

Management of Environmental Projects (250663)

General Information

School	ETSECCPB
Departments	Departament d'Enginyeria de Projectes i de la Construcció (EPC) Departament de Projectes d'Enginyeria (PE)
Credits	5.0 ECTS
Programs	MÀSTER UNIVERSITARI EN ENGINYERIA AMBIENTAL (pla 2014)
Course	2024/25

Main teaching language at each group

- Group 10ES1 Spanish (Q1)

Faculty

Responsible Faculty: Santiago Gasso Domingo

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Objectives of Education

CE01 - Apply scientific concepts to environmental problems and their correlation with technological concepts.

CE04 - Identify, define and propose technological management and appropriate solution to an environmental problem.

CE06 - Ask practically, with an economic perspective and according to the applicable environmental legislation, environmental management tools and environmental risk assessment.

CE07 - Plan and schedule projects according to parameters cross-project evaluation, develop and organize their basic documentation and analyze technical and economic viability.

Understand the context in which they have developed environmental policies.

Meet environmental legislative framework and the main regulations that develop it.

Analyzes the economic factors associated with environmental management.

Understands the concepts and actions resulting from the prevention and control of pollution.

Know the main elements associated with environmental management.

Apply environmental management tools.

Tools known environmental risk analysis for human health and ecosystems.

Meet the analysis tools lifecycle and sustainability, and its practical application.

Solidify the main knowledge that characterize and define the project methodologies and their application to the field of Environmental Engineering.

Acquire knowledge and skills to manage environmental projects, evaluating alternatives and making decisions about their viability.

Definition applies methods and project management in the development of an environmental project (case study).

Learn in a practical way the dynamics of multidisciplinary teamwork.

Introduction to the methodology of projects.

Project planning.

Economic evaluation of the project.

Close the project and delivery of documentation.

Practical application through the development of a practical project team to resolve an environmental actual or fictitious problem.

Total hours of student work

		Hours	Percentage
Supervised Learning	Large group	25.5 h	56.67 %
	Medium group	9.75 h	21.67 %
	Laboratory classes	9.75 h	21.67 %
	Guided Activities	0.0 h	0.00 %
Self Study		80.0 h	

Contents

Project management and its processes

- Project management: Concept. Fundamentals of project management.
- Organization and Project life cycle: Organizational Structure. Stakeholders. Project team.
- Project management process groups: Initiating process group. Planning process group. Executing process group. Monitoring and controlling process group. Closing process group. Interaction between the process groups.
- Project integration management

Specific Objectives

- Know and understand the basics of project management and its application to the field of environmental engineering
- Identify key processes on which project management is based

Project scope management

- Planning scope management: Project charter.
- Scope definition: Concepts. Acceptation criteria. Deliverables
- Work Breakdown Structure (WBS/EDT)

Scope Validation

Realization of application exercises on the definition of project scope and WBS

The laboratory sessions will consist of carrying on, in a cooperative group, the management of an environmental engineering project proposed by the tutor. In this first session students should define and plan the scope of the proposed project.

Specific Objectives

- know how to focus the project scope planning in the field of environmental engineering
- Be familiar with the concepts of Work Breakdown Structure (WBS) and know the techniques for its application
- Know the steps and elements required for defining project scope in the field of environmental engineering

Project time and human resources management

- Plan and manage project scheduling
- Define and sequence activities
- Estimate activity resource and their management: Identifying the roles and skills required in the project,

definition of responsibilities, and personal administration.

- Estimate activities duration

- Develop and control the schedule

Realization of application exercises on the estimate activities duration and human resource assignments. Laboratory sessions consist in applying the concepts explained in theory to make the scheduling and human resources assignment to the project managed by the group.

Specific Objectives

- Be familiar with project scheduling techniques

- Know the steps for estimating human resources and management problems associated with

- Be able to perform an adequate control of the timing of the project

Project cost and procurement management

- Estimate costs

- Determine budget.

- Control Costs.

- Plan procurements management: Types of contractual agreements. Make or buy analysis. Procurement documents. Source selection criteria

- Conduct and control of procurements

Realization of application exercises on project cost estimate and plan procurements management. The laboratory will consist of estimating the investment and operating costs of the project managed by the group, as well as an analysis of its economic viability. Besides, cost indicators will be implemented in order to monitor and control the state of development of the project. It will also be addressed the plan procurements management required in the project.

