



## IDENTIFYING DATA

### Project Management in Engineering

Subject	Project Management in Engineering			
Code	V04M141V01318			
Study programme	(*)Máster Universitario en Enxeñaría Industrial			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Optional	2nd	1st
Teaching language	Spanish English			
Department				
Coordinator	Goicoechea Castaño, María Iciar			
Lecturers	Goicoechea Castaño, María Iciar			
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General description				

## Competencies

Code	
A1	Knowledge and understanding that provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context.
A2	That the students can apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
A3	That students are able to integrate knowledge and handle complexity and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
A4	Students can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.
A5	Students must possess the learning skills that enable them to continue studying in a way that will be largely self-directed or autonomous.
C1	CET1. Project, calculate and design products, processes, facilities and plants.
C2	CET2. Manage, plan and supervise multidisciplinary teams.
C4	CET4. Perform strategic planning and apply to both constructive and production, quality and environmental management systems.
C5	CET5. Technically and economically manage projects, installations, plants, companies and technology centers.
C6	CET6. Able to exercise general direction, technical direction and project management R & D in plants and technology centers.
C7	CET7. Apply their knowledge and solve problems in new or unfamiliar environments within broader contexts and multidisciplinary environments.
C8	CET8. Being able to integrate knowledge and handle complexity and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
C11	CET11. Knowledge, understanding and ability to apply the necessary legislation in the exercise of the profession of Industrial Engineer.
C26	CGS7. Knowledge and Skills for Integrated Project Management.
C33	CIPC6. Knowledge and skills to perform monitoring and control of facilities, processes and products.
C34	CIPC7. Knowledge and skills for certification, audits, inspections, tests and reports.
D4	ABET-d. An ability to function on multidisciplinary teams.
D6	ABET-f. An understanding of professional and ethical responsibility.
D8	ABET-h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.

## Learning outcomes

Expected results from this subject	Training and Learning Results
Knowledge of the legal frame and the derivative responsibilities of the activity *proyectual of Industrial Engineering	A3 C11 C26 C33 C34 D4 D6 D8 D11
Capacity to manage of dynamic form all the notable appearances of the cycle of life of a project: specifications, design, resources, value, risk, quality, sustainability,etc.	A1 A2 C2 C4 C5 C6 C26 C33 C34 D4 D6 D8 D11
Capacity to develop, propose and evaluate alternative solutions in the market of the optimisation of projects of engineering in surroundings *multiproyecto.	A3 A4 A5 C1 C7 C8 C26 C33 C34 D4 D6 D8 D11

## Contents

Topic	
1. Conceptual frame of Project Management	1.1. Introduction to Project Management. 1.2. Methodologies applied to Project Management: Agile (SCRUM, READ,...) and predictive (IPMA, PMI,...) 1.3. Life cycle of the project and organisation.
2. Traditional or predictive methodologies of Project Management. PMBok	2.1. Methods of Selection of Projects 2.2. Areas of knowledge: integration, scope, time, costs, quality, RRHH, communication, risks, acquisitions and stakeholders 2.3 Matrix of processes of the PMBOK
3. Phase of start of the Project: utilisation of agile methodologies of Project Management	3.1 Business Model Canvas 3.2 Project Model Canvas 3.3 Project Charter
4. Phase Planning of the Project	4.1 Work breakdown structure (WBS) 4.2 Planning of the project with software 4.2.1 Method of the critical path 4.2.2 Allocation of resource. 4.2.3 Allocation costs 4-2-4 Creation of the base line
5. Phase tracking Project	5.1 Tracking Gant. Status Date 5.2 Update of projects 5.3 Method earned value

## Planning

Class hours	Hours outside the classroom	Total hours

Lecturing	12	24	36
Project based learning	6	12	18
Practices through ICT	6	12	18
Presentation	1	0	1
Objective questions exam	1	0	1
Project	1	0	1

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

### Methodologies

	Description
Lecturing	Exhibition by part of the professor of the contents on the matter object of study, theoretical bases and/or guidelines of a work, exercise or project to develop by the student. The theoretical contents will go presenting by the professor, complemented with the active intervention of the students, in total coordination with in the development of the practical activities programmed.
Project based learning	Practical classes in which the student in groups of work, initiate the development of the project *grupal
Practices through ICT	Practices in computer classroom with software of planning and follow-up of projects

