	National Institute of Technology Meghalaya An Institute of National Importance	**CURRICULUM**

Programme	**Bachelor of Technology in Computer Science and Engineering**	Year of Regulation	**2020-21**
Department	**Computer Science and Engineering**	Semester	**III**

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C		Continuous evaluation	Quiz/Viva	Total
CS 253	**Digital Logic Design Lab**	**0**	**1**	**2**	**2**		**70**	**30**	**100**

Course Objectives		Course Outcomes		
	To introduce the concept of digital and binary systems, number representation and conversion between different representations in digital electronic circuits and to acquire the knowledge of digital logic levels and Boolean logic.		CO1	Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.
			CO2	To understand and examine the structure of various number systems and its application in digital design.
			CO3	The ability to understand, analyse and design various combinational circuits.
	To make student be able to design and analyse combinational logic circuits and design and analyse sequential logic circuits.		CO4	The ability to understand, analyse and design various sequential circuits.
			CO5	Develop a digital logic and apply it to solve real life problems.
	To understand concept of Programmable Devices, RAM, ROM, PLA, PAL.			

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
1	CO1	**3**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**
2	CO2	**2**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**
3	CO3	**3**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**
4	CO4	**3**	**2**	**2**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**
5	CO5	**3**	**3**	**3**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**1**	**2**

SYLLABUS

No.	Content	Hours	COs
I	Logic Gates using Discrete Components.	**02**	**CO1,CO2**
II	Half-Adder/ Half-subtarctor Circuits using a serial Input.	**02**	**CO1, CO3**
III	Full-Adder/ Full-subtarctor Circuits using a serial Input.	**02**	**CO1, CO3**
IV	4-Bit Gray to Binary/ Binary to Gray Code convertor using Select input.	**02**	**CO1,CO3**
V	Implementing Logic Functions using MUX IC 74153.	**02**	**CO1, CO3**
VI	Flip-flops using NAND/ NOR Gate.	**02**	**CO1, CO4**
VII	Modulo-m Ripple Counter.	**02**	**CO1, CO4, CO5**
VIII	4-Bit Shift Left/Right Register	**02**	**CO1, CO4, CO5**
IX	Sequence Generator	**02**	**CO1, CO4, CO5**
X	Excess-3 BCD Adder/ Subtractor with Select Input.	**02**	**CO1, CO4, CO5**
XI	Quiz/Viva	**02**	**CO1-CO5**
Total Hours		**22**	

Essential Readings:

1. L. Thomas Floyd and R.P. Jain, "Digital Fundamentals", 11th ed., 2015, Pearson Education.
2. Kime Charies R and Morris Mano, "Logic and Computer Design Fundamentals", 4th ed., 2014, Pearson Education.
3. Morris Mano, "Digital Logic and Computer Design", 1st ed., 2004, Pearson Education.

Supplementary Readings:

1. R.P. Jain and M.H.S. Anand, "Digital Electronics Practice using Integrated Circuits", 1st ed., 2004, Tata McGraw Hill.
2. Samuel C. Lee, "Digital Circuits and Logic Design", 2009 edition, PHI (Prentice-Hall of India).
3. Stephen Brown and Zvonko Vranesic, "Fundamentals of Digital Logic with Verilog Design", 2nd ed., 2017, Tata McGraw Hill.