

**COURSE DATA****Data Subject**

<b>Code</b>	34898
<b>Name</b>	Project management
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2022 - 2023

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>	<b>year</b>
1403 - Degree in Telematics Engineering	School of Engineering	3	Second term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1403 - Degree in Telematics Engineering	17 - Project management	Obligatory

**Coordination**

<b>Name</b>	<b>Department</b>
MARTINEZ DURA, JUAN JOSE	240 - Computer Science

**SUMMARY**

This course “Project Management” is part of the subject “Project Management”. Its general objective is that students gain the ability to properly apply all previously acquired knowledge to the design, development and evaluation of projects and reports in the field of Telematics Engineering, applying the methodology and the basic principles of economics, management, auditing and business organization. It is a compulsory subject that is taught quarterly basis in the third year of the degree of Telematics Engineering in the second quarter. The curriculum consists of a total of 6 ECTS.

In general terms, the objectives of the course are:

- Primarily, to enable students to successfully face the real project management of any type within the computer industry and to a large extent, information technology and communications (ICT).



- Know the general theory of project management and the reasons against judicial management within an IT organization.
- Introduce the concept of Information Systems Plan, from the perspective of strategic plan computer within an organization and its relationship with project management.
- To know the different phases of the life cycle of a telematic project.
- To understand the features that should have documentation of a project, technical report and the presentation and defense of a project.
- Know the technical feasibility ICT projects.
- Learn the techniques of economic evaluation of projects in the field of Telematics Engineering.
- Learn the techniques of planning and project control.
- Understand the relationship between the technical aspects to be addressed in a draft plan and information systems of an organization.
- To present the basic elements of software development associated with elements of quality assurance

From the educational point of view, the subject has a practical approach and is primarily focused on the development of practical skills for the engineer who must use their professional development as a project manager, or as part of the project team. In achieving the above objectives, the student must have acquired a number of skills related to management of both material and human resources in the planning and implementation of any ICT project.

## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

The course, given its general nature, does not need a specific background, although it is recommended to have attended the courses Engineering, Society, University and Business, in order to have an initial perception of the world of a Company. On the contrary, it does provide very direct connections in those subjects in which the work is embodied in a project such as Software Engineering.

## OUTCOMES



### 1403 - Degree in Telematics Engineering

- G8 - Knowledge and application of basic elements of economics and human resource management, project organization and planning, and legislation, regulations and norms in telecommunications.
- G9 - Ability to work in a multidisciplinary environment and in a multilingual group and to communicate, in writing and orally, knowledge, procedures, results and ideas related to telecommunications and electronics.
- G6 - Ability in the handling of specifications, regulations and norms of compulsory compliance.
- G1 - Ability to write, develop and sign projects in the field of Telecommunication Engineering aimed - according to the knowledge acquired in section 5 of CIN/352/2009 regulation - at the conception and the development or the exploitation of networks, services and applications of telecommunications and electronics.
- E3 - Ability to construct, operate and manage telematic services using analytical tools for planning, dimensioning and analysis.

## LEARNING OUTCOMES

The learning results of the course “Project Management” are:

- Understand the improvements provided business management and project-based production compared to a continuous type methodology (G6, G8, G9)
- Learn to differentiate and drafting the various documents that are often managed for the management and life of a project (G1, G2, G6, G9)
- Analyze the basic concepts of project management (G2, G6, G8, G9)
- Develop basic skills (techniques and tools) in planning and implementing projects (G6, G8, G9, E3)
- Estimate costs, time and resources in a project (G8, G9, E3)
- Understand the key strategic factors in the ICT sector of the various projects associated (G2, G6, G8)

In addition to the specific objectives mentioned above, during the course will encourage the development of several generic skills, among which include: analysis and synthesis of any problems related to ICT, the argument from rational and logical criteria, the expression accurate and organized development of problems in a systematic and organized, personal work, the proper allocation of time and, finally, the capacity for teamwork.



