GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2018-2019

Object oriented programming (E761034)

Course size (nominal values; actual values may depend on programme)

Credits	4.0	Study time	120 h	Contact hrs	42.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	Dutch	lecture	18.0 h
		practicum	24.0 h

Lecturers in academic year 2018-2019

Naessens, Helga	TW05	lecturer-in-charge

Offered in the following programmes in 2018-2019	crdts	offering
Linking Course Master of Science in Electrical Engineering Technology (main subject Automation)	4	A

Teaching languages

Dutch

Keywords

Object oriented programming, GUI programming, Computer Science (P170), IT (P175), Computer Technology (T120).

Position of the course

This course learns the student the principles of object oriented programming in Java. Furthermore, this course has a broad educational value: it gives insight into abstract structures and processes, it develops analytical skills, the students learn to think modularly, they learn to solve problems themselves and to formulate appropriate solutions. The acquired theoretical knowledge and skills are used in many other areas (design, planning, optimization, ...).
This course is a fundamental course for other informatic courses, like Programming in C (and C++).

Contents

Among other things following topics are covered:

- Basic principles of structured programming: variables, sequence, selection, iteration
- Java-API: Math, Random, String, ...
- Basic principles of object oriented programming: classes, objects, methods, constructors, inheritance, overriding, overloading, Object, polymorphism, dynamic binding
- Exception handling
- Simple console applications and graphical user applications
- Simple algorithms (searching, sorting, manipulating arrays, ...)
- Use of collections and data structures

Initial competences

Scientific basic competences acquired in secondary education.

Final competences

1 Being able to analyze a problem and to construct an algorithm for it.
2 Knowing and being able to apply the basic concepts of object oriented programming (types, variables, iteration and selection, classes, objects, inheritance, polymorphism, interfaces, input by console and files,strings, exception handling,...).
3 Being able to make use of a number of collections in Java (Arraylist, HashSet, TreeSet, HashMap,...).
4 Being able to program a simple GUI (in JAVA).

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, practicum

Extra information on the teaching methods

During the lectures the theory is explained step by step, partly based on examples. During the exercise sessions (attendance required) the student works independently on a PC.

Learning materials and price

Slides, examples and exercises are provided on the electronic learning environment.

References

- "Head First Java", Bert Bates, Kathy Sierra
- Ken Arnold, James Gosling, David Holmes: The Java Programming Language, fourth edition
- Walter Savitch: Absolute Java, fifth edition
- David Flanagan: Java in a nutshell
- "Java Swing", Marc Loy, Robert Eckstein, Dave Wood

Course content-related study coaching

Additional explanation by appointment or by e-mail.

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination

Examination methods in case of periodic evaluation during the second examination period

Written examination

Examination methods in case of permanent evaluation

Participation, skills test

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

The exam is a practical exam, consisting mainly of exercises, possibly complemented by a few theoretical questions.

Calculation of the examination mark

Theory: 50%
Laboratory: 50%
A weighted average is used to compute the final score for a training item. However, if a student gains a score of 7 or less on 20 on one of the different parts of this course, there will be deviated from the calculated final score if it is 10 or more and the score of the student will be a 9/20.
The tests of the labs can be retaken (possibly in modified form).