

# INFORMATION SECURITY GRADUATION MODULE 2

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

**Tên học phần (Course name):** Information security graduation module 2

**Mã học phần (Course code):**

**Số tín chỉ (Number of credits):** 4

**Loại học phần (Course type):** Elective

**Học phần tiên quyết (Prerequisites):**

**Học phần trước (Previous courses):** Fundamentals of Information Security (INT1472), Introduction to Cryptography (INT1344), Network Security (INT1482)

**Học phần song hành (Parallel courses):**

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

- Lecture room: Projector, microphone and speaker.
- Laboratory:

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

- Lý thuyết (Lectures): 20h
- Bài tập (Exercises): 0h
- Bài tập lớn (Projects): 40h
- Thực hành (Labs): 0h
- Tự học (Individual reading): 0h

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

- Address: Faculty of Information Technology 1 - Posts and Telecommunications Institute of Technology, Km10, Nguyen Trai Street, Ha Dong District, Hanoi.
- 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 knowledge about cyber-attack and prevention, malware and prevention, techniques to ensure information security, cryptographic systems and cryptographic applications in network security.

**Kỹ năng (Skills):**

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

- analyzing and identifying security risks and threats to the network systems;
- selecting and applying suitable security measures to protect information, systems, networks in practice.

**Thái độ, Chuyên cần (Attitude):**

Students must ensure the required class attendance, assigned projects and self-studying hours.

## 3. Tóm tắt nội dung học phần (Description)

The course provides students with knowledge and skills for network security, including network security issues as well as methods of ensuring network security. Specific topics include network attacks and prevention measures, malware and prevention solutions, network information security techniques and technologies, cryptography and cryptographic applications in network security.

#### **4. Nội dung chi tiết học phần (Outlines)**

##### **Chapter 1. Network attacks and prevention solutions**

1.1. Typical types of network attacks

1.2. Prevention solutions

1.3. Exercise / Discussion: Understanding some typical types of network attacks (Spoofing, Sniffing, DOS, Phishing) and deploying prevention solutions

##### **Chapter 2. Malware and prevention solutions**

2.1. Malware classification

2.2. Solutions to detect and prevent malware

2.3. Exercise / Discussion: Understanding some malware and installing anti-malware scanning and removal tools

##### **Chapter 3. Techniques and technologies to ensure information security**

3.1. Access control

3.2. Firewall

3.3. IDS / IPS

3.4. IPSec, VPN

3.5. Exercise / Discussion: installing, configuring some information security systems

##### **Chapter 4. Cryptography and cryptographic applications in network security**

4.1. Symmetric key encryption

4.2. Asymmetric key encryption

4.3. Hash functions

4.4. Digital signature, digital certificate and PKI

4.5. Exercise / Discussion:

4.5.1. Understanding the algorithms and installing some encryption algorithms (AES, RSA, SHA1, Understanding how to create and verify digital signatures)

4.5.2. Understanding security protocols based on encryption (SSL / TLS, PGP, Kerberos)

#### **5. Học liệu (Textbooks)**

##### **5.1. Học liệu bắt buộc (Required Textbooks)**

[1] Roberta Bragg, Mark Rhodes-Ousley and Keith Strassberg, Network Security: The Complete Reference, McGraw-Hill Osborne Media, 2013.

[2] William Stallings, Cryptography and Network Security : Principles and Practice (6th Edition), Pearson, 2013.

##### **5.2. Học liệu tham khảo (Optional Textbooks)**

[3] Michael E. Whitman, Herbert J. Mattord, Principles of information security, 4th edition, Course Technology, Cengage Learning, 2012.

[4] John Chirillo, Hack attacks revealed: A complete reference with custom security hacking toolkit, John Wiley & Sons, 2001.

[5] Jie Wang, Computer Network Security: Theory and Practice, Springer, 2009.

[6] Michael T. Simpson, Kent Backman, Hands-On Ethical Hacking and Network Defense, Delmar Cengage Learning, 2010.

[7] Stuart McClure, Joel Scambray and George Kurtz, Hacking Exposed 7: Network Security Secrets & Solutions, McGraw-Hill Osborne Media, 2012.

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

<b>Grading method</b>	<b>Percentage</b>	<b>Group/Individual</b>
- Attendance	10%	Individual
- Mid-term exams		
- Projects	40%	Group or individual
- Final examination	50%	Individual

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

**Giảng viên biên soạn**  
**(Lecturer)**

**Hoàng Xuân Dậu**

**Đặng Minh Tuấn**