CS010 506: Advanced Microprocessors & Peripherals

Teaching scheme   **Credits:**
3 hours lecture and 1 hour tutorial per week

Objectives
- *To understand the concepts related to advanced microprocessors.*
- *To study the basic technology of various peripherals.*
- *To have an overview of different types of communication buses and ports*

Module I (15 hours)
8086 Architecture, Block diagram – Addressing modes – Instructions set of 8086 – data transfer – arithmetic – branch – loop – flag manipulation – shift & rotate – string instructions – writing simple program in 8086.

Module II (9 hours)
Additional features of 80286 – protected mode memory addressing – Additional features of 80386 – Paging mechanism (Flat memory model) – Additional features of Pentium Processors – Brief study of latest processors of Intel & AMD – Dual core processor(Brief idea only) .
Note: Architecture not required for the processors discussed in this module.

Module III: Peripherals (11 hours)
Study of motherboards – Different types of ports, slots and connectors – Processor Bus, AGP, PCI – Add-on cards – USB – Hard Disk Interfaces – IDE, ATA, Power supply – SMPS – function & operations.

Module IV: Storage Devices (15 hours)
Magnetic data storage: Principles – Hard disks – Cylinders – Clusters – Tracks and Sectors – Disk formatting – Partitioning – Hard disk drive operation – Data Transfer rates – Data addressing – CHS addressing – Logical Block Addressing.
Optical storage: CD Technology, CD ROM, CD-R, CD-RW, Interface – Magneto optical drives – DVD – RAID – Blu-ray disc.

Module V (10 hours)
Memory: Parity – ECC – Memory Addressing – 640 KB barrier – Extended and Expanded memory – HMA – Video memory – Flash Memory – Pen drive – Advanced memory technologies.

Reference Books

1. A K Ray, K M Bhurchandi, "*Advanced Microprocessors and Peripherals*", Tata McGraw Hill, New Delhi, 2nd Edition, 2010.
2. Craig Zacker & John Rourke, "*PC Hardware: The Complete Reference*", Tata McGraw Hill, New Delhi, First Edition, 2001.
3. Barry B.Brey, "*The Intel Microprocessors*", PHI, New Delhi, Sixth Edition, 2004.
4. Nilesh B. Bahadure, "Microprocessors", PHI, New Delhi, First Edition, 2010.
5. K.K Tripathi, Rajesh K Gangwar, "*Microprocessor and Its Application*", Acme Learning,2010
6. Douglas V Hall, "*Microprocessors and Interfacing*", Tata McGraw Hill, New Delhi, 2nd Edition, 2006
7. Scott Mueller, "*Upgrading and Repairing PC's*", Pearson Education, 17th Edition, 2006
8. Stephen J.Bigelow, "*Troubleshooting, Maintaining and Repairing PC's*", Tata McGraw Hill, New Delhi, 5th Edition, 2001