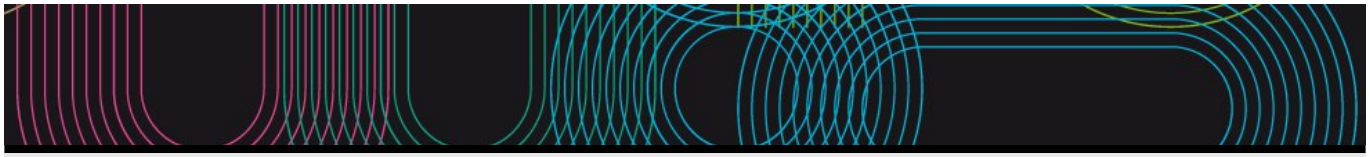

IDENTIFYING DATA				
Technical Office				
Subject	Technical Office			
Code	V12G363V01702			
Study programme	Grado en Ingeniería en Tecnologías Industriales			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	4th	1st
Teaching language	English			
Department				
Coordinator	Cerqueiro Pequeño, Jorge			
Lecturers	Casal Guisande, Manuel Cerqueiro Pequeño, Jorge			
E-mail	jcerquei@uvigo.es			
Web	http://http://webs.uvigo.es/oficinatecnica			
General description	The aim pursued with this course is to guide the student in the acquisition of the knowledge and the skills needed to qualify him for the handling and application of the methodologies, techniques and tools oriented to the elaboration, organisation and management of projects and another technical documentation regularly used in Engineering Offices, in ways that prepare the student to make use of these skills to carry out similar activities in his future professional activity in the real world. In order to achieve that goal, the course uses a broad approach of the subjects in its contents, looking for the integration of the knowledge achieved along the student□s previous courses and its application through the methodology, organisation and management of several different modalities of technical works, as they constitute the true essence of the Engineer profession in the framework of his professional competences and fields of activity. This course promotes the development of its associated skills by means of using active and technical collaborative methodologies. In this way, the contents explained in theoretical classes are implemented and developed in the practical activities -oriented to the industrial reality of the profession-, thus assimilating the agile and precise use of the different rules of application and of the professional best practices established, while being supported by the new technologies to document, elaborate, manage and present the technical documentation that correspond to each particular case.			

Skills	
Code	
B1	CG1 Ability to design, develop, implement, manage and improve products and processes in various industrial fields, through analytical, computational and experimental appropriate techniques.
B2	CG2 Ability to lead activities related to CG1 competence.
C18	CE18 Knowledge and skills to organize and manage projects. Know the organizational structure and functions of a project office.
D1	CT1 Analysis and synthesis.
D2	CT2 Problem solving.
D3	CT3 Oral and written proficiency in the own language.
D5	CT5 Information Management.
D6	CT6 Application of computer science in the field of study.
D7	CT7 Ability to organize and plan.
D8	CT8 Decision making.
D9	CT9 Application of knowledge.
D10	CT10 Self learning and work.
D14	CT14 Creativity.
D15	CT15 Objectification, identification and organization.
D16	CT16 Critical thinking.
D17	CT17 Working as a team.
D20	CT20 Ability to communicate with people not expert in the field.

Learning outcomes			
Expected results from this subject	Training and Learning Results		
Skills for using information and communication systems in the industrial field.		C18	D3 D5 D6 D9 D10 D17
Handling design methods, techniques and tools, and project organisation and management.	B1 B2	C18	D1 D2 D5 D6 D7 D8 D10 D15 D17 D20
Skills for the elaboration of project documents and other similar technical documents.	B1 B2		D1 D3 D5 D6 D7 D9 D14 D15 D17
Skills for the tecnical management and supervision of projects in the Industrial Engineering field.	B2	C18	D1 D2 D3 D5 D6 D7 D8 D9 D14 D16 D17 D20
Skills for appropriatelly communicating documents, procedures, and results in the Industrial Engineering field.			D3 D5 D6 D7 D14 D17 D20

