

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	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
Avg.,	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, 4 th 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