## DESCRIPTION OF CONTENTS

### 1. An introduction to the Project Management

- 1.1 Project Definition
- 1.2 Project Phases
- 1.3 Project Management
- 1.4 Life cycle of the projects
- 1.5 Key Issues in Project management

### 2. Agile methodologies: SCRUM

- 2.1 Introduction
- 2.2 SCRUM methodology
- 2.3 Agile Project Management
- 2.4 Case Study

### 3. Scope management

- 3.1. Introduction to project scope
- 3.2. Phases of a project:
  - 3.2.1. Home Project
  - 3.2.2. Project definition
  - 3.2.3. Project Planning
  - 3.2.4. Verification of Project
  - 3.2.5. Control of project changes

### 4. Time management

- 4.1. The context of the Planning Projects
- 4.2. Time Management in Projects
  - 4.2.1. Defining Activities
  - 4.2.2. Sequencing of Activities
  - 4.2.3. Estimated length of Activities
  - 4.2.4. Development Management Plan Temporary
  - 4.2.5. Temporal Control Management Plan

### 5. Cost management

- 5.1. Introduction
- 5.2. Cost Planning
- 5.3. Cost Estimating
- 5.4. Budget Estimating
- 5.5. Control of costs



## 6. Risk management

- 6.1. Certainty, risk and uncertainty
- 6.2. The risk throughout the life cycle of a project
- 6.3. Phases of Risk Management
- 6.4. Quantification of risk

## 7. Resource Management

- 7.1. Introduction to Resource Management
- 7.2. Activities of Resource Management:
  - 7.2.1. Human Resource Plan
  - 7.2.2. Acquisition of the project team
  - 7.2.3. Development of the project team
  - 7.2.4. Address of the project team
- 7.3. Human Resource Management

## 8. Control and monitoring of the project

- 8.1. The control processes
- 8.2. procedures involved
  - 8.2.1. Control and status reports
  - 8.2.2. Management changes and problems

## 9. Economic aspects of a project

- 9.1. The economic engineering. Definition
- 9.2. Financial criteria for evaluating: Analysis in the preliminary stages of the project
  - 9.2.1. Cost-capacity ratio
  - 9.2.2. Breakeven Diagram
  - 9.2.3. Studies based on ratios
  - 9.2.4. Accounting rate of return
  - 9.2.5. Payback
  - 9.2.6. Benefit cost
  - 9.2.7. Case Study
- 9.3. Financial criteria for evaluating: Analysis in advanced stages of the project
  - 9.3.1. The financial dimension of investment: cash flow (cash flow)
  - 9.3.2. Updated and capitalization
  - 9.3.3. Net Present Value (NPV)
  - 9.3.4. Rate of Return (IRR)



## 10. Project Documentation

- 10.1. Introduction.
- 10.2. Types of projects.
- 10.3. Structure of the Thesis
- 10.4. Standard errors of DP
- 10.5. Evaluation

## WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Laboratory practices	20,00	100
Classroom practices	10,00	100
Development of group work	15,00	0
Development of individual work	10,00	0
Study and independent work	10,00	0
Readings supplementary material	5,00	0
Preparation of evaluation activities	15,00	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	15,00	0
Resolution of case studies	10,00	0
<b>TOTAL</b>	<b>150,00</b>	

## TEACHING METHODOLOGY

The development of the course is structured around four axes: learning with the teacher (theory sessions, problems and face-to-face tutorials), group activities, laboratory sessions and the completion of a project in all its stages.

### Group learning with the teacher

In the theory sessions, the lecture model will be used. In them, the teacher will present the fundamental contents of the subject, using the audiovisual media available (presentations, transparencies, blackboard). The teacher will ask questions that will force the students to reflect on the content presented. These questions will be debated and resolved in class.



In the problem sessions, the teacher will explain a series of standard problems corresponding to topics 4, 5 and 9, thanks to which the student will learn to determine the times of the activities and critical activities of a project (topic 4), learn to estimate the costs of a project and to evaluate the evolution of the project with respect to its planning (topic 5) and to carry out economic viability studies and operating accounts (topic 9).

The participatory method will be used for these sessions, in which communication between students and students/teacher will be a priority. As the theoretical concepts are explained, exercises will be carried out in class, which will be worked on in groups of 4 or 5 students, and then corrected in class. At the end of a topic, a series of exercises will be sent as homework to be corrected in the following hour of class.

### **Group activities**

The theoretical concepts introduced in the lectures will be complemented with a series of group activities. In these activities, groups of students will propose the resolution of different exercises, estimation of a scrum project, determination of user stories, decomposition of a project into tasks, etc. The solutions of the different groups will be shown to the rest of the class and afterwards, the teacher will indicate which solutions are the most appropriate. All these activities will be taken into account in the final assessment.

In addition, the lecturer will give a seminar on final projects and training practices in Telematics Engineering. Attendance to this seminar will be compulsory, and students will have to make a summary of what has been exposed, which will finally have its value in the final grade of the subject.

### **Laboratory sessions**

Laboratory sessions are aimed at:

-Learning and management of project management tools both commercial (Microsoft Project) and free distribution (GranttProj).

