SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
20EC6T01	MICROPROCESSORS & MICROCONTROLLERS	VI	ECE	5	2024-2025	18-11-2024

COURSE OUTCOMES

After completion of the course students are able to

CO1	Demonstrate architecture, instructions and addressing modes of 8086 Microprocessor (K3)
CO2	Analyze 8086 interfacing with different peripherals and implement programs (K4)
CO3	Examine 8051 Microcontroller interfacing and implement programs (K3)
CO4	Sketch the architecture and applications of advanced processors (K3)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	**CO1:** Demonstrate architecture, instructions and addressing modes of 8086 Microprocessor (K3)	**UNIT-1: INTRODUCTION ,8086 MICROPROCESSORS**				Chalk & Talk, PPT & Tutorial
		1.1	Basic Microprocessor Architecture& Family of Intel processors	T1,R1	1	
		1.2	Little Endian and Big Endian Formats Von-Neumann and Harvard architectures RISC Vs CISC processors	T1,R1	1	
		1.3	8086 Microprocessor feature &Architecture	T1,R1	1	
		1.4	Register organization	T1,R1	1	
		1.5	Pin diagram/description	T1,R1	1	
		1.6	Memory Segmentation	T1,R1	1	
		1.7	Memory Address	T1,R1	1	
		1.8	Physical memory organization	T1,R1	1	
		1.9	Interrupt and interrupt response	T1,R1	1	
		1.10	Minimum Mode	T1,R1	1	

			configuration &system timings			
		1.11	Maximum Mode configuration	T1,R1	1	
		CLASS TEST			1	
				Total	**12**	
II	**CO1:** Demonstrate architecture, instructions and addressing modes of 8086 Microprocessor (K3)	**UNIT-2: 8086 PROGRAMMING**				Chalk & Talk, PPT & Tutorial
		2.1	Program Development steps	T1,R1	1	
		2.2	Addressing modes of 8086	T1,R1	1	
		2.3	Instruction set of 8086	T1,R1	1	
		2.4	Instruction set of 8086	T1,R1	1	
		2.5	Assembler directives	T1,R1	1	
		2.6	Assembler directives	T1,R1	1	
		2.7	Procedures	T1,R1	1	
		2.8	Macros	T1,R1	1	
		2.9	Assembly language programming	T1,R1	1	
		2.10	Programming development tools	T1,R1	1	
		CLASS TEST			1	
				Total	**11**	
III	**CO2:** Analyze 8086 interfacing with different peripherals and implement programs (K4)	**UNIT-3: 8086 INTERFACING**				Chalk & Talk, PPT & Tutorial
		3.1	8255-PPI	T1,R1	1	
		3.2	8255 Architecture	T1,R1	1	
		3.3	Interfacing switches and LEDs	T1,R1	1	
		3.4	Interfacing of seven segment display	T1,R1	1	
		3.5	Software and Hard ware interrupts	T1,R1	1	
		3.6	Intel 8251USART	T1,R1	1	
		3.7	Architecture and interfacing8237 DMA controller	T1,R1	1	
		3.8	Stepper motor interfacing	T1,R1	1	Simulation excercises
		3.9	Interfacing to D/A convertersVFE	T1,R1	1	
		3.10	Interfacing to A/D converters	T1,R1	1	
		CLAS TEST			1	

				Total	**11**	
IV	**CO3:** Examine 8051 Microcontroller interfacing and implement programs (K3)	**UNIT-4: 8051 MIROCONTROLLERS**				Chalk & Talk, PPT & Tutorial
		4.1	8051 microcontrollerArchitecture	T2,R2	1	
		4.2	8051 pin description&I/O ports	T2,R2	1	
		4.3	Memory organization	T2,R2	1	
		4.4	Interrupts	T2,R2	1	
		4.5	Timers	T2,R2	1	
		4.6	Serial port	T2,R2	1	
		4.7	Programming	T2,R2	1	
		4.8	Instructions	T2,R2	1	
		4.9	Addressing Modes	T2,R2	1	
		4.10	Simple Programs	T2,R2	1	
		4.11	Interfacing to D/A ,A/D converters	T2,R2	1	
		4.12	LCD interfacing	T2,R2	1	
		CLASS TEST			1	
				Total	**13**	
V	**CO4:** Sketch the architecture and applications of advanced processors (K3)	**UNIT-5: ADVANCED MICROPROCESSORS**				Chalk & Talk, PPT, Active Learning & Tutorial
		5.25.1	Introduction to ARM 16/32 bit processors	T3,R2	1	
		5.3	ARM Architecture	T3,R2	1	
		5.4	ARM organization	T3,R2	1	
		5.5	Interrupt vector table	T3,R2	1	
		5.6	Instruction set	T3,R2	1	
		5.7	Data processing ,load store instructions	T3,R2	1	
		5.8	software interrupt instructions	T3,R2	1	
		5.9	Program status register instructions, Loading , conditional execution	T3,R2	1	
		5.10	Thumb programming model	T3,R2	1	
		5.11	Thumb instruction set	T3,R2	1	
		5.12	Intel Processors	T3,R2	1	
		5.13	Pentium Processors	T3,R2	1	
		5.14	i3 Processor	T3,R2	1	
		5.15	i5 Processor	T3,R2	1	
		5.16	I7 Processor	T3,R2	1	

	Content beyond Syllabus		PIC Controller	T2,R1	1	
				Total	**18**	
				CUMULATIVE PROPOSED PERIODS	**65**	

Text Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Douglas V Hall, Microprocessors and Interfacing: Programming and Hardware, , 3rd edition, TMH,2017.
2	Muhammad Ali Mazidi and Janice Gillespie Mazidi and Rollin D.Mckinlay, The 8051 Microcontrollers and Embedded Systems using Assembly and C , 2nd edition,Pearson,2011.
3	Joseph Yiu's, The Definitive Guide to ARM Contex-M3 and Cortex-M4 Processors, 3rd edition ,Elsevier,2014

Reference Books:

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	A.K.Ray, K.M.Bhurchandi, "Advanced Microprocessors and Peripherals ", 3rd Edition,TMH,2017
2	Dr.Alexander, G.Dean, Embedded System Fundamentals with ARM Cortex-M based Microcontrollers: A practical approach., ARM Education Media,2017

Web Details

1	https://www.tutorialspoint.com/microprocessor/microcontrollers_overview.htm
2	https://circuitdigest.com/article/what-is-the-difference-between-microprocessor-and-microcontroller

		Name	Signature with Date
i.	Faculty I	Dr.M.Koteswara Rao	
ii.	Faculty II (for common Course)	Mr.I.V.Ravi Kumar	
iii.	Faculty III(for common Course)	Mr. V. Satya Kishore	
iv.	Faculty IV(for common Course)	Mrs.E.Suma	
v.	Course Coordinator	Dr.M.Koteswara Rao	
vi.	Module Coordinator	Dr. B. Ramana Kumar	
vii.	Programme Coordinator	Dr.B.S.Rao	

Principal