



# 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 8086 Microprocessor. (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 8051 Microcontroller. (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 8086 Microprocessor. (K1, K2)	<b>UNIT 1: 8086 MICROPROCESSOR</b>					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		
<b>Total</b>					<b>14</b>		

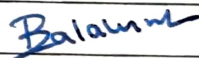



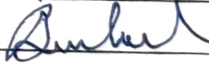
<b>II</b>	<b>CO1:</b> Explain architecture, instructions and addressing modes of 8086 Microprocessor. (K1, K2)  <b>CO2:</b> Develop Assembly language programs for various societal and industrial requirements. (K3)	<b>UNIT-2: 8086 PROGRAMMING</b>				Chalk & Talk, PPT & Tutorial
		2.1	Minimum mode of 8086	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	
<b>Total</b>				<b>13</b>		

<b>III</b>	<b>CO2:</b> Develop Assembly language programs for various societal and industrial requirements. (K3)  <b>CO3:</b> Analyze 8086 interfacing with different peripherals and implement programs. (K4)	<b>UNIT-3: BASIC PERIPHERALS AND INTERFACING WITH 8086</b>				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	
		<b>Total</b>				

IV	CO3: Analyze 8086 interfacing with different peripherals and implement programs.	<b>UNIT-4: SPECIAL PURPOSE PROGRAMMABLE INTERFACING DEVICES</b>			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
<b>Total</b>				<b>11</b>		

V	CO4: Describe a minimum workable system with 8051Microcontroller. (K1,K2)	<b>UNIT-5: SPECIAL PURPOSE PROGRAMMABLE INTERFACING DEVICES</b>			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
<b>Total</b>				<b>11</b>		
	Content beyond Syllabus	5.12	Advanced Processor	T2,R1	1	
<b>Total</b>				<b>12</b>		
<b>CUMULATIVE PROPOSED PERIODS</b>				<b>60</b>		

<b>Text Books:</b>	
<b>S.No.</b>	<b>AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION</b>
1	A .K .Ray, K.M.Bhurchandi, "Advanced Microprocessors and Peripherals" 3 <sup>rd</sup> Edition, Tata McGraw Hill Publishers, 2012. (UNITS – I to V)
<b>Reference Books:</b>	
<b>S.No.</b>	<b>AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION</b>
1	Kenneth Ayala, "8051 Microcontroller", 3 <sup>rd</sup> 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", 8 <sup>th</sup> Edition, Pearson Publication, 2012.
3	DoughlasV.Hall, "Microprocessors and Interfacing, Programming and Hardware", 2 <sup>nd</sup> Edition, TMH,2012.
4	Ajay V Deshmukh, "Microcontrollers", 3 <sup>rd</sup> Edition, TATA McGraw Hill publications, 2012.
<b>Web Details</b>	
1	<a href="https://www.tutorialspoint.com/microprocessor/microcontrollers_overview.htm">https://www.tutorialspoint.com/microprocessor/microcontrollers_overview.htm</a>
2	<a href="https://circuitdigest.com/article/what-is-the-difference-between-microprocessor-and-microcontroller">https://circuitdigest.com/article/what-is-the-difference-between-microprocessor-and-microcontroller</a>

	<b>Name</b>	<b>Signature with Date</b>
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