understand the concept of different electrical theorems practically. |
| CO3 | Analyse and design Two port networks |
| CO4 | Analyse and calculate mutual inductance of coupled coils. |
| CO5 | Understand power and power factor concepts practically. |
| CO6 | Understand the concepts of resonance in R-L-C circuits. |
| **Course**  **Content** | Minimum of **TEN** experiments to be completed out of the following:  **LIST OF EXPERIMENTS**   1. Verification of Kirchhoff’s Laws 2. Verification of Superposition Theorem 3. Verification of Reciprocity Theorem 4. Verification of Maximum Power Transfer Theorem 5. Determination of Two-Port Network Parameters 6. Measurement of Mutual Inductance 7. Locus Diagram of RC Series Circuit 8. Measurement of Power Using Wattmeter 9. Verification of Thevenin’s Theorem 10. Resonance In RLC Series Circuit 11. Measurement of Time Constant & Rise Time in a RC Series Circuit 12. Measurement of Power Using 13. 3-Ammeter Method 14. 3-Voltmeter Method | |

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| Contribution of Course Outcomes towards achievement of Program Outcomes (3-High, 2-Medium, 1-Low) | | | | | | | | | | | | | | |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 3 | 2 | 2 | 1 | - | - | 1 | - | 2 | - | 2 | 3 | 3 |
| CO2 | 3 | 3 | 2 | 2 | 1 | - | - | 1 | - | 2 | - | 2 | 3 | 3 |
| CO3 | 3 | 3 | 3 | - | 1 | - | - | 1 | - | 2 | - | 2 | 3 | 3 |
| CO4 | 3 | 3 | 2 | - | 1 | - | - | 1 | - | 2 | - | 2 | 3 | 3 |
| CO5 | 3 | 3 | 2 | - | 1 | - | - | 1 | - | 2 | - | 2 | 3 | 3 |
| CO6 | 3 | 3 | 2 | 2 | 1 | - | - | 1 | - | 2 | - | 2 | 3 | 3 |