PCS5I001 ADVANCED COMPUTER ARCHITECTURE (3-0-1)

Module – I (18 Hrs)

Microprocessor and Microcontroller, RISC and CISC architectures, Parallelism, Pipelining fundamentals, Arithmetic and Instruction pipelining, Pipeline Hazards, Superscalar Architecture, Super Pipelined Architecture, VLIW Architecture, SPARC and ARM processors.

Module – II (06 Hrs)

Basic Multiprocessor Architecture: Flynn's Classification, UMA, NUMA, Distributed Memory Architecture, Array Processor, Vector Processors.

Module – III (08 Hrs)

Interconnection Networks: Static Networks, Network Topologies, Dynamic Networks, Cloud computing.

Module –IV (08 Hrs)

Memory Technology: Cache, Cache memory mapping policies, Cache updating schemes, Virtual memory, Page replacement techniques, I/O subsystems.

Text Book

1. John L. Hennessy and David A. Patterson, Computer Architecture: A Quantitative Approach, Morgan Kaufmann.
2. Computer Organization: Carl Hamacher, Zvonkovranesic, Safwat Zaky, McGraw Hill

References:

1. Kai Hwang, Advanced Computer Architecture: Parallelism, Scalability, Programmability, McGraw-Hill.
2. K. Hwang and F. A. Briggs, Computer Architecture and Parallel Processing, McGraw Hill.
3. Computer Architecture: Parhami, Oxford University Press
4. Dezso Sima, Terence Fountain, and Peter Kacsuk, Advanced Computer Architecture: A Design Space Approach, Addison Wesley.
5. John Paul Shen and Mikko Lipasti, Modern Processor Design, Tata McGraw Hill.