### Personalized assistance

Methodologies	Description
Practices through ICT	Personalised attention to the student in the computer practices
Project based learning	Follow-up in group of the advance of the project in the case that proceed

### Assessment

	Description	Qualification	Training and Learning Results
Presentation	At the end of course, each group will expose its project. It will value the presentation and content and as well as the answers to the questions made by the teachers or rest of mates. Resulted learning: Knowledge of the legal frame and the derivative responsibilities of the activity *projectual of Industrial Engineering Capacity to manage of dynamic form all the notable appearances of the cycle of life of a project: specifications, design, resources, value, risk, quality, sustainability,etc. Capacity to develop, propose and evaluate alternative solutions in the market of the optimisation of projects of engineering in surroundings *multiproyecto	15	A4 C1 D4 C2 D6 C4 D8 C5 D11 C6 C7 C8 C11 C26 C33 C34
Objective questions exam	It will make to final of course an examination that consists of a part of short answer and/or test of development and/or resolution of problems Resulted learning: Knowledge of the legal frame and the derivative responsibilities of the activity *projectual of Industrial Engineering Capacity to manage of dynamic form all the notable appearances of the cycle of life of a project: specifications, design, resources, value, risk, quality, sustainability,etc. Capacity to develop, propose and evaluate alternative solutions in the market of the optimisation of projects of engineering in surroundings *multiproyecto.	60	A2

Project	<p>The works of classroom constitute a project to make in group that will go developing along the course in the classroom and complements with the work of the group out of the classroom.</p> <p>The number of students that constitutes the group will fix to the start of the course with the professor.</p> <p>Resulted learning: Knowledge of the legal frame and the derivative responsibilities of the activity *proyectual of Industrial Engineering</p> <p>Capacity to manage of dynamic form all the notable appearances of the cycle of life of a project: specifications, design, resources, value, risk, quality, sustainability, etc.</p> <p>Capacity to develop, propose and evaluate alternative solutions in the market of the optimisation of projects of engineering in surroundings</p> <p>*multiproyecto.</p>	25	A1 A2 A3 A5	C26
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### Other comments on the Evaluation

All the students can access to the continuous evaluation of the matter along the course. To be able to access to the continuous evaluation the student has to assist at least to 75% so much of the theoretical classes like practices. The qualification of the continuous evaluation will be the following:

- the proof written has a value of 6 in the final note- the final exhibition a value of 1,5 in the final note and - the work presented by the group a value of 2,5 in the final note.

To be able to opt to the approved in the continuous evaluation it is necessary to approve each one of the parts with a 5. It is compulsory the presentation of all the deliverables proposed. Those students that do not opt by the continuous evaluation can approve the subject with the final examination in the corresponding date fixed by the direction of the centre. In the examination will go in so much the contents of the theoretical classes like the practices. The official calendar of exams will be published in the web oficial of the school. Ethical commitment: it expects that the present student a suitable ethical behaviour. In the case to detect a no ethical behaviour (copy, plagiarism, utilisation of unauthorised electronic devices, and others) considers that the student does not gather the necessary requirements to surpass the matter. In this case the global qualification in the current academic course will be of suspense (0.0)

### Sources of information

#### Basic Bibliography

Project Management Institute (PMI), **A guide to the Project Management Body of Knowledge (PMBok Guide)**, 6ª Edición, PMI, 2017

#### Complementary Bibliography

Chatfield, Carl; Johnson, Timothy, **Step by Step. MICROSOFT PROJECT 2016**, 1ª Edición, MicroPress, 2016

Buchtik, Liliana, **Secrets to Mastering the WBS in real world projects**, 2ª edition, PMI, 2013

Buchtik, Liliana, **Secretos para dominar la gestión de riesgos en Proyectos**, 2ª edition, Buchtik global, 2013

Mulcahy, Rita, **PMP exam prep : accelerated learning to pass PMI's PMP exam**, 8ª edition, RMC, 2013

Klastorin, Ted, **Gestión de Proyectos con casos prácticos, ejercicios resueltos, Microsoft project, Risk y hojas de cálculo**, 1ª edition, Profit editorial, 2010

Fleming, Quentin W., **Earned value project management**, 4ª edition, PMI, 2010

Osterwalder, Alexander, **Business model generation : a handbook for visionaries, game changers, and challengers**, 1ª edition, Wiley, coop, 2010

### Recommendations

### Other comments

To enrol in this matter is necessary to have surpassed or enrol of all the matters of the inferior courses to the course in that it is situated this matter.

