

Course Specifications

From the academic year 2019-2020 up to and including the

Advanced Software Development (E630044)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)
Credits 6.0 Study time 180 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2020-2021

Offering	Language	Location	Teaching Method	Hours
A (semester 1)	Dutch	Kortrijk	project	20.0 h
			lecture	20.0 h
			seminar	20.0 h

Lecturers in academic year 2020-2021

Name	Room	Role
Volckaert, Bruno	TW05	lecturer-in-charge

Offered in the following programmes in 2020-2021

Programme	crdts	offering
Bachelor of Science in Engineering Technology (main subject Electronics and ICT Engineering Technology)	6	A
Linking Course Master of Science in Electronics and ICT Engineering Technology (main subject Embedded Systems)	6	A

Teaching languages

Dutch

Keywords

polymorphism, design patterns, graphical user interfaces, program, Java

Position of the course

The course advanced software development aims to learn students an advanced knowledge on object oriented programming, more specifically polymorphism, design patterns, and graphical interfaces are covered in detail.

Contents

- Fundamentals Java
- Fundamentals UML
- Graphical user interfaces via JavaFX
- Polymorphism
 - Composition vs inheritance
- Design patterns (list is indicative and not exhaustive)
 - Strategy pattern
 - Observer pattern
 - Decorator pattern
 - Factory pattern
 - Singleton pattern
 - Adapter pattern
 - Facade pattern
 - Template method pattern
 - Iterator pattern
 - Composite pattern
 - State pattern
 - MVC pattern

Initial competences

Object oriented programming

Final competences

- 1 Knows important architectural and software design patterns
- 2 Understands and is able to draw UML diagrams
- 3 Recognizes situations where design patterns are beneficial, and is able to implement

- these patterns (in Java)
- 4 Is able to program graphical user interfaces (in Java)
 - 5 Modelling before implementation
 - 6 Using design patterns where appropriate
 - 7 Design of modular software / software with loose coupling between components

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, project, seminar

Learning materials and price

Head First Design Patterns, Freeman
Slides on the electronic learning environment

References

Course content-related study coaching

Interactive support through the electronic learning environment forums and mailing list, personal appointments

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions

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

Written examination with open questions

Examination methods in case of permanent evaluation

Participation, assignment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Exam is closed book, written exam, open questions
Permanent evaluation: graded on participation and assignments/projects. The evaluation of the according deliverables is based on the accuracy, completeness, efficiency and effectiveness of the source code and the reports submitted for assignments and projects

Calculation of the examination mark

- 45% exam
- 20% assignments (deliverables and participation)
- 35% project (deliverables and participation)

In order to pass the course, the student must obtain at least 8/20 for the exam and the permanent evaluation (both project and assignments). If this condition is not met, the final score will deviate from the calculated score if 10 or more was obtained and the student will receive score 9/20.