-Make a spreadsheet like Microsoft Excel, to represent the scope of a project (EDT / WBS) and the study of their own operational and economic viability.



-- Determine the risks of a project, defining mitigation and contingency actions for high and very high level risks.

The laboratory sessions will be organized around working groups of a maximum of two people.

### **Completion of a project**

Groups of 3 to 5 students will be set up to solve a project using the SCRUM methodology. Students will have to plan and execute the project in different iterations. In each iteration, the teacher will tell them the new user stories they will have to take into account and, once planned, the problems they will encounter in their execution. The students must decide the best strategy to follow in order to comply with the execution restrictions, meet the project requirements and provide the greatest value to the client. Deliveries will be made in each iteration, until the project is completed. Once finished, the members of each team will have to present a personal self-evaluation report, indicating their role in the project, the relationship between the members of the team and giving an assessment of their work and the work of their colleagues.

### **Office Hours**

The students have a schedule of tutorials aimed at solving the problems, doubts, work orientation, etc.. The schedule of these office hours will be indicated at the beginning of the academic year. They will also have the opportunity to clarify some questions via email or discussion forums by using the tool "Virtual Classroom", which gives the University of Valencia.

## **EVALUATION**

Knowledge assessment will be done in two ways:

### **1) CONTINUOUS EVALUATION**

Recommended method for students. The following factors are evaluated to obtain the final mark:

- 65% theoretical knowledge and problems (TEO).
- 20% of the laboratory (LAB)
- 15% of group project (ART)





To be able to average it is necessary to obtain a minimum grade of 5 in each one of the parts, being necessary that the final note is equal to or superior to 5 to approve.

**a) Theoretical knowledge and problems (TEO).**

The note of theoretical knowledge and problems are assessed according to the following factors:

- **90% OF INDIVIDUAL TESTS OBJECTIVES.** During the course there will be different written tests on theoretical knowledge and problems. It will be necessary to get a grade of 4 or higher in each test so that you can compensate. In the final examination of the first call, those parts that have not been passed in the partial tests will have to be recovered. The individual tests will contain a theory section and a problem section. A minimum score of 2.5 out of 10 will be required for both parts.
- **10% OF PROBLEMS.** We will evaluate the different problems that are proposed to the students, either to perform in class or at home. This activity is not recoverable.

**b) Laboratory (LAB).**

The laboratory grade will be obtained by averaging the grade obtained in the N practical sessions. In order to obtain the grade of the laboratory it will be necessary to have presented all the practices and to have attended a minimum 80% of the classes.

**c) Group project (TRA).**

The mark for the group project will be obtained from the assessment of the work carried out by the teacher and the individual assessment made by each member of the group. A mark of 4.5 or more must be obtained in each project for this part to be compensated.

**2) SINGLE EVALUATION SYSTEM AND SECOND CALL**



This method will apply to any student who, for a reason reasoned and admitted by the teacher, can not attend regularly to classes and in the second call.

The following factors are evaluated to obtain the final mark:

- 80% theoretical knowledge and problems (TEO).
- 20% of the laboratory (LAB)

To be able to average it is necessary to obtain a minimum grade of 5 in each one of the parts, being necessary that the final note is equal to or superior to 5 to approve.

**a) Theoretical knowledge and problems (TEO).**

The note of theoretical knowledge and problems are assessed by a single examination, not taking into account other factors such as attendance or problem exercises performed during the course.

**b) Laboratory (LAB).**

The laboratory grade will be obtained by averaging the grade obtained in the practical sessions, which must have been delivered, even if you have not attended the laboratory sessions.

## REFERENCES

### Basic

- Project Management Institute, "A Guide to the Project Management Body of Knowledge", 4th edition, Project Management Institute (2008), ISBN: 19-33890517
- Domingo Ajenjo, A. Dirección y Gestión de Proyectos, un enfoque práctico. Editorial Rama, (2005). ISBN: 9701511301.
- Martín, G; Dawson, C. El proyecto fin de carrera en ingeniería informática. Editorial Prentice Hall; ISBN: 84-20535605.



### Additional

- Pereña, J. "Dirección y Gestión de Proyectos". Editorial Díaz de Santos (1991). ISBN: 8479782498
- Grashina M.N; Newell M.W, Preguntas y Respuestas Sobre La Gestión de Proyectos, Editorial Gestión 2000, (2005). ISBN: 9788480886864
- Gómez, J. F; Coronel, A.J; Martínez de Irujo, L; Lorente, A. "Gestión de proyectos". FC Editorial. Madrid, (2000). ISBN: 84-28317747.