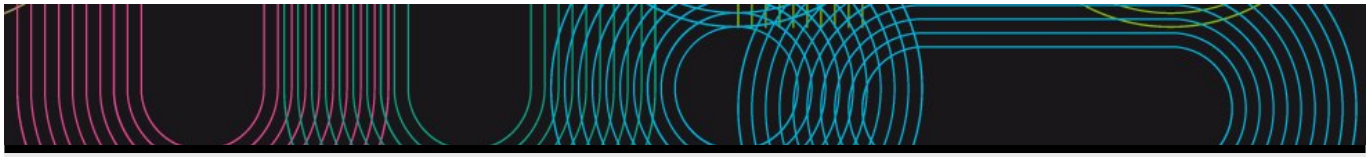

IDENTIFYING DATA				
Technical Office				
Subject	Technical Office			
Code	V12G340V01307			
Study programme	Degree in Industrial Organisation Engineering			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	4th	1st
Teaching language	Spanish			
Department				
Coordinator	Alonso Rodríguez, José Antonio			
Lecturers	Alonso Rodríguez, José Antonio González Cespón, Jose Luis			
E-mail	jaalonso@uvigo.es			
Web	http://webs.uvigo.es/oficinatecnica			
General description	This matter has like vision and like mission approach to the student to his back professional life through the knowledge, handle and application of methodologies, technical and tools oriented to the preparation, organisation and management of projects and other technical documents. It employed a practical approach of the subjects, looking for the integration of the knowledges purchased to the long of the career of face to his application to the development of the methodology, organisation and management of technical works, as true essence of the profession of engineer in the frame of his *atribucións and fields of activity. *Promoverase The development of the competitions of the matter by means of a theoretical approximation-practical, in which the exposed contents of theoretical way develop by means of the realisation of practical activities and works of application oriented to the industrial reality of the profession, assimilating the agile and precise employment of the distinct rule of application and of the best practices established. Given the variety that produces in the spectrum of professional exits, the academic program possesses a part of general contents to all the Industrial Engineers, in which it treats to transmit those appearances that reinforce the **pluridisciplinaridad and possesses another more specific part of the speciality, that does reference to methodological or normative appearances of this field. Likewise the strategy employed allows to expose to the student the professional alternatives that open him , from the free professional exercise (**peritaciones, *ditames, reports, projects, etc.), even his immersion in a small / average technical office more oriented the installations or even to the design of product.			

Competencies	
Code	
B1	CG 1. Know and apply knowledge of basic science and technologies to the practice of industrial engineering.
B2	CG 2. Have ability to design, develop, implement, manage and improve products, systems and processes in different industrial areas, using analytical, computational and experimental appropriate techniques.
C18	CE18 Knowledge and skills to organize and manage projects. Know the organizational structure and functions of a project office.
D2	CT2 Problems resolution.
D3	CT3 Oral and written knowledge communication.
D5	CT5 Information Management.
D7	CT7 Ability to organize and plan.
D8	CT8 Decision making.
D9	CT9 Apply knowledge.
D10	CT10 Self learning and work.
D12	CT12 Research skills.
D14	CT14 Creativity.
D15	CT15 Objectification, identification and organization.
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		
***CT1 Analyses and synthesis.		C18	D3 D5 D9 D10 D17
***CT2 Resolution of problems	B1 B2	C18	D3 D5 D7 D8 D10 D12 D15 D17 D20
***CT3 oral Communication and writing of knowledges in own tongue	B1 B2		D3 D5 D7 D9 D14 D15 D17
***CT5 Management of the information	B2	C18	D2 D3 D5 D7 D8 D9 D14 D17 D20
***CT6 Application of the computing in the field of study			D3 D5 D7 D14 D17 D20

Contents	
Topic	
Presentation	Presentation Guides Educational Methodology of work. Groups of work *Fontes of information and communication: SUBJECT and other Knowledges and *aplicacions computer for the matter.
Technical office.	Introduction *Funcions. Organisation of the work. Technicians of Work in instruments. Integration with the systems of the company. *Kanban. Taking of decision by means of weighting of criteria. Communication.
Cycle of life of a project	Phase I. Start. Diagram of functional blocks and the *sua description. Global definition of the project. Legal feasibility. (*PGOM And environmental legislation) Phase II. Scope and aims. Phase III. Realisation of the project. Phase IV. Closing: permissions and certifications of the project
Industrial project.	Project: Concept, classification, structure, cycle of life. Documents of the project: Index, memory, planes. *pliegos Of conditions, budget, studies with own entity. Normalisation. It JOINS 157002.
Administrative management of works of engineering.	Processing: visa, notary, Public Organisms, etc. Management of licences, permissions and permissions in front of public and personal institutions. Bidding and contracting of projects.

