Electrical & Electronics Engineering Workshop

CourseCode	23ES1253	**Year**	I	**Semester**	II
Course Category	Engineering Science	**Branch**	ECE	**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								1	1
CO2				3								1	1
CO3		3			3							1	1
CO4		3		3	3							1	1
CO5								3				1	1
CO6									3			1	1

Syllabus

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

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.	CO-3,5,6
9	Plot V – I characteristics of Zener Diode and its application as voltage Regulator.	CO-3,5,6
10	Implementation of half wave and full wave rectifiers.	CO-3,5,6
11	Plot Input & Output characteristics of BJT in CE and CB configurations.	CO-3,5,6
12	Frequency response of CE amplifier.	CO-3,5,6
13	Simulation of RC coupled amplifier with the design supplied.	CO-3,5,6
14	Verification of Truth Table of AND, OR, NOT, NAND, NOR, Ex-OR, Ex-NOR gates using ICs.	CO-4,5,6
15	Verification of Truth Tables of S-R, J-K& D flip flops using respective ICs.	CO-4,5,6

Learning Resources

Reference Books (Part-A)

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

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 Ed., Tata Mc Graw Hill, 2009
3. R. T. Paynter, Introductory Electronic Devices & Circuits – Conventional Flow Version, PearsonEducation, 2009.