Department of Electrical and Electronics

Number of programmes where syllabus revision was carried out

SL. NO.	COURSE CODE	COURSE OFFERED
1	SECA1508	MICROPROCESSOR, INTERFACING AND ITS APPLICATIONS
2	SECA1706	PRINCIPLES OF EMBEDDED SYSTEM DESIGN
3	: SECA2703	EMBEDDED AND DSP LAB

SECA1508	MICROPROCESSOR, INTERFACING AND ITS APPLICATIONS	L	T	P	Credits	Total Marks
		3	*	0	3	100

COURSE OBJECTIVES

- To impart the knowledge of 8085 and 8086 processor.
- To develop assembly language program in 8085/8086 processor.
- To introduce the peripheral devices.
- To acquire the knowledge of interfacing and hardware implementation.

UNIT 1 8085 MICROPROCESSOR **9 Hrs.**

8085 Architecture-Timing Diagram-Interrupts-Addressing Modes-Instruction Formats-Instruction Set-Programming of 8085.

UNIT 2 8086 MICROPROCESSOR **9 Hrs.**

8086 Architecture-Maximum and Minimum Mode-Memory Banks-Memory Segmentation-Programming Model -Instruction Set-Programming of 8086.

UNIT 3 PERIPHERALS INTERFACING USING 8085/8086 **9 Hrs.**

Introduction, memory and I/O interfacing, data transfer schemes, programmable peripheral interface (8255), programmable DMA controller (8257), programmable interrupt controller (8259), Universal synchronous asynchronous receiver transmitter (USART) (8251), programmable counter/interval timer (8254).

UNIT 4 INTERFACING CONCEPTS WITH 8085/8086 **9 Hrs.**

Switches-Matrix Keyboard-interfacing LED, 7 segment LED, LCD, Analog to Digital Converter (ADC), Digital to Analog Converter (DAC), Memory Interfacing (RAM and ROM).

UNIT 5 APPLICATIONS USING 8085/8086 and Introduction to Microcontroller 9 Hrs.

Stepper motor interfacing with ULN2003-specific angle rotation, Motor speed control, Temperature control system, Traffic light control-6V relay to control AC Bulb

8051 MICROCONTROLLER ARCHITECTURE

Comparison of microprocessors and microcontrollers - 8051 architecture - hardware, I/O pins, ports, memory, counters, timers, serial I/O interrupts. Addressing modes - Instruction sets - Simple programs with 8051

Max. 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 - Have clear understanding on the basics of 8085/8086 microprocessor, working and signals and familiarize the entire instruction set of 8085/8086 microprocessors.

CO2 - Ability to analyse the computational complexity of the developed algorithms through timing diagram / T-states. CO3 - Familiarize the peripheral devices.

CO4 - Ability to provide solutions to the problems related to processor program development. CO5 - Design and develop interfacing circuits for real time applications.

CO6 - Feasibility of developing user defined circuits for the left out flip flops in the flag registers of 8085/8086 processors.

TEXT / REFERENCE BOOKS

1. Ramesh Gaonkar, "Microprocessor Architecture, Programming and applications with 8085", 6th Edition, Penram International Publishing Pvt. Ltd., 2014.
2. Douglas V. Hall, "Microprocessor and its Interfacing", Tata McGraw Hill, Edited second Version, 2006.
3. Nagoor Kani A, "Microprocessor (8085) and its Applications", 2nd Edition, RBA publications, 2013.
4. Mathur A.P, "Introduction to Microprocessor", Tata McGraw Hill, 3rd Edition 2002.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100 **Exam Duration: 3 Hrs.**

PART A: 10 Question of 2 marks each – No choice **20 Marks**

PART B: 2 Questions from each unit of internal choice, each carrying 16 marks **80 Marks**