Industrial project. Planes	Structure and index of the planes. Typology of representation: dimension and relation. Block of titles. Sizes and scales. Folded. Criteria for wool preparation of planes. Example; planes of distribution. Example: planes of installations. Diagrams of principle. Legend of symbology.
Fire protection	Basic concepts: classification, sectorization, classification of materials, NRI, evacuation, means of protection. RD 2267/2004 and CTE DB-SI.
Budget and planning.	Measurement economic assessment Theory of management and planning of projects. Agile methodologies, *Gantt, *CPM and *PERT
Basic elements of construction	Basic elements of construction. Cover. *Cimentación. Structural elements. Coatings. Carpentries. Finishings. Examples.
Methodology of design of installations	Types of installations. Determination of loads. Elements of feeding of the loads. Elements of performance control and security. Planes of installations and diagrams of principle.
I fold of Conditions.	Types. Administrative Technical *Facultativas Bidding and contracting of projects.
Legislation.	Legislative legislation Interpretation of the technical legislation generic technical Legislation applied the speciality: *RD 485/1997, *RD 486/1997, *PGOM, *RD 314/2006
Technical documents.	Report: Concept, classification, structure. Certifications . Homologation *Peritaciones, Valuations.
Studies with own entity.	Relative studies to the fulfillment of the legislation of labour risks: Basic Study of Security and Health. Relative studies to the fulfillment of the legislation of management of waste.
Professional activity.	Processing: visa, notary, Public Organisms, etc. Management of licences, permissions and permissions in front of public and personal institutions. Bidding and contracting of projects.
Patent rights.	Technological innovation and patent rights. Patents and models of utility.
(*)Comunicación	(*)Técnicas de presentación de trabajos orales y escritas

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	2	0	2
Lecturing	12	24	36
Mentored work	2	6	8
Project based learning	12	24	36
Problem solving	6	6	12
Practices through ICT	4	4	8
Design Thinking	2	8	10
Learning-Service	4	20	24
Scientific events	2	8	10
Presentation	1	3	4

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

Methodologies

	Description
Introductory activities	The subject will be presented, information on the contents of the same, methodologies to be applied, work to be done in the subject and form of evaluation. Likewise, dynamics will be carried out in the class to promote the interrelationship in the students.
Lecturing	Presentation by the teacher of the contents on the subject of study, theoretical bases and/or guidelines of a work, exercise or project to be developed by the student.
Mentored work	Prepare a technical report on any issue related to Industrial Engineering, with the quality and rigour expected of an Industrial Engineer.

Project based learning	Work will be done using the methodology of "Project-Based Learning- *ABP". Realization of an engineering project, working with an open team. Emphasis will be placed on applying industrial engineering tools and knowledge to create engineering solutions for the real needs of an industry. Submit Problem solving The student must develop the right or correct solutions the exercises posed that are based on the theory taught. They will be performed by applying formulas, algorithms or transformation procedures gives available information. Interpretation of the results will be necessary.
Problem solving	The student must develop the right or correct solutions the exercises raised that are based on the theory taught. They will be performed by applying formulas, algorithms or transformation procedures gives available information. Interpretation of the results will be necessary.
Practices through ICT	Knowledge application activities in a given context, and the acquisition of basic and procedural skills in relation to the subject, through ICT.
Design Thinking	An interdisciplinary group will be created with students from other subjects and grades. This group, applying the methodology "Design Thinking" will generate a work of implementation and / or improvement on a specific activity.
Learning-Service	Learning-Service (ApS) is an innovative methodology that tries to change reality and improve students' learning. It is inserted into the set of activities carried out by a student, and connects with innovative proposals such as competency-based education, project-based or problem-based learning, cooperative and collaborative learning.
Scientific events	To present the ideas developed by students in collaborative groups, a presentation is organized in congress format. This will be public and broadcast in different media.

