

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 1

Electrical Engineering

Subject Name: Advanced Micro Architecture (Micro Group)

Sr.No	Course content
1.	Parallel Architecture: Memory input-output subsystem – hierarchical memory structure, virtual memory system, memory allocation and management, input output subsystem, Cache memory.
2.	Pipeline Architecture: Principles of pipelining and vector processing Pipelining- an overlapped parallelism- instruction and arithmetic Pipeline- principles of designing pipeline processors,
3.	Vector Architecture: Vector Processing requirements. Vector methods, structures and algorithms for array processors, SID computer and performance enhancement.
4.	Multiprocessor Architecture Functional structures, inter-connection networks, parallel memory organization, Multiprocessor OS, exploiting concurrence for multiprocessing.
5	Inter Processor Communication: Interprocess communication mechanism, dead lock and protection, multiprocessing scheduling strategies, parallel algorithms for multiprocessors.
6	Reduced Instruction Set Computers (RISC) and ARM Architecture: Instruction execution characteristics, Use of a larger register file, Compiler based register optimization, RISC architecture: Motorola 88510, R4650
7	Superscalar Architecture: CPU structure and function- Power PC and Pentium, Linear and nonlinear pipeline processors.

Reference Books

1. Computer Architecture : Henry Peterson
2. Computer Organization & Architecture; William Stalling
3. Computer system architecture ; Morris Mano
4. Structured Computer Architecture; Tannembaum