Course guide
820061 - PEM - Engineering Project Management

Last modified: 09/09/2026

Unit in charge: Barcelona East School of Engineering
Teaching unit: 717 - DEGD - Department of Engineering Graphics and Design.

Degree: BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Optional subject).

Academic year: 2026 **ECTS Credits:** 6.0 **Languages:** English

LECTURER

Coordinating lecturer: FRANCISCO ALPISTE PENALBA

Others: Primer quadrimestre:
ROBERT EMBODAS NOGUERA - Grup: M1, Grup: M2

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Understand the organisational structure and functions of project management offices.

Transversal:
2. EFFECTIVE USE OF INFORMATI0N RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

TEACHING METHODOLOGY

The subject uses about 40% expositive methodology in classroom activities and projects based learning in 60 %.
The individual work is needed about 40% of overall student learning time. the work in groups is needed in 60 %.

LEARNING OBJECTIVES OF THE SUBJECT

The following general learning objectives of this course can be considered:
1. Acquire fundamentals and knowledge about PROJECT ENGINEERING & MANAGEMENT. It refers to the management tasks related to the implementation of projects (Project Management)

2. Reliable use of information resources

STUDY LOAD

Type	Hours	Percentage
Guided activities	15,0	10.00
Self study	90,0	60.00
Hours large group	45,0	30.00

Total learning time: 150 h

CONTENTS

Theme 1: Introduction

Description:
Theme 1: Introduction.The basic fundamentals of project management

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

Theme 2: Project Integration Management

Description:
Theme 2: Project Integration Management .To ensure that the various elements of the project are properly coordinated.

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

Theme 3: Project Scope Management

Description:
Theme 3: Project Scope Management. To ensure that the project includes all work required and only these.

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

Theme 4: Project Time Management

Description:
Theme 4: Project Time Management. To ensure the completion of the project within schedule.

Full-or-part-time: 45h
Practical classes: 7h 30m
Guided activities: 15h
Self study : 22h 30m

Theme 5: Project Cost Management

Description:
Theme 5: Project Cost Management. To ensure that the project is completed within budget.

Full-or-part-time: 45h
Practical classes: 7h 30m
Guided activities: 15h
Self study : 22h 30m

Theme 6: Project Quality Management

Description:
Theme 6: Project Quality Management. To ensure that the project meets the requirements, i.e. the needs for which was undertaken.

Full-or-part-time: 8h
Theory classes: 4h
Self study : 4h

Theme 7: Project Human Resource Management

Description:
Theme 7: Project Human Resource Management. To achieve the most effective use of people involved in the project.

Full-or-part-time: 8h
Theory classes: 4h
Self study : 4h

Theme 8: Project Communication Management

Description:
Theme 8: Project Communication Management. To ensure adequate and timely generation, collection, dissemination, storage and final location of project information.

Full-or-part-time: 8h
Theory classes: 4h
Self study : 4h

Theme 9: Project risk Management

Description:
Theme 9: Project risk Management. To identify, analyze and respond to project risks. Includes maximizing the likelihood and consequences of positive events and minimize the negative events.

Full-or-part-time: 8h
Theory classes: 4h
Self study : 4h

Theme 10: Project Procurement Management

Description:
Theme 10: Project Procurement Management. To acquire products (goods or services) from outside the organization conducting the project.

Full-or-part-time: 16h
Theory classes: 8h
Self study : 8h

ACTIVITIES

PARTICIPATORY EXPOSITIVE CLASS

Description:
Fundamentally expositive by involving the student with short-term activities. The teacher is the protagonist, sets the task to carry out and sets the rhythm of activity.

Hours: 4h/week
In class: 2h
Self-study: 2h

Delivery:
An exercise to be performed by each student, similar to the examples solved by the teacher.

Full-or-part-time: 60h
Theory classes: 30h
Self study: 30h

PARTICIPATORY PROBLEM BASED LEARNING CLASS

Description:
The method is based on the approach to problems by the teacher which the student has to solve developing a project in a given time or developing a task by planning, designing and carrying out activities.

Hours: 6h/week
Practical class (half group): 1h
Guided activities: 2h
Self-study: 3h

Delivery:
PROJECT

Full-or-part-time: 90h
Practical classes: 15h
Guided activities: 30h
Self study: 45h

GRADING SYSTEM

Any academic fraud, plagiarism or use or possession of unauthorised means in an assessment activity leads to a mark of zero (0) for the affected test or assignment. Furthermore, in accordance with the University's regulations, if disciplinary proceedings are initiated the subject is recorded as "Pending Assessment" until a decision is reached. These incidents are managed in accordance with the **Action Framework for Academic Integrity in Assessment at the UPC**.

Exams of project theory 25%
Exams of problems 25%
Deliverables 20%
Project: 30%

Assessment of student work, individual and / or group, made in person and distance. will be held by the teacher assessment weighting appropriately the different activities. The final mark includes the generic competence assessed on the course: "EFFECTIVE USE OF INFORMATION RESOURCES".
These mark of "EFFECTIVE USE OF INFORMATION RESOURCES" constitutes the 20% of the Project qualification. It is calculated by the teacher and classmates evaluating the contributions made by each student developing the Project.

EXAMINATION RULES.

Exam of theory without reference material
Exam of problems with reference material

BIBLIOGRAPHY

Basic:
- A Guide to the project management body of knowledge (PMBOK® Guide) [on line]. 6th ed. Newtown Square, Pa: Project Management Institute, Inc, cop. 2017 [Consultation: 09/06/2020]. Available on: https://ebookcentral.proquest.com/lib/upcatalunya-ebooks/detail.action?docID=5180849. ISBN 9781628253900.

Complementary:
- Burke, R. Project management : planning and control techniques. 4th ed. West Sussex: John Wiley & Sons, 2003. ISBN 9780470851241.
- Burnett, Ken. The project management. London: Springer-Verlag, cop. 1998. ISBN 3540762388.
- Cleland, D.I. Project management : strategic design and implementation. 5th ed. New York: McGraw-Hill, 2007. ISBN 9780071471602.
- Kerzner, H. Project management : case studies. 3rd ed. Hoboken, N.J.: Wiley, cop. 2009. ISBN 9780470278710.

RESOURCES

Other resources:
Learning material published in the virtual learning environment.