

PROJECT MANAGEMENT (GEP)

Generic Syllabus.

1. Introduction

When students are about to start preparing their bachelor's thesis (TFG), they are expected to adopt a suitable approach to project management. A project administrator, manager, director or leader is a person who has full responsibility for correctly planning, designing and implementing a project. This job title is used in the construction industry, architecture, software development and other activities that are based on the creation or maintenance of a product.

The person in charge of a project must have a set of skills, including research capacities, the ability to identify unspecified problems and the ability to solve interpersonal conflicts.

Beyond what students learn when they take specific subjects on projects in various areas of computer science, project management is a discipline that requires a method in order to integrate the multiple areas of the work to be carried out. These include scope definition, management of time, people, assets, economic resources, procurements, quality assessment, impact and risk assessment, sustainability etc. Engineers should be trained in integrated project management methodology. This will ensure that they consider a project in its entirety, to achieve goals established in all of the above areas and to facilitate communication between all project stakeholders.

Therefore, the Project Management (GEP) course has two objectives. First, to introduce the methods and tools that will enable students to prepare their TFGs successfully. Second, to provide students with a solid foundation in the literature on the subject, which will enable them to develop, or at least be aware of, the skills and abilities they will subsequently use in their professional activity. Whatever their specialisation, engineers' main functions are to develop designs and technological solutions to meet social, industrial and/or economic needs. Statistics show that, due to their broad training, over the years engineers are highly likely to move out of the production area and into company management. Therefore, it is essential to train future engineers in management areas that will be required to use in the future.

One of the main contributions of the GEP course is to develop professional skills in the monitoring of any kind of project, based on its integrated management. This is a valuable contribution; as a high percentage of the time that a project requires is dedicated exclusively to its management. Therefore, this course focuses on topics related to different management areas and on the ICT tools that can support this task.

2. Method

The Project Management course is taught by the Department of Management.

Characteristics of the course:

- Mode of delivery: e-learning.
- Length: see dates in the GEP Guide to Athena.
- Study load: 3 ECTS (75h total learning time)

The teaching of the subject will be managed through the ATENEA (Moodle) virtual campus. The ATENEA campus contains all the course material, including a syllabus, slides, bibliography, a description and the schedule of the deliverables for each activity, as well as the assessment rubrics.

Out of a total learning time of 75 hours, 37.5 hours shall be dedicated to studying the course material and completing the proposed activities (deliverables), whilst the other 37.5 hours shall be devoted to individual work on the TFG. In other words, the aim is for students to use what they learn in the Project Management module to draw up the objectives of their TFG: to clearly define the problem, to define the scope, to justify the chosen alternative for resolution, to create an initial plan and a budget, and to create a sustainability report, as any other documents that may be required.

It is expected that during this period the student will elaborate all this documentation, so that when completing the module, a useful document as a memory of TFG was obtained. This document must contain -worked at an acceptable level- a large part of the management aspects of the TFG. During the follow-up (“Fita de Seguiment”) and final phase (“Fita Final”) of the TFG, the student will have to complete the management aspects and add the technical parts of the TFG.

During this time, students must agree on a “Project management plan” with their supervisor. In other words, they must establish a schedule of monitoring meetings with their TFG’s supervisor to ensure that the final GEP document is in line with the bachelor’s thesis that will be prepared.

3. Assessment system

Both formative and summative assessment will be used.

3.1. Formative assessment

Formative assessment will be based on some deliverables related to the course contents. Each deliverable is associated with an assessment rubric, which is available on the ATENEA campus. Students must complete the rubric with a self-evaluation of their work. The rubrics will then be used by GEP lecturers to assess the students. The feedback that is provided will help students to gradually improve the quality of the document that must be submitted at the end of the module.

There are 3 deliverables, as listed below (see Section 4 for a detailed description of each one):

- Deliverable 1: Context and scope of the project
- Deliverable 2: Project planning

- Deliverable 3: Budget and sustainability

3.2. Summative assessment

On the basis of all the aforementioned deliverables, students will create one document (Deliverable 4) with the following sections:

- Introduction and context
- Justification of the alternative chosen to solve the project
- Project scope
- Project planning
- Economic management
- Sustainability and social commitment
- References (bibliography).

