COURSE SYLLABUS

CSC10003 – Object–Oriented Programming

1. GENERAL INFORMATION

Course name: Object–Oriented Programming

Course name (in Vietnamese): Phương pháp lập trình hướng đối tượng

Course ID: CSC10003

Knowledge block: Mandatory

Number of credits: 4

- Credit hours for theory: 45
- Credit hours for practice: 30
- Credit hours for self-study: 90

Prerequisite: Introduction to Programming & Programming Techniques

Prior course: Yes

Instructors: Toan–Thinh Truong

2. COURSE DESCRIPTION

The course is designed to provide students some common topics of object–oriented programming. Also, it uses C++ as a main language to demonstrate what the lessons and advisors want to express. Together, it uses C# and Java (two typical object–oriented languages) to discuss, analyze and compare with C++ to clarify some aspects of object–oriented programming. Especially, object–oriented method can be considered as an important idea to build all practical applications. With this method, programmer can create some codes including some interesting properties, for example: evolution, easy–to–maintain, highly reused, and scalability. In summary, this course is very necessary for all students of information technology and anybody who want to know how to program and design a reasonable object–oriented application.

3. COURSE GOALS

At the end of the course, students can

ID	Description	Program LOs
G1	Work as a group to develop the object-oriented applications	2.2, 2.3.1, 3.3
G2	Understand the English terminologies in object-oriented programming	2.4.3, 2.4.5
G3	Explain basic conceptions, responsibility, rules and ethical issues... in object-oriented programming	1.4, 6.1.2
G4	Classify the procedure oriented and object-oriented programming	1.3.6, 1.4, 5.2.2, 5.3.1, 6.1.1
G5	Understand and practice some basic techniques in development of object-oriented application	5.1.1, 5.1.3, 5.2.1,
G6	Build a small-scale application personally	5.1.3, 5.2.2, 5.3.2

4. COURSE OUTCOMES

CO	Description	I/T/U
G1.1	Build, organize, operate and manage the group	I, T
G1.2	Discuss with all topics in object-oriented programming subject	U
G1.3	Analyze, summarize and write technical reports as a group or in person	I, T
G2.1	Understand English terminologies of object-oriented programming	I
G2.2	Reading materials relating the lessons	I

G3.1	Explain basic conceptions in object-oriented programming: IDE, relationship, model, design pattern, libraries, …	I, T
G3.2	Know the role, task, rules, responsibility and ethical issues in this area of object-oriented programming	I
G4.1	Know how to program with class design and procedure design. Understand pros and cons in each direction	I
G5.1	Understand class & object	I
G5.2	Understand some design pattern: single-ton, prototype, template method…	I, T
G5.3	Efficiently design the architecture for an object-oriented application	I, T
G5.4	Understand template techniques, function pointer to generalize the application	I, T, U
G6.1	Build the efficient application of CARO	I, T, U
G6.2	May integrate some different algorithm into application	I, T, U

5. TEACHING PLAN

ID	Topic	Course outcomes	Teaching/Learning Activities (samples)
1	Revision	G1.1, G2.2	Lecturing Group discussion
2	Class & Object	G1.2, G1.3, G2.1, G5.1	Lecturing Demonstration Group discussion

3	Built–in datatype	G3.1, G3.2	Lecturing Group discussion
4	Property & method	G4.1, G5.2	Lecturing Demonstration Group discussion
5	Inheritance & Polymorphism	G5.2	Lecturing Group discussion
6	Class relationship	G5.3	Lecturing Group discussion
7	File programming	G5.4	Lecturing Demonstration
8	Template class/method	G5.4	Lecturing Group discussion
9	STL Library	G5.3, G6.1	Lecturing Group discussion
10	Exception	G5.3, G6.2	Lecturing Group discussion
11	Review/Seminar	G6.1, G6.2	Review & project present

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**			**~45%**
A11	Homework: HW1	HW1: revision the knowledge of previous basic subjects		~1...%
	Homework: HW2 ~ HW10	HW2 ~ HW10: practicing based on knowledge taught in class		~9…%
A12	Weekly lab-work: LW1–LW10			30%
A2	**Projects**			**10%**
A21	Seminar	Seminar at the last week		10%
A3	**Exams**			**45%**
A31	Midterm exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems		5%
A32	Final exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems		40%
A4	**Bonus**			**10%**

A41	Bonus (if necessary)	Based on all results of above rows		10%

7. RESOURCES

Textbooks

- LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG (SÁCH KHOA CNTT – HCMUS)

Others

- The C++ Programming Language
- C++ Primer Plus
- C++ và lập trình hướng đối tượng

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.