III YEAR – V SEMESTER
COURSE CODE: 7BCE5C1
CORE COURSE-IX–OPERATING SYSTEM

Introduction to Operating Systems: Introduction, What is an Operating systems, Operating system components and goals, Operating systems architecture. Process Concepts: Introduction, Process States, Process Management, Interrupts, Interprocess Communication.

Unit II
Asynchronous Concurrent Execution: Introduction, Mutual Exclusion, Implementing Mutual Exclusion Primitives, Software solutions to the Mutual Exclusion Problem, Hardware solution to the Mutual Exclusion Problem, Semaphores. Concurrent Programming: Introduction,Monitors.

Unit III
Deadlock and Indefinite Postponement: Introduction, Examples of Deadlock, Related Problem Indefinite Postponement, Resource concepts, Four Necessary conditions for Deadlock, Deadlock solution, Deadlock Prevention, Deadlock Avoidance with Dijkstra's Banker's algorithm, Deadlock   Detection,   Deadlock   Recovery. **Processor Scheduling:** Introduction, Scheduling levels, Preemptive Vs NonPreemptive Scheduling Priorities, Scheduling objective, Scheduling criteria, Scheduling algorithms.

Unit IV
Real Memory Organization and Management: Introduction, Memory organization, Memory Management, Memory Hierarchy, Memory Management Strategies, Contiguous Vs Non-Contiguous Memory allocation, Fixed Partition Multiprogrammimg, Variable Partition multiprogramming.
Virtual Memory Management: Introduction, Page Replacement, Page Replacement Strategies, Page Fault Frequency (PFF) Page replacement, Page Release, Page Size.

Unit V
Disk Performance Optimization: Introduction, Why Disk Scheduling is necessary, Disk Scheduling strategies, Rotational optimization.
File and Database Systems: Introduction, Data Hierarchy, Files, File Systems, File Organization, File Allocation, Free Space Management, File Access control.

Text Book:
1. Operating Systems, Deitel&DeitelChoffnes, Pearson education, Third edition, 2008. UNIT I: Chapter 1: 1.1, 1.2, 1.12, 1.13 &
            Chapter 3: 3.1, 3.2, 3.3, 3.4, 3.5
   UNIT II: Chapter 5: 5.1, 5.2, 5.3, 5.4(up to 5.4.2), 5.5, 5.6 &
            Chapter 6: 6.1, 6.2
   UNIT III: Chapter 7: 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 7.10
            Chapter 8: 8.1, 8.2, 8 3, 8.4, 8.5, 8.6, 8.7
   UNIT IV: Chapter 9: 9.1, 9 2, 9.3, 9 4, 9.5, 9.6, 9.8, 9.9
            Chapter 11: 11.1, 11.5, 11.6, 11.8, 11.9, 11.10
   UNIT V: Chapter 12: 12.1, 12.4, 12.5, 12.6
        Chapter 13: 13.1, 13 2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8