THAI NGUYEN UNIVERSITY
UNIVERSITY OF INFORMATION AND COMMUNICATION TECHNOLOGY

SOCIALIST REPUBLIC OF VIET NAM
Independence - Freedom – Happiness

COURSE SYLLABUS

(Training level: Undergraduate)

Course Title*:*

Vietnamese Course Title: Nhập môn lập trình

English Course Title: Introduction to Programming

Course Code: PIN231

Major: Information technology

Version: 2017

1. General Information

- Number of credits: 3 (Theory: 2; Practice: 1)
- Types of knowledge:

General Education		**Base core courses**		**Major core courses**		**Concentration courses**		**Others**
Required ☐	Optional ☐	Required ☐	Optional ☐	Required ☒	Optional ☐	Required ☐	Optional ☐	Alternative subject of Graduation Thesis ☐

- Required courses: None
- Pre-requisite: General Informatics
- Co-requisite: None
- Facility Requirements: Having a projector in the classroom
- Practice Room: Have Dev C++ software
- Departments in Charge: Faculty Information Technology

2. Time Allocated

Total: 60 periods	Theory: 29 periods
	Discussion/ Group Presentation: 0/0
	Assignments/Essays/Practices: 0/0/28 periods.
	Tests: 3 *+ Theory: Number of Tests: 1 Periods: 1* *+ Practice: Number of Tests:2 Periods:2*
Self-study: 90 periods Other activities: 0	

3. Lecturer's Information

No.	Lecturer name	Phone number	Email	Note
1	McS. Nguyen Tuan Anh	0912 662 003	anhnt@ictu.edu.vn	Leader
2	McS. Duong Thi Quy	0947 015 947	dtquy@ictu.edu.vn	Member

4. Objectives

- *Objectives*: Equip students with basic knowledge, help students have simple programming skills through C programming language. Support students to have the most overview of computer programs. At the end of the course, students can solve basic math problems, build algorithms, use C language to install algorithms into computer programs according to structured programming method.

- *Position*: The course belongs to the major core courses, required.

Contributing to meeting the **L5, L8** output standards in the training program.

5. Description of content and course learning outcome:

- Knowledge Standards: *(1) Remember ⇨ (2) Understand ⇨ (3) Apply ⇨ (4) Analyze ⇨ (5) Create.*

- Attitude Standards: *(1) Copy ⇨ (2) Self-manipulation ⇨ (3) Masterfully repeating to the norm ⇨ (4) Combining multiple activities ⇨ (5) Completely proactive.*

Notation CLOs	Contents	Level		PLOs
		Knoweldge	Skills	
C1	Understand how to state and analyze a programming problem.	2	2	L5
C2	Understand the basic components of the C language.	2	2	L5
C3	Apply control structures in C language.	3	3	L5
C4	Apply the methods of function construction in C, different ways of passing parameters in functions, the concept of recursion, and building recursive functions.	3	3	L5
C5	Apply structured data types in C such as arrays, strings and problems on those data types.	3	3	L5
C6	Apply to solve a basic computer problem using C programming language.	3	3	L8
C7	Apply learned knowledge to solve programming problems.	3	3	L8

6. Reading List

- Main Syllabus:

[1]. Pham Van At (2006), *Basic and Advanced C Programming Techniques*, 6th Edition, Transportation Publishing House.

[2]. Nguyen Tuan Anh (2017), *Lecture on "Programming Techniques"*, Faculty of Information Technology - Thai Nguyen University of Information and Communication Technology.

- References:

[3]. Brian W. Kernighan and Dennis M. Ritchie (1988), The C programming Language, Second Edition, Prentice Hall.

[4]. Paul Deitel and Harvey Deitel (2018), C How to Program: with an introduction to C++, 8th Edition, Prentice Hall.

[5]. Paul Deitel and Harvey Deitel (2013), C++ How to Program, 9th Edition, Pearson.

7. Score Assessment

- Score Scale: 10.
- Components Assessment:

Evaluation Time	Components Assessment	Course Learning Outcome	Factor	Score	Weight
During the duration of the course	Attendance: (score b_0)		1	d=($b_0+b_1+b_2+b_3$)/4	30%
According to the teaching plan in section 9	Test No.1: (score b_1)	C1; C2 C3	1		
	Test No.2: (score b_2)	C4; C6	1		
	Test No.3: (score b_2)	C5; C7	1		
The end of the term.	Final exam	C1; C2; C3; C4; C5; C6; C7;		e	70%
Final Score: (f)				f = d ×30% + e ×70%	

- Final exam: Practice and Answer question

8. Regulations for students

8.1. Student's duties

- Read documents and prepare for each lesson before attending class.
- Complete the assigned exercises.
- Prepare the discussion content of the course.

8.2. Regulations on Exams and Academic Studies

- Students must attend the full class, ensuring at least 80% of classes in class.
- Complete the assigned tasks for the course.
- Fully participate in periodic tests.