Contents	
Topic	
1. Introduction and presentation of the course.	1.1. Presentation. 1.2. Learning guide for the course. 1.3. Criteria and norms for the development of the course. 1.4. Relevant professional and legal aspects.
2. The Engineering Office.	2.1. Introduction to the Industrial Engineering Office. 2.2. Works of the Engineering Office. 2.3. Infrastructure of an Engineering Office. 2.4. Organisation and management of an Engineering Office. 2.5. Introduction to decision-making tools applied to the Project context.
3. Technical reports and similar works.	3.1. Technical reports. 3.2. Assessments, valuations and budgets. 3.3. Other similar technical works. 3.4. Criteria and norms for the elaboration and presentation of technical works.

4. The Project Methodology.	4.1. Introduction. 4.2. Theories about the Project. 4.3. Methodology of the Project process. 4.4. The phases of an industrial project.
5. The normative and legal frame of the Project.	5.1. The legal regulations and the Project. 5.2. Specific applicable technical norms. 5.3. Standardization, certification, homologation and quality aspects. 5.4. Industrial property: patent rights and transfer of technology.
6. Documents in Industrial Projects.	6.1. Report. 6.2. Plans. 6.3. Specifications. 6.4. Measurements and Budget. 6.5. Specific studies.
7. Methods and techniques for the organisation and management of Projects.	7.1. Organisation, supervision and coordination of Projects. 7.2. Methods and techniques for the management of Projects. 7.3. Techniques for the optimisation of Projects. 7.4. Tools for the computer-assisted management of Projects.
8. Processing of Projects and of another technical documentation.	8.1. Criteria and norms for the processing of Projects. 8.2. Process for the certification of Projects and other technical documents. 8.3. Management of licences, permissions and authorisations before public and private institutions. 8.4. Bidding and contracting of Projects.
9. Engineering Supervision of industrial projects.	9.1. Professionals that take part in the execution of projects. 9.2. Functions and activities of the Engineering or Work Supervision Office. 9.3. Legal frame that regulates the functions and responsibilities of the Engineering Supervision Office. 9.4. Obligations of the Engineering Supervision Office in matters of health and Security at work.
10. Presentation and Oral Defence of Technical Documents.	10.1. Oral presentations. 10.2. Preparation of presentations using electronic means. 10.3. Development of presentations through videoconference means.
Assignment 1. Elaboration of a technical report or similar work.	The students, either individually or in teams, will elaborate a technical report -or similar work- on a subject related with the industrial engineering field, starting from the information provided by the lecturer, and taking into account the indications received about the methodology to be used.
Assignment 2. Elaboration of a small project.	Organised the students in groups of three or four members, they will elaborate the necessary project documents to propose an efficient solution to a problem or need belonging to the Industrial Engineering field, following formal rigour and technician criteria.
Assignment 3. Development of a basic planning and scheduling proposal for the execution of an industrial project.	Each student on his own will elaborate a proposal for the time and resources planning and programming for the process of execution of an industrial project, using the appropriate methods and computer tools, and elaborating the required statistics report for the project.
Assignment 4. Public presentation of the developed work.	Final group presentation by each of the work teams on the results of all -or part of- the practical works developed in the course, addressed to the whole of the course student group.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	26	40	66
Project based learning	24	42	66
Design Thinking	0	6	6
Mentored work	0	6	6
Problem and/or exercise solving	4	0	4
Report of practices, practicum and external practices	0	2	2

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

Methodologies

	Description
Lecturing	The theoretical contents will be presented by the lecturer, complemented with the active intervention of the students, and in total coordination with the development of the practical activities programmed.
Project based learning	Realisation of an interdisciplinary project resembling a real case with the students arranged in groups, requesting active participation of all members, and with the guidance of the lecturer.

