

ECE132:BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY

Course Outcomes: Through this course students should be able to

CO1 :: develop circuit models for elementary electronic components like resistors, sources, inductors, capacitors, diodes and transistors

CO2 :: apply the knowledge about semiconductors devices and basic digital gates in circuit designing

CO3 :: employ the knowledge of math, science and engineering while implementing and analyzing electrical and electronics engineering problems

CO4 :: examine the performance of the DC motor and artificial lighting sources.

CO5 :: distinguish the utilization of diode as half wave and full wave rectifiers, filters and the zener diode in respective circuits.

CO6 :: recognize and use various measuring instruments applicable for measuring the electrical quantities.

List of Practicals / Experiments:

Kirchhoff voltage law and Kirchhoff current law

- verification of Kirchhoff's voltage law and Kirchhoff's current law

Turn ratio of a transformer

- to understand the principle of turn ratio of a transformer.

Thevenin's and Norton's theorems

- verification of Thevenin's and Norton's theorems in DC circuits along with simulation on P-Spice.

Comparison of different lighting sources

- to compare incandescent lamp, fluorescent lamp, CFL and LED based light source for its efficiency.
- switching control of single lamp by using four 2 way switches.

Distribution Board

- to learn the use of electrical fuse, MCB, energy meter, house wiring and connections of switches

Rectifiers

- to understand use of diodes for half wave and full wave rectifier

DC Motors

- to understand principle of speed control of a DC motor using hardware and Proteus software.

Low pass filter and high pass filter

- to study the effect of frequency on the output voltage in low-pass and high-pass filters.

Logic gates and verification of Boolean expression

- to understand Truth table of Logic Gates and verifying Boolean equations

Zener diode characteristics

- to study VI char of a Zener diode and its application as a voltage regulator.

References:

1. BASIC ELECTRICAL & ELECTRONICS by B.L THARAJA, S. CHAND & COMPANY
2. MICROELECTRONICS CIRCUITS: THEORY AND APPLICATIONS by ADEL S. SEDRA, OXFORD & IBH