National Institute of Technology Meghalaya An Institute of National Importance	CURRICULUM

Programme	M.Tech/Ph.D	Year of Regulation	2021
Department	Electronics and Communication Engineering	Semester	I

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	INT	MID	END	Total
EC 536	Advanced Microprocessor & Microcontroller	3	0	0	3	50	50	100	200

Course Objectives	Introduce Advanced Microprocessor Architectures	Course Outcomes	CO1	Able to Understand the microprocessor ISA architectures
	Analyse architectural differences of ISA architecture		CO2	Able to Programme with high level programming
	Understand and interface the I/O devices with Processors		CO3	Able to communicate processors with I/O devices
	Design a RISC Processor architecture		CO4	Able to design a microprocessor-based system design

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	1	2	1	0	1	0	0	0	0	0	0	0	1	0	1	0
2	CO2	1	2	2	2	0	0	0	0	0	0	0	1	2	0	2	0
3	CO3	1	2	2	1	2	0	0	0	0	0	0	1	1	2	2	0
4	CO4	1	2	1	1	2	0	0	0	0	0	0	2	1	2	2	0

SYLLABUS

No.	Content	Hours	COs
I	**Design of Basic Microprocessor Architectural Concepts** Microprocessor architecture, word Lengths, addressable memory, Microprocessor's speed architectural characteristics, registers, instruction, memory addressing architecture ,ALU, GPR's Control logic & internal data bus.	8	CO1 CO2
II	**Microprocessor Instructions & Communication** Instruction Set, Mnemonics, Basic Instruction Types, Addressing modes, Microprocessor I/O connecting I/O put to Microprocessor, Polling and Interrupts, Interrupt and OM. Controllers.	5	CO1 CO2
III	**Microcontroller** Introduction 8051 architecture and programming model. Internal RAM and registers, I/O ports, Interrupt system &Instruction set.	5	CO2
IV	**Advanced Micro Processors** lntel X86 family of advanced Microprocessor, programming model for 86 family. X86 addressing modes, instruction set, hardware of 186, 286, 386, 486 & Pentium processors. Motorola 68 XXX family of microprocessor, 68 XXX addressing modes, instruction set, hardware.	8	CO1 CO3
V	**Microprocessor 110** Data Communication, parallel I/O serial communication, Serial interface and UART, modems, I/O devices, D/A, A/D interface, special I/O devices.	5	CO3
VI	**Developing Microprocessor Based Products** Introduction to the Design Process, Preparing the specifications, Developing a design, Implementing and Testing and design, Regulatory Compliance Testing, design tool for Microprocessor Development.	5	CO4
	Total Hours	36	

Essential Readings

1. C.M. Gilmore, "Microprocessors Principals and Application" McGraw-Hill 2nd Edition 1995

2. Rajkamal, "Embedded System, Architecture &Programming",Tata McGraw- Hill 2nd Edition 2008

Supplementary Readings

1. Berry B. Berry, " Inter Series of microprocessors", Prentice-Hall 8th Edition 2009

2. D. V. Hall, "Microprocessor &Interfacing", McGraw-Hill 2nd Edition 2005