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

Programme	**Master of Technology in VLSI and Embedded Systems**	Year of Regulation	**2018-2019**
Department	**Electronics and Communication Engineering**	Semester	**I**

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	Continuous Evaluation	VIVA	Total
EC 563	**VLSI Signal Processing Lab**	**0**	**0**	**2**	**1**	**70**	**30**	**100**

Course Objectives	To study high level architectures of hardware specific systems	Course Outcomes	CO1	Describe the hardware description language, FPGA design concept
	To understand concept of digital signal processor architecture		CO2	Understand architectural issues of digital signal processors
	To develop the subsystem for Digital signal processors		CO3	Familiarize discrete Fourier transformation processor in FPGA
	To understand the convolution processors			
	To understand the concept filter design techniques in VLSI			

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	**0**	**0**	**0**	**1**	**1**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**
2	CO2	**0**	**0**	**3**	**2**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
3	CO3	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**

SYLLABUS

No.	Content	Hours	COs
I	Fixed and Floating point number systems and its implementation in Hardware description languages	06	CO1
II	Implementation of Signal Processing Algorithm in FPGA	08	CO2
III	Implementation of Digital Filter in FPGA	08	CO3
	Total Hours	22	

Essential Readings

1. K. K. Parhi, VLSI Digital Signal Processing Systems, Design and Implementation , John Wiley, 1999
2. U. Meyer-Baese, Digital Signal processing with Field Programmable Arrays, Springer, 3rd edition 2007.
3. S. Ramachandran, Digital VLSI systems design. Springer, 2007.

Supplementary Readings

4. V. K. Madisetti, VLSI Digital Signal Processors: An Introduction to Rapid Prototyping and Design Synthesis, IEEE Press, 1995.
5. S. Y. Kung, and H. J. Whitehouse, VLSI and Modern Signal Processing, Prentice Hall, 1985.
6. Chan, K. Pak and S.Mourad, Digital system design using field programmable gate arrays, Prentice-Hall, Inc, 1st edition 1994.