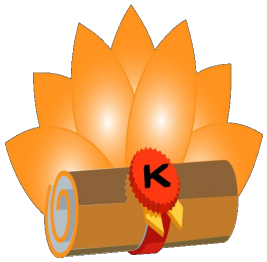
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Operating Systems (Lab) — Complete Syllabus

BTEUP Diploma in Information Technology • 3rd Semester • Session 2026–27

Subject 3.5 (Practical) • Total 100 Marks • 1 Credit • L 0 – P 2

About this document Operating Systems (Lab) is subject 3.5 of the 3rd semester of the Diploma in Information Technology. It is the practical companion to subject 3.1 Operating Systems: there is no theory paper, and assessment is 60 marks internal practical and 40 marks external practical (3 hours). This document gives the complete list of experiments, the examination scheme and the course outcomes from the official curriculum.

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Examination Scheme

Code	Paper	Type	L – P	Credits	Internal	External	Total
3.5	Operating Systems (Lab)	Practical	0 – 2	1	Practical 60	Practical 40 (3 hrs)	100
Operating Systems (Lab) Total				**1**	**60**	**40**	**100**

What This Subject Aims To Do

A general introduction to various ideas in implementation of operating systems, introduction to various options available so as to develop capacity to compare, contrast, and evaluate the key trade-offs between different design choices.

List of Experiments — 12 Experiments

S.No.	Name of Experiment

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1	Practice of various Linux/Unix commands like man, cp, mv, ln, rm, unlink, mkdir, rmdir, etc.
2	Format and install Windows Operating System.
3	Use Task Manager to monitor and terminate processes. Understand process priorities.
4	Simulate the following CPU scheduling algorithms: (a) FCFS (b) SJF (c) Round Robin (d) Priority.
5	Simulate the concept of Dining Philosophers problem.
6	Simulate Bankers Algorithm for Deadlock Avoidance.
7	Simulate Bankers Algorithm for Deadlock Prevention.
8	Write a program to simulate the following contiguous memory allocation techniques: (a) Worst Fit (b) Best Fit (c) First Fit.
9	Simulate all page replacement algorithms: (a) FIFO (b) LRU (c) OPTIMAL.
10	Write a program to simulate disk scheduling algorithms: (a) FCFS (b) SCAN (c) C-SCAN.
11	Simulate all file organization techniques: (a) Single level directory (b) Two level directory.
12	Simulate all file allocation strategies: (a) Sequential (b) Indexed (c) Linked.

Experiments 6 and 7 both name the Bankers Algorithm; the syllabus lists avoidance and prevention as two separate experiments, reproduced as printed.

How to Prepare

This lab turns the theory of subject 3.1 into programs you write and run. Learn the Linux commands of experiment 1 by using them daily, not by memorising the list. For the simulation experiments (4, 5, 6, 7, 8, 9, 10, 11, 12), first work the algorithm by hand on a small example — a scheduling table, a page reference string, a disk queue — and only then write the program, so you can check its output against your hand calculation. Keep your lab record complete and up to date: the 60 internal marks rest on your practical work through the semester, and the external practical examination (40 marks, 3 hours) tests the same experiments.

Course Outcomes

- CO1: Understand installation of operating system.
- CO2: Understand process management and distinguish CPU scheduling algorithms.
- CO3: Understand the concept of memory management.
- CO4: Understand I/O System and distinguish Disk scheduling algorithms.

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- CO5: Classify File System and directory implementations.

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Source: BTEUP IRDT Kanpur NEP-2020 curriculum for Diploma in Information Technology, effective session 2026-27 (urise.up.gov.in). Topic lists follow the official syllabus; short explanations are the author's own plain-English summaries, not syllabus text. Please confirm with your own polytechnic for any local changes.

