

30222 - Software Engineering

Syllabus Information

Academic year: 2023/24

Subject: 30222 - Software Engineering

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel

Degree: 439 - Bachelor's Degree in Informatics Engineering
443 - Bachelor's Degree in Informatics Engineering

ECTS: 6.0

Year: 3

Semester: First semester

Subject type: Compulsory

Module:

1. General information

The purpose of this subject is for the student to understand that software development is an industry, and that Software Engineering is the computer science discipline that facilitates the coordinated application of techniques, methodologies and tools to produce high quality software, within a given budget and by a given date.

Focusing on the development activities of a software product, the student will learn how to determine requirements, analyze them, perform a design, and propose a set of tests on the built software. For this purpose, an object-oriented methodology will be used and the knowledge acquired in the subjects of Programming, Data Structures, Databases and Human-Computer Interaction will be contextualized.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of United Nations (<https://www.un.org/sustainabledevelopment/es/>); specifically, the learning activities planned in this subject will contribute to the achievement of targets 9.4 and 9.5 of Goal 9.

2. Learning results

- Know and know how to apply the principles of software analysis, design, verification and validation.
- Know and be able to use software development support tools (CASE tools).
- Be able to specify, design and build medium-sized computer systems.
- To be able to implement a software design in an object-oriented language.

3. Syllabus

- Topic 1: Introduction to software engineering.
- Topic 2: Determination of requirements.
- Topic 3: Analysis: object modeling, dynamic modeling.
- Topic 4: Design: system design, object design.
- Unit 5: Software product testing.

4. Academic activities

At the **School of Engineering and Architecture of Zaragoza:**

- Participatory lectures 30 hours.
- Problem solving and case studies: 15 hours.

- Laboratory practices: 15 hours.
- Study and personal work: 84 hours.
- Assessment tests. 6 hours.

At the **Polytechnic University School of Teruel:**

- Participatory lectures 30 hours.
- Laboratory practices: 30 hours.
- Study and personal work: 84 hours.
- Assessment tests. 6 hours.

5. Assessment system

At the **School of Engineering and Architecture of Zaragoza:**

First call. The assessment of the subject is based on two tests:

- **P1.** Written test to answer questions and solve exercises and problems. A minimum grade of 5.0 points in this test to pass the subject. If this minimum grade is obtained, then the test is weighted at 70% of the grade. The date of this test will be determined by EINA's management for the global test of the subject.
- **P2.** Work associated with laboratory practices carried out in teams. A minimum grade of 5.0 points is required in this test to pass the subject. If this minimum grade is obtained, then the test is weighted at 30% of the grade. Each team, consisting of 2 students (with justified exceptions), should attend each practice session and make the deliveries indicated. If you have not attended the practical laboratory sessions or have not made the required deliveries in each practical session, in addition to sending all the deliverables, you must take a P2 exam on the date established by the direction of the EINA for the overall test of the subject.

It is mandatory to take and submit both tests in order to pass the subject. If in one of the tests, or in both of them, the grade obtained is lower than 5.0, the final grade of the subject will be the weighted average of the two grades (70% P1 and 30% P2), with a maximum of 4.0.

Second call. The assessment of the subject is based on two analogous tests of the first call, with the same weightings and minimum grade requirements.

At the **Polytechnic University School of Teruel:**

First call. The assessment of the subject is based on two tests:

- **P1.** Examination of problems in which one or more practical cases must be solved. A minimum grade of 4.0 points in this test to pass the subject. This test will represent 50% of the final grade.
- **P2.** Work associated with the laboratory practices of individual character. A minimum grade of 4.0 points is required in this test to pass the subject. This test will represent 50% of the final grade of the subject. When the required practicals are not handed in, their grade will be considered as 0.0 points.

Second call. The assessment of the subject is based on two analogous tests of the first call, with the same weightings and minimum grade requirements.