

# Practical Workbook

## CS-329

### Operating Systems



Name : \_\_\_\_\_  
Year : \_\_\_\_\_  
Batch : \_\_\_\_\_  
Roll No : \_\_\_\_\_  
Department: \_\_\_\_\_

**Department of Computer & Information Systems Engineering**  
**NED University of Engineering & Technology**

# Practical Workbook

## CS-329

### Operating Systems



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# INTRODUCTION

This workbook has been compiled to assist the conduct of practical classes for CS-329 Operating Systems. Practical work relevant to this course aims at providing students a chance to interact with an example operating system, for which Linux has been chosen. Linux has gained wide popularity due its transparent and well documented architecture. Linux is freely distributable, efficient, and a fast operating system. Linux has brought a mini-revolution in the computer world leading to the acceptance of free software for a wide range of tasks—from mission-critical websites and corporate information systems infrastructure to educational applications.

The Course Profile of CS-329 Operating Systems lays down the following Course Learning Outcome:

**“Practice** system programming using a contemporary operating system (C3, PLO-3)”

All lab sessions of this workbook have been designed to assist the achievement of the above CLO. A rubric to evaluate student performance has been provided at the end of the workbook.

Lab session 1 is about the setup of Linux virtual machine & session 2 covers basic Linux commands. Lab session 3 is about managing processes. Lab sessions 4 deals with Perl scripting. Lab sessions 5 to 8 work with POSIX threads library. Lab session 9 demonstrates CPU scheduling algorithms. Lab session 10 elaborates the FIFO and LRU page replacement algorithms through simulation. Lab session 11 discusses First-fit & Best-fit memory allocation algorithms. Lab session 12 explains implementation of mutual exclusion through semaphores. Lab session 13 presents solution to a classical resource allocation problem. Lab session 14 elaborates steps involved in Linux kernel re-compilation an is an open-ended lab.

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