

SEMESTER	1
Paper Number	MCMS 4113
Paper Title	Advanced Operating System
No. of credits	6
Theory / Composite	Composite
No. of periods assigned	Th: 4 Pr: 4
Name of faculty member(s)	
Course description / objectives	<p>On completion of this course, the students will be able to:</p> <ol style="list-style-type: none"> 1. have an introduction to distributed operating systems (DOS) and real time operating systems (RTOS) 2. gain a detailed understanding of different modules such as memory management, process management and file management in reference to DOS 3. gain concepts on multi-threading and fault tolerance
Syllabus	<p>Theory – 60 marks</p> <p>Introduction to distributed Systems: Definition, goals, Advantages–Disadvantages, Hardware and Software concepts, Design issues.</p> <p>Synchronization in distributed systems: Clock synchronization and related algorithms, mutual exclusion, Deadlock in distributed systems.</p> <p>Distributed File Systems: Introduction, features, goal of distributed file system, file models, file accessing models, file sharing semantics.</p> <p>Distributed Shared Memory: Introduction, general architecture of DSM systems, design and implementation issues of DSM, different protocols of DSM. Naming Overview, Features, Basic concepts, System oriented names, Object locating mechanisms.</p> <p>Communication in Distributed System: Computer Network and Layered protocols, Message passing and related issues, synchronization, Client Server model & its implementation, remote procedure call and implementation issues, Case Studies: SUN RPC.</p> <p>Processes and processors in distributed systems: Threads, system model, processor allocation, scheduling in distributed systems: Load balancing and sharing approach, fault tolerance, Real time distributed systems, Process migration and related issues</p> <p>Distributed Web-based Systems Architecture, Processes, Communication, Naming, Synchronization, Consistency and Replication: Web Proxy Caching, Replication for Web Hosting Systems, Replication of Web Applications</p> <p>Case Study Java RMI.</p> <p>Lab – 40 marks</p>
Reading/Reference Lists	<ol style="list-style-type: none"> 1. Tanenbum,A.S.,Distributed Operating Systems ,Pearson Education 2. Singhal,Shivaratri,Advanced Concepts in Operating Systems,TMH 3. P.K.Sinha,Distributed Operating Systems,PHI
Evaluation	<p>Total – 100 (Theory – 60, Practical – 40)</p> <p>Theory – CIA – 10 Semester Examination – 50</p>