Personalized assistance

Methodologies	Description
Project based learning	The student will complete an engineering project, working with an open team. Emphasis will be placed on the application of industrial engineering tools and knowledge to create engineering solutions for the real needs of an industry. Group tutorials will be held with the teacher to answer questions and to follow up on the work.
Mentored work	The student, individually, prepares a technical report, or similar document, on a topic proposed by the teacher. Tutorials will be individual. The student's doubts will be clarified and he/she will be helped in the organization and planning of the work. Tutorials can be done in small groups, bringing together students with the same problem, for a better efficiency.
Design Thinking	The students, in a multidisciplinary group with students from other degrees, will work on a solution to the problem posed. This will be done by applying the Design Thinking methodology and simultaneously applying the Learning as a Service methodology. Meetings are planned to explain the methodologies to be applied and group tutorials to monitor the work.
Scientific events	We will work with the different groups of students to help them prepare the public exhibition of their work. You will conduct several rehearsals with them and guide them to achieve an effective presentation
Learning-Service	This methodology is integrated with the Design Thinling, so the monitoring will be as indicated in that section.

Assessment

	Description	Qualification	Training and Learning Results	
Lecturing	Theory: The tests will be of a test type or short answer. Minimum grade for this part: 4 out of 10 (in this part)	20	B1 B2	D2 D9
Mentored work	Prepare a technical report on any issue related to Industrial Engineering, with the quality and rigor expected of an Industrial Engineer. An evaluation rubric will be published in the TEMA platform of the subject.	10	B1	D3 D5 D7 D8 D9 D10 D15

Project based learning	Realization of an engineering project, working with an open team. Emphasis will be placed on applying industrial engineering tools and knowledge to create engineering solutions for the real needs of an industry. An evaluation rubric will be published on the subject's THEME platform. The evaluation includes an individual test on the work and will weigh the project note as set out in the evaluation heading.	40	B1 B2	C18	D2 D3 D5 D7 D8 D9 D10 D14 D17 D20
Learning-Service	make an interdisciplinary group work, with students from other subjects and grades. This group, applying the methodology "design thinking" will do a work of implementation and / or improvement on a specific activity. An evaluation rubric will be published in the TEMA platform of the subject.	20			
Scientific events	Presentation of the ideas developed by the students in the collaborative groups. This activity will be public and broadcast in different media. An evaluation rubric will be published in the TEMA platform of the subject.	5			D3 D5 D17 D20
Presentation	Class group presentation of the work done with the Service-Learning methodology	5			

Other comments on the Evaluation

EVALUATION SYSTEM:

The default evaluation system is the continuous evaluation system. The student who wishes to take advantage of the non-continuous evaluation system must officially request it, within the time and manner established by the E.E.I. If the student does not request such resignation or does not obtain the favorable verdict of the waiver of continuous evaluation, it is understood that this is in the continuous evaluation system.
The student who intends to request the waiver of continuous evaluation should notify the professor as soon as possible. It is recommended to do it at the beginning of the course, or before beginning teaching.
The evaluation will be made based on the rubrics that are published in the TEMA platform of the subject.

CRITERIA FOR OVERCOMING THE MATTER THROUGH CONTINUOUS EVALUATION:

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In order to pass the subject through continuous assessment, two conditions must be fulfilled simultaneously:
a) obtain a minimum score of 4 out of 10 in each of the evaluable sections or parts indicated in the rubrics that are published.
b) obtain an average grade, weighted according to the percentages indicated above, minimum of 5 out of 10.
If a section is suspended, or the student wishes to improve the grade of a section, he / she will have a maximum of two (2) opportunities to do so. In this case, a correction coefficient will be applied to the qualification of the section. The grade will be multiplied by a correction factor. The deadline for such corrections will be established by the teacher.

CRITERIA FOR OVERCOMING THE MATTER THROUGH EVALUATION NOT CONTINUING:

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Students who choose to officially renounce continuous assessment, must perform a job supervised by the teacher, consisting of an industrial project or similar, and an evaluation test.
The tutoring of the aforementioned work will begin in the first month of the semester. It is the responsibility of the interested student to contact the teacher to report the situation and receive the appropriate documentation and information.
To obtain the qualification, the proportional average will be found (60% theory and 40% practices).
It is mandatory to obtain a minimum grade of 4 points out of 10 possible in each one of the parts.
To overcome the subject, the aforementioned average must be a minimum of 5 points out of 10 possible.

ETHICAL COMMITMENT:

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The student is expected to exhibit adequate ethical behavior. By taking the course, the student acquires a commitment to teamwork, collaboration and respect for classmates and teachers. In the case of detecting unethical behavior (copying, plagiarism, use of unauthorized electronic devices and others) it will be considered that the student does not meet the necessary requirements to pass the subject. In this case, the overall grade in the current academic year will be suspended (0.0).

