### 22EE270 ELECTRICAL WORKSHOP

Category L T P Credit ESC 0 0 2 1

**Preamble**

The course is designed to provide students a widespread knowledge and understanding of the basic Electrical Systems Components and Laws. The indispensable and pervasive knowledge of electrical wiring and the electronic circuits will give the students an insight to their practical approach in our daily life.

### Prerequisite

NIL

### Course Outcomes

On the successful completion of the course students will be able to

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CO  Number | Course Outcome Statement | TCE  Proficiency Scale | Expected Proficiency in % | Expected Attainment Level % |
| CO1 | Analyze the resistance, inductance and  capacitance of various dimensions/shapes of materials experimentally | TPS2 | 25 | 30 |
| CO2 | Analyze Electric field lines and equi-potential lines of different electrode configurations experimentally. | TPS2 | 25 | 30 |
| CO3 | Practice assembling, soldering and testing of the given simple electronic circuit using PCB | TPS3 | 25 | 30 |
| CO4 | Verify Electrical circuit laws, and theorems for the electric circuit using hardware and  simulation software | TPS3 | 25 | 30 |
| CO5 | Verify series resonance phenomena in a RLC circuit experimentally | TPS4 | 40 | 50 |
| CO6 | Analyze the transient behavior of the given RL, RC, RLC circuits experimentally | TPS2 | 25 | 30 |

\*\*\* Weightage depends on Bloom’s Level, number of contact hours,

### Mapping with Programme Outcomes and Programme Specific Outcomes

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cos | PO 1 | P  O 2 | PO 3 | PO 4 | PO5 | P  O 6 | PO 7 | PO 8 | PO 9 | PO1 0 | PO1 1 | PO1 2 | PSO 1 | PSO 2 | PSO 3 |
| CO1 | S | S | M | M | S |  |  | M | M | M |  |  |  | S | S |
| CO2 | S | S | M | M | S |  |  | M | M | M |  |  |  | S | S |
| CO3 | S | S | M | M | S |  |  | M | M | M |  |  |  | S | S |
| CO4 | S | S | M | M | S |  |  | M | M | M |  |  |  | S | S |
| CO5 | S | S | M | M | S |  |  | M | M | M |  |  |  | S | S |
| CO6 | S | S | M | M | S |  |  | M | M | M |  |  |  | S | S |

S- Strong; M-Medium; L-Low

### Assessment Pattern: Cognitive Domain

|  |  |  |
| --- | --- | --- |
| **Cognitive Levels** | **Model Examination** | **Terminal Examination** |
| Remember |  |  |
| Understand |  |  |
| Apply | 30 | 30 |
| Analyse | 40 | 40 |
| Evaluate |  |  |
| Create |  |  |

**Assessment Pattern: Psychomotor**

|  |  |
| --- | --- |
| **Psychomotor Skill** | **Mini project /Practical Component/Observation** |
| Perception |  |
| Set |  |
| Guided Response |  |
| Mechanism | 30 |
| Complex Overt Responses |  |
| Adaptation |  |
| Origination |  |

### List of Experiments/Activities with CO Mapping

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Experiment | | | | | | | | | CO |
| Familiarization of magnetic and electric field lines. Familiarization of basic protective devices (fuse, MCB, ELCB)  Familiarization of ammeter, voltmeter, wattmeter, rheostat , power supply | | | | | | | | | C01  to CO6 |
| Design, Develop and Analyze the resistance of various dimensions with different resistivity,  inductance of various core dimensions and winding configurations and capacitance of various shapes and materials experimentally | | | | | | | | | CO1 |
| Plot and analyze Electric configurations experimentally. | field | lines | and | equipotential | lines | of | different | electrode | CO2 |
| Assembling, Soldering and Testing of Simple electronic Circuit using PCB | | | | | | | | | CO3 |
| Verification of Electrical laws and Superposition, Thevenin and Maximum power transfer theorems for the electric circuit using simulation software | | | | | | | | | CO4 |
| Verification of Electrical laws and Superposition, Thevenin and Maximum power transfer  theorems for the electric circuit using hardware | | | | | | | | | CO4 |
| Verification of series resonance phenomena in a RLC circuit | | | | | | | | | CO5 |
| Analyze the transient behaviour of the given RL ,RC,RLC circuits | | | | | | | | | CO6 |

**Reference Book**

1. Electrical Workshop Manual prepared by TCE Staff Members

### Course Designers:

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