INTRODUCTION TO COMPUTING AND PROGRAMMING

1.Thông tin về học phần (General Information)

Tên học phần (Course name): Introduction to Computing and Programming

Mã học phần (Course code): INT11117_CLC

Số tín chỉ (Number of credits): 3

Loại học phần (Course type): Compulsory

Học phần tiên quyết (Prerequisites):

Học phần song hành (Parallel courses):

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

- Lecture room: Projector, microphone and speaker, air conditioner.
- Laboratory: Computer with C IDE, office

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

- Lectures (lí thuyết): 30h
- Exercises (bài tập): 0h
- Projects (bài tập lớn): 08h
- Lab (thực hành): 06h
- Individual reading (tự đọc): 01h

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 và chuẩn đầu ra (Objectives and Learning outcomes)

2.1. Mục tiêu (Objectives)

Về kiến thức (Knowledge):

The aim of this course is to provide learners with basic knowledge computing and programming, including:

- computers and operating systems;
- proficient use of common software and programming languages

Learners use this knowledge as the foundation for the next subjects.

Kỹ năng (Skills)

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

- applying the learned knowledge to operate the computers, and use some basic application software, such as MS-Word, MS-Excel, MS-Powerpoint.
- write basic computer programs using C programming language.

Thái độ, Chuyên cần (Attitude):

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

2.1. Chuẩn đầu ra (Learning outcomes)

After studied this courses, learner could:	
1.	[LO1]: Acquiring a thorough understanding of vital concepts related to computer systems, MS-Office, and programming languages
2.	[LO2]: Understanding operating systems and applying acquired knowledge to operate computers
3.	[LO3]: Skill in creating documents using Microsoft Word, Excel, and PowerPoint
4.	[LO4]: Skill in writing computer programs using the C programming language.

Learning outcomes **Content**	**LO1**	**LO2**	**LO3**	**LO4**
Chapter 1: Computer basics	X			
Chapter 2. Working with Window operating systems	X	X		
Chapter 3. Working with Microsoft Word, Excel And PowerPoint	X		X	
Chapter 4. Introduction To C Programming Language	X	X		X
Chapter 5. Beyond C Programming Language Basics	X	X		X

3. Tóm tắt nội dung học phần (Description)

This course introduces learners to operating principles of computers, operating systems, office support systems, and programming languages that are considered to be the initial foundations of computer science. This course, provides learners with the most important knowledge about computer systems, MS-Office and C programming language. Learners use this knowledge to further study the subject matter, according to operating system, computer architecture, object-oriented programming and other subjects.

4. Nội dung chi tiết học phần (Outlines)

Chapter 1. Computer basics

1.1. Introduction
1.2. Classification of computers
    1.2.1. Microcomputers
    1.2.2. Minicomputers
    1.2.3. Mainframes
    1.2.4. Supercomputers
1.3. Computer organization and architecture
    1.3.1. Central processing unit
    1.3.2. Communication among various units
    1.3.3. Instruction format
    1.3.4. Instruction cycle
    1.3.5. Instruction set

4.4.6. Scope rules
4.4.7. Header files
4.4.8. Recursion

Chapter 5. Beyond C Programming Language Basics

5.1. Pointers and arrays
5.1.1. Pointers and addresses
5.1.2. Pointers and function arguments
5.1.3. Pointers and arrays
5.1.4. Pointers to pointers
5.1.5. Pointers vs. multi-dimensional arrays
5.2. Structures
5.2.1. Basics of structures
5.2.2. Structures and functions
5.2.3. Arrays of structures
5.2.4. Pointers to structures
5.2.5. Unions
5.2.6. Bit-fields
5.3. Input and output
5.3.1. Standard input and output
5.3.2. Formatted output-printf
5.3.3. Formatted input-scanf
5.3.4. File access
5.3.5. Line input and output
5.4. Summarization

5. Học liệu (Textbooks)

5.1. Học liệu bắt buộc (Required Textbooks)

[1] Brian W. Kernighan, Denis M. Ritchie. *The C Programming Language*. 2th edition, Prentice Hall, 2010.

[2] Devid Evans. *Introduction to Computing*, University of Virginia, 2011.

5.2. Học liệu tham khảo (Optional Textbooks)

[3] Emile Woolf International, *Introduction to Information Technology*, 2013.

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
- Exercises	20%	Individual
- Mid-term projects/exams	20%	Group or individual
- Final examination (lab)	50%	Individual

Trưởng Bộ môn **(Head of Department)** **Nguyễn Mạnh Hùng**		**Giảng viên biên soạn** **(Lecturer)** **Đặng Ngọc Hùng**