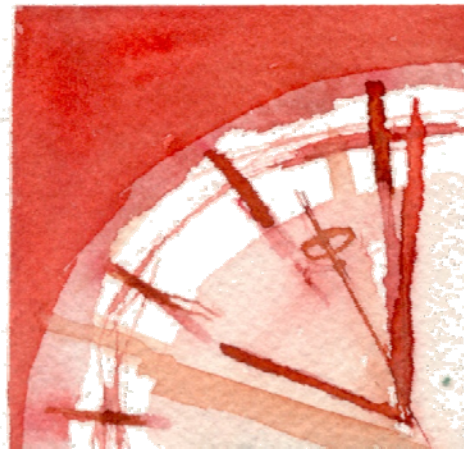


# PROJECT CONTROL

## SYLLABUS



*Authors:*

*Nerea Toledo Gandarias*

*Jose Ramon Otegi Olaso*

This work is published under the [Creative Commons License](https://creativecommons.org/licenses/by-nc-sa/4.0/).



1. CONTEXT .....	3
2. OBJECTIVES.....	4
3. COMPETENCES .....	5
4. PRE-REQUISITES .....	6
5. SYLLABUS.....	7
6. METHODOLOGY .....	8
7. PLANNING .....	9

## 1. CONTEXT

In recent years, more and more companies are organizing their business in projects, so optimization and sophistication on project management is becoming a reality. Consequently, Project Management is considered a useful know-how that any professional working on any project-based business should master.

The competences that a Project Manager should have are supported by international standardization bodies like PMI (Project Management Institute) or IPMA (International Project Management Association) with the definition of standards and guidelines that are in continuous development. More specifically, the PMI defines ten knowledge areas that a project management professional have to foster, while the IPMA classifies the competences of a project manager in the following groups: practice, people and perspective. In any of the classifications, Project Control is considered one of the key competences.

This subject introduces the fundamentals of Project Control. Thus, a student willing to acquire project manager competences should complement its training using additional material to get the rest of the competences pointed out by the standardization bodies.

Currently, this subject is taught in the first semester of the European Master in Project Management-EuroMPM and has 3 ETCS. This master is part of the EuroMPM teaching model that has equal master programs developed in Germany (FH Dortmund), Norway (Norwegian University of Science and Technology) and in Lithuania (Kaunas Technical University). Hence, the development of this material in English will be very useful for the exchange of students and lectures among the different universities that belong to the EuroPIM (European Partnership on Project and Innovation Management) consortium. Apart from this, part of the content of the subject is included in the Project Management subject that is taught in the Industrial Engineering and Telecommunications Engineering Masters of the School of Engineering of Bilbao (UPV/EHU). Therefore, developing the subject in English gives chance to satisfy the necessities of Erasmus, while it fosters English curricula in the UPV/EHU.

The potential students of this subject are professionals that preferably have technical background like engineering, that want to get knowledge related to the project management area, in order to go a step forward in their professional career and work as project managers. It should be mentioned that, since any idea that requires investment and needs to be accomplished within a specific period of time is considered a project, this subject provides also the basis to control any kind of project, and not only engineering projects.

## 2. OBJECTIVES

This subject aims to introduce the importance and necessity of applying Project Control procedures in the management of any Project, as well as of presenting the different Project Control methods. One of the key objectives of this subject is to describe the different types of Project Control and their application. In addition, the subject presents in depth the most extended integral Project Control method, the Earned Value Management System (EVMS). For a better understanding of this method, practical exercises and use cases are developed. In the same way, the most recent advances that aim at optimizing the EVMS are introduced.

More in detail, the subject has the following objectives:

- *Recognize the importance and necessity of the implications of Project Control in the overall Project Management and in its success.* One of the primary goals of the subject is to provide to the students the means to recognize the importance of Project Control and its key role in the success of the projects. Moreover, Key Performance Indicators (KPIs) that are used for evaluating the performance and success degree of the project are tightly related to the Project Control, since the KPIs are used for monitoring the status of the project.
- *Know Project Control procedures.* In this subject the procedures specified by the major international standards and guidelines (PMBok, ICB and ISO21500) for conducting Project Control will also be taught, together with the differences between them.
- *Distinguish different Control types.* The subject introduces the methods to control the major aspects that govern the success of a project: time, cost and scope. In the same way, the need for integrated control is also underlined.
- *Master the EVMS and its limitations.* The key objective of this subject is to master the EVMS. The EVMS is the most extended integrated Project Control method that integrates cost and time control of projects using a simple and a compact formulation. With the goal of comprehending all the points of view of the EVMS, its limitations are also explained.
- *Discern the enhancements and modifications of the EVMS.* The subject also pursues the introduction of the most significant enhancements published in the literature that have the aim of overcoming the limitations found by the research community.

### 3. COMPETENCES

Next, the competences that the student will develop after taking the subject are enumerated:

- *Apply the core knowledge of the main concepts of project control.*
- *Apply the core knowledge of the different control types*
- *Apply the Earned Value Management System (EVMS) and interpret the results*
- *Apply the enhancements of the EVMS and interpret obtained results*

#### 4. PRE-REQUISITES

This subject does not present strong pre-requisites for the students that want to take it. However, since historically accomplishing projects has been the natural to-do of engineers, Project Management competence is closely related to engineering and technology. Because of this, the background of the students of this subject should preferably be engineering, but any person that masters a specific area of knowledge liable for carrying out projects should be capable of understanding the content presented and of acquiring the expected learning results.

## 5. SYLLABUS

The subject will be developed following this collection of themes:

*Studying material:*

- Theme 1. Introduction.
  - o Definition of Project
  - o Definition of Project Management
  
- Theme 2. Project Control
  - o Fundamentals of control
  - o Scope control
  - o Schedule control
  - o Cost control
  
- Theme 3. Earned Value Management System (EVMS)
  - o Fundamentals
  - o Deviation indicators
  - o Performance indicators
  - o Prediction calculation
  
- Theme 4. Enhancements to EVMS
  - o EVMS limitations and need of modifications
  - o Earned Schedule Management System

*Practice, exercises and activities:*

- Theme 5. Practical exercises
- Theme 6. Computer-based exercises

*Self-evaluation*

## 6. METHODOLOGY





The different themes that comprise the knowledge of the subject are introduced, using explanatory examples. Then, practical exercises are proposed, distinguishing computer-based exercises and manual exercises.



## 7. PLANNING

The scheduling of the subject is sequential. First of all, introductory themes are taught for contextualizing the subject and then, the core of the Project Control is presented. The chronological order is the following:

	1 week	2 weeks	5 weeks	2 weeks	2 weeks	3 weeks	Workload
Theme 1: Introduction							1h
Theme 2: Project Control							4h
Theme 3: Earned Value Management System (EVMS)							25h
Theme 4: Enhancements to EVMS							15h
Theme 5: Exercises							10h
Theme 6: Computer-based exercises							20h

-  Milestone 1: Basic concepts of project control have been introduced
-  Milestone 2: The EVMS has been described. Students should have the competences to understand the method, potential application and its limitations.
-  Milestone 3: The whole content of the subject is introduced and students should be to complete the proposed exercises.
-  Milestone 4: The expected competences should have been acquired.

It should be noted that Theme 3 has the longest duration, since the core knowledge of the subject is concentrated in it.