III Year-II Semester

23EC6T10 .	MICROPROCESSORS & MICROCONTROLL RS .	L	T	P	C
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Course Outcomes:

- Understand the architecture of 8086 and its operation.
- Develop the students to compose the assembly language program for 8086.
- Applying 8086 processor to interface with necessary peripherals.
- Understand the architecture of 8051 and interfacing with necessary peripherals.
- Understand the introductory concepts of advanced processors, viz., ARM processors.

UNIT-1:

Introduction: Microprocessor based system, Origin of microprocessors, Harvard and Von Neumann architectures with examples, Microprocessor Unit versus Microcontroller Unit.

8086 Architecture: internal architecture of 8086 microprocessor, register organization, physical memory organization, general bus operation.---12Hrs

UNIT-2:

8086 Programming: instruction set, addressing modes, assembler directives, programming with assembler, writing simple programs with an assembler, stack and stack structure, interrupts and interrupt service routines, interrupt cycle of 8086.---9Hrs

UNIT-3:

8086 Interfacing: Semiconductor memories interfacing (RAM, ROM), Intel 8255 programmable peripheral interface, Interfacing switches and LEDS, Interfacing seven segment displays, Intel 8251 USART architecture and interfacing, stepper motor, A/D and D/A converters—12Hrs

UNIT-4:

Intel 8051 MICROCONTROLLER and Interfacing

Introduction to microcontrollers, internal architecture of 8051 microcontroller, I/O ports and memory organization, MCS51 addressing modes and instruction set, assembly language programming, simple programs, counters/timers, serial data input/output, interrupts. Interfacing to 8051: A/D and D/A Convertors, keyboard, LCD Interfacing.---12Hrs

UNIT-5:

ARM Architectures and Processors: introduction to CISC and RISC architectures, ARM Architecture, ARM Processors Families, Introduction to 16/32 bit processors, ARM7 architecture and organization, Thumb instructions, ARM Cortex-M3 Processor Functional Description.—9Hrs

TEXTBOOKS:

1. Advanced microprocessors and peripherals by K. M. Bhurchandi, A. K. Ray 3e
2. The 8051 Microcontrollers and Embedded systems Using Assembly and C, Muhammad Ali Mazidi and Janice Gillespie Mazidi and Rollin D.McKinlay; Pearson 2-Edition,2011.
3. Microprocessors and Microcontrollers by N. Senthil Kumar, M. Saravanan and S. Jeevanathan

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REFERENCEBOOKS:

1. Embedded Systems Fundamentals with Arm Cortex-M based Microcontrollers: A Practical Approach in English, by Dr. Alexander G. Dean, Published by Arm EducationMedia,2017.
2. Cortex-M3TechnicalReference Manual.
3. TheDefinitiveGuidetoARMCortex-M3andCortex-M4ProcessorsbyJosephYiu.,Newnes Third edition

WEB RESOURCES:

W1. https://nptel.ac.in/courses/108105102/7

W2. https://freevideolectures.com/course/3018/microprocessors-and-microcontrollers

W3. https://www.tutorialspoint.com/microprocessor/

W4. https://www.geeksforgeeks.org/microprocessor-tutorials/

W5. https://nptel.ac.in/courses/108107029/

W6 https://freevideolectures.com/course/3018/microprocessors-and-microcontrollers

W7. http://www.satishkashyap.com/2012/02/video-lectures-on-microprocessors-and.html

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