

WINDOWS AND LINUX/UNIX ADMINISTRATION

1. Thông tin về học phần (General Information):

Tên học phần (Course name): Windows and Linux/Unix Administration

Mã học phần (Course code): INT1487

Số tín chỉ (Number of credits): 3

Loại học phần (Course type): Compulsory

Học phần tiên quyết (Prerequisites):

Học phần trước (Previous courses): Computer Networks (INT1336)

Học phần song hành (Parallel courses):

Các yêu cầu đối với học phần (Course requirements):

- Phòng học lý thuyết (Lecture room): Projector, ...
- Phòng thực hành (Laboratory): LAN computers with Windows Server, Linux Server

Giờ tín chỉ đối với các hoạt động (Teaching and Learning hours):

- Lý thuyết (Lectures): 30h
- Bài tập (Exercises): 0h
- Bài tập lớn (Projects): 8h
- Thực hành (Labs): 7h
- Tự học (Individual reading): 0h

Địa chỉ Khoa/Bộ môn phụ trách học phần (Address of the Faculty/Department in charge of the course):

- Địa chỉ (Address): Khoa Công nghệ Thông tin 1 - Học viện Công nghệ Bưu chính Viễn thông, Km10, Nguyễn Trãi, Hà Đông, Hà Nội
Faculty of Information Technology 1 - Posts and Telecommunications Institute of Technology, Km10, Nguyen Trai Street, Ha Dong District, Hanoi.
- Điện thoại (Phone number): (024) 33510432

2. Mục tiêu học phần (Objectives)

Về kiến thức (Knowledge):

The aim of this course is to provide students with the fundamental knowledge on Microsoft Windows / Linux / Unix server operating systems, including:

- Microsoft Windows server operating system and its critical components and services; methods to secure/harden Windows server systems;
- Linux/Unix server operating system and its critical components and services; methods to secure/harden Linux/Unix server systems.

Kỹ năng (Skills):

The aim of this course is to equip students with skills in:

- installing, configuring and managing Windows server and its services;
- installing, configuring and managing Linux/Unix server and its services.

Thái độ, Chuyên cần (Attitude):

Students must ensure the required class attendance, assigned projects & labs and

self-studying hours.

3. Tóm tắt nội dung học phần (Abstract) (5- 6 dòng)

This course aims to equip students with fundamental knowledge on Microsoft Windows / Linux / Unix server operating systems and network services, including email service, file sharing service, web service, DNS service, user management... Besides, this course gives an overview of techniques and methods to detect and prevent cyber-attacks, and the system backup and recovery in the abnormal situations.

5. Nội dung chi tiết học phần (Outlines)

Chapter 1: Windows server system administration

- 1.1 History and core services of Windows server
 - 1.1.1 History of Windows server
 - 1.1.2 User account management
 - 1.1.3 Active directory (AD)
 - 1.1.4 Domain name system (DNS)
 - 1.1.5 Dynamic host configuration protocol (DHCP)
- 1.2 Web and networking with Windows server
 - 1.2.1 IIS web server
 - 1.2.2 Server core
 - 1.2.3 Certificates in Windows server
 - 1.2.4 IPv6
 - 1.2.5 Networking toolbox
 - 1.2.6 Software defined networking
- 1.3 Hardening and Security
 - 1.3.1 Windows defender advanced threat protection
 - 1.3.2 Windows defender firewall
 - 1.3.3 Encryption technologies
 - 1.3.4 Advanced threat analytics
 - 1.3.5 General security best practices

Chapter 2: Unix and Linux system administration

- 2.1 History and core services of Unix and Linux operating system
 - 2.1.1 History of Unix and Linux operating system
 - 2.1.2 Storage
 - 2.1.3 Access control and root privileges
 - 2.1.4 Process control
 - 2.1.5 The file system
 - 2.1.6 User account management
 - 2.1.7 Drivers and the Kernel
- 2.2 Web and networking with Unix/Linux operating system
 - 2.2.1 TCP/IP Networking
 - 2.2.2 Software defined networking
 - 2.2.3 IP Routing
 - 2.2.4 Domain name system
 - 2.2.5 Single sign on
 - 2.2.6 Web hosting

- 2.2.7 Samba server
- 2.2.8 Virtualization
- 2.3 Hardening and Security
 - 2.3.1 Basic security measures
 - 2.3.2 Linux firewall
 - 2.3.3 Encryption technologies
 - 2.3.4 Performance analysis
 - 2.3.5 Methodology and security policy

5. Học liệu (Textbooks)

5.1. Học liệu bắt buộc (Required Textbooks)

- [1] Jordan Krause, *Mastering Windows Server 2019*, Packt Publishing, Second edition, 2019.
- [2] Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, Dan Mackin, *Unix and Linux system administration handbook*, Addison-Wesley Professional, Fifth edition, 2018.

5.2. Học liệu tham khảo (Reference Textbooks)

- [3] Tom Carpenter, *Microsoft Windows Server Operating System Essentials*, Sybex, 2011.
- [4] Wale Soyinka, *Linux Administration A Beginners Guide*, McGraw-Hill Osborne Media, 2012.

6. Phương pháp, hình thức kiểm tra – đánh giá kết quả học tập học phần (Grading Policy)

Grading method	Percentage	Group/Individual
- Attendance	10%	Individual
- Mid-term exams	20%	Individual
- Projects	20%	Group or individual
- Final examination	50%	Individual

**Trưởng Bộ môn
(Head of Department)**

**Giảng viên biên soạn
(Lecturer)**

Hoàng Xuân Dậu

Ngô Quốc Dũng