

Branch Name:	Computer Engineering / Information Technology / Artificial Intelligence and Data Science / Information and Communication Technology / Mechanical Engineering / Civil Engineering/ Electrical Engineering / Artificial Intelligence and Machine Learning / Electronics and Communication Engineering
Program Code:	ET103 / ET105 / ET108/ET107 / ET101 / ET106 / ET109 / ET114 / ET116
Course Name:	Elements of Electrical and Electronics Engineering Practical
Course Code:	2ET1000109P
Pre-requisite Course:	Basic fundamentals of physics.

Course Objectives:

1. To understand the working and analysis of D.C circuits and its laws.
2. To identify different concepts about electrostatics and electromagnetics.
3. To make the students aware about different electronics circuit concepts.
4. To introduce the operating and working principles of various electrical and electronic systems.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)									Total (Marks)
					Theory (Marks)				Practical (Marks)					
	L	T	P	Total	SEE		CCA		SEE		CCA			
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
1	-	-	2	2	-	-	-	-	10	25	10	25	50	

Course Contents:

Sr. No.	Detail of Practicals	Content Hours
1	To Study Standard Symbols used in Electrical Engineering.	02
2	To observe the effect of temperature on Resistance of winding.	02
3	Verification of Kirchhoff's Law.	02
4	To study the Capacitors in series and parallel DC circuit.	02
5	To plot the magnetizing characteristic and study the hysteresis loop for a magnetic material on CRO.	02
6	To obtain inductance, power and power factor of the Series R-L circuit with AC supply using Phasor diagram.	02
7	To obtain capacitance, power and power factor of the Series R-C circuit with AC supply using Phasor diagram.	02
8	To obtain inductance, capacitance, power and power factor of the Series R-L-C circuit with AC supply using Phasor diagram.	04
9	Verification of current and voltage relations in three phase balanced Star and Delta connected loads.	02
10	To study and perform the characteristics of Universal gates.	02
11	To perform the characteristics of Half adder and full adder.	02
12	To obtain the characteristics of Op-amp as an inverting & non-inverting amplifier.	02
13	To obtain the characteristics of Op-amp as a summing & averaging amplifier.	02

Reference Books:

1. D.P. Kothari and I.J. Nagrath (2013), Theory and Problems in Basic Electrical Engineering, Prentice Hall, India.
2. V. N. Mittal and A. Mittal (2012), Basic Electrical Engineering, Tata McGraw Hill, Publication.
3. Electronics Principles by Malvino, 6th edition, TMG publication.

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

CLO	Description	Bloom's Taxonomy Level
CLO1	Know electrical current, potential difference, power and energy, resistance and its behavior with temperature.	1 Remembering
CLO2	Use the Ohm's Law and the Kirchhoff's Law and star delta transformation for solving series, parallel and series-parallel circuits.	3 Applying
CLO3	Understand basic concepts of electrostatic and electromagnetic circuits.	2 Understanding
CLO4	Know A.C Quantities and application of A.C circuits.	1 Remembering
CLO5	Understand Semiconductor Devices, Circuit concepts and its applications.	2 Understanding
CLO6	Understand Analog Building Blocks and Digital Building Blocks	2 Understanding

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		L		H		M						M				L
CLO2	H				L	H		M		L			L		H	
CLO3				M			L				M		M			L
CLO4		L		H		M						M		M		L
CLO5	M		L	L	M	H		M		L			H		L	
CLO6	L	M	L	L				M			L		H	L		

H: High, M: Medium, L: Low