

KURUKSHETRA UNIVERSITY KURUKSHETRA
Course: B.Sc. (Hons) IT
Semester-III

Paper Code: BSIT -305
Nomenclature: - Operating System – I

Max. Marks: 40+10*
Time: 3hrs.

Unit-I

Operating System - Functions and Structure: Introduction to Operating System, Historical evolution of Operating System, Different services of Operating System, Types of Operating Systems, Operating System Architecture, Concept of System Calls, Virtual Machine and Booting.

Unit-II

Process Management: Process Concept, Process States, Process Control Block, Process Scheduling, Context Switching, Schedulers, Operation of Processes

Scheduling: Basic concepts, Scheduling criteria, Scheduling Algorithms: FCFS, SJF, Priority, RR, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling. Multiprocessor Scheduling and Real-Time Scheduling.

Unit-III

Inter-process Communication and Synchronization: Cooperating Processes, Inter-process Communication: Producer Consumer Problem, Process Synchronization: Critical Section, Hardware supported solutions, Software solutions.

Unit-IV

Deadlocks: Deadlocks, Graphical representation of a Deadlock, Deadlock Prerequisites, Methods for handling Deadlocks: Prevention, Avoidance, Detection and Recovery.

References:

1. Operating System Concepts John Wiley & Sons, Inc by Peterson & Silberschetz:
2. Operating Systems Tata McGraw Hill by Achyut S Godbole
3. Operating System Mc Graw Hill by Madnick & Donomen
4. Operating system by A.S. Tanenbaum

Note:

1. Syllabus in each Theory Paper is divided in 4 units.
 - I. A Student is required to attempt 5 questions in all.
 - II. Question No 1 is compulsory, consisting of short answer type questions based on all the 4 units.
 - III. Two questions will be set from each unit. A student is required to attempt one question from each unit.
 - IV. All questions carry equal marks.
2. Use of simple calculator is permissible.
3. Instructions should be imparted using SI system of units. Familiarity with CGS system of units should also be ensured.
4. Distribution of Marks: 40+10.

* Each theory question paper will be of 40 marks of 3 hours duration and 10 marks in each theory paper are to be awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper