

COURSE SYLLABUS

CSC13102 – Java Programming

1. GENERAL INFORMATION

Course name:	Java Programming
Course name (in Vietnamese):	Lập trình ứng dụng Java
Course ID:	CSC13102
Knowledge block:	
Number of credits:	4
Credit hours for theory:	45
Credit hours for practice:	30
Credit hours for self-study:	90
Prerequisite:	Object-oriented Programming
Prior-course:	Data structures
Instructors:	Nguyen Van Vu, Ph.D. Nguyen Van Khiet, M.Sc. Nguyen Thi Minh Tuyen, Ph.D. Ho Tuan Thanh, M.Sc.

2. COURSE DESCRIPTION

The course is designed to strengthen basic programming knowledge with Java (basic syntax, basic and advanced data structure, object-oriented programming, etc.). In addition, it also provides students with foundation knowledge and other Java technologies such as Java IO, Multithreaded Programming, exception handling, Swing, JDBC, Network programming, etc.. By participating this course, students will gain hands-on experience in building a complete application at a simple/medium level by combining Java technologies learned in a systematic and methodical way.

3. COURSE GOALS

At the end of the course, students are able to

ID	Description	Program LOs
G1	Work individually and work in collaboration with team members to present a topic.	2.2.1, 2.2.2
G2	Explain English terminology related to the course	2.4.3, 2.4.5
G3	Explain and apply basic concepts in Java	1.2.1
G4	Explain and apply basic syntax in Java	1.2.1
G5	Explain and apply basic technologies in Java	2.1.2, 6.1.3
G6	Analyze and decompose problems into tasks and implement them in the Java	4.1.1, 4.1.2, 4.1.3, 4.1.4
G7	Utilize Java IDEs	1.3.7
G8	Being independent, confident, creative in thinking and working; have the ability to adapt to a new environment, lifelong learning.	2.1.5

4. COURSE OUTCOMES

CO	Description	I/T/U
G1.1	Team formation, organization, operation, and management	I, T
G1.2	Participate in group discussion and debate on a topic	U
G1.3	Analyze, synthesize, and write technical documentation using a given template (individual work or group collaboration)	I, T

G2.1	Explain the specialized English terminology of the course.	I
G2.2	Present and explain knowledge in English materials related to lectures.	I
G3.1	Explain basic concepts in Java	I, T
G3.2	Apply basic concepts in Java	U
G4.1	Distinguish basic data structures in Java	I, T
G4.2	Apply basic data structures in Java	U
G4.3	Explain the basic syntax in Java	I, T
G4.4	Apply the basic syntax in Java	U
G5.1	Distinguish Java IO classes	I, T
G5.2	Apply Java IO to solve simple problems	U
G5.3	Explain Generic concept in Java	I, T
G5.4	Apply Generic concept in Java in programming	U
G5.5	Present knowledge related to Java Collection	I, T
G5.6	Apply Collection to solve simple problems	U
G5.7	Present knowledge related to Exception Handling	I, T
G5.8	Apply exception handling in simple problems	U
G5.9	Present Swing components	I, T
G5.10	Apply Swing components to create a simple interface to a given problem	U
G5.11	Explain how to connect to a database using JDBC	I, T
G5.12	Apply JDBC connectivity to solve a given problem	U
G5.13	Explain the multithreaded programming mechanism	I, T
G5.14	Apply multithreading programming to solve a given simple problem	U

G5.15	Explain the concept of network communication	I, T
G5.16	Apply network programming knowledge for a given simple problem	U
G5.17	Present knowledge related to the following topics: JUnit, Java Ant, Hibernate, ...	I, T
G5.18	Apply knowledge of the topics learned (JUnit, Java Ant, Hibernate, ...) into simple problems	U
G6.1	Formulate the initial problem	U
G6.2	Analyze the given problem	U
G6.3	Break a problem into tasks and choose right Java technologies to install	U
G7.1	Utilize Java IDEs such as Visual Studio Code, Eclipse, Netbeans, IntelliJ, etc.	I, T, U
G8.1(*)	Know how to update new knowledge, self-study, self-develop and adapt	I

5. TEACHING PLAN

ID	Topic	Course outcomes	Teaching/Learning Activities
1	Course introduction Java overview Data types and operators	G2.1, G2.2, G3.1, G4.1	Lecture Brainstorm Group discussion Demo
2	Program control statements	G2.1, G2.2, G4.3, G8.1	Group discussion Q/A Lecture

3	Object-oriented programming	G2.1, G2.2, G4.3, G8.1	Group discussion Lecture Demo
4	Exception handling	G2.1, G2.2, G5.7, G5.8, G7.1	Lecture Group discussion
5	Java IO	G2.1, G5.1, G8.1	Group discussion Q/A Lecture
6	Generic, Collection	G1.2, G2.1, G2.2, G5.3, G5.5	Seminar Discussion
7	Swing	G2.1, G2.2, G5.9, G8.1	Group discussion Q/A Lecture Demo
8	Database JDBC	G2.1, G2.2, G5.11, G5.12	Lecture Demo In-class exercises
9	Multithreaded programming	G2.1, G2.2, G5.13	Lecture Demo In-class exercises
10	Network programming	G2.1, G2.2, G5.15	Lecture Demo In-class exercises

11	JUnit Java Ant Review	G3.1–G3.2, G4.1 –G4.4, G5.1 – G5.18, G7.1, G8.2	Demo Group discussion Q/A
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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	Midterm Exam	The midterm exam will be held halfway through the course, or weekly assignments will be distributed to students.	G1.2, G3.2, G4.2, G4.4, G5.2, G5.4, G5.6, G5.8, G5.10, G5.12, G5.14, G5.16, G5.18, G7.1	20%
A2	Lab Work	1-2 projects that require students to work over multiple weeks	G1.1, G1.2, G1.3, G6.1, G6.2, G6.3, G7.1, G8.1	40%
A3	Final exam	Closed book exam. Describe the understanding of different topics, analyze & program to solve problems	G3.1–G3.2 G4.1–G4.4 G5.1–G5.18	40%

7. RESOURCES

Textbooks

- **Java: A Beginner's Guide, 8th Edition**, Herbert Schildt, McGraw-Hill Education, 2019.

Others

- **Java: The Complete Reference, 11th Edition**, Herbert Schildt, McGraw-Hill Education, 2019.
- **The Java Tutorials**, <https://docs.oracle.com/javase/tutorial/>.
- Java MOOC, forum,
- FIT Moodle: <https://courses.ctda.hcmus.edu.vn/>

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.