**With effect from the academic year 2015-2016**

**BIT 254**

**COMPUTER ORGANIZATION & MICROPROCESSORS**

Instruction 4 Periods per week

Duration of University Examination 3 Hours

University Examination 75 Marks

Sessional 25 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.