

NHẬP MÔN TIN HỌC VÀ AN TOÀN THÔNG TIN
(INTRODUCTION TO INFORMATICS AND INFORMATION SECURITY)
Đề cương chi tiết (Course Syllabus)

1. General Information

Course name: Nhập môn tin học và an toàn thông tin (Introduction to informatics and information security)

Course code: SEC1101_CLC

Course type: Compulsory

Number of credits: 3

2. Objectives

Knowledge:

The aim of this course is to provide students with basic knowledge of computers, networks, basic C programming and a big picture of information security.

Skills:

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

- Setup and use proficiently operating systems, common computer software and applications;
- Write, execute and debug C programs.

Attitude:

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

3. Abstracts

This course provides students with basic knowledge of computers, networks, programming and information security. Specific topics include: basics of information and computer systems; operating systems; common software applications; programming with C language; basic concepts of information security; major knowledge blocks in information security; software, tools and applications for information security; and challenges, trend and future of information security.

4. Teaching and learning methods

Lectures: 24h

Exercises: 15h

Labs: 6h

Individual reading: 0h

5. Prerequisites:

6. Learning outcomes

After completing this course, the student is able to:

[CLO1]: Explain basic knowledge of computers, networks, basic C programming and information security;

[CLO2]: Setup and use proficiently operating systems, common computer software and applications;

[CLO3]: Write, execute and debug C programs.

7. Assignment criteria

Learning outcomes	Assignment criteria
[CLO1]: Explain basic knowledge of computers, networks, basic C programming and information security	Chapter 1, Chapter 2, Chapter 3, Chapter 4, Chapter 5
[CLO2]: Setup and use proficiently operating systems, common computer software and applications	Chapter 2, Chapter 3
[CLO3]: Write, execute and debug C programs	Chapter 4

8. Outlines

Chapter 1 Basics of information and computer systems

- 1.1. Information and information processing
- 1.2. General structure of computer systems
- 1.3. Computer networks and the Internet

Chapter 2 Operating systems

- 2.1. Introduction to operating systems
- 2.2. Microsoft Windows operating systems
- 2.3. Linux and Unix operating systems
- 2.4. Mac OS
- 2.4. Mobile operating systems

Chapter 3 Common software applications

- 3.1. Office software
- 3.2. Web browsers
- 3.3. Programming tools
- 3.4. Common Internet applications

Chapter 4 Programming with C language

- 4.1. Introduction to programming and programming languages
- 4.2. Data types, operators and expressions
- 4.3. Control flow
- 4.4. Functions and program structure
- 4.5. Advanced data types
- 4.6. Input and output

Chapter 5 Introduction to information security

- 5.1. Basic concepts of information security
- 5.2. Common threats and attacks to end users
- 5.3. Major knowledge blocks in information security

- 5.4. Software, tools and applications for information security
- 5.5. Challenges, trend and future of information security

9. Required Textbooks

- [1] V. Rajaraman. Introduction to Information Technology. PHI Learning; 3rd edition, 2018.
- [2] Brian W. Kernighan, Dennis M. Ritchie. C Programming Language, 2nd Edition. Pearson, 1988.

10. Suggested Textbooks

- [3] June Jamrich Parsons. New Perspectives Computer Concepts Comprehensive. Cengage Learning; 21st edition, 2022.
- [4] Phan Thị Hà, Nguyễn Tiến Hùng. Bài giảng tin học đại cương. Học viện Công nghệ BCVT, 2020.
- [5] Hoàng Xuân Dâu, Bài giảng Kiến trúc máy tính, Học viện Công nghệ Bưu chính Viễn thông, 2012.
- [6] Từ Minh Phương, Giáo trình Hệ điều hành, Học viện Công nghệ Bưu chính Viễn thông, 2015.
- [7] Hoàng Xuân Dâu, *Giáo trình cơ sở an toàn thông tin*, Học viện Công nghệ BCVT, NXB Thông tin & Truyền thông, 2020.

11. Schedule

Main contents	Duration	Specific contents
Chapter 1 Basics of information and computer systems	4h lecture 1h exercise	1.1. Information and information processing 1.2. General structure of computer systems 1.3. Computer networks and the Internet
Chapter 2 Operating systems	4h lecture 1h exercise	2.1. Introduction to operating systems 2.2. Microsoft Windows operating systems 2.3. Linux and Unix operating systems 2.4. Mac OS 2.4. Mobile operating systems
Chapter 3 Common software applications	4h lecture 3h exercise 2h lab	3.1. Office software 3.2. Web browsers 3.3. Programming tools 3.4. Common Internet applications
Chapter 4 Programming with C language	8h lecture 8h exercise 4h lab	4.1. Introduction to programming and programming languages 4.2. Data types, operators and expressions 4.3. Control flow 4.4. Functions and program structure 4.5. Advanced data types

		4.6. Input and output
Chapter 5 Introduction to information security	4h lecture 2h exercise	5.1. Basic concepts of information security 5.2. Major knowledge blocks in information security 5.3. Software, tools and applications for information security 5.4. Challenges, trend and future of information security

12. Grading Policy

Attendance:	10%
Mid-term exam/exercises:	20%
Course labs:	20%
Final examination:	50%