### Contingency plan

#### Description

=== EXCEPTIONAL MEASURES SCHEDULED ===

In front of the uncertain and unpredictable evolution of the sanitary alert caused by the \*COVID-19, the University of Vigo

establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide \*antelación) by the students and the \*profesorado through the tool normalised and institutionalised of the educational guides.

#### === ADAPTATION OF THE METHODOLOGIES ===

\* educational Methodologies that keep

keeps all the methodologies but will be of telematic way. It will facilitate to the students all the necessary means for the total follow-up of the matter

\* educational Methodologies that modify

All the methodologies posed will make of telematic form.

\* Mechanism no face-to-face of attention to the students (\*tutorías)

The \*tutorías will make in the same schedule of telematic form

\* Modifications (if they proceed) of the contents to give

The exhibition of the project will make with a recording of a video by part of the group of work.

\* Additional bibliography to facilitate the car-learning

According to the instructions received from the Vice-Rectorate of Academic Management and Faculty, the following three scenarios should be considered, with their corresponding contingency levels:

SCENARIO 1. Face-to-face modality. All teaching will be done in person, both theory and practice classes, as usual in the subject in the years before 2020.

SCENARIO 2. Semi-classroom modality In the event that the university authorities activate the semi-classroom teaching, this would imply a reduction in the capacity of the teaching spaces usually used in the classroom, Thus, as a first step, the centre would provide teachers in the field with information on the new capacity authorized for teaching spaces, so that they could proceed to reorganize the training activities for the remainder of the four-month period. It should be noted that the reorganization to be carried out will depend on the time during the four-month period in which this teaching modality is activated. The reorganization of the teachings would follow the following pattern:

a) Communication. All students in the subject will be informed through the FAITIC platform of the specific conditions under which the training activities and evaluation tests that remain to be completed by the end of the semester will be developed.

b) Adaptation of tutorials and personalized attention. The tutoring sessions can be carried out by telematic means (e-mail, videoconference, FAITIC forums, etc.), where appropriate under the modality of prior agreement of date and time in the virtual offices of teachers.

c) In-person and off-site activities. Of the activities that remain to end the four-month period, those training activities that can be carried out by all students in person will be identified (prioritizing practical activities as far as possible) and the training activities that will be carried out in remote mode (theory classes are often the ones that reduce their efficiency less with this modality), for the purpose of planning their effective realization.

d) Content to be imparted and learning objectives. Neither the content to be imparted nor the learning objectives will be modified as a result of this modality of teaching.

e) Teaching schedule. Lesson schedules and calendars of the different activities of the subject are maintained.

f) Bibliography or additional material to facilitate self-learning. Teachers will provide students with the necessary teaching materials to meet the needs of students to support the subject, according to the circumstances that they attend at any time, through the FAITIC platform. With regard to the tools to be used in training activities that are carried out in offline mode, the CampusRemoto and FAITIC platforms will be used as a priority, which may be complemented by other solutions to address specific needs that arise throughout the class period.

SCENARIO 3. Off-site mode In the event that the entirely off-site mode of teaching is activated (suspension of all training and face-to-face evaluation activities) Priority will be given to the functionalities offered by the platforms currently available at the University of Vigo: REMOTE CAMPUS and FAITIC. The conditions of the reorganization to be carried out will depend on the time during the four-month period in which this teaching modality is activated. The reorganization of the teachings would follow the following pattern:

a) Communication. All students in the subject will be informed through the FAITIC platform of the specific conditions under which the training activities and evaluation tests that remain to be completed by the end of the four-month period will be carried out. b) Adaptation and/or modification of teaching methodologies. Despite the fact that teaching methodologies are fundamentally designed for face-to-face teaching, it is considered that they essentially preserve their efficiency in the off-site mode, It is therefore proposed to maintain it while paying particular attention to its proper development and results. There are therefore no modifications in the teaching methodologies provided.

c) Adaptation of tutorials and personalized attention. The tutoring sessions can be carried out by telematic means (e-mail, videoconference, FAITIC forums, etc.), where appropriate under the modality of prior agreement of date and time in the virtual offices of teachers. d) Content to be imparted and learning objectives. Neither the content to be imparted nor the learning objectives will be modified as a result of this modality of teaching. e) Teaching schedule. Lesson schedules and calendars of the different activities of the subject are maintained. f) Evaluation. The tests, their respective scores and the dates of the tests are not changed.