Computer Science Programming 2

Syllabus Number 3C212
Basic Major Subjects
Elective Requisites 2 credit

MIZUTANI, Kozo

1. Course Description

We learn the following contents about Java using an integrated development environment.
- Development techniques using an Integrated Development Environment "Eclipse".
- Development techniques using debugger tools and JUnit.
- Object models and standard class APIs.
- Collection classes, Stream APIs.
- The overview of event driven programming and using GUI APIs.
- The new language specifications (Annotations, Lambda Expressions)

Students acquire skills related to the diplomatic policy, DP4C.

2. Course Objectives

This course aims at mastering practical techniques and concepts through using programming language Java. Specifically, it is required for students to understand and to utilize the followings at least; development techniques using debugger tools and JUnit, object models of Java and event driven programming. In addition, we learn the bases of annotations and lambda expressions, student will be able to write practical and high quality computer programs using the topics described above.

3. Grading Policy

The students will be evaluated at the following rate: worksheets are 20%, subjects (including essential subjects and optional subjects) are 30% and a term-end examination is 50%. Learners who received evaluation over the total 60% will be passed this course. In the classes, learners discuss about the answers and the methods of subjects on worksheets as group activity. And also, the explanation of worksheets will be provided using LMS.

4. Textbook and Reference

Textbook
This course uses a following textbook. However, mainly teaching materials is provided on LMS. And also, learners use Eclipse and JDK which are installed in CL rooms as programming environment.
結城浩　Java言語プログラミングレッスン第3版（下）　ソフトバンククリエイティブ,ISBN-13:978-4797371260
Reference
結城浩　Java言語プログラミングレッスン第3版（上）　ソフトバンククリエイティブ,ISBN-13: 978-4797371253

5. Requirements(Assignments)

Most of classes of this course are composed of flipped-learning classes. Learners have to learn by watching lecture videos before each class. And also, through filling a pre-class worksheet before the class, learners have to grasp whether they can comprehend the video contents or not. Learners must use 1.5 hours for these activities before each class. After the class, learners must use 1.5 hours for reflective learning using worksheets, working on subjects and so on.

6. Note

Understanding of Object oriented programming using Java which is learned at Computer Science Programming 1 is needed.

This course is a required course, and relates to the mid term 4–2 of learning attainment targets for the JABEE program.

7. Schedule

[1] Review the contents of Computer Science Programming 1, and usage of Eclipse
[2] Debugger, JUnit
[3] Object classes (Override of clone, equals and toString method), Class Libraries
[4] Collections (including Generics)
[5] Usage Stream Classes 1 (File Input / Output)
[6] Usage Stream Classes 1 (Text Stream, Byte Stream)
[7] Exercise 1
[8] Event Driven Programming, Java Delegation Event Model
[9] GUI Programming by Java 1(Drawing, Mouse Events)
[10] GUI Programming by Java 2(Mouse Events, Swing Component Model)
[11] Exercise 2
[12] Annotations
[13] Lambda expressions
[14] Exercise 3
[15] Term End Examination, Summary