



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
(Baba Sahib Ambedkar Road, Jammu-180006 (J&K))

Academic Section

Email: academicsectionju14@gmail.com

NOTIFICATION

(24/Jan/Adp./100)

In partial modification of this office Notification No. F.Acd/II/24/6286-6296 dated 11.07.2023, it is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the amended Syllabus and Courses of Study of **Course Code: UMJCST461 titled- Operating System for Semester-IV for Four Year Under Graduate Programme (FYUGP) under the Choice Based Credit System as per NEP-2020 (as given in the annexure)** for the examinations to be held in the years as per the details given below:

**Programme
(FYUGP)**

Semester

**For the examinations to be
held in the year**

BCA

(Software Development)

Semester-IV

December 2024, 2025 and 2026

The Syllabus of the course are also available on the University website:
www.jammuuniversity.ac.in.

Sd/-

DEAN ACADEMIC AFFAIRS

No. F. Acd/II/24/ 13570 - 13622

Dated: 30/1/24

Copy for information and necessary action to:

1. Dean, Faculty of Mathematical Science
2. HOD/Convener, Board of Studies ⁱⁿ Computer Science & IT
3. Sr. P.A. to the Controller of Examinations
4. All members of the Board of Studies
5. Confidential Assistant to the Controller of Examinations
6. Director, Computer Centre, University of Jammu
7. Deputy Registrar/Asstt. Registrar (Conf. /Exams. UG)
8. Incharge University Website for necessary action please

Sumilashama
Deputy Registrar (Academic)

30/1/24

30/01/24

BCA (Software Development) – FOURTH SEMESTER

Course: Major
 Course Credits: (L-P-T)
 (3-1-0)
 Total marks: 100

Course Title: Operating System
 Course Code: UMJCST461
 Mid Semester assessment: 15 Marks of 1.5 hours duration
 End Semester assessment: 60 Marks of 3.0 hours duration
 Practical: 25 Marks

For examinations to be held in May 2024, 2025 and 2026

Course objectives & learning outcomes:

1. To make aware of different types of Operating System and their services.
2. To understand and learn Process and Memory management techniques.
3. To know different disk scheduling algorithms and file organization techniques.
4. Execute and understand various Linux commands.

UNIT-I

Operating system overview: Definition, Evolution of Operating System, Functions of Operating System, Types of Operating systems. Operating System Structure: Layered, Monolithic, Microkernel, Operating System services, System Calls.

15 Hours

UNIT-II

Process Management: Process Concept, Process states, Process Control Block, Inter-process Communication. CPU Scheduling: Scheduling criteria, Scheduling Algorithms. Process Synchronization: Race Condition, The Critical-Section problem, Semaphores. Deadlock: Deadlock prevention, Deadlock avoidance, Deadlock detection, Recovery from deadlock.

15 Hours

UNIT-III

Main Memory: Multiprogramming with fixed partitions, Multiprogramming with variable partitions, Swapping, Paging, Segmentation, Segmentation with paging. Virtual Memory: Demand Paging, Page replacement algorithms, Allocation of frames, Thrashing, Locality of reference. Disk Scheduling: Disk Structure, Disk Scheduling Algorithms. File System: File concept, File organization and access mechanism.

15 Hours

UNIT IV

Linux Introduction & File System- Basic Features, Advantages, Basic Architecture of UNIX/LINUX System, Kernel, Shell. Commands for files & Directories- cd, cp, mv, rm, mkdir, more, less, Creating and Viewing Files using cat, File View and Comparisons etc. Understanding Shell, Processes in LINUX – Process Fundamentals, Connecting Processes with Pipes, Redirecting Input Output, Batch Commands- Kill, ps, who, sleep. Printing Commands- grep, fgrep, find, sort, cal, banner. File related Commands-ws, sat, cut, grep, dd etc.

15 Hours

Suggested readings/ references:

1. Silberschatz, Galvin and Gagne, Operating System Principles, 7th Ed. Addison Wesley.
2. Tanenbaum, Modern Operating Systems, PHI.
3. W. Stalling, Operating Systems, Macmillan.
4. H. M. Dietel, Operating Systems, Addison Wesley Longman.
5. Maurice J. Bach, The design of Unix Operating system, Pearson Education, India.
6. Sumitabha Das, "Unix concept and Programming", McGraw Hill education, 4th Edition, 2015.