

COURSE SYLLABUS

CTT003 – Introduction to Programming

1. GENERAL INFORMATION

Course name (Vietnamese):	Nhập Môn Lập Trình
Course name (English):	Introduction To Programming
Course code:	CTT003
Belongs to the knowledge block:	Fundamental
Credits:	4
Theoretical hours:	45
Number of practice hours:	30
Number of self-study hours:	60
Prerequisite courses:	None
Previous courses:	None

2. COURSE DESCRIPTION

After completing the course, students are able to:

- Understand basic concepts such as algorithms, flowcharts, pseudocodes, programming languages, programs, compilers, executables, computer software;
- Understand and apply basic data types, operations and basic control structures of a specific programming language;
- Describe algorithms with flowchart or pseudo code;
- Write programs to install the above-mentioned algorithms, run tests, catch errors and repair written programs;
- Apply functions (or procedures, subroutines) to organize programs into units that can be reused many times in software projects;
- Apply some basic techniques (iteration processing, recursive computation, array traversal, using flags...) to build algorithms and install programs to solve some common and not too complicated problems; can use ASCII text files to store program data

3. COURSE GOALS

Students completing this course will be able to:

Goal	Description (general level)	CDR CDIO of the program
G1	Follow different assignments and roles in the team to work on class topics	1.1.1 1.3.1
G2	Analyze and build programs (on a hybrid basis, changing language syntaxes) at a simple level in C/C++ language.	1.3.1 2.1 2.2 2.3.1 2.4.1 2.4.3 4.1.4 4.1.5
G3	Analysis and suggest solution for problems by disintegrating into functions and reusing functions	1.2.1 1.3.1
G4	Can be analyzed advantages and disadvantages of different types of syntax, thereby choosing the right syntax for a particular application	1.3.1
G5	Reading comprehension Vietnamese and English books	4.4.3
G6	Organization teamwork, work assignment, presentation and reporting skills	4.2 4.3.1 4.3.2 3.1 3.3.1 3.3.2 2.3.1 2.3.4

4. COURSE OUTCOME STANDARDS

Output standard	Description (Level of detail - action)	Level (I/T/U)
G1.1	Apply knowledge in teamwork skills to form a group.	T, U

G1.2	Use tools in teamwork	T, U
G2.1	Apply data types into the problem at a basic level.	T, U
G2.2	Think and solve the problem, choose the right data type in accordance with the actual requirements of the problem.	T, U
G2.3	Analyze and build new data type	T, U
G3.1	Setting looping constructs using C/C++	T, U
G4.1	Analyze advantages and disadvantages of different containers, thereby choosing the right one for a particular problem.	T, U
G5.1	Explain and express subject-specific English terms and using correctly them in specific contexts.	T, U
G5.2	Read and understand English reference materials provided by the teacher.	T
G6.1	Writing and speaking skills, presentation skills (Vietnamese) related to topics.	U
G6.2	Do seminars, group exercises and group presentations.	U
G6.3	Apply cultural knowledge, professional ethics, responsibility and legal aspects related to topics in the course.	T, U
G6.4	Discussion, debate, and criticism based on scientific reasoning.	U
G6.5	Working with teamwork, organization and management.	U

5. THEORY TEACHING PLAN

STT	Theme name	Output standard	Teaching activities/ Learning activities (hint)	Evaluation activities
1	Introduction to programming	G1.1, G2.1, G4.1, G5.1, G6.1	Lecture Thinking questions Forming a group	
2	Using the base data types in the program	G1.2, G1.3, G2.1, G7.1	Lecture Group discussion and presentation	CC#1, BTTH#1
3	Introduction to control structures	G1.2, G1.3, G2.1, G6.2	Lecture	CC#2, BTTH#2

			Group discussion and presentation	
4	Functions and techniques of program organization	G1.2, G1.3, G2.1, G6.3	Lecture Group discussion and presentation	CC#3, BTTH#3
5	Introduction to Algorithms	G1.2, G1.3, G2.1, G6.4	Lecture Group discussion and presentation	CC#4, BTTH#4, KTGK
6	Techniques for installing basic algorithms	G1.2, G1.3, G2.1, G6.5	Lecture Group discussion and presentation	CC#4, BTTH#5, BTTH#6
7	Array data and structured data	G1.2, G1.3, G2.1, G6.6	Lecture Group discussion and presentation	CC#5, BTTH#7, BTTH#8
8	Programming with raw text files	G1.2, G1.3, G2.1, G3.1, G3.2	Lecture Group discussion and presentation	CC#5, BTTH#9, THCK

6. PRACTICE TEACHING PLAN (if any)

Practical exercises include:

- CC1, CC3, CC5
- BTTH1, BTTH2, BTTH3, BTTH4, BTTH5, BTTH6, BTTH7, BTTH8, BTTH9, THCK

The practice plan is shown in detail in section [5] above.

7. EVALUATE

Code	Name	Description (hint)	Output standards are evaluated	Ratio (%)
CC	Homework/In-class assignment			10%
CC1 CC3	Diligent exercises are done through the Moodle system	Max 120 minutes to work, can be programming and/or	G6.1 G6.2 G6.3	

CC5		comprehension test. Criteria: - Full - Correct - On time	G1.1 G2.2 G3.1 G1.2	
CC2 CC4	Diligent exercises done in class	Max 20 minutes to do the test, prioritize multiple choice questions or short essays. Criteria: - Full - Correct		
BTTH	Practical exercises in the Lab			30%
BTTH1, 2, 3, 4, 5, 6, 7, 8, 9	General programming exercises, including knowledge of 1 or more chapters	Work and submit via Moodle, do it individually. Maximum time to do homework 1 week	L2.1 G6.3 G2.2 G3.1 G1.2 G2.3 G4.1	
KTGK	Midterm Exam		G1.1 G2.2 G3.1	20%
LTCK	Final Exam		G2.2 G1.2 G2.3 G4.1	40%

8. COURSE RESOURCES

References

- Introduction to programming, Tran Dan Thu, Nguyen Thanh Phuong, Dinh Ba Tien, Tran Minh Triet, Science and Technology Publishing House, 2011. (School textbook library)
- The C Programming Language, Kernighan & Ritchie, Prentice Hall, 1988. (Advanced Program Library)
- C++ Primer Plus, Stephen Prata, SAMS 2005. (Advanced Program Library)
- C Programming, Wikibooks, https://en.wikibooks.org/wiki/C_Programming. (Public Online Book)

Other resources

Software or tools to support practice:

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- a. Programming language: C++, written in console or GUI mode (optional)
 - b. Programming tools: can use Visual Studio 6 or later.

9. GENERAL REGULATIONS

- Students will not be counted for attendance if they miss more than 50% of the attendance tests.
- Students need to strictly abide by the rules and regulations of the Faculty and the University.
- For any cheating in the course of doing assignments or exams, students are subject to all disciplinary action by the Faculty/School and 0 points for this course.

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