

Academic Year/course: 2022/23

## 30391 - Software Analysis and Design

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 30391 - Software Analysis and Design

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 581 - Bachelor's Degree in Telecommunications Technology and Services Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject Type:** Optional

**Module:**

## 1. General information

### 1.1. Aims of the course

Having background on programming computers, as that provided by Fundamentals on Computers and Networks and Services Programming, the student addresses now the object oriented paradigm. Then, focussing on software development instead of the mere programming phase. Hence, the course addresses the well-known software development cycle, in particular Analysis, Design and Testing of software systems.

So, the course is mostly applied, trying to illustrate the different phases of the lifecycle on real examples and case studies, which are developed in practical sessions and in the laboratory.

The course contributes to objective 9 of the SDG.

## 2. Learning goals

## 3. Assessment (1st and 2nd call)

## 4. Methodology, learning tasks, syllabus and resources

### 4.1. Methodological overview

#### Learning Process:

1. Study and work starting from the very first day.
2. Classes that will develop the main course concepts on Analysis, Design and Testing of Software Systems. Students will be especially involved in the class development.
3. Classes devoted to apply the main course concepts by means of problem solving. Students will play a primary role to achieve success.
4. Laboratory classes. Students will learn techniques, methods and technologies for Analysis, Design, Implementation and Testing of Software Systems.

#### Students Work:

150 hours of effective work as follows:

- Around 60 hours for face to face activities with the Professor (theory -25 hours-, problems -15 hours-, laboratory -20 hours-)

- Around 24 hours for workgroup
- Around 60 hours for individual work and study
- Around 6 hours for evaluation

## 4.2. Learning tasks

### Activities for addressing the expected results

1. Classroom classes will develop the course program
2. Classes specially devoted to solve problems related to the course program
3. Laboratory classes for software development activities

## 4.3. Syllabus

The course will address the following learning tasks:

- Introduction to Software Engineering: Software Life-cycle
- Software Requirements
- Object-oriented Software Design: Static modeling, Dynamic modeling
- Object-oriented Software Design: Design Patterns
- The basis on Software Testing
- Distributed Objects

## 4.4. Course planning and calendar

### Calendar:

- Classes for Theory and Problems (2 hours per week during 5 weeks; 3 hours per week during 10 weeks)
- Laboratory (6 sessions of 3 hours per session)

## 4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30391>