

**LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS, ENGINEERING, and COMPUTER SCIENCE**

**MAC230 Comparative Operating Systems
3 Credits; 4 Hours (3 lecture, 1 lab)**

This course is an introduction to computer operating systems including mainframe and microcomputer operating systems. Students will learn operating system concepts and command languages for several operation systems. Topics will include memory management, data management, job scheduling, spooling, I/O management, security, and networking as it applies to various operation systems.

What Is an Operation System?

- Basic Operation System Functions
- Layers of Abstraction
- Open Source and Proprietary Operation Systems

Hardware

- Memory
- The Processor
- Microcode
- Input and Output devices
- Communication Hardware

Application Software and Data

- Hardware, Software, and Data
- Software
- Data

Linking the Hardware Components

- Linking Hardware
- Architecture
- The Hardware/Software Interface

The User Interface, the File System, and the IOCS 93

- An Operating System's Basic Functions
- The User Interface
- The File System
- The Input/Output Control System
- Resident and Transient Routines
- The Boot

Resource Management

- Measures of effectiveness

- Memory Management
- Virtual Memory
- Multiprogramming
- Time-Sharing
- The Virtual Machine Concept
- Peripheral Device Manager

MS-DOS Commands

- MS-DOS
- Getting Started
- The File System
- Pipes, Filters, and Redirection
- Returning to Windows

The Microsoft Windows User Interface

- Windows XP
- Working with the Windows File System
- Other Futures
- The Macintosh User Interface

The UNIX/Linux User Interface

- UNIX
- The File System
- Working with the File System
- Pipes, Filters, and Redirection
- Shell Scripts
- The Command Line and GUI Layers

The Intel Architecture

- Introduction
- Intel Architecture Overview
- Memory Addressing
- Task management
- Memory Protection
- Interrupt Handling
- Improving the Performance of the Intel Architecture

MS-DOS Internals

- MS-DOS

Windows XP Internals

- Windows XP
- Windows XP Architecture
- Process Management
- Memory Management
- Disk Management
- File Management
- Input Output Manager
- The Registry
- Multimedia Support

The 64-Bit Version

UNIX and Linux Internals

The UNIX System

Images and Processes

Getting Started

Time-Slicing and Interrupts

Memory Management

The File System

UNIX Internals

Linux

Macintosh OS X Internals

Introduction

OS X Architecture

Darwin

Processor Scheduling

Memory Management

File Systems

Device Drivers

Quick Time

MVS Internals

Traditional Main Frames

Traditional IBM Mainframe Operation principles

Operating System Functions

The Dispatching Process

Data Communication and Networks

Layers

Data Communication

The Public Communication Infrastructure

Networks

The Internet and the World Wide Web

The Internet's Infrastructure

Internet Addressing

TCP/IP, the Internet's Protocols

The World Wide Web

An Expanded Layered View

Client/Server Information Systems

Web Information Systems

Services

 Middleware

 Security

Windows 2003 Server

Introduction

The Windows 2003 Network Architecture

File services

- Print Services
- Web Services
- Media Services
- Clustering Services
- Peer-to-Peer Networks
- Managing Windows 2003 Server
- Using Windows 2003 Server from a Client Computer

Linux Networking

- Introduction
- Network Services
- Linux File Services
- Windows Interconnectivity
- Print Services
- Apache Web Server
- Clustering

Novell NetWare

- NetWare
- File Systems
- Printing services
- Novell Directory services
- Network Management
- Novell Netware 6.5
- Using NetWare