

# Syllabus for B.Sc-IT Course

## at S.P. College

### SEMESTER -- III

**COURSE TITLE :- MICROPROCESSOR SYSTEMS COURSE CODE--BIT-301**

#### UNIT-I

**Microprocessor** : Basic Concepts: What is a Microprocessor? ; 4-8-16-32.....; Evolution of Microprocessor ; Microprocessor Programming (Instructions, Machine and Mnemonic Codes, Machine and Assembly Language Programming, High Level Language Programming ); Digital Logic (Digital and Analog Signals, Digital Building Blocks, Signal Levels, Device Loading , Open-Collector and Totem-Pole Devices); Timing Diagram Conventions.

#### UNIT-II

**Data Representations** : Introduction ; Positional Number Systems; The Binary Number System (Concepts; Binary to Decimal Conversion; Decimal to Binary Conversion); Representation of Integers (Positive Integers, Maximum Integer, Negative Number Representation, Minimum Integer, BCD Representation); Representation of Real Numbers (Conversion of Real Number, Floating Point Notation, Representation of Floating Point Number, Accuracy and Range in Floating Point Representation); Binary Arithmetic (Addition and Subtraction of Binary Integers, Overflow and Underflow, Addition of Floating Point Number); Other Number System (Some Conventions); Character Representation.

#### UNIT-III

**8085 Microprocessor Architecture & Programming** : Introduction; Organization of the 8085 (Data and Address Busses, Addressing the I/O Devices, Registers in the 8085); Instruction Set of the (Instructions, Addressing Modes, Space and Time Requirements).: Addressing I/O Devices , Stacks & Subroutines.

#### UNIT-IV

**Microprocessor Timings** : Introduction, Timing and Control Unit (Basic Concepts, The Fetch Operation, The Execute Cycle, Machine Cycle and State, Instruction and Data Flow); Timings of INTEL 8085 (8085 Buses, Opcode Fetch Cycle, Memory and I/O Read Cycles, Memory and I/O Write Cycles, Interrupt Timings, Interrupt Acknowledge Machine Cycle, Bus Idle Machine Cycle, The HALT and HOLD States, Initiating System Operation, State Transition Sequence.

**Interfacing Peripherals (I/Os) With 8085**: Interfacing Fundamentals : Interrupts (Vectored & Non- Vectored) < Programmable Interrupt Controller(8259) : 8155 I/O & Timer , 8279 Keyboard / Display Interface.

#### Books Recommended

1. Microprocessor Architecture , Programming and Applications by Ramesh S. Gaonkar (Wiley Eastern Ltd)
2. Microprocessors and Microcomputer Based System Design , by Rafiq - u - Zaman (UBS)

#### Suggested Reading:

3. Microprocessor and Digital Systems by Douglas Hall.
4. Introduction to Microprocessor by Aditya P. Mathur.
5. Microprocessor Systems by Leventhal