PC 402 IT   COMPUTER ORGANISATION AND MICROPROCESSOR

Instruction: 4 Periods per week
Duration of University Examination: 3 Hours
University Examination(SEE):   70 Marks
Sessionals(CIE):   30 Marks

Course Objectives:
1. To provide in depth knowledge to the students about the design and organization of a digital computer, operation of various functional units, instruction set design and factors that influence the performance of a computer.
2. To enable the students with the understanding of basic computer architecture with instruction set and programming of 8085 in particular.
3. To learn the functionality and interfacing of various peripheral devices.

UNIT-I
Basic Structure of Computers: Computer Types, Functional Units, Basic Operational Concepts, Bus Structures, Software, Performance, Multiprocessors and Multicomputers, Historical perspective. Input/Output Organization: Accessing I/O devices, Interrupts, Processor examples, Direct memory access, Buses, Interface circuits, Standard I/O interfaces.

UNIT-II
The Memory System: Basic concepts, Semi conductor RAM memories, Read-Only memories, Speed, Size and Cost, Cache memories, Performance considerations, Virtual Memories, Memory management requirements, Secondary Storage.

UNIT-III
8085 Architecture: Introduction to microprocessors and microcontrollers, 8085 Processor Architecture, Internal operations, Instructions and timings. Programming the 8085 - Introduction to 8085 instructions, Addressing modes and Programming techniques with Additional instructions.

UNIT-IV
Stacks and subroutines, interfacing peripherals - Basic interfacing concepts, Interfacing output displays, Interfacing input keyboards. Interrupts - 8085 Interrupts, Programmable Interrupt Controller (8259A). Direct Memory Access (DMA) - DMA Controller (Intel 8257), Interfacing 8085 with Digital to Analog and Analog to Digital converters.

UNIT-V
Programmable peripheral interface (Intel 8255A), Programmable communication interface (Intel 8251), Programmable. Interval timer (Intel 8253 and 8254), Programmable Keyboard /Display controller (Intel 8279). Serial and parallel bus standards RS 232 C, IEEE 488.

Suggested Reading:
1. Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Computer Organization, 5th Edition, McGraw Hill, 2002.
2. Ramesh S Gaonkar, Microprocessor Architecture, Programming, and Applications with the 8085, 5/E Prentice Hall, 2002.
3. Pal Chouduri, Computer Organization and Design, Prentice Hall of India, 1994.
4. M. M. Mano, Computer System Architecture, 3rd Edition, Prentice Hall, 1994.