Offered by
ICT Engineering

IT-SDJ1

2.0

Software Development with UML and Java

ECTS
10

Prerequisites
General admittance requirements. The course must be passed before graduation.

Main purpose
The main purpose of the course is to provide students with the qualifications needed to understand the core object-oriented concepts and to implement smaller programs in Java from UML class diagrams.

Knowledge
The student should be able to understand:

- Java programming constructs
- Basic types in Java and their applicability
- The role of fields, methods, constructors, and references in Java programming
- The relationship between array, array length, indices and elements in Java
- The elements of UML class diagrams, activity diagrams and sequence diagrams.

Skills
The student should achieve the skills:

- Create and use objects in Java
- Implement programs in Java with
  - o Fields, constructors and methods
  - o Inheritance
  - o Association, aggregation and composition
  - o Arrays and ArrayLists
  - o File IO persistence
  - o Exceptions
  - o Simple GUI's
- Use best practices for writing and documenting Java source code

Competences
The student should be able to:

- Master and use the basic object-oriented concepts, including relationships, collaboration and poly-morphism
- Implement smaller programs in Java including simple GUIs
- Implement smaller systems from a UML design

Topics

Teaching methods and study activities
The semester has 110 classroom lessons. A number of tests and assignments will be given during the course. One of these tests represent 25% of the exam, see Evaluation below.

The course is held concurrently with Workshop in Basic Programming I (WS1).

CATEGORY 1
Participation of lecturer and students
Initiated by the lecturer
84 hours - 30%

- Lessons

- Exercises in class
- Exam

CATEGORY 2
Participation of students
Initiated by the lecturer
112 hours - 40%

- Exercise, assignments and hand-ins
- Group work
- Homework

CATEGORY 3
Participation of students
Initiated by students
56 hours - 20%

- Preparation for exam
- Self-study
- Group work
- Literature search

CATEGORY 4
Participation of lecturer and students
Initiated by students
28 hours - 10%

- Study guidance
- Study group meetings

NOTE: For GBE students there is only 8 lessons per week, as opposed to ICT, where there are 10 lessons per week.

NOTE: Compulsory attendance does not apply for GBE students.

Resources
Tony Gaddis, "Starting Out with Java - early objects", 5th edition Addison-Wesley, 2015

Evaluation
Permit criteria for attending examination:

Mandatory course activities completed.

The student must have an attendance of at least 75% in order to qualify for the exam. Students who do not have at least 75% attendance will automatically fail the ordinary exam.

Examination

* Individual oral examination based upon a subject found by draw.

* No preparation.

Oral examination where the student will pick an unfamiliar programming exercise at random. The student must explain the UML involved and demonstrate how to perform the programming task using a laptop and/or the blackboard. The time allotted for the examination is 30 minutes including assessment.

The grade for the oral examination counts for 75% of the final grade while the remaining 25% comes from an oral test conducted in the middle of the course.

* Allowed tools: All

* External examiner.

Grading criteria
* Examinations account for 75% of final grade.

* A test account for 25% of final grade.

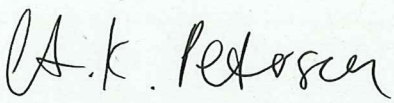
* Rexams account for 100 % of the grade.

Additional information

Responsible
Steffen Vissing Andersen (SVA)

Valid from
1.8.2017

Course type
Global Business Engineering;Compulsory Course for GBE-ICT;3. semester;Elective for the specialization Information Technology and Management;
ICT Engineering;Compulsory Course for all ICT Engineering;Project;1. semester;
Software Ingeniør;Compulsory for Software Ingeniør;1. semester;



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