Course guide
250MEA017 - 250MEA017 - Environmental Project Management

Last modified: 12/06/2024

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 758 - EPC - Department of Project and Construction Engineering.

Degree: MASTER'S DEGREE IN ENVIRONMENTAL ENGINEERING (Syllabus 2024). (Optional subject).

Academic year: 2024 **ECTS Credits:** 5.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: SANTIAGO GASSO DOMINGO

Others: SANTIAGO GASSO DOMINGO

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.

LEARNING OBJECTIVES OF THE SUBJECT

.

STUDY LOAD

Type	Hours	Percentage
Self study	80,0	63.95
Hours large group	25,5	20.38
Hours medium group	9,8	7.83
Hours small group	9,8	7.83

Total learning time: 125.1 h

CONTENTS

Project management and its processes

Description:
- 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

Full-or-part-time: 4h 48m
Theory classes: 2h
Self study : 2h 48m

Project scope management

Description:
- 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

Full-or-part-time: 12h
Theory classes: 2h
Practical classes: 1h
Laboratory classes: 2h
Self study : 7h

Project time and human resources management

Description:
- 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

Full-or-part-time: 19h 12m
Theory classes: 4h
Practical classes: 2h
Laboratory classes: 2h
Self study : 11h 12m

Project cost and procurement management

Description:
- 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

Full-or-part-time: 19h 12m
Theory classes: 4h
Practical classes: 2h
Laboratory classes: 2h
Self study : 11h 12m

Project risks and quality management

Description:
- 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

Full-or-part-time: 16h 48m
Theory classes: 3h
Practical classes: 2h
Laboratory classes: 2h
Self study : 9h 48m

Project communication and stakeholders management

Description:
- 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.

Full-or-part-time: 12h
Theory classes: 2h
Practical classes: 1h
Laboratory classes: 2h
Self study : 7h

GRADING SYSTEM

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%

EXAMINATION 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.

BIBLIOGRAPHY

Basic:
- Kerzner, H. Project management: a systems approach to planning, scheduling and controlling. 13th ed. Hoboken, New Jersey: Wiley, 2022. ISBN 9781119805373.
- 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) [on line]. 7tn ed. Newtown Square, Pennsylvania: Project Management Institute, Inc., 2021 [Consultation: 18/09/2024]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=6636132. ISBN 9781628256659.

Complementary:
- Wysocki, R.K. Effective project management: traditional, agile, extreme, hybrid [on line]. 8th ed. Indianapolis, Indiana: Wiley, 2019 [Consultation: 18/09/2024]. Available on: https://onlinelibrary.wiley.com/doi/book/10.1002/9781119562757. ISBN 9781119562757.
- Munier, N. Project management for environmental, construction and manufacturing engineers: a manual for putting theory into practice [on line]. Dordrecht ; New York: Springer, 2013 [Consultation: 18/09/2024]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=971748. ISBN 9789400744769.