At the end of the module, students will be given two marks, resulting from the oral presentation of the final document:

- General mark for GEP relating to the quality of the submitted documents. GEP lecturers will use the “Initial objective” assessment rubric to evaluate to what extent students have achieved the established goals.
- Technical mark relating to the complexity or specific characteristics of the TFG, given by the corresponding thesis (TFG) supervisor.

The sum of these two marks (50% each) will be the mark awarded for the initial objective of the TFG. This will account for 10% of the total mark for the TFG.

4. Content

4.1. Module 1: ICT tools to support project and team management

4.1.1. Justification

In our opinion, right from the outset, students should develop an awareness of the set of ICT tools that support the development of the TFG. Clearly, an increasing number of tools compete in the software market and their use is becoming ever more widespread.

4.1.2. Objectives

1. To learn the most commonly used software tools and techniques for project planning and decision-making.
2. To determine which project management tools and techniques should be used in each case, to enhance the efficacy and efficiency of management.
3. To create an online work environment to ensure individual monitoring of the development of the project.

4.1.3. Study load

Theory	Problems	Laboratory	Guided learning	Independent learning
0h	0h	0h	2h	2h

4.1.4. Content

1. Specific project management applications
2. Online resources for project management
 - 2.1. Intranet for the project: Moodle (ATENEA)
 - 2.2. Shared documents: Dropbox, Google Drive, Google Groups
 - 2.3. Diaries: Google Calendar
 - 2.4. Task planning: Gantt diagram
 - 2.5. Project administration: Microsoft Project / Open Project
3. Online management of the TFG
 - 3.1. Communication area: Moodle (ATENEA)

4.1.5. Deliverables

There is no deliverable associated with this module.

4.1.6. Associated material

- Module 1 - TIC tools.pdf

4.2. Module 2: Main principles of project management

4.2.1. Justification

The aim of this module is to work on project management skills, so that they can be immediately applied to the TFG. The focus is specific concepts and tools of Project Management.

4.2.2. Objectives

4. To incorporate all the components of project management.
5. To describe the nature of a project and its life cycles.
6. To define the main objective of the project.
7. To learn how to define the project scope.
8. To learn how to manage time and organise yourself in projects.
9. To plan and monitor the execution of a project.
10. To use the most suitable techniques and tools to manage a project (Gantt and Pert charts).
11. To evaluate projects objectively from an economic and financial perspective.
12. To make forecasts and valuations before any phase in the development of the project.
13. To determine and quantify costs and deadlines from the launch to the close of the project.
14. To describe the areas of project monitoring: time, costs, risks and quality.
15. To implement a quality improvement plan.
16. To identify, assess and reduce the risks of a project establishing, if necessary, response plans.
17. To determine and consider the project's sustainability from the perspective of the social and/or environmental and/or economic impact that it could have on the surrounding environment.
18. To manage the main sources of information on project management.
19. To create databases using reference managers.
20. To identify the elements of the surrounding environment and context that could have a direct impact on the project development.

4.2.3. Study load

Theory	Problems	Laboratory	Guided learning	Independent learning
0h	0h	0h	19.00h	23.00h

4.2.4. Content

1. Introduction to project management
 - 1.1. Project management and planning areas
 - 1.2. Project phases
 - 1.3. Basic vocabulary
 - 1.4. Project documents
2. Scope management
 - 2.1. Overview
 - 2.2. Scope management
3. Time management
 - 3.1. Introduction
 - 3.2. Processes: planning and organisation
 - 3.3. Scheduling tools
 - 3.4. Processes: acting and monitoring
4. Economic management

- 4.1. Cost management
- 4.2. Planning
- 4.3. Monitoring
- 4.4. Financial management
- 4.5. Economic and financial viability
5. Other management areas
 - 5.1. Quality management
 - 5.2. Risk management
6. The sustainability report
7. Information skills
 - 7.1. What is an analysis of the state-of-the-art?
 - 7.2. Information searches and knowledge management
 - 7.3. Reference and bibliography management
 - 7.4. Context of a project
 - 7.5. Professional ethics in the context of the project