Specific Objectives

- Understand the concepts associated with the project costs estimation

- Apply techniques for estimating and control of costs

- Know how to define and describe the steps required for procurement planning in the project

Project risks and quality management

- Quality assurance

- Quality control

- Identify risks

- Perform qualitative and quantitative risks analysis

- Plan risk responses

- Control risks

Realization of application exercises on identification and control of project risks, and quality assurance. The laboratory session will be to complete an identification and assessment of risks associated with the execution of the project managed by the group, as well as the development of a preliminary quality management plan.

Specific Objectives

- Understand the main aspects related to the identification and characterization of the risks associated with the implementation of projects in the field of environmental engineering

- Identify the characteristics of the elements of quality assurance and control of projects

Project communication and stakeholders management

- Plan communications: Internal and external.

- Manage communications

- Control communications

- Identify stakeholders

- Manage stakeholder engagement

- Control stakeholder engagement

Realization of application exercises on project communication management and project stakeholders management.

In the laboratory session, will be identified stakeholders in the project managed by the group, setting out the elements for their management and control. Besides a communication plan for the project will be proposed.

Specific Objectives

- Describe the essential elements associated with communication plan in projects and its management.

- Define and describe the steps required for the identification of project stakeholders and managing their participation.

Activities

Evaluation

Individually written evaluation about the contents of themes

Dedication

2h

Partial presentation of group work

Partial presentation of project developed in laboratory sessions

Dedication

4h

Oral presentation of the project developed

Oral presentation of the project developed in the laboratory sessions

Dedication

4h

Teaching Methodology

The course consist of 3 hours per week of classroom.

Part of theses hours will be devoted to the presentation by the teacher of the essential concepts and

elements of the subject. It is also envisaged that some of these concepts will be acquired by conducting, analyzing and discussion of case studies.

Another part these hours will be devoted to work in small groups (collaborative groups) on the project management of an environmental project. Throughout the course, the students will have to present different deliverables associated with the result obtained in the project management process of the proposed project.

Support material in the form of a detailed teaching plan is provided using the virtual campus ATENEA: content, program of learning and assessment activities conducted and literature.

Although most of the sessions will be given in the language indicated, sessions supported by other occasional guest experts may be held in other languages.

Grading Rules

() The evaluation calendar and grading rules will be approved before the start of the course.*

The mark of the course is obtained from the ratings of continuous assessment and their corresponding case studies and/or group assignments.

Continuous assessment consist in several activities, both individually and in group, of additive and training characteristics, carried out during the year (both in and out of the classroom).

The evaluation tests consist of a part with questions about concepts associated with the learning objectives of the course with regard to knowledge or understanding, and a part with a set of application exercises.

The final mark of the subject will be calculated, with the indicated weighting, from the following marks:

- Final evaluation of theory 35%
- Exercises of theory sessions and case studies 15%
- Project management work. Documents and reports 10%
- Project management work. Individual performance 35%
- Project management work. Oral presentation 5%

Test Rules

Student's participation in group follow-up sessions will be one of the criteria used for evaluating students; to that effect, these sessions are considered an evaluation event. Therefore, any unjustified non-attendance to these sessions will result of zero in that activity. The oral presentation session is also considered as an evaluation event and, thus, a subject final grade of zero will be given in case of no-attendance to this session.

The marks of the exercises and cases studies performed in the theory is obtained based on the activities or work done in these sessions, related to the theoretical concepts that are introduced in them, and will not be possible to request replacing them by alternative activities.

A minimum of 75% classes attendance is considered necessary to be evaluated

To pass the subject, the students must deliver and expose orally all work requested during the course.

Office Hours

Hours of attention to students is conducted both during the intervals between classes and by means of hours agreed in person or by electronic mail.

Bibliography

Basic

- Kerzner, H. [Project management: a systems approach to planning, scheduling and controlling](#). 11. Hoboken: John Wiley & Sons, 2013. ISBN 9781118022276.

- Stevenson, S.; Whitmore, S. [Strategies for engineering communication](#). New York [etc.]: John Wiley & Sons Inc, 2002. ISBN 0471128171.
- [A guide to the project management body of knowledge \(PMBOK Guide\)](#). 5th ed. Newtown Square, Pennsylvania: Project Management Institute, Inc., 2013. ISBN 9781935589679.

Complementary

- Wysocki, R.M. [Effective project management : traditional, agile, extreme](#). 7th ed. Indianapolis: Wiley, 2014. ISBN 9781118729168.
- Munier, N. [Project management for environmental, construction and manufacturing engineers](#). New York: Springer, 2013. ISBN 9789400744769.