

Course Unit	Software Engineering II	Field of study	Information Systems
Bachelor in	Informatics and Communications	School	School of Public Management, Communication and Tourism
Academic Year	2023/2024	Year of study	2
Type	Semestral	Semester	2
Level	1-2	ECTS credits	6.0
Code	9188-320-2201-00-23		
Workload (hours)	162	Contact hours	T - TP 30 PL 30 TC - S - E - OT 20 O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Jose Manuel Seixas Alves

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Understand the application development process;
2. Know the project management's phases involved in software development;
3. Know the models applied to application development;
4. Analyse and understand requirements for application development;
5. Modeling software systems from different perspectives (functional, data and behavior); Modeling Web-based and multimedia systems;
6. Make use CASE tools.

### Prerequisites

Before the course unit the learner is expected to be able to:  
Not applicable

### Course contents

- Software Development Project Management - Software Development Project Planning - Models for the Software Development Process - Requirements Analysis - Software Modeling - UML

### Course contents (extended version)

1. Contextualization of Software Engineering
2. Software Development Project Management
3. Software Development Project Planning
4. Models for the Software Development Process
  - Zachman Framework
  - Rational Unified Process
  - SCRUM
5. Requirements Analysis
6. Object Oriented Software Engineering
  - UML – Unified Modeling Language
  - Diagrams: Structure Diagrams; Behavior diagrams
7. Analysis of Web Systems and Multimedia
8. CASE tools

### Recommended reading

1. Mendonça, V. (2022). Sebenta da disciplina de Engenharia de Software. IPB, EsACT.
2. Maalej, W., Thurimella, A. (2013). Managing Requirements Knowledge. Springer. ISBN: 978-3642344183
3. Pressman, R. Maxim, B. (2015). Software Engineering: A Practitioner's Approach. 8th Edition. McGraw-Hill. ISBN: 978-0078022128
4. Thayer, R., Dorfman, M. (2012). Software Engineering Essentials. Volume I, Volume II e Volume III. Software Management Training. ISBN: 978-0985270704; 978-0985270711; 978-0985270728
5. Sommerville, I. (2016). Software Engineering. Pearson Education Limited. ISBN: 978-0133943030

### Teaching and learning methods

Contact hours: Theoretical exposition of the concepts and application of the knowledge in the resolution of exercises and practical cases; discussion of case studies; and guidance in the use of CASE tools. Non-presence hours: Practical work (individual or group); Research, analysis and study of documentation; Exploration and tools use.

### Assessment methods

1. final evaluation - (Regular, Student Worker) (Final, Supplementary, Special)
  - Case Studies - 20% (Continuous Evaluation: presence and effort on project resolution are considered.)
  - Practical Work - 40% (Practical group work: Structured Modeling of an Information System. (Evaluation Minimum mark = 7/20))
  - Development Topics - 10% (Group Work: Thematic Research (Evaluation Minimum mark = 7/20).)
  - Final Written Exam - 30% (Individual evaluation of skills and knowledge acquired. (Evaluation Minimum mark = 7/20))
2. final evaluation - (Student Worker) (Final, Supplementary, Special)
  - Laboratory Work - 20% (Demonstration of skills acquired in the use of CASE Tools. (Evaluation Minimum mark = 7/20))
  - Practical Work - 40% (Practical group work: Structured Modeling of an Information System. (Evaluation Minimum mark = 7/20))
  - Development Topics - 10% (Group Work: Thematic Research (Evaluation Minimum mark = 7/20).)
  - Final Written Exam - 30% (Individual evaluation of skills and knowledge acquired. (Evaluation Minimum mark = 7/20))

### Language of instruction

Portuguese

## Electronic validation

Jose Manuel Seixas Alves	Elisabete da Anunciacao Paulo Morais	Anabela Neves Alves de Pinho	Luisa Margarida Barata Lopes
08-05-2024	08-05-2024	08-05-2024	08-05-2024