4.2.5. Deliverables

Deliverable 1 “Context and scope of the project”	Delivery date See dates in the GEP Guide in Athena	Study load (hours) - Guided learning: 9.00h - Independent learning: 15.50h
Description: Definition of the scope of the project in the context of its study. You must indicate the general objective of the TFG, the context, the reason for selecting the subject area (relevance and justification), how the project will be developed and using which means. The document can be no longer than 10 pages .		
Specific objectives: 4, 5, 6, 7, 18, 19, 20		
Contents associated with this activity: Module 2.1, Module 2.2, Module 2.7		
Support material <ul style="list-style-type: none"> - Notes available on ATENEA - Recommended reading on the subject - Assessment rubric for Deliverable 1 		
Submission system: Students must upload two documents to ATENEA: <ul style="list-style-type: none"> - A document that defines the scope and context of the project, and includes a detailed literature review that justifies the project and identifies the different sources of information used - Rubric 1 with the self-evaluation form 		
System of feedback on the activity: The lecturer will provide the corresponding feedback through a message on ATENEA.		

Deliverable 2 “Project planning”	Delivery date See dates in the GEP Guide in Athena	Study load (hours) - Guided learning: 5.00h - Independent learning: 3.25h
Description: Planning of the entire execution of the TFG. Students should provide a description of the project phases, and the resources and requirements associated with each one. Some of the scheduling tools described in the module should be used. The document can be no longer than 5 pages .		
Specific objectives: 8, 9, 10, 14, 15		
Contents associated with this activity: Module 2.3		
Support material - Notes available on ATENEA - Recommended reading on the subject - Assessment rubric for Deliverable 2		
Submission system: Students must upload two documents to ATENEA: - The document with the project planning - Rubric 2 with the self-evaluation form		
System of feedback on the activity: The lecturer will provide the corresponding feedback through a message on ATENEA.		

Deliverable 3 “Budget and sustainability”	Delivery date See dates in the GEP Guide in Athena	Study load (hours) - Guided learning: 5.00h - Independent learning: 4.25h
<p>Description: The deliverable begins with a self-assessment on sustainability, which you can summarize in 300 words once replied the survey in https://bit.ly/3wZjPLw. The next section would be an analysis of the sustainability of the project, based on the sustainability matrix contained in figure 3 -- TFG’s sustainability matrix questions (I: initial milestone, F: final milestone) -- of the document "Module 2.6 Sustainability report.pdf." When dealing with the economic dimension of this report, it is necessary to make a budget (criterion "Budget" in the rubric) of the project (according to the criteria: “Task Description”, “Estimation and Gantt”, and “Management control”); and then write an assessment according to the "Reflection" criterion. The rest of the dimensions of the sustainability report shall be developed directly based on (textually) answers to the questions in the "Reflection" criterion of the rubric. Please, give answer to the questions of the table. The document cannot have an extension of more than 5 pages.</p>		
Specific objectives: 11, 12, 13, 14, 15, 16, 17		
Contents associated with this activity: Module 2.4, Module 2.6		
Support material <ul style="list-style-type: none"> - Notes available on ATENEA - Recommended reading on the subject - Assessment rubric for Deliverable 3 - Module 2.6 - Sustainability report.pdf 		
Submission system: Students must upload two documents to ATENEA: <ul style="list-style-type: none"> - A document describing the budget, economic viability and sustainability - Rubric 3 with the self-evaluation form 		
System of feedback on the activity: The lecturer will provide the corresponding feedback through a message on ATENEA. In this case, feedback from GEP teachers will be limited to the part of the budget. On the part dedicated to sustainability, GEP teachers will only check that the content specified in the rubric is included (reflection on the survey, discussion on the economic dimension, discussion on the environmental dimension and discussion on the social dimension). The content of sustainability will be evaluated by your TFG director, at the time of evaluating the Initial Milestone (“Fita Inicial”) and also by presenting your TFG to the Final Milestone (“Fita Final”)		

4.2.6. Associated material

- Module 2.1 - Integrated project management.pdf
- Module 2.2 - Scope management.pdf
- Module 2.3 - PERTS improved construction.pdf
- Module 2.3 - Time management.pdf
- Module 2.4 - Economic management.pdf
- Module 2.4 - IT project`s costs & sustainability.pdf
- Module 2.4 - Budget example at Gantt activities level.pdf
- Module 2.4 - Financial viability example.pdf
- Module 2.5 -- Other areas of management.pdf
- Module 2.6 - TFG’s sustainability report
- Module 2.7 -- Information skills.pdf
- Module 2.7.1 -- Information skills.pdf
- Module 2.7.2 - Reference managers.pdf
- Rubric 1 -- Context and scope.pdf
- Rubric 2 -- Planning.pdf
- Rubric 3 -- Budget.pdf

4.3. Module 3: Personal and professional skills for project and team management

4.3.1. Justification

An important aspect of project management is the task of coordinating and leading a team. This module focuses on human resources and team and project management. Students will work on topics related to the professional and personal skills of team and project managers and on techniques and competences that increase the effectiveness of oral and written communication.