Design Thinking	Development of design activities, by the student teams, of products related with the topics of the industrial engineering discipline, making use of the "Design Thinking" methodology. This encompasses an incremental approximation to the final product concept, by extensively emphathizing with the customer and their needs, and going through a number of intermediate mock-ups and models.
Mentored work	Elaboration under the supervision of the lecturer, either individually or in teams, of activities related with the contents of the course, starting from the provided initial information and following the procedures and methodologies recommended.

Personalized assistance

Methodologies	Description
Project based learning	Realisation of an interdisciplinary project resembling a real case with the students arranged in groups, requesting active participation of all members, and with the guidance of the lecturer.
Design Thinking	Development of design activities, by the student teams, of products related with the topics of the industrial engineering discipline, making use of the "Design Thinking" methodology. This encompasses an incremental approximation to the final product concept, by extensively emphathizing with the customer and their needs, and going through a number of intermediate mock-ups and models.
Mentored work	Elaboration under the supervision of the lecturer, either individually or in teams, of activities related with the contents of the course, starting from the provided initial information and following the procedures and methodologies recommended.

Assessment

	Description	Qualification	Training and Learning Results
Problem and/or exercise solving	A series of partial assessment tests will be carried out along the course, aiming to evaluate the knowledge acquired by the students on the main concepts explained in the theory classes. The length of the test will depend on the topics to be assessed with it.	35	B1 C18 D1 D5 D6 D8 D14 D15 D16
Report of practices, practicum and external practices	A collection of written reports on the practical activities carried out will be elaborated by the students/student teams and delivered to the lecturer according to the established schedule. The commitment and implication of the students with the theory classes and the laboratory activities programmed will also be taken into account, as well as the meeting of the submission deadlines and the technical and format quality of the written works and the presentations.	65	B1 B2 C18 D1 D2 D3 D5 D6 D7 D8 D9 D10 D14 D15 D17 D20

Other comments on the Evaluation

Assessment of student's work -individually and/or in groups, either face-to-face or non-presential- will be carried out by the lecturer by weighting appropriatelly the different grades obtained in the activities that were proposed along this course.

Students may opt to follow this course either in the 'Continuous Evaluation' or in the 'Non-Continuous Evaluation' modalities, this last only after obtaining the appropriate clearance from the EEI's Direction. In both cases the grading of the course will be made according to a numerical system, using values from 0.0 to 10.0 points according to the current laws that are applicable (R.D. 1125/2003 of 5th September, BOE Nr. 224 of 18th September). A minimum overall mark of 5.0 is required to pass this course.

For the First Announcement or Edition.

a) 'Continuous Evaluation' modality:

The final grade for the course will be calculated by combining the individual marks awarded in the assessment of the works proposed and elaborated in the practical classes (65% weight) along the course, with the mark awarded for the final test performed in the date stated by the School's Ruling (35% weight).

Those marks will asess the behaviour and the implication of the student both in class and in the realisation of the different programmed activities, plus the fulfillment of the deadlines for submitting the works that were proposed, and/or the presentation and defence of those works, etc.

Students not reaching the minimum value of 5.0 points out of 10.0 that are required for every section, they will either need to perform also the assessment in the Second Announcement date, or to elaborate additional works or practical exercises to achieve the learning goals that were established for the concerned sections.

b) 'Non-Continuous Evaluation' modality:

There is a two-week time period after the starting date of the course for the concerned students to justify with documents that it is not possible for them to follow the regular process of continuous evaluation.

In order to pass this course, students renouncing to continuous evaluation will be obligued to perform a final test covering the whole contents of the course, both theoretical and practical, including short questions, reasoning questions, problem solving and development of practical cases. The mark awarded to the student assessment will be the final grade for the course.

A minimum mark of 5.0 points out of 10.0 possible will be required to pass the course.

For the Second Announcement or Edition.

Students who did not pass the course in the First Announcement, but that could have passed some specific parts of the theory or practical blocks, will be allowed to be assessed only regarding the failed parts, keeping the marks formerly awarded for the parts already passed, and applying the same assessment criteria to them.

