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
19EC5L02	MICROPROCESSOR AND MICROCONTROLLER	V	ECE	5	2021-2022	04.11.2021

COURSE OUTCOMES After completion of the course students are able to	
1	Explain architecture, instructions and addressing modes of 8086Microprocessor.(K1,K2)
2	Develop Assembly language programs for various societal and industrial requirements. (K3)
3	Analyze 8086 interfacing with different peripherals and implement programs. (K4)
4	Describe a minimum workable system with 8051Microcontroller.(K1, K2)

UNIT	Out Comes / Bloom's Level	Topics No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	CO1: Explain architecture, instructions and addressing modes of 8086Microprocessor.(K1,K2)	**UNIT 1: 8086 MICROPROCESSOR**				Chalk & Talk, PPT & Tutorial
		1.1	Little Endian and Big Endian Formats	T1,R1	1	
		1.2	Von-Neumann and Harvard architectures	T1,R1	1	
		1.3	RISC Vs CISC processors	T1,R1	1	
		1.4	Family of Intel processors	T1,R1	1	
		1.5	8086 Microprocessor	T2,R1	1	
		1.6	Register organization	T2,R1	1	
		1.7	Architecture	T2,R1	1	
		1.8	Signal description	T2,R1	1	
		1.9	Physical Memory	T2,R1	1	
		1.10	Memory organization	T2,R1	1	
		1.11	General bus structure	T2,R1	1	
		1.12	General bus operation	T2,R1	1	
		1.13	I/O addressing capability	T2,R1	1	
		1.14	Special purpose activities	T2,R1	1	
		Total			**14**	

II	**CO1:** Explain architecture, instructions and addressing modes of 8086Microprocessor.(K1,K2) **CO2:** Develop Assembly language programs for various societal and industrial requirements. (K3)	**UNIT-2: 8086 PROGRAMMING**				Chalk & Talk, PPT & Tutorial
		2.1	Minimum mode of 8086	T2,R1	1	
		2.2	Maximum mode of 8086	T2,R1	1	
		2.3	Timing diagrams	T2,R1	1	
		2.4	Addressing modes of 8086	T2,R1	1	
		2.5	Instruction set of 8086	T2,R1	1	
		2.6	Instruction set of 8086	T2,R1	1	
		2.7	Assembler directives	T2,R1	1	
		2.8	Assembler directives	T2,R1	1	
		2.9	Procedures	T2,R1	1	
		2.10	Macros	T2,R1	1	
		2.11	Assembly language programming	T2,R1	1	
		2.12	Programming with examples	T2,R1	1	
		2.13	Programming with examples	T2,R1	1	
		Total			**13**	

III	**CO2:** Develop Assembly language programs for various societal and industrial requirements. (K3) **CO3: Analyze 8086 interfacing with different peripherals and implement programs. (K4)**	**UNIT-3: BASIC PERIPHERALS AND INTERFACING WITH 8086**				Chalk & Talk, PPT & Tutorial
		3.1	Basic peripherals	T2,R2	1	
		3.2	Interfacing of 8086	T2,R2	1	
		3.3	Memory interfacing	T2,R2	1	
		3.4	8255-PPI	T2,R2	1	
		3.5	8255 Architecture	T2,R2	1	
		3.6	Interfacing to D/A converters	T2,R2	1	
		3.7	Interfacing to A/D converters	T2,R2	1	
		3.8	Stepper motor interfacing	T2,R2	1	
		3.9	Control of high power devices	T2,R2	1	
		3.10	Control of high power devices using 8255	T2,R2	1	
		Total			**10**	

IV	CO3: Analyze 8086 interfacing with different peripherals and implement programs.	**UNIT-4: SPECIAL PURPOSE PROGRAMMABLE INTERFACING DEVICES**				Chalk & Talk, PPT & Tutorial
		4.1	Special purpose programmable interfacing devices	T2,R2	1	
		4.2	Interrupts	T2,R2	1	
		4.3	Interrupt service routines	T2,R2	1	
		4.4	Interrupt cycle of 8086	T2,R2	1	
		4.5	Non-maskable interrupt	T2,R2	1	
		4.6	Maskable interrupts	T2,R2	1	
		4.7	Interrupt programming	T2,R2	1	
		4.8	8259 – PIC	T2,R2	1	
		4.9	8251 – USART	T2,R2	1	
		4.10	8237 – DMA controller	T2,R2	1	
		4.11	8237 – DMA controller	T2,R2	1	
		Total			**11**	
V	CO4: Describe a minimum workable system with 8051Microcontroller. (K1,K2)	**UNIT-5: SPECIAL PURPOSE PROGRAMMABLE INTERFACING DEVICES**				Chalk & Talk, PPT & Tutorial
		5.1	Introduction to microcontrollers	T3,R3	1	
		5.2	8051 microcontroller	T3,R3	1	
		5.3	8051 pin description	T3,R3	1	
		5.4	connections	T3,R3	1	
		5.5	I/O ports	T3,R3	1	
		5.6	Memory organization	T3,R3	1	
		5.7	Interrupts	T3,R3	1	
		5.8	Timers	T3,R3	1	
		5.9	Timers-modes	T3,R3	1	
		5.10	Serial port	T3,R3	1	
		5.11	Programming with Embedded C	T3,R3	1	
		Total			**11**	
	Content beyond Syllabus	5.12	Advanced Processor	T2,R1	**1**	
		Total			**12**	
		CUMULATIVE PROPOSED PERIODS			**60**	

Text Books:	
S.No.	**AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION**
1	A .K .Ray, K.M.Bhurchandi, "Advanced Microprocessors and Peripherals" 3rd Edition, Tata McGraw Hill Publishers, 2012. **(UNITS – I to V)**
Reference Books:	
S.No.	**AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION**
1	Kenneth Ayala, "8051 Microcontroller", 3rd Edition, Cengage Learning Publishers, 2007.
2	Barry B. Brey, "The Intel Microprocessors 8086/8088, 80186/80188, 80286,80386, 80486, and Pentium processors. Architecture, programming and interfacing", 8th Edition, Pearson Publication, 2012.
3	DoughlasV.Hall,"Microprocessors and Interfacing, Programming and Hardware", 2nd Edition, TMH,2012.
4	Ajay V Deshmukh, "Microcontrollers",3rd Edition, TATA McGraw Hill publications, 2012.
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	Dr.K.Balamurugan	
ii.	Faculty II (for common Course)	Mr.K.Chandrasekar Rao	
iii.	Course Coordinator	Dr.K.Balamurugan	
iv.	Module Coordinator	Mr.J.E.N.Abhilash	
v.	Programme Coordinator	Dr.B.S.Rao	

Principal