Electrical & Electronics Engineering Workshop

Course Code	23ES1154	Year	I	Semester	I
Course Category	Engineering Science	Branch	CSE (DS)	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	PO12	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,Dhanpat Rai & 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 Mc Graw Hill, 2009
3. R. T. Paynter, Introductory Electronic Devices & Circuits – Conventional Flow Version, Pearson Education, 2009.