

19EC3451: Digital Logic Design Lab

Course Code	19EC3451	Year	II	Semester	II
Course Category	Program Core	Branch	ECE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisites	Nil
Continuous Internal Evaluation:	25	Semester End Evaluation:	50	Total Marks:	75

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Describe the truth tables of different Combinational & Sequential circuits (L2).
CO2	Construct Boolean functions using logic gates (L3).
CO3	Analyse different Combinational & Sequential circuits (L4).
CO4	Design different Combinational & Sequential circuits (L5).

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)														
Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation														
* - Average value indicates course correlation strength with mapped PO														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2			1	1	1	1	1	2	1
CO2	3	3	2	2	2			1	1	1	1	1	2	1
CO3	3	3	2	2	2			1	1	1	1	1	2	1
CO4	3	3	2	2	3			1	1	1	1	1	2	1
Average* (Rounded to nearest integer)	3	3	2	2	2			1	1	1	1	1	2	1

Syllabus		
Expt. No.	Contents	Mapped CO
I	Verification of Truth Tables of Logic gates.	CO1
II	Implementation of Basic gates using Universal Gates.	CO1
III	Implementation of the given Boolean functions using logic gates.	CO2
IV	Simplification of the given Boolean functions using K-map and implementation using logic gates.	CO2
V	Realization and verification of Full adder and Full Subtractor using logic gates.	CO1, CO2

VI	Implementation of 2x4 Decoder and 4x1 Multiplexer using Logic Gates.	CO1, CO2
VII	Implementation of the given function using decoder and logic gates.	CO2, CO3
VIII	Implementation of the given function using Multiplexer.	CO2, CO3
IX	Verification of State Tables of SR, D, JK and T-Flip-Flops.	CO1, CO3
X	Design and Verify the operation of 3-bit Ripple Counters using JK flip-flops.	CO1, CO2, CO4
XI	Design and Verify the operation of 3-bit Synchronous Counter using T flip-flops.	CO1, CO2, CO4
XII	Design and Verify the operation of a 4-bit Shift Register.	CO3, CO4
XIII	Mini Project.	CO1, CO2, CO3, CO4

Learning Resources
Text Books
1. Michael D. Ciletti, M. Morris Mano, Digital Design, 4/e. Pearson Education, 2007.
Reference Books
1. ZviKohavi, Switching and Finite Automata Theory, 2/e, Tata McGraw-Hill Education, 2008.
2. John F. Wakerly, Digital Design Principles and Practices, 4/e, Pearson Education, 2008.
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
