Switching Theory and Logic Design Lab

Course Code	23EC3352	Year	II	Semester	I
Course Category	Program Core	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	BL
CO1	Describe and Verify the truth tables of Combinational & Sequential circuits	L2
CO2	Implement Switching functions using Logic Gates.	L3
CO3	Analyse different Combinational & Sequential circuits.	L4
CO4	Design Combinational & Sequential circuits for the given specifications.	L5

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3				2				2	2				
CO2	3				2				2	2				
CO3		3			2				2	2			2	
CO4			2		2				2	2			2	1
Average	3	3	2		2				2	2			2	1

Syllabus		
Expt. No.	Contents	Mapped CO
1	Verification of Truth Tables of Logic gates.	CO1
2	Implementation of Logic gates using Universal Gates.	CO1, CO2
3	Implementation of the given Boolean functions using logic gates.	CO1, CO2
4	Simplification of the given Boolean functions using K-map and implementation using logic gates.	CO1, CO2
5	Realization and verification of Full adder and Full Subtractor using logic gates.	CO2, CO3
6	Implementation of 2x4 Decoder and 4x1 Multiplexer using Logic Gates.	CO2, CO3
7	Implementation of the given function using decoder and logic gates.	CO3, CO4
8	Implementation of the given function using Multiplexer.	CO3, CO4
9	Verification of State Tables of SR, D, JK and T-Flip-Flops.	CO1, CO3
10	Design and Verify the operation of Ripple Counters using JK flip-flops.	CO1, CO3, CO4
11	Design and Verify the operation of Synchronous Binary Counter using T flip-flops.	CO1, CO3, CO4
12	Design and Verify the operation of a 4-bit Shift Register.	CO3, CO4

NOTE: Multisim Circuit Simulator may be used for conducting the experiments.
- ❖ Minimum of TEN experiments covering all the above topics need to be conducted using Hardware or Multisim.

Learning Resources
Text Books
1. Michael D. Ciletti, M. Morris Mano, Digital Design, 4th Ed, Pearson Education, 2007.
e- Resources & other digital material
1. http://www.ece.ubc.ca/~saifz/eece256.html
2. http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT%20Guwahati/digital_circuit /frame/index.html