MC5204 OPERATING SYSTEMS

DETAILED SYLLABUS

OBJECTIVES:

- To be aware of the evolution and fundamental principles of operating system, processes and their communication
- To understand the various operating system components like process management, memory management and
- To know about file management and the distributed file system concepts in operating systems
- To be aware of components of operating system with relevant case study.

UNIT I INTRODUCTION

Introduction -Types of operating systems-operating systems structures-Systems components-operating systems services-System Calls-Systems programs-Processes process concept-process scheduling-operation on processes-co-operating processes-Inter process communications-CPU Scheduling-Scheduling Criteria-Scheduling algorithms Multiple-processor Scheduling.

UNIT II PROCESS SYNCHRONIZATION

Process Synchronization –Critical Section problem – Semaphores-Classical problems of synchronization-critical regions-Monitors-Deadlock Characterization-Deadlock handling Deadlock Prevention-Deadlock Avoidance-Deadlock Detection-Deadlock Recovery – Threads-Multithreading Models.

UNIT III MEMORY MANAGEMENT

Memory Management-Swapping-Contiguous Memory Allocation-Paging-Segmentation Virtual Memory-Demand Paging-Page Replacement-Thrashing.

UNIT IV DISK SCHEDULING AND DISTRIBUTED SYSTEMS

Disk Structures-Disk Scheduling-File Systems Interface-File concepts-Access methods Directory Structures-File System Implementation-File Systems structures-Directory Implementation-Allocation Methods-Free Space Management-Distributed File systems Naming and Transparency-Remote File Accesses- Stateful Versus Stateless Service-File replication.

UNIT V CASE STUDIES

Linux System-design Principles- process management-File Systems-Windows 7- history design Principles –system components –Virtual machine OS.

REFERENCES:

1. Abraham Silberschalz Peter B Galvin, G.Gagne, "Operating Systems Concepts", 9th Edition, John Wiley & Sons, 2013.

2. Andrew S. Tanenbaum, "Modern operating Systems", Third Edition, PHI Learning Pvt. Ltd., 2008

3. D M Dhamdhere, "Operating Systems: A Concept-based Approach", Second Edition, Tata McGraw-Hill Education, 2007

4. H M Deital, P J Deital and D R Choffnes, "Operating Systems", 3rd edition, Pearson Education, 2011

5. William Stallings, "Operating Systems: Internals and Design Principles", Seventh

Edition, Prentice Hall, 2011