### EC-353

### **CIRCUIT SIMULATION LAB**

# L T P C - - 3 2

## COURSE OBJECTIVES:

- 1. To build circuit construction skills using circuit simulation software tool.
- 2. To simulate rectifiers and amplifier circuits.
- 3. To simulate LC oscillators, RC oscillator and analog modulation techniques.

### COURSE OUTCOMES:

### After successful completion of the course, the students are able to

- 1. design and verify the operations of RL,RC,RLC circuits and Half Wave Rectifier &Full Wave Rectifiers.
- design electronic circuits such as CS,CE,Class A power Amplifiers and Oscillators and obtain their frequency responses.
- 3. simulate the operations of Integrator, Differentiator, Clippers, Campers and Filters.
- 4. solve the problems pertaining to electronic circuit design.

### List of Experiments:

- 1. Simulate step response of a RL, RC, and RLC circuits.
- 2. Design and verify the operating point for a self bias circuit.
- 3. Determine ripple factor and efficiency of a half wave rectifier and full wave rectifier.
- 4. Obtain the frequency response of a CS amplifier.
- 5. Obtain the frequency response of enhancement MOSFET amplifier with series-shunt feedback amplifier.
- 6. Obtain the frequency response of a single stage and two stage CE amplifier and compare the bandwidths.
- 7. Design and simulate Class A power Amplifier.
- 8. Simulate Hartley/ Colpitts Oscillator using BJT.
- 9. Verify the characteristics of Clippers and Clampers.
- 10. Simulate a differentiator and integrator using OPAMP.
- 11. Simulate a low pass and high pass filter using OPAMP.
- 12. Simulate a RC phase shift Oscillator using OPAMP.
- 13. Simulate a wein bridge Oscillator using OPAMP.
- 14. Simulate an Amplitude Modulator and Demodulator.
- 15. Simulate a Frequency Modulator and Demodulator.
- **Note:** A minimum of 10(Ten) experiments have to be Performed and recorded by the candidate to attain eligibility for Semester End Practical Examination.