National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

Programme	**Bachelor of Technology in Electronics and Communication Engineering**	Year of Regulation	**2018-19**
Department	**Electronics and Communication Engineering**	Semester	**III**

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	CONTINUOS EVALUATION	VIVA	Total
EC 253	**Digital Logic Design Laboratory**	**0**	**1**	**2**	**2**	**70**	**30**	**100**

Course Objectives	To understand the principles of Boolean logic and optimize the circuits.	Course Outcomes	CO1	Able to understand the basic concepts of Boolean algebra and optimization of circuits.
	To develop the skills for modular Boolean, Arithmetic and Sequential circuits.		CO2	To design combinational and sequential circuits.
	To develop the student ability to design circuits using EDA tools		CO3	Able to predict and analyse the behaviour of synchronous and asynchronous circuits.

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs			
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
1	CO1	3	2	3	1	-	-	-	-	-	-	-	-	3	-	-	-
2	CO2	2	2	-	1	-	-	-	-	-	-	-	-	3	-	-	-
3	CO3	3	3	2	1	2	-	-	-	-	-	-	-	2	3	-	-
4	CO4	2	2	2	-	2	2	-	-	-	-	-	-	2	3	-	-

SYLLABUS

No.	Content	Hours	COs
1	Implement half-adder/ half-subtractor circuits using a serial input.		
2	Implement full-adder/ full-subtractor Circuits using a serial input.		
3	Perform 4-Bit Gray to Binary/ Binary to Gray code conversion using select input.		
4	Perform and implement logic expression with the help of **MUX IC 74153**.		
5	Implement the flip-flops using NAND/ NOR gate.	24	**CO1, CO2, CO3**
6	Implement Excess-3 BCD adder/subtractor with select input.		
7	Implement modulo-7 ripple counter.		
8	Implement 4-bit shift left/right register.		
9	Implement the sequence generator.		
10	Verify the behaviour of logic circuits and sequential circuits using EDA tools.		
	Total Hours	24	

Essential Readings

1. Mano Morris, Digital Logic and Computer Design, Pearson Education, 14th ed. 2012.

2. A. Anand Kumar Fundamentals of Digital Circuits Prentice Hall India Learning, 4th ed. 2016.

3. D.V. Hall, "Digital Circuits and Systems", Tata McGraw Hill, 1st ed., 1989.

4. Charles Roth, "Digital System Design using VHDL", Tata McGraw Hill, 2nd edition, 2012.

Supplementary Readings

1. Brown S. and Zvonko Vranesic, Fundamental of Logic with Verilog Design, Tata McGraw Hill, 3rd Edition, 2013.

2. Kime Charies R and Morris Mano, Logic and Computer Design Fundamentals, Pearson Education, 4th Edition, 2013.