



Teaching Guide

| Teaching Guide | | | | |
|--------------------------|--|--------|---|-----------|
| Identifying Data | | | 2020/21 | |
| 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 | Crespo Pereira, Diego | E-mail | diego.crespo@udc.es | |
| Lecturers | Crespo Pereira, Diego Lamas Rodriguez, Adolfo Ríos Prado, Rosa | E-mail | diego.crespo@udc.es adolfo.lamasr@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. | | | |
| Contingency plan | 1. Modifications to the contents 2. Methodologies *Teaching methodologies that are maintained *Teaching methodologies that are modified 3. Mechanisms for personalized attention to students 4. Modifications in the evaluation *Evaluation observations: 5. Modifications to the bibliography or webgraphy | | | |

Study programme competences

| Code | Study programme competences |
|------|---|
| 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. |



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

| Planning | | | | |
|---|--|----------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies | Ordinary class hours | 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 | 54 | 61 |
| 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 | | 0 | | 0 |
| (*)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 | The personalized attention will be made in the tutorials. |
| ICT practicals | |

| Assessment | | | |
|---------------------|--|--|---------------|
| Methodologies | Competencies | 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 |
|---|
| <p>O "Alumnado con recoñecemento de dedicación a tempo parcial e dispensa académica de exención de asistencia" comunicarán ó inicio do curso a súa situación os profesores da materia, segundo establece a "Norma que regula o réxime de dedicación ao estudo dos estudantes de grao na UDC" (Art.3.b e 4.5) e as "Normas de avaliación, revisión e reclamación das cualificacións dos estudos de grao e mestrado universitario (Art. 3 e 8b).</p> <p>Para os alumnos que soliciten a dispensa académica a avaliación será igual ao resto xa que os traballos tutelados serán completados fora do horario de clases.</p> <p>Para os alumnos tanto de primeira como de segunda oportunidade, a avaliación realizarase dando o peso relativo indicado na táboa de metodoloxías.</p> |



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.

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.