PET4I104 MICROPROCESSORS AND MICROCONTROLLERS

Module-I (10 Hours)
1. Introduction to 8 bit and 16 bit Microprocessors-H/W architecture Introduction to microprocessor, computer and its organization, Programming system; Address bus, data bus and control bus, Tristate bus; clock generation; Connecting Microprocessor to I/O devices; Data transfer schemes; Architectural advancements of microprocessors. Introductory System design using microprocessors; 8086 – Hardware Architecture; External memory addressing; Bus cycles; some important Companion Chips; Maximum mode bus cycle; 8086 system configuration; Memory Interfacing; Minimum mode system configuration, Interrupt processing.

Module -II (11 Hours)
1. 16-bit microprocessor instruction set and assembly language programming: Programmer's model of 8086; operand types, operand addressing; assembler directives, instruction Set-Data transfer group, Arithmetic group, Logical group.

Module-III(12 Hours)
2. Microprocessor peripheral interfacing:
Introduction; Generation of I/O ports; Programmable Peripheral Interface (PPI)- Intel 8255; Sample-and-Hold Circuit and Multiplexer; Keyboard and Display Interface; Keyboard and Display Controller (8279).

Module-IV (11 Hours)
3. 8-bit microcontroller- H/W architecture instruction set and programming:
Introduction to 8051 Micro-Controllers, Architecture; Memory Organization; Special Function register; Port Operation; Memory Interfacing, I/O Interfacing; Programming 8051 resources, interrupts; Programmer's model of 8051; Operand types, Operand addressing; Data transfer instructions, Arithmetic instructions, Logic instructions, Control transfer instructions; Programming.

Additional Module (Terminal Examination-Internal) (6 Hours)
5. 8086: Maximum mode system configuration, Direct memory access, Interfacing of D- to-A converter, A-to-D converter, CRT Terminal Interface, Printer Interface, Programming of 8051 timers, 8051 serial interface.

Text Book(s)
1. Microprocessor Architecture, Programming and application with 8085, R.S. Gaonkar, PRI Penram International publishing PVT. Ltd., 5th Edition
2. Microprocessors and Interfacing, Programming and Hardware, Douglas V Hall, TMH Publication, 2006.
3. Microprocessors and Interfacing, N. Senthil Kumar, M. Saravanan, S. Jeevananthan and S.K. Shah, Oxford University Press.
4. The 8051 Microcontroller and Embedded Systems, Muhammad Ali Mazidi, Janice Gillispie Mazidi, Rolin D.M C Kinlay, Pearson Education, Second Edition, 2008.

Reference Book(s)
1. Microcontrollers: Principles and Application, Ajit Pal, PHI Publication
2. Microprocessors and Microcontrollers Architecture, programming and system design using 8085, 8086, 8051 and 8096, Krishna Kant, PHI Publication, 2007.
3. Advanced Microprocessors and Peripherals, A.K. Ray, K M Bhurchandi, TMH Publication, 2007.
4. Textbook of Microprocessor and Microcontroller, Thyagarajan, Scitech Publication.