COURSE SYLLABUS

CSC10001 – Introduction to Programing

1. GENERAL INFORMATION

Course name:	Introduction to Programing
Course name (in Vietnamese):	Nhập môn Lập trình
Course ID:	CSC10001
Knowledge block:	
Number of credits:	4
Credit hours for theory:	45
Credit hours for practice:	30
Credit hours for self-study:	90
Prerequisite:	
Prior-course:	
Instructors:	Thái Hùng Văn

2. COURSE DESCRIPTION

This course is designed for students with no prior programming experience. The course introduces the fundamental constructs of computer programming along with skills and strategies to apply them in creative and useful ways. Topics include algorithms and problem solving, data types, control structures, functions, arrays, files, and the mechanics of running, testing, and debugging. The course also offers an introduction to the historical and social context of computing, overview of computers and programming languages.

3. COURSE GOALS

At the end of the course, students are able to

ID	Description	Program LOs
G1	Thinking and solving problems	
G2	Understand the basics of computer programming.	
G3	Make Simple C++ Programs	
G4	Construct C Functions	
G5	Programming with structured data and arrays	
G6	Programming with text file	

4. COURSE OUTCOMES

CO	Description	I/T/U
G1.1	Understand the concept of algorithms, and basic steps in program development life cycle.	
G1.2	Design algorithms to solve simple problems, describe algorithms with pseudocode or flowcharts.	
G1.3	Implement the algorithm into a C++ program.	
G1.4	Explain how algorithms and processing programs work.	
G1.5	Demonstrate the ability to correct, test and debug processing programs	
G2.1	Know different kinds of data types, operators; and write expression with them.	

G2.2	Examinate the Input, Output, and standard library functions.	
G3.1	Understand the Structure of a C+ + Program and its elements.	
G3.2	Understand and apply control structures to write programs.	
G4.1	Make the call by value function.	
G4.2	Make the call by reference function.	
G5.1	Understand and use arrays (include string)	
G5.2	Understand and use structured data.	
G6.1	Programming to read data on text file.	
G6.2	Programming to write data to text file.	

5. TEACHING PLAN

ID	Topic	Course outcomes	Teaching/Learning Activities (samples)
1	An Overview of Computers and Programming Languages (Chapter 1)		Lecturing, Q&A, QZ1: Quiz 1
2	Software Program Development, Design the Program with Algorithms base on Flow Charts and Pseudocode, Examine some		Lecturing Demonstration, Discussion, Q&A, QZ2: Quiz 2

	Scratch and C++ Programs on Online & Offline IDEs (Chapter 1)		
3	The Basic Elements of a C++ Program (Chapter 2)		Lecturing, Demonstration, QZ3: Quiz 3
4	Selection Control Structures (Chapter 3)		Lecturing, Demonstration, QZ4: Quiz 4
5	Repetition Control Structures (Chapter 3)		Lecturing, Demonstration, Discussion, QZ5: Quiz 5
6	Construct User-defined Function (Chapter 4)		Lecturing, Demonstration, Discussion, QZ6: Quiz 6
7	Arrays (Chapter 5)		Lecturing, Demonstration, Discussion, QZ7: Quiz 7
8	String and Structured Data (Chapter 5)		Lecturing, Demonstration, Discussion, Q&A
9	Text File (Chapter 6)		Lecturing, Demonstration, Discussion, Q&A
10	Advanced Processing, Recursion, Binary Search, Index Table, Pointer & Dynamic Data Structures, Combining Components and Techniques		Case study, Discussion, Demonstration
11	Review		Lecturing, Q&A, Discussion Project submitted

For the practical laboratory work, there are 10 weeks which cover similar topics as it goes in the theory class. Each week, teaching assistants will explain and demonstrate key ideas on the corresponding topic and ask students to do their lab exercises either on computer in the lab or at home. All the lab work submitted will be graded. There would be a final exam for lab work.

6. ASSESSMENTS

ID	Topic	Description	Course outcomes	Ratio (%)
A1	**Assignments**			**30%**
A11	Quizzes: QZ2, QZ3, QZ5, QZ6, QZ7.	Small quizzes in class for each topic		10%
A12	Homework: HW2, HW4, HW6, HW8	submit the program / report at the request of the instructor		10%
A13	Weekly labwork: LW1–LW10	Practicing based on knowledge taught in class		10%
A2	**Projects**	*(optional)*		bonus 10%
A21	Project	Work in groups (maximum 3 students), implementation time is 4weeks		+ 10%
A3	**Exams**			**70%**
A31	Lab final exam	In-class programming exam on computer		20%
A32	Midterm exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems		10%
A33	Final exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems		40%

7. RESOURCES

Textbooks

- **Giáo trình Nhập môn lập trình** Khoa CNTT – Trường ĐHKHTN Tp.HCM, Trần Đan Thư, Nguyễn Thanh Phương, Đinh Bá Tiến, Trần Minh Triết, NXB Khoa học và Kỹ thuật, 2011.
- **Thinking in C**, Bruce Eckel, E-book, 2006.
- **Theory and Problems of Fundamentals of Computing with C++**, John R.Hubbard, Schaum's Outlines Series, McGraw-Hill, 1998.

Others

8. GENERAL REGULATIONS & POLICIES

- All students are responsible for reading and following strictly the regulations and policies of the school and university.
- Students who are absent for more than 3 theory sessions are not allowed to take the exams.
- For any kind of cheating and plagiarism, students will be graded 0 for the course. The incident is then submitted to the school and university for further review.
- Students are encouraged to form study groups to discuss on the topics. However, individual work must be done and submitted on your own.