II Year II Semester

Code: 20ES4106

DIGITAL LOGIC DESIGN LAB

Course Objectives:

- 1. Learn the basics of logic gates and implement the Boolean expressions using ICs
- 2. Study, design and verification of combinational logic circuits and PLDs
- 3. Study, design and verification of shift registers and counters

Note: The students are required to design the circuit and perform the simulation using Circuit Lab / Equivalent Industrial Standard Licensed simulation software tool. Further they are required to verify the result using necessary hardware equipment.

List of Experiments:

- 1. Logic gates IC7408, IC7432, IC7404, IC7400, IC7402, IC7486 Implementation of Boolean expressions using above ICs
- 2. Adder & Subtractor
- 3. Decoder & Encoder
- 4. Multiplexer & De-multiplexer
- 5. Magnitude Comparator
- 6. Realization of Boolean expressions with PROM, PLA/PAL
- 7. Flip Flops D, JK, T
- 8. Universal Shift Register
- 9. BCD Ripple Counter
- 10. Up-down Counter
- 11. Ring Counter
- 12. Johnson Counter

Equipment required:

Software:

- 1. Circuit Lab / Equivalent Industrial Standard Licensed simulation software tool.
- 2. Computer Systems with required specifications

Hardware:

- 1. Trainer kit with inbuilt DC Supply, output LED's, input pulse signals, bread board.
- 2. Respective IC's.
- 3. Connecting wires.

Course Outcomes:

A student who successfully fulfils this course requirement will be able to:

S.No	Course							
	Outcome							
1.	Understand truth tables of logic gates and implement Boolean expressions	L3						
2.	Design and verify basic combinational logic circuits	L5						

RAGHU ENGINEERING COLLEGE (Autonomous)

С

3 1.5

L

0

Т

0

Р

3.	Construct and implement PLDs	L5
4.	Verify various flip-flops and shift registers	L4
5.	Design and verify various counters	L5

Correlation of COs with POs & PSOs:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	1	-	1	-	-	-	3	-	-	-	2	3	1
CO 2	3	3	2	-	3	-	-	-	3	-	-	-	2	3	1
CO 3	3	2	2	-	3	-	-	-	3	-	-	-	3	3	2
CO 4	3	-	2	-	3	-	-	-	3	-	-	-	3	3	2
CO 5	3	1	2	1	3	-	-	-	3	-	-	-	3	3	2

RAGHU ENGINEERING COLLEGE (Autonomous)