Electrical & Electronics Engineering Workshop

(Common to EEE, ECE, CSE)

Course Code	23ES1253	**Year**	I	**Semester**	II
Course Category	Engineering Science	**Branch**	CSE	**Course Type**	Lab
Credits	1.5	**L-T-P**	0-0-3	**Prerequisites**	Nil
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	**Solve** for various electrical parameters in an Electrical Circuit (L3)
CO2	**Analyze** Wheatstone bridge and Open Circuit Characteristics of DC Shunt Generator (L4)
CO3	**Analyze** the Characteristics of Different Electronic Circuits (L4)
CO4	**Examine** the Truth Tables of Logic Gates and Flip-flops Using Respective IC's (L4)
CO5	Conduct experiments as a **team / individual** by using equipment available in the laboratory
CO6	Make an effective **report** based on experiments

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3			3									
CO2				3									
CO3		3			3								
CO4		3		3	3								
CO5								3					
CO6									3				

Syllabus

Expt. No.		Mapped CO's
	PART A: ELECTRICAL ENGINEERING LAB	
	Conduct any six experiments	
1	Verification of KCL and KVL.	**CO1, CO5, CO6**
2	Verification of Superposition theorem.	**CO1, CO5, CO6**
3	Measurement of Resistance using Wheat stone bridge.	**CO2, CO5, CO6**
4	Magnetization Characteristics of DC shunt Generator.	**CO2, CO5, CO6**
5	Measurement of Power and Power factor using Single-phase wattmeter.	**CO1, CO5, CO6**
6	Measurement of Earth Resistance.	**CO1, CO5, CO6**
7	Calculation of Electrical Energy for Domestic Premises.	**CO1, CO5, CO6**

	PART B: ELECTRONICS ENGINEERING LAB	
	Conduct any six experiments (Both Software and Hardware)	
8	Plot V-I characteristics of PN Junction diode A) Forward bias B) Reverse bias.	**CO3, CO5, CO6**
9	Plot V – I characteristics of Zener Diode and its application as voltage Regulator.	**CO3, CO5, CO6**
10	Implementation of half wave and full wave rectifiers.	**CO3, CO5, CO6**
11	Plot Input & Output characteristics of BJT in CE and CB configurations.	**CO3, CO5, CO6**
12	Frequency response of CE amplifier.	**CO3, CO5, CO6**
13	Simulation of RC coupled amplifier with the design supplied.	**CO3, CO5, CO6**
14	Verification of Truth Table of AND, OR, NOT, NAND, NOR, Ex-OR, Ex-NOR gates using ICs.	**CO4, CO5, CO6**
15	Verification of Truth Tables of S-R, J-K& D flip flops using respective ICs.	**CO4, CO5, CO6**

Learning Resources

Reference Books (PART-A)

1. Basic Electrical Engineering, D. C. Kulshreshtha, Tata McGraw Hill, 2019, First Edition
2. Power System Engineering, P.V. Gupta, M.L. Soni, U.S. Bhatnagar and A. Chakrabarti,DhanpatRai& Co, 2013
3. Fundamentals of Electrical Engineering, Rajendra Prasad, PHI publishers, 2014, Third Edition

Reference Books (PART-B)

1. R. L. Boylestad& Louis Nashlesky, Electronic Devices & Circuit Theory, Pearson Education, 2021.
2. R. P. Jain, Modern Digital Electronics, 4th Edition, Tata McGraw Hill, 2009
3. R. T. Paynter, Introductory Electronic Devices & Circuits – Conventional Flow Version, Pearson Education, 2009.