

**HỆ ĐIỀU HÀNH WINDOWS VÀ LINUX/UNIX
(MICROSOFT WINDOWS AND LINUX/UNIX OPERATING SYSTEMS)
Đề cương chi tiết (Course Syllabus)**

1. General Information

Course name: Hệ điều hành Windows và Linux/Unix (Microsoft Windows and Linux/Unix Operating Systems)

Course code: SEC1411_CLC

Course type: Compulsory

Number of credits: 3

2. Objectives

Knowledge:

The aim of this course is to provide students with fundamental knowledge about Windows and Linux/Unix operating systems, including: architecture, file systems, installation, configuration, user management, security, networking, maintenance, and troubleshooting.

Skills:

On successful completion of this course a student will be able to:

- Install and configure Windows and Linux/Unix operating systems
- Manage basic system components and network services
- Apply security measures for systems, monitor system activities and troubleshoot system common issues

Attitude:

Students are required to attend the classes and complete assignments/projects.

3. Abstracts

This course provides essential knowledge about Microsoft Windows and Linux/Unix operating systems, covering their history, architecture, and interfaces, as well as file systems and storage management. It includes installation and configuration of operating systems, user and access rights management, network service setup, and security implementation. Additional topics include system maintenance, backup and recovery, troubleshooting, and performance monitoring.

4. Teaching and learning methods

Lectures: 24h

Exercises: 5h

Projects : 8h

Labs: 8h

Individual reading: 0h

5. Prerequisites: Computer Architecture and Operating Systems - INT1325_CLC

6. Learning outcomes

After completing this course, the student is able to:

[CLO1]: Explain the basic concepts, functions, and components of Windows and Linux/Unix operating systems

[CLO2]: Install and configure Windows and Linux/Unix operating systems and their components

[CLO3]: Manage and administer core services in Windows and Linux/Unix environments

[CLO4]: Apply security measures for systems, monitor system activities and troubleshoot system common issues

7. Assignment criteria

Learning outcomes	Assignment criteria
[CLO1]: Explain the basic concepts, functions, and components of Windows and Linux/Unix operating systems	Chapter 1, Chapter 5
[CLO2]: Install and configure Windows and Linux/Unix operating systems and their components	Chapter 2, Chapter 6
[CLO3]: Manage and administer core services in Windows and Linux/Unix environments	Chapter 3, Chapter 7
[CLO4]: Apply security measures for systems, monitor system activities and troubleshoot system common issues	Chapter 4, Chapter 8

8. Outlines

Chapter 1 Introduction to Microsoft Windows Operating Systems

- 1.1. History and development
- 1.2. Architecture
- 1.3. Interface
- 1.4. File system
- 1.5. Windows Registry

Chapter 2 Installation and Basic Management of Windows

- 2.1. Windows installation
- 2.2. Device drivers
- 2.3. Storage systems
- 2.4. User and access rights management
- 2.5. Group policies
- 2.6. Services

Chapter 3 Windows Server Administration

- 3.1. DNS and DHCP servers
- 3.2. Active Directory
- 3.3. Web services
- 3.4. File and print services
- 3.5. Remote access services

Chapter 4 Ensuring Windows Operating System Security

- 4.1. Patch management
- 4.2. Backup and recovery
- 4.3. Troubleshooting
- 4.4. Activity monitoring and auditing
- 4.5. Remote administration tools
- 4.6. Enhancing Windows security

Chapter 5: Introduction to Linux/Unix Operating Systems

- 5.1. History and development
- 5.2. Architecture
- 5.3. Interface (Shell and GUI)
- 5.4. File system
- 5.5. Official versions

Chapter 6: Installation and Basic Management of Linux/Unix

- 6.1. Linux/Unix installation
- 6.2. Device driver management
- 6.3. Storage systems
- 6.4. User and access rights management
- 6.5. Services

Chapter 7: Linux/Unix Server Administration

- 7.1. DNS and DHCP services
- 7.2. Web services
- 7.3. Email services
- 7.4. File and print services

Chapter 8: Ensuring Linux/Unix Operating System Security

- 8.1. Patch management
- 8.2. Backup and recovery
- 8.3. Troubleshooting
- 8.4. Activity monitoring and auditing
- 8.5. Remote administration tools
- 8.6. Enhancing Linux/Unix security
- 8.7. Shell programming

9. Required Textbooks

- [1] Jordan Krause, "Mastering Windows Server 2016", Packt Publishing Ltd, 2016.
- [2] Wale Soyinka, "Linux Administration: A Beginners Guide", McGraw-Hill Osborne Media, 2020.

10. Suggested Textbooks

- [3] Phạm Hoàng Duy, Đinh Trường Duy, 2022. Bài giảng Hệ điều hành Windows và Linux/Unix. Học viện Công Nghệ Bưu Chính Viễn Thông.
- [4] Tom Carpenter, "Microsoft Windows Operating System Essentials", Sybex, 2012.
- [5] Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, Dan Mackin, "UNIX and Linux System Administration Handbook", 5th edition, USENIX Open Access Policy, 2018.

11. Schedule

Main contents	Duration	Specific contents
Chapter 1: Introduction to Microsoft Windows Operating Systems	3h lecture	1.1. History and development 1.2. Architecture 1.3. Interface 1.4. File system 1.5. Windows Registry
Chapter 2: Installation and Basic Management of Windows	3h lecture 2h exercise 2h lab	2.1. Windows installation 2.2. Device drivers 2.3. Storage systems 2.4. User and access rights management 2.5. Group policies 2.6. Services
Chapter 3: Windows Server Administration	3h lecture 2h exercise 2h lab	3.1. DNS and DHCP servers 3.2. Active Directory 3.3. Web services 3.4. File and print services 3.5. Remote access services
Chapter 4: Ensuring Windows Operating System Security	3h lecture 2h exercise	4.1. Patch management 4.2. Backup and recovery 4.3. Troubleshooting 4.4. Activity monitoring and auditing 4.5. Remote administration tools 4.6. Enhancing Windows security
Chapter 5: Introduction to Linux/Unix Operating Systems	3h lecture	5.1. History and development 5.2. Architecture 5.3. Interface (Shell and GUI) 5.4. File system 5.5. Official versions
Chapter 6: Installation and Basic Management of Linux/Unix	3h lecture 2h exercise 2h lab	6.1. Linux/Unix installation 6.2. Device driver management 6.3. Storage systems 6.4. User and access rights management 6.5. Services
Chapter 7: Linux/Unix Server Administration	4h lecture 2h exercise 2h lab	7.1. DNS and DHCP services 7.2. Web services 7.3. Email services 7.4. File and print services

Chapter 8: Ensuring Linux/Unix Operating System Security	4h lecture 3h exercise	8.1. Patch management 8.2. Backup and recovery 8.3. Troubleshooting 8.4. Activity monitoring and auditing 8.5. Remote administration tools 8.6. Enhancing Linux/Unix security 8.7. Shell programming
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12. Grading Policy

Attendance:	10%
Mid-term exam/exercises:	10%
Course projects:	30%
Final examination:	50%