

<b>Course Plan</b>			
<b>Module</b>	<b>CS405 COMPUTER SYSTEM ARCHITECTURE</b> <b>Contents</b>	<b>Hours</b>	<b>End Sem. Exam Marks</b>
<b>I</b>	Parallel computer models - Evolution of Computer Architecture, System Attributes to performance, Amdahl's law for a fixed workload. Multiprocessors and Multicomputers, Multivector and SIMD computers, Architectural development tracks, Conditions of parallelism.	6	15%
<b>II</b>	Processors and memory hierarchy - Advanced processor technology- Design Space of processors, Instruction Set Architectures, CISC Scalar Processors, RISC Scalar Processors, Superscalar and vector processors, Memory hierarchy technology.	8	15%
<b>FIRST INTERNAL EXAM</b>			
<b>III</b>	Multiprocessors system interconnects - Hierarchical bus systems, Cross bar switch and multiport memory, Multistage and combining networks. Cache Coherence and Synchronization Mechanisms, Cache Coherence Problem, Snoopy Bus Protocol, Directory Based Protocol, Hardware Synchronization Problem	7	15%
<b>IV</b>	Message Passing Mechanisms-Message Routing schemes, Flow control Strategies, Multicast Routing Algorithms. Pipelining and Superscalar techniques - Linear Pipeline processors and Nonlinear pipeline processors	8	15%
<b>SECOND INTERNAL EXAM</b>			
<b>V</b>	Instruction pipeline design, Arithmetic pipeline design - Super Scalar Pipeline Design	8	20%
<b>VI</b>	Multithreaded and data flow architectures - Latency hiding techniques, Principles of multithreading - Multithreading Issues and Solutions, Multiple context Processors, Fine-grain Multicomputer- Fine-grain Parallelism. Dataflow and hybrid architecture	8	20%
<b>END SEMESTER EXAM</b>			