

Advanced Computer Architecture

CS801A

Contracts: 3L

Credits- 3

Computer Architecture and Organization-Review, Fundamentals of Computer Design, Technology Trends
Cost Performance Analysis (3L)

Parallel Processing Architectures- Taxonomy- SISD, MISD, SIMD,MIMD, PRAM models (3L)

Data and Resource Dependencies, Program Partitioning and Scheduling, Control Flow vs. Data Flow (3L)

Network topologies-Static, Dynamic, Types of Networks (3L)

RISC vs. CISC, Memory Hierarchy, Virtual Memory (4L)

Concepts of Pipelining, Instruction Pipelining, dynamic pipelining, arithmetic pipelines. (4L)

Multiprocessors- Multistage Networks, Cache Coherence, Synchronization, Message- passing (4L)

Vector Processing Principles- Instruction types, Compound, Vector Loops, Chaining (4L)

Array Processors- Structure, Algorithms (3L)

Data Flow Architecture- Graphs. Petri Nets, Static and Dynamic DFA, VLSI Computations (4L)

Parallel Programming Models, Languages, Compilers (4L)

Books:

Computer Architecture and Parallel Processing- Kai Hwang and A. .Brigggs International Edition, McGraw
Hill

Advanced Computer Architecture: D. Sima, T. fountain, P. Kacsuk, Pearson

Parallel Computer Architecture: D. Culler, J.P.Singh, A.Gupta, Elsevier