Sources of information

Basic Bibliography

Profesor de la asignatura, **Apuntes de Oficina Técnica**, Plataforma de teledocencia,, 2017

Complementary Bibliography

Cos Castillo, Manuel de, **Teoría general del proyecto**, Síntesis, 1995

Cos Castillo, Manuel de, **Teoría general del proyecto II**, Síntesis, 1995

Paso a paso con Gantt Project, conectareducacion.educ.ar, 2016

GARCIA-HERAS PINO, ÁLVARO y JULIÁN RODRÍGUEZ FERNÁNDEZ, **Documentación técnica en instalaciones eléctricas**, 2ª, Ediciones Paraninfo S.A., 2017

Comité CTN 157, **PROYECTOS, UNE 157001:2014:Criterios generales para la elaboración formal de los documentos que constituyen un proyecto técnico**, AENOR. ASOCIACION ESPAÑOLA DE NORMALIZACION Y CERT, 2014

GONZÁLEZ, FRANCISCO JAVIER, **Manual para una eficiente dirección de proyectos y obras**, FC Editorial, 2014

ARENAS REINA, JOSE MANUEL, **RÁCTICAS Y PROBLEMAS DE OFICINA TÉCNICA**, LA FABRICA, 2011

MARTÍNEZ GABARRÓN, ANTONIO, **Análisis y desarrollo de proyectos en la ingeniería alimentaria**, ECU, 2011

MONTAÑO LA CRUZ, FERNANDO, **Autocad 2017**, Anaya Multimedia, 2016

MEYERS FRED E., STEPEHENS MATHEW P., **Diseño de instalaciones de manufactura y manejo de materiales, Diseño de instalaciones de manufactura y manejo de materiales**, Prentice Hall, 2006

Tompkins, James A. White John A. Bozer, Yavuz A. Tanchoco J. M. A., **Planeación de instalaciones**, Cengage Learning editores S.A., 2011

Recommendations

Subjects that continue the syllabus

Final Year Dissertation/V12G360V01991

Subjects that it is recommended to have taken before

Graphic expression: Fundamentals of engineering graphics/V12G360V01101
Computer science: Computing for engineering/V12G360V01203

Contingency plan

Description

=== EXCEPTIONAL MEASURES PLANNED ===
In view of the uncertain and unpredictable evolution of the health alert caused by the COVID-19, the University of Vigo has established an extraordinary plan that will be activated at the time when the administration and the institution itself decide, taking into account criteria of safety, health and responsibility, and guaranteeing teaching in a non-presential or partially presential scenario. These planned measures will guarantee, at any given time, the development of teaching in a more agile and effective way by being known beforehand (or well in advance) by students and teachers through the standardized and institutionalized tool of the teaching guides.

=== ADAPTATION OF THE METHODOLOGY ===
* Teaching methodologies that are kept
All of you, stick to the prescribed methodoloxies.

* Teaching methodologies that are modified
Teaching methods are not modified

* Non-presential mechanism for attending to students (tutorials)
By appointment through two virtual offices

* Modifications (if applicable) to two courses to be taught
No changes are made to the contents

* Additional bibliography to facilitate or self-learning
Documentation provided by the teachers through the FAITIC platform,

* Other modifications
If given the sanitary circumstances of the moment, or by order of the authorities, it is not possible to celebrate in a physical way the congress of presentation of works ApS - Design Thinking, it would be substituted by taxed presentations, according to the instructions that facilitate, in their moment, the teachers of the subject.

=== ADAPTATION OF THE ASSESSMENT ===

The tests are not modified, nor are the percentages of the scores or the dates of the tests.

=== ADDITIONAL INFORMATION===

According to the instructions received, establish three contingency levels:

a) PRESENTIAL LESSONS: All teaching is face-to-face and is carried out in the usual way.

b) SEMI-PRESENTIAL LESSONS: In this case, when the governmental or academic authorities indicate, part of the classes will be given telematically in order to maintain safety distances. Nesta situação se impartirán de modo telemático, a través do campus remoto da Universidade de Vigo, as clases correspondentes á teoría da asignatura, impartiendo de modo presencial as clases prácticas, sempre que sexa posible manter os medios de segurança estable.

c) NON-PRESENTIAL LESSONS: All teaching will be given by telematic means through the remote campus of the University of Vigo.

In all cases, class schedules, activity calendars, learning objectives and tests will be maintained. Only the presence of the Congress of Collaborative Works may vary, if it is not possible, according to the health circumstances of the moment, to hold congresses or meetings in person.

The teaching staff will consider all the scenarios and will provide the students with the necessary didactic material according to the circumstances at each moment.