Teaching Guide				
Identifying Data				2023/24
Subject (*)	Industrial Process Design and Optimization Project		Code	730497236
Study programme	Mestrado Universitario en Enxeñaría Industrial (plan 2018)			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	Second	Optional	3
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Empresa			
Coordinador	Pernas Álvarez, Javier	E-mail	javier.pernas2@udc.es	
Lecturers	Crespo Pereira, Diego Pernas Álvarez, Javier Ríos Prado, Rosa	E-mail	diego.crespo@udc.es javier.pernas2@udc.es rosa.rios@udc.es	
Web	http://www.gii.udc.es/			
General description	Practical subject focused on the development of a process design and optimization project. The student will learn more about process improvement and viability analysis techniques while acquiring practical experience from a real case.			

Study programme competences / results	
Code	Study programme competences / results
A9	EG1 - Knowledge and skills to organize and manage companies.
A10	EG2 - Knowledge and skills of strategy and planning applied to different organizational structures.
A12	EG4 - Knowledge of financial accounting and costs.
A13	EG5 - Knowledge of management information systems, industrial organization, production systems and logistics and quality management systems.
A14	EG6 - Capacities for work organization and human resources management. Knowledge on prevention of occupational risks.
B2	CB7 - That students know how to apply the knowledge acquired and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of ??study.
B3	CB8 - That students are able to integrate knowledge and face the complexity of making judgments based on information that, being incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments.
B5	CB10 - That students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.
B6	G1 - Have adequate knowledge of the scientific and technological aspects in Industrial Engineering.
B7	G2 - Project, calculate and design products, processes, facilities and plants.
B13	G8 - Apply the knowledge acquired and solve problems in new or unfamiliar environments within broader and multidisciplinary contexts.
B14	G9 - Be able to integrate knowledge and face the complexity of making judgments based on information that, being incomplete or limited, includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments.
B16	G11 - Possess the learning skills that allow to continue studying in a self-directed or autonomous way.
C1	ABET (a) - An ability to apply knowledge of mathematics, science, and engineering.
C2	ABET (b) - An ability to design and conduct experiments, as well as to analyze and interpret data.
C3	ABET (c) - An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
C5	ABET (e) - An ability to identify, formulate, and solve engineering problems.
C6	ABET (f) - An understanding of professional and ethical responsibility.
C8	ABET (h) - The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
C11	ABET (k) - An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Learning outcomes

Learning outcomes	Study programme competences / results		
Knowledge and skills to organize and manage companies.	AJ9 AJ10	BJ2 BJ3 BJ5 BJ6 BJ7 BJ13 BJ14 BJ16	CJ1 CJ2 CJ3 CJ5 CJ6 CJ8 CJ11
Knowledge of financial accounting and costs.	AJ12	BJ2 BJ3 BJ5 BJ6 BJ7 BJ13 BJ14 BJ16	CJ1 CJ2 CJ3 CJ5 CJ6 CJ8 CJ11
Knowledge of management information systems, industrial organization, production systems and logistics and quality management systems.	AJ13	BJ2 BJ3 BJ5 BJ6 BJ7 BJ13 BJ14 BJ16	CJ1 CJ2 CJ3 CJ5 CJ6 CJ8 CJ11
Capacities for work organization and human resources management. Knowledge on prevention of occupational risks.	AJ14	BJ2 BJ3 BJ5 BJ6 BJ7 BJ13 BJ14 BJ16	CJ1 CJ2 CJ3 CJ5 CJ6 CJ8 CJ11

Contents	
Topic	Sub-topic
Selection of a practical case by the student. Market research and context. Process design. Capacity planning. Planning. Financial analysis. Report and presentation.	Selection of a practical case by the student. Market research and context. Process design. Capacity planning. Planning. Financial analysis. Report and presentation.

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours

Supervised projects	A9 A10 A12 A13 A14 B2 B3 B5 B13 B14 B16 B7 B6 C1 C2 C3 C5 C6 C8 C11	7	49	56
ICT practicals	A9 A10 A12 A13 A14 B2 B3 B5 B13 B14 B16 B7 B6 C1 C2 C3 C5 C6 C8 C11	14	0	14
Personalized attention		5	0	5
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Supervised projects	Team based or individual project in which the student will design an industrial process and optimize it.
ICT practicals	Resolution of practical cases related to the contents.

Personalized attention	
Methodologies	Description
Supervised projects ICT practicals	The personalized attention will be made in the tutorials.

Assessment			
Methodologies	Competencies / Results	Description	**Qualification**
Supervised projects	A9 A10 A12 A13 A14 B2 B3 B5 B13 B14 B16 B7 B6 C1 C2 C3 C5 C6 C8 C11	Assessment of a final report and an oral presentation of the team project carried out.	100

Assessment comments

Assessment Criteria Second Opportunity and Early Call For both first and second opportunity students, the evaluation will be conducted according to the relative weight indicated in the methodologies table, the same as for students in the early call.In order to pass the course, both in the first and second evaluation opportunities, as well as in the early call, it will be necessary to obtain a grade equal to or higher than 5 out of 10 in the supervised project. No grade Students who do not submit the supervised project within the given deadline, as indicated by the respective professor in each call, will be graded as "No Presentado" (Not Submitted). This criterion applies to both the first and second evaluation opportunities, as well as the early call. Students with recognition of part-time dedication and academic exemption waiver Students with recognition of part-time dedication and academic exemption from attendance will communicate their situation to the course instructors at the beginning of the semester, as established by the "Norma que regula el régimen de dedicación al estudio de los estudiantes de grado en la UDC" (Article 3.b and 4.5) and the "Normas de evaluación, revisión y reclamación de las calificaciones de los estudios de grado y máster universitario" (Article 3 and 8b). For students who request academic exemption, the evaluation will be the same as for the others since the supervised project will be completed outside of class hours. Additional information According to Article 11, section 4 b) of the "Reglamento disciplinar del estudiantado de la UDC", engaging in fraudulent behavior in any of the methodologies subject to assessment sections will result in a grade of "Fail (0)" for the final evaluation, both in the first and second opportunity, regardless of the opportunity in which the offense was committed.

Sources of information	
Basic	
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Industrial Innovation/730497213 Production Management/730497210 Business Management/730497211
Subjects that are recommended to be taken simultaneously
Logistic Systems Simulation/730497233 Industrial Logistics/730497234 Advanced Production Systems/730497235
Subjects that continue the syllabus

Other comments
A sustainable use of resources must be made to prevent the negative impact on the natural environment. For this reason, the delivery of the documentary works carried out in this subject: ? They will be requested in virtual format and / or computer support ? It will be done through Moodle, in digital format without needing to print them ? If it is necessary to make them on paper: a) plastics will not be used, b) double-sided impressions will be made, c) recycled paper will be used, d) the printing of drafts will be avoided.