Programming3

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1. Course Description

Through the Java language, students learn basics of Object-oriented programming(OOP). Java is one of the mostly used languages in the current software development, and OOP is one of the most general software development methods. Being able to utilize Java and OOP makes it possible for students to develop practical programs.

Java has both features that compiler languages have and that intermediate languages of which executable codes run on virtual machines have. Developing and executing programs through a text-editor and a shell, students will deeply learn Java, such as the relations between source files and class files or package managements and directory structures.

Each class is provided in the form of flipped classroom. Thus, you are normally required to watch video and/or read materials, then fill out pre-worksheet and submit it before each class.

You will acquire knowledge and skills on DP2 and DP3 of diploma policies.

2. Course Objectives

The goal is that students can express typical concepts in OOP, such as, encapsulation, inheritance and polymorphism through Java's grammars. You will be required to acquire the following skills when completing the course.

Students can write a program in Java, giving a small or easy problem, and its specification or algorithm.

Students can express basic OOP through Java.

Students can develop programs in Java by using a text-editor and command line tools.

3. Grading Policy

Your grade will be assessed based on the scores of exercise problems (50%) and final exams (50%).

Note that submitted reports of exercise problems will be reviewed and evaluated individually.

LMS posts class materials, receives reports, and provides feedback.

4. Textbook and Reference

Textbook

No text book, but reference books (in Japanese) are as follows:

Reference

結城 浩　Java言語プログラミングレッスン 第3版(下) オブジェクト指向を始めよう　SBクリエイティブ、ISBN-13:978-4797371260

結 城 浩　Java言語プログラミングレッスン　第3版(上)　Java言語を始めよう　SBクリエイティブ、ISBN-13:978-4797371253

And you can find class materials on LMS. Also it is recommending that you collect information using library materials and internet.

5. Requirements(Assignments)

For the preparation, you should study in advance for each class based on class materials, video, reference books and so on. (1.5 hours)

After the class, you should review the class and work on exercises on post-worksheet and option-worksheet which are required to submit in order to improve your understanding. (1.5 hours)

6. Note

You need a computer that can use for programming, compile, and execute Java. The setup will be explained in the first class.

7. Schedule

[1]	Java language
[2]	Operators, variables and types, if-statements, loop processing
[3]	Arrays and enhanced for-loop
[4]	Re-introduction to the object-oriented programming
[5]	Object variables, class variables and command-line arguments
[6]	Super class, sub class and inheritance
[7]	Super class, subclass, polymorphism, and abstract class
[8]	Comprehensive exercise 1 (review of the first half)
[9]	Access modifiers, how to use packages
[10]	Interfaces
[11]	How to implement plural interfaces, Recursive processes in object-oriented languages
[12]	Exceptions, what is an exception?, typical exceptions
[13]	Exceptions, various exceptions, remarks on programming using exceptions, new exception handling introduced in Java SE7
[14]	Comprehensive exercise 2 (review of the second half)
[15]	Comprehensive exercise 3 (review of all)