9. Teaching Plan

No.	Period	Contents	Teaching Methodology	CLOs	References
1	3 (theory)	**Chapter 1: Programming Overview** 1.1. Concept of computer program *1.1.1. Algorithm (Algorithm)* *1.1.2. Program (Program)* *1.1.3. Programming language* 1.2. Algorithm demonstration *1.2.1. Use natural language* *1.2.2. Using flowcharts - Block Diagrams* *1.2.3. Use pseudocode*	Present; Give and solve problems; Operate directly on the projector	C1; C2	[1] Chapter 1 [2] Chapter 1 [3] Chapter 1
2	3 (theory)	**Chapter 1: Programming Overview** 1.3. Steps to build a program 1.4. Counting systems	Present; Give and solve problems; Operate directly on the projector	C1; C2	[1] Chapter 2 [2] Chapter 1 [3] Chapter 1
3	3 (theory)	**Chapter 2: Elements in C language** 2.1. The basic concepts *2.1.1. Key word* *2.1.2. Name* *2.1.3. Basic data types* *2.1.4. Structure of a program* 2.2. Expressions and operations *2.2.1. Expression* *2.2.2. Mathematical operations* *2.2.3. Condition expression* 2.3. Declare variable *2.3.1. Declare variable* *2.3.2. Scope of the variable* 2.4. Comments 2.5. Import/Export data *2.5.1. Scanf function* *2.5.2. Printf function*	Present; Give and solve problems; Operate directly on the projector	C1; C2	[1] Chapter 3-4 [2] Chapter 2 [3] Chapter 2 [4] Chapter 2 [5] Chapter 2
4	3 (theory)	**Chapter 3: Control Structures** 3.1. Branching structure *3.1.1. if statement* *3.1.2. switch statement*	Present; Give and solve problems; Operate directly on the projector	C3	[1] Chapter 5 [2] Chapter 3 [3] Chapter 3 [5] Chapter 4
5	3 (theory)	**Chapter 3: Control Structures** 3.2. Repeating structure *3.2.1. for statement*	Present; Give and solve problems; Operate directly on the projector	C3	[1] Chapter 5 [2] Chapter 3 [4] Chapter 4 [5] Chapter 5
6	3 (theory)	**Chapter 3: Control Structures** *3.2.2. while statement* *3.2.3. do...while statement*	Present; Give and solve problems; Operate directly on the projector	C3	[1] Chapter 5 [2] Chapter 3 [4] Chapter 4 [5] Chapter 5
7	3 (theory)	**Chapter 4: Functions and Recursion** 4.1. Function definition in C *4.1.1. Function declaration* *4.1.2. Scope of variables* 4.2. Pass parameters in C function 4.3. Recursive	Present; Give and solve problems; Operate directly on the projector	C4; C6	[1] Chapter 6 [2] Chapter 4 [4] Chapter 4

No.	Period	Contents	Teaching Methodology	CLOs	References
		Test No. 1 (Written)	Test the theory	C1; C2; C3	
8	3 (theory)	**Chapter 5: Structured Data Types** 5.1. Array data type 5.1.1. One-dimensional array	Present; Give and solve problems; Operate directly on the projector	C5; C7	[1] Chapter 3, 7 [2] Chapter 5 [4] Chapter 6
9	3 (theory)	**Chapter 5: Structured Data Types** 5.1.2. Two-dimensional array	Present; Give and solve problems; Operate directly on the projector	C5; C7	[1] Chapter 3, 7 [2] Chapter 5 [4] Chapter 6
10	3 (theory)	**Chapter 5: Structured Data Types** 5.2. String *5.2.1. Concept* *5.2.2. Some functions operate on character strings* *5.2.3. Some illustrative examples*	Present; Give and solve problems; Operate directly on the projector	C5; C7	[2] Chapter 5 [4] Chapter 8
11	3 (practice)	**Practice lesson 1: Elements in C language** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C1; C2	[1] Chapter 3-4 [2] Chapter 2 [3] Chapter 2 [4] Chapter 2 [5] Chapter 2
12	3 (practice)	**Practice lesson 2: Branching structure** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C3	[1] Chapter 5 [2] Chapter 3 [3] Chapter 3 [5] Chapter 4
13	3 (practice)	**Practice lesson 3: For statement** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C3	[1] Chapter 5 [2] Chapter 3 [4] Chapter 4 [5] Chapter 5
14	3 (practice)	**Practice lesson 4: while, do..while statement** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C3	[1] Chapter 5 [2] Chapter 3 [4] Chapter 4 [5] Chapter 5
15	3 (practice)	**Practice lesson 5: Function** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C4; C6	[1] Chapter 6 [2] Chapter 4 [4] Chapter 4
		Test No. 2 (Practice and Answer question)	Test the practice	C4; C6	
16	3 (practice)	**Practice lesson 6: Recursion** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C4; C6	[1] Chapter 6 [2] Chapter 4 [4] Chapter 4
17	3 (practice)	**Practice lesson 7: Array** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C5; C7	[1] Chapter 3, 7 [2] Chapter 5 [4] Chapter 6
18	3 (practice)	**Practice lesson 8: Array (Continue)** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C5; C7	[1] Chapter 3, 7 [2] Chapter 5 [4] Chapter 6
19	3 (practice)	**Practice lesson 9: String** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C5; C7	[2] Chapter 5 [4] Chapter 8

No.	Period	Contents	Teaching Methodology	CLOs	References
20	3 (practice)	**Practice lesson 10: String (Continue)** Complete the exercise content as required	Give and solve problems; Instructions to practice directly on the computer	C5; C7	[2] Chapter 5 [4] Chapter 8
		Test No. 3 (Practice and Answer question)	Test the practice	C5; C7	

10. Competent Authority Approval: Thai Nguyen University of Information and Communication Technology

August 25th, 2017

Vice Rector	Dean	Head of Department	Composer Team
PhD. Do Dinh Cuong	PhD. Nguyen Hai Minh	McS. Nguyen Tuan Anh	Nguyen Tuan Anh Duong Thi Quy

11. Updated Procedure

1st update:	**Updater**