



**NATIONAL UNIVERSITY OF ENGINEERING
COLLEGE OF SCIENCES
COMPUTER SCIENCE PROGRAM**

CC571 – ADVANCED OPERATING SYSTEMS

I. GENERAL INFORMATION

CODE	: CC571 – Advanced operating systems
SEMESTER	: 9
CREDITS	: 02
HOURS PER WEEK	: 4 (Theory – Laboratory)
PREREQUISITES	: CC401 Programming of applications in networks CC482 Core and networks for parallel computing
CONDITION	: Mandatory

II. COURSE DESCRIPTION

It demonstrates the components of an operating system and how to work on it, in a real way.

Teach the implementation of the Linux Kernel. The Kernel will be recompiled and installed as part of the open software management process.

III. LEARNING UNITS

1. Introduction

2. Kernel structure

I: Core

II: Initialization

III: Architecture and Memory control

IV: Communication and control between the processes

V: Networks

VI: File System

VII: Code that depends on the type of platform

VIII: Appendices

3. Structure for programming the Kernel code

4. Main files

5. Mount - Mount file system and device management programs

6. Classes of devices

7. Spaces assigned to Kernel and to the User
8. Device for character management
9. Example of a program for handling a device
10. Time measurement in the Kernel (jiffies) and in the user's space
11. Memory management
12. Input and output ports
13. Devices by blocks
14. Depuration
15. Portability.

IV. BIBLIOGRAPHY

- Daniel P. Bovet & Marco Cesati. Understanding the Linux Kernel. Editorial: Beijing; Cambridge, Mass. : O'Reilly, 2001.
- Gary Nutt. Kernel Projects for Linux. Editorial: Boston: Addison Wesley Longman, 2001.
- Alessandro Rubini & Jonathan Corbet. Linux Device Drivers. Editorial: Sebastopol: O'Reilly & Associates, ©2005.
- Moshe Bar. Linux File Systems. Editorial: New York: Osborne/McGraw-Hill, ©2001.