III B.Tech – I Semester
(17CS532) MICRO PROCESSORS AND INTERFACING (Dept Elective-1)

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
40	60	100	3	1	-	3

Pre-Requisites: Digital Logic Design/ Digital Electronics, Electronic Devices & Circuits, Computer Organization, Programming Language

Course objectives:
- To understand the organization and architecture of Micro Processor
- To understand addressing modes to access memory
- To understand 8051 micro controller architecture
- To understand the programming principles for 8086 and 8051
- To understand the interfacing of MP with IO as well as other devices
- To understand how to develop cyber physical systems

UNIT–I:
Introduction to Microprocessor Architecture: Introduction and evolution of Microprocessors– Architecture of 8086–Register Organization of 8086–Memory organization of 8086– General bus operation of 8086–Introduction to 80286–80386 and 80486 and Pentium.

UNIT–II:
Minimum and Maximum Mode Operations: Instruction set, Addressing modes– Minimum and Maximum mode operations of 8086–8086 Control signal interfacing–Read and write cycle timing diagrams.

UNIT–III:
I/O Interface:8255 PPI– Architecture of 8255–Modes of operation– Interfacing I/O devices to 8086 using
8255–Interfacing A to D converters– Interfacing D to A converters– Stepper motor interfacing– Static memory interfacing with 8086–DMA controller (8257)–Architecture–
Interfacing 8257 DMA controller– Programmable Interrupt Controller (8259)–Command words and operating modes of 8259– Interfacing of 8259–Keyboard/display controller (8279)–Architecture–Modes of operation–Command words of 8279– Interfacing of 8279.

UNIT–IV:
Introduction to 8051 Micro Controller: Overview of 8051 Micro Controller– Architecture– Register set–I/O ports and Memory Organization– Interrupts–Timers and Counters–Serial Communication.

UNIT– V:
PIC Architecture: Block diagram of basic PIC 18 micro controller, registers I/O ports.

UNIT– VI:
Programming in C for PIC: Data types, I/O programming, logical operations, data conversion

Course Outcomes:

1	To be able to understand the microprocessor capability in general and explore the evaluation of microprocessors.	L2
2	To be able to understand the addressing modes of microprocessors	L2
3	To be able to understand the micro controller capability	L2
4	To be able to program MP and MC	L2
5	To be able to interface MP and MC with other electronic devices	L2
6	To be able to develop cyber physical systems	L2

Text Books:

1. Kenneth J Ayala, "The 8051 Micro Controller Architecture, Programming and Applications", Thomson Publishers, 2nd Edition.
2. PIC Microcontroller and Embedded Systems using Assembly and C for PIC 18, - Muhammad Ali Mazidi, RolindD.Mckinay , Danny causey -Pearson Publisher 21st Impression.

Reference Books:

1. R.S. Kaler, " A Text book of Microprocessors and Micro Controllers", I.K. International Publishing House Pvt. Ltd.
2. Ajay V. Deshmukh, "Microcontrollers – Theory and Applications", Tata McGraw– Hill Companies – 2005.
3. Ajit Pal, "Microcontrollers – Principles and Applications", PHI Learning Pvt Ltd, 2011.
4. Microprocessors and Interfacing, Douglas V Hall, Mc–Graw Hill, 2nd Edition.
5. Ray and Burchandi, "Advanced Micro Processors and Interfacing", Tata McGraw–Hill.