

		National Institute of Technology Meghalaya An Institute of National Importance												CURRICULUM					
Programme		Master of Technology in VLSI and Embedded Systems										Year of Regulation				2018-19			
Department		Electronics and Communication Engineering										Semester				II			
Course Code	Course Name	Credit Structure												Marks Distribution					
		L	T	P	C	Continuous Evaluation		VIVA	Total										
EC 572	Advanced System on Chip Lab	0	0	2	1	70		30	100										
Course Objectives	Learn how to make comparative design analysis	Course Outcomes	CO1	Able to learn the CADANCE EDA tool															
	Learn to use ADE for different parametric use		CO2	Able to design different full adders															
	Learn to make complex designs		CO3	Able to make comparative analysis of different designs															
	Learn to make analysis for different bit combinations and for other parametric value		CO4	Able to analyze delay, power and other parameters of designs															
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	3	0	1	0	0	0	0	2	0	0	0	3	0	0	3		
2	CO2	3	3	3	1	0	0	0	0	2	0	0	0	2	0	0	2		
3	CO3	2	3	3	1	2	0	0	0	0	0	0	0	2	3	3	2		
SYLLABUS																			
No.	Content													Hours	COs				
	1)AXI GPIO Peripheral and DDR Memory Controller 2)AXI UART and AXI-Stream Peripheral 3) AHB Timer, GPIO and 7-segment Display Peripherals 4) Interrupt Mechanisms 5) Programming an SoC using C Language 6)AXI4-Stream and VGA Peripheral 7)AXI-Stream HDMI Input Peripheral 8)System Debugging 9)Final Application: Image Processing													24	CO1 CO2 CO3 CO4				
Total Hours													24						
Essential Readings																			
1. S. Furber ARM System-on-chip Architecture 2nd Edition Addison Wesley, 2000																			
2. A. G. Dean Embedded Systems Fundamentals with Arm Cortex-M based Microcontrollers: A Practical Approach, ARM Education Media, 2017.																			
3. L. H. Crockett, R. A. Elliot, M. A. Enderwitz, and R. W. Stewart The Zynq Book Embedded Processing with the ARM® Cortex®-A9 on the Xilinx® Zynq®-7000 All Programmable SoC, Strathclyde Academic Media, 2014.																			
Supplementary Readings																			
1. J. Yiu, The Definitive Guide to the ARM Cortex-M0 and Cortex-M0+ Processors, Newnes, 2nd Edition, 2015.																			
2. R. Toulson Fast and Effective Embedded Systems Design: Applying the ARM mbed, Newnes, 2nd Edition, 2016.																			