4.3.2. Objectives

21. To use management techniques for working with people that help to make the most of human potential in projects.
22. To identify the competences and skills required to manage a project team.
23. To list techniques for fostering creativity and generating ideas, which promote innovation in the phase of conceptualising a project.
24. To be able to defend the content of an oral presentation.

4.3.3. Study load

Theory	Problems	Laboratory	Guided learning	Independent learning
0h	0h	0h	4.00h	2.25h

4.3.4. Content

4. People and team management
 - 4.1. Introduction
 - 4.2. Teamwork and team leadership techniques
 - 4.3. Emotional intelligence
 - 4.4. Leadership: styles and motivation
 - 4.5. Leadership and project management
 - 4.6. Techniques for fostering creativity
5. Effective communication techniques
 - 5.1. Effective written communication techniques
 - 5.2. Effective oral communication techniques

4.3.5. Deliverables

There is no deliverable associated with this module, but it is included in the documentation a rubric called "how to prepare an oral presentation" which can be used as a guide to design and prepare an oral presentation for your TFG, and also for any other lecturers the student must do.

4.3.6. Associated material

- Module 3.1 - People and team management.pdf
- Module 3.2 - Effective communication techniques.pdf
- Without deliverable: Videos - Effective oral presentations
- Without deliverable: Rubric for guiding the process of preparing an oral presentation.pdf

4.4. Assessment of the initial objective (“Fita Inicial”).

4.4.1. Justification

An important aspect of project management is to bring together all the areas that have been worked on, and summarise them in an oral exposition designed for a specific audience, which could be an examination board, a customer or the directors of an organisation, for example.

4.4.2. Objectives

4. To incorporate all the components of project management.
5. To describe the nature of a project and its life cycles.
24. To communicate and transmit ideas in writing effectively, clearly and accurately.
25. To summarise in one document all of the concepts that have been worked on in the previous modules, to create an initial report that will serve as the basis for the development of the TFG.
26. To design the content of an oral presentation to communicate and defend the work done convincingly.

4.4.3. Study load

Theory	Problems	Laboratory	Guided learning	Independent learning
0h	0h	0h	8.00h	10.25h

4.4.4. Content

There is no specific content.

4.4.5. Deliverables

Deliverable 4 “Integration in final document”	Delivery date See dates in the GEP Guide in Athena	Study load (hours) - Guided learning: 8.00h - Independent learning: 10.25h
Description: Final written document summarising the project. This document brings together deliverables 1, 2 and 3 and takes into account the lecturers’ feedback. It cannot be longer than 30 pages.		
Specific objectives: 4, 24, 25, 26		
Contents associated with this activity: Modules 1, 2 and 3		
Support material <ul style="list-style-type: none"> - Notes available on ATENEA - Recommended reading on the subject - Assessment rubric for Deliverable 4 - Deliverables 1, 2, 3 and the feedback received on them 		
Submission system: <u>two documents that must be uploaded to ATENEA and the RACÓ at the same time:</u> <ul style="list-style-type: none"> - The final document, with the following sections and structure: <ul style="list-style-type: none"> o Introduction and context o Justification of the alternative chosen to solve the project o Project scope o Project planning o Economic management (budget) o Sustainability and social commitment (including the sustainability matrix) o References (bibliography) - Rubric 4 with the self-evaluation form 		
System of feedback on the activity: feedback through Initial Milestone rubric (“Rúbrica Fita Initial”. It should be a from the teaching staff after the oral presentation. The result of the evaluation will be available a few days later through the RACÓ in the TFG section or tab.		

4.4.6. Associated material

- Initial objective rubric.pdf

Notes:

- To complete **Deliverable 4: “Integration in final document”**, you must have previously uploaded Deliverables 1, 2 and 3 to ATENEA.
- All the documents that are uploaded to ATENEA must be in PDF format.