



IDENTIFYING DATA

Project Management in Engineering

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|---------------------|--|-----------|------|------------|
| Subject | Project Management in Engineering | | | |
| Code | V04M141V01222 | | | |
| Study programme | (*)Máster Universitario en Enxeñaría Industrial | | | |
| Descriptors | ECTS Credits | Choose | Year | Quadmester |
| | 3 | Mandatory | 1st | 2nd |
| Teaching language | Spanish English | | | |
| Department | Design in Engineering | | | |
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| General description | <p>(*)In the matter of "Projects of Engineering" the students purchase the basic concepts of the Direction and Management of Projects, the main processes and the standard vocabulary of the same, with a practical vision that it can be applied by companies of distinct sectors.</p> <p>When finalising the *asignatura the student knows the distinct methodologies of Direction of Projects, as well as the main tools that bear the necessary management to be able to understand, pose and resolve a project. It boosts also the development of skills and generic competitions like the work in team, emotional and social intelligence to improve the interpersonal communication in the organisations.</p> | | | |

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.

D11 ABET-k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Learning outcomes

| Expected results from this subject | Training and Learning Results | | |
|---|-------------------------------|---|-----------------------|
| Knowledge of the legal frame and the derivative responsibilities of the activity of project 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 multiproject. | 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 |
|--------------------|-------------|-----------------------------|-------------|
| Classroom jobs | 6 | 18 | 24 |
| Presentation | 2 | 4 | 6 |
| Computer practices | 4 | 8 | 12 |
| Group tutoring | 1 | 3 | 4 |
| Lecturing | 9 | 18 | 27 |
| Short answer tests | 2 | 0 | 2 |

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

Methodologies

| Description |
|-------------|
|-------------|

| | |
|--------------------|---|
| Classroom jobs | The student develops exercises or projects in the classroom under the directives and supervision of the teacher. The development of these works can be linked by autonomous activities of the student or in group. In the accomplishment of these works active participation and collaboration will be needed between the students. |
| Presentation | Final exhibition of the project in group |
| Computer practices | Accomplishment of practices with software of project planning |
| Group tutoring | Accomplishment of tutorship of follow-up in group of the advance of the project |
| Lecturing | Exhibition on the part of the teacher of the contents on the matter I object of study, theoretical bases and / or directives of a work, exercise or project to developing for the student. The theoretical contents will be appearing for the teacher, complemented with the active intervention of the students, in total coordination with in the development of the practical programmed activities. |

Personalized attention

Methodologies Description

| | |
|----------------|---|
| Group tutoring | Realisation of interview of follow-up in group of the advance of the project in the case that proceed |
|----------------|---|

Assessment

| | Description | Qualification | Training and Learning Results | |
|--------------------|---|---------------|-------------------------------|---|
| Classroom jobs | The works of classroom constitute a project to realise in group that will go developing along the course in the classroom and complements with the work of the group out of the classroom. The number of students that constitutes the group will fix to the start of the course with the professor. Resulted learning: Knowledge of the legal frame and the derivative responsibilities of the activity 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 multiproject | 30 | A1 A2 A3 A5 | C26 |
| Presentation | At the end of course, each group will expose his project. Teacher evaluate the pesentation and the content of it and how students answer questions realised by the teacher or rest of mates. Resulted learning: Knowledge of the legal frame and the derivative responsibilities of the activity 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 multiproject | 20 | A4 | C1 D4 C2 D6 C4 D8 C5 D11 C6 C7 C8 C11 C26 C33 C34 |
| Short answer tests | It will realise 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 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 multiproject | 50 | A2 | |

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 and prácticas.
.Qualification of the evaluation continuous will be the following:

- The proof written has a value of 5 in the final note- The final exhibition a value of 2 in the final note and- The work presented by the group a value of 3 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.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. <http://eei.uvigo.es/>

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 register in this matter is a necessary overcome credit or to register of all the matters of the courses lower than the course in which this matter is located.
