

Branch Name:	Electrical Engineering
Program Code:	ET109
Course Name:	Simulation Lab Practical
Course Code:	2ET1090603P
Pre-requisite Course:	-

Course Objectives:

1. In this subject student will learn the impart practical working knowledge of electrical and electronics simulation and analysis.
2. The major objective of the subject is to understand the mathematical computing languages such as MATLAB/PSIM/PSCAD.
3. Identify & formulate solutions to problems relevant to power system using software tools.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
2	-	-	4	4	-	-	-	-	10	25	10	25	50

Course Contents:

Sr. No	Detail of Practical	Contact Hours
1	Introduction to software like MATLAB, PSIM, PSCAD etc.	08
2	Simulation of Half wave rectifier and Full wave rectifier circuits.	08
3	Simulation of rectifier circuit with R, RL, RC, RLC, RLE loads.	04
4	Simulation of Series and Parallel resonance.	04
5	Simulation of power factor measurement methods.	04
6	Simulation of different power factor improvement techniques.	04
7	Verification of phase & line quantities for star & delta connected balanced & unbalanced loads using simulation.	08
8	Simulation of 1st& 2nd order system and to check the effect of feedback.	08
9	Simulation of DC motor and Induction motor to find parameters and to plot waveforms.	04
10	Measurement of voltage regulation & efficiency of transmission line using simulation.	08

Reference Books:

1. Raj kumarBansal, Ashok Kumar Goel, Manoj Kumar Sharma, "MATLAB and its applications in Engineering", Pearson Publication, 3rd edition-2018.
2. Rudra Pratap, "Getting started with MATLAB,A quick introduction foe scientists and engineers", OXFORD University Press.
3. Agam Kumar Tyagi, "MATLAB and Simulink for Engineers", Oxford University Press, 5th edition-2017.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand to use computer software like PSCAD, PSIM, and MATLAB coding, as well as SIMULINK.	2 Understanding
CLO2	Analyze the generation of signals & sequences and to plot waveforms.	4 Analyzing
CLO3	Evaluate the results of electrical circuits and models without actual hardware implementation	5 Evaluating

Mapping of CLOs with POs & PSOs:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	H	H	H	H	M	M		M		H	H	L	L		L
CLO2	H	H	H	H	H	M	M		M		H	H	H	L		
CLO3	H	H	H	H	H	M	M		M		H	H	L	L	M	M

H: High, M: Medium, L: Low