Students wishing to improve their qualification, or students that failed the course on the First Announcement, will need to assist to the Second Announcement, where they will be assessed about the whole contents of the course, both theoretical and practical, including short questions, reasoning questions, problem solving and development of practical cases. Students are required to reach a minimum mark of 5.0 points out of 10.0 possible to pass the course.

Ethical commitment:

It is expected an appropriate ethical behaviour of the student. In case of detecting unethical behaviour (copying, plagiarism, unauthorized use of electronic devices, etc.) shall be deemed that the student does not meet the requirements for passing the subject. In this case, the overall grade for the course in the current academic year will be a Fail (0.0).

Sources of information

Basic Bibliography

Alam, M. Daud; Gühl, Uwe F., **PROJECT-MANAGEMENT IN PRACTICE: A GUIDELINE AND TOOLBOX FOR SUCCESSFUL PROJECTS**, 1st, Springer, 2016

Brusola Simón, Fernando, **OFICINA TÉCNICA Y PROYECTOS**, 1st, Servicio Publicaciones Universidad Pol. Valencia, 2011

Gómez-Senent Martínez, Eliseo; González Cruz, Mª Carmen, **TEORÍA Y METODOLOGÍA DEL PROYECTO**, 1ª, Servicio Publicaciones Universidad Pol. Valencia, 2008

Kerzner, Harold, **PROJECT MANAGEMENT: CASE STUDIES**, 4th, John Wiley and Sons, 2013

Project Management Institute, **A GUIDE TO THE PROJECT MANAGEMENT BODY OF KNOWLEDGE (PMBOK® GUIDE)**, 6th, Project Management Institute, 2017

Serer Figueroa, Marcos, **GESTIÓN INTEGRADA DE PROYECTOS**, 3ª, Ediciones UPC, 2010

Complementary Bibliography

De Cos Castillo, Manuel, **TEORIA GENERAL DEL PROYECTO I: GESTIÓN DE PROYECTOS**, 4ª, Síntesis, 2007

De Cos Castillo, Manuel, **TEORIA GENERAL DEL PROYECTO II: INGENIERIA DE PROYECTOS**, 4ª, Síntesis, 2007

Díaz Martín, Ángel, **EL ARTE DE DIRIGIR PROYECTOS**, 3ª, RA-MA, D.L., 2010

Kerzner, Harold, **PROJECT MANAGEMENT 2.0: LEVERAGING TOOLS, DISTRIBUTED COLLABORATION, AND METRICS FOR PROJECT SUCCESS**, 1st, John Wiley and Sons, 2015

Kerzner, Harold, **PROJECT MANAGEMENT: A SYSTEMS APPROACH TO PLANNING, SCHEDULING, AND CONTROLLING**, 11th, John Wiley and Sons, 2013

Kuster, Jürg et al., **PROJECT MANAGEMENT HANDBOOK**, 1st, Springer, 2015

Lock, Dennis, **PROJECT MANAGEMENT**, 10th, Routledge, 2013

Martínez de Pisón Ascacíbar, Francisco Javier et al., **LA OFICINA TÉCNICA Y LOS PROYECTOS INDUSTRIALES**, 1ª, Asociación Española de Ingeniería de Proyectos, 2002

Santos Sabrás, Fernando, **INGENIERÍA DE PROYECTOS**, 2ª, Eunsa, 2002

Recommendations

Subjects that continue the syllabus

Final Year Dissertation/V12G380V01991

Subjects that it is recommended to have taken before

Graphic expression: Graphic expression/V12G380V01101

Other comments

To register for this course, the students are required to have passed, or at least are registered in, all the courses from previous years to the one this course is placed on. It is necessary to stress the importance of having passed the two courses indicated in the previous section before taking this course.

Previously to the realisation of the scheduled assesments, students should check in the MooVi platform to know whether it is necessary for them to carry any particular documentation, materials, etc. into the exam room to perform the tests.

In case there are any discrepancies, the version in English of this guide will prevail.