**ECL1501 Elements of Electronics Engineering lab L-T-P- 0-0-3, Cr: 01**

**PREREQUISITE**

• Elements of Electronics Engineering

**COURSE OBJECTIVE**

This lab course is indented to make students familiar with all varieties of basic electronics devices and their operational principles. The lab course consists of analysis, design and application of semiconductor devices like diodes, bipolar junction transistors, field effect transistors, and op-amps. After obtaining clear understating, a wide variety of analog circuits are analysed.

**COURSE OUTCOMES**

Upon successful completion of this course, thestudents should be able to:

CO1: Implement the rectifiers, clipper and clamper circuits using diode.

C02: Implement common base and common emitter configurations.

C03: Implement common emitter RC-coupled amplifier.

C04: Design and implement different circuits using operational amplifier.

C05: Implement and verify the operation of basic digital logic circuits.

**List of Experiments of Elements of Electronics Lab**

Experiment No.01: Study of Cathode Ray Oscilloscope (CRO) (a) Measurement of amplitude, time period and frequency of unknown continuous signals, (b) Use of Lissajous pattern for unknown frequency measurement of signal.

Experiment No.02: Identification of active and passive component.

Experiment No.03: Study of RC and CR filters

Experiment No.04: Study the characteristics of P-N junction diode under (a) Forward bias, and (b) Reverse bias

Experiment No.05: Study of zener diode characteristics and load and line regulations of zener voltage regulator

Experiment No.06: Study of clipping circuits and clamping circuits.

Experiment No.07: Study of the performance of full wave bridge rectifier with filter circuits.

Experiment No.08: Study of the input and output characterization of common base (CB) bipolar junction transistor

Experiment No.09: Study the input and output characterization of common emitter (CE) bipolar junction transistor.

Experiment No. 10: Study the frequency response of common Emitter bipolar junction transistor.

Experiment No. 11: Study the output and transfer characteristics of JFET (Junction field effect transistor)

Experiment No. 12: Study of operational amplifier as (i) Inverting (ii) Non-inverting amplifier.

Experiment No. 13: Construction and verification of all other gate (AND, OR, NOT, XOR) using only a) NOR gate b) only NAND gate