III Year II Semester	L	T	P	C
17EE652	0	0	3	2

SKILL COURSE LAB-I
BASIC ELECTRICAL SIMULATION LABORATORY

Preamble:
The objective of Simulation laboratory is to impart hands on experience in verification of circuit laws and theorems, measurement of circuit parameters, study of circuit characteristics using. It also gives practical exposure to the usage of different circuits with different condition

Learning objectives:
- Apply signal generation in different systems.
- Analyze networks by various techniques
- Analyze circuit responses
- Analyze bridge rectifier.

Note: Any of the 10 experiments to be conducted
1. Basic Operations on Matrices
2. Generation of Various Signals and Sequences (Periodic and Aperiodic), such as Unit Impulse, Unit Step, Square, Saw tooth, Triangular, Sinusoidal, Ramp, Sinc
3. Convolution between Signals and sequences
4. Simulation of nodal analysis for dc circuits
5. Simulation of d.c. circuit for determining thevinin's equivalent
6. Simulation of maximum power transfer theorem for dc circuits
7. Simulation of reciprocity theorem for dc circuits
8. Simulation of superposition theorem for dc circuits
9. Transient analysis
10. Measurement of active power of three phase circuit for balanced and unbalanced load
11. Simulation of single phase diode bridge rectifiers with filter for r & rl load
12. Simulation of three phase thyristorized bridge rectifiers with r, rl load
13. Design of low pass and high pass filters
14. Locating the Zeros and Poles and Plotting the Pole-Zero maps in S plane and Z-Plane for the given transfer function
15. Harmonic analysis of non sinusoidal waveforms

Learning outcomes:
At the successful completion of this course, the student is expected to gain the following skills:
• Become familiar with the basic circuit components and know how to connect them to make a real electrical circuit;
• Become familiar with basic electrical measurement instruments and know how to use them to make different types of measurements;
• Be able to verify the laws and principles of electrical circuits, understand the relationships and differences between theory and practice;
• Be able to gain practical experience related to electrical circuits, stimulate more interest and motivation for further studies of electrical circuits; and
• Be able to carefully and thoroughly document and analyse experimental work.