

29536 - Software Engineering

Syllabus Information

Academic year: 2023/24

Subject: 29536 - Software Engineering

Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia

Degree: 625 - Bachelor's Degree in Industrial Processes' Data Engineering

ECTS: 6.0

Year: 3

Semester: First semester

Subject type: Compulsory

Module:

1. General information

Software engineering is the application of engineering methods to software development and its evolution. Its principles and practices address three key areas: discovering user requirements, managing software complexity, and building quality products and services.

The main objective will be to find out what users really want and how developers can implement it.

Alignment with the SDGs:

- Goal 9 Build resilient infrastructures, promote sustainable industrialization and foster innovation and, in particular with the targets:
- Target 9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in the least developed countries by 2030.
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2. Learning results

In order to pass this subject, the students shall demonstrate they have acquired the following results:

- To know the principles, methods and technologies associated with Software Engineering
- Study and understand the importance of requirements in the software life cycle
- Introduction to the basic techniques of bidding, documentation, specification and prototyping of software system requirements.

3. Syllabus

1. Introduction to software engineering.
2. Software development process.
3. User requirements.
4. Requirements analysis.
5. Use cases.
6. System design and architecture.
7. Design applying patterns.
8. Static check.
9. Tests.
10. Software quality.

4. Academic activities

Face-to-face activities:

- Theoretical classes: The theoretical concepts of the subject are explained and illustrative practical examples are given to support the theory.
- Practical classes: Problems and case studies will be carried out as a complement to the theoretical concepts studied.

Non-face-to-face activities:

- Study and assimilation of the theory presented in the lectures.

- Understanding and assimilating problems and case studies solved in class.
- Resolution of proposed problems.
- Carrying out of group practices and preparation of reports.
- Preparation of written tests for continuous assessment and final exams.

The subject consists of 6 ECTS credits, which represents 150 hours of student work in the subject.

5. Assessment system

Students must demonstrate that they have achieved the intended learning results by means of the following assessment activities

- Practical work (30%). These assignments include 2 laboratory practicals and a complex design exercise. From each of the practices the student will be asked to submit a report that will serve as a basis for the assessment. To pass the subject, students must obtain a final grade of 5 or higher in the laboratory practicals.
- Theoretical-practical written tests (70%) in which questions and/or problems in the field of engineering of similar complexity to those used during the subject will be posed. The quality and clarity of the strategy of resolution, the concepts used to solve the problems, the absence of errors in the development and in the solutions, and the correct use of terminology and notation will be evaluated. In each of the theoretical-practical written tests , students must obtain a grade equal to or higher than 5 in order to pass.

The student will be able to choose between a split assessment, carried out in the form of two written tests and the delivery of the practices scripts during the term, or a global test at the end of the term (consisting of one exam per midterm) and the delivery of the practice scripts.