

IDENTIFICATION

Course code : DEV601
ECTS : 1

DURATION

Lectures : 4
Tutorial classes : 6
Labs : 10
Total : 20

Project :
Personnal work :

ASSESSMENT

TEACHING MATERIALS

Slides, guided work sheets, and practical work sheets.

LANGUAGE

English

CONTACT

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Modifié le : 14 juillet 2026

UE : UE6-DEV

COURSE : Software Modeling and Design

SCOPE OF THE COURSE

OBJECTIVES

This course aims to understand the analysis and design of programs meeting various Software Engineering criteria through the use of the Object-Oriented approach, UML, project management techniques, design patterns, and eco-design techniques.

COMPETENCE AND SKILLS

- Apply a methodology and formalism to design and develop an application
- Produce technical documentation
- Write and implement software tests

PROGRAM

- Elements of Software Engineering and Object-Oriented Methodology : Software Engineering recap ; Industrial software development life cycles for object-oriented applications ; From functional methods to “Object” methods ; From analysis to design.
- Modeling diagrams : UML, object diagrams, collaboration diagrams, class diagrams, use case diagrams, sequence diagrams, state-transition diagrams, activity diagrams, component diagrams, deployment diagrams. Relationships between the different diagrams.
- Object specification software environments : software tools for object application specification, reverse engineering issues.
- Design Patterns : Interests and objectives ; Types of patterns ; Formalism ; Application of design patterns through concrete examples.
- Green IT / software eco-design : Global assessment and challenges ; Representative examples ; Scope of action (Green IT 1.0, Green IT 1.5, and Green IT 2.0) ; ICT eco-labels, standards, and guides ; Action levers ; Eco-design through concrete examples.

BIBLIOGRAPHY

REQUIREMENTS

Algorithms and data structures in C and Engineering tools : Versioning, Deployment and Documentation, Object-Oriented Programming