Subject Code : CCN2K6

CORE COURSE VI – MICROCOMPUTER ARCHITECTURE

Unit I

8086 Architecture and assembly language Programming: Basic 8086 Configuration minimum mode and maximum mode – CPU Architecture – Internal operation – Machine language Instructions – Instruction Execution timing – Assembler instruction format – data transfer instructions – arithmetic instructions – branch instructions – LOOP, NOP, HLT instructions – flag manipulation – shift, rotate and logical instructions.

Unit II

Modular Programming: Directives and operators – assembly process – linking and relocation – stacks – procedures – interrupts and interrupt routines – macros – string manipulation – I/O programming – programmed I/O – interrupt I/O – block transfers and DMA.

Unit III

Intel 80286 – Internal structure – memory system – Real Mode – Protected Mode – Single level tasks – multilevel task – multiple tasks.
Intel 80386: Memory System – IO System – Registers – Memory Management – Task State Segment – Memory Paging Mechanism.

Unit IV

Intel 80486: Architecture – Memory Systems – Memory Management – Cache Test Registers, Pentium: Memory System – IO System – Registers – Memory Management, Pentium Pro Memory System – Features, Pentium II & III: Structure – Memory System - IO System Pentium IV: Memory Interface – Hyper pipe-lined Technology.

Unit V

Basic I/O Interface: Programmable peripheral interface (8255) – programmable keyboard display interface (8279) – programmable interval timer (8254) – programmable interrupt controller (8259) – programmable communication interface (8251)

Books for Study:

1. "Microcomputer Systems: The 8086/8088 family Architecture, programming and Design", Y.C.Liu and G.A.Gibson., Prentice Hall of India, New Delhi.
2. "The Intel Microprocessors 8086/80-88, 80186,80286,80386,80486 Pentium and Pentium Pro processors Architecture, Programming and Interfacing" Baarry B Brey, Prentice Hall of India, New Delhi, 2002.

Books for Reference:

1. "Advanced Microprocessors and Peripherals" , A.K.Ray and K.M./Bhurchaudi, TMH, 2002
2. "Microprocessors and Interfacing – Programming and Hardware", Douglas V.Hall McGraw Hill International Edition, 2002.