Plan 542 MÁSTER EN INGENIERÍA QUÍMICA

Asignatura 53749 ANÁLISIS DE PROCESOS QUÍMICOS CON SIMULADORES

Tipo de asignatura (básica, obligatoria u optativa)

Optativa

Créditos ECTS

4.5

Competencias que contribuye a desarrollar

2.1
Basic
CG02. Devise, project, calculate, and design processes, equipment, industrial facilities and services in the field of chemical engineering and related industrial sectors in terms of quality, safety, economy, rational and efficient use of natural resources, and environment preservation.
CG03. To lead and manage in a technical and economical way projects, facilities, plants, companies and technology centres in the field of chemical engineering and related industrial sectors..
CG04. Perform appropriate research, design and lead the development of engineering solutions, in new or uncertain environments, relating creativity, originality, innovation and technology transfer.
CG06. To be able to analyse and synthesize the continuous progress of products, processes, systems and services using criteria of safety, economic viability, quality and environmental management.
CG07. Integrate knowledge and face the complexity of making judgments and decision making, based on incomplete or limited information, including reflections on the social and ethical responsibilities of professional practice.
CG09. Communicate and discuss proposals and conclusions in multilingual, specialized and non-specialized forums, in a clear and unambiguous way.
CG10. Adapt to changes, being able to apply new and advanced technologies and other relevant developments, with initiative and entrepreneurial spirit.
CG11. To possess the abilities of the autonomous learning to maintain and to improve the own competences of the chemical engineering that allow the continuous development of the profession.

2.2
Specific

CEP03. Conceptualize engineering models, apply innovative methods in problem solving and use of suitable computer applications for the design, simulation, optimization and control of processes and systems.
CEP04. Ability to solve problems that are unfamiliar, incompletely defined, and have competing specifications, considering possible methods of solution, including the most innovative, selecting the most appropriate, and being able to correct the implementation, evaluating the different design solutions.

Objetivos/Resultados de aprendizaje

Use the software tools available in the market to design, analyse and optimize processes in the chemical industry.

Contenidos

1. Methods & Models. Property Method. Phase Equilibrium Calculation. Property Method Selection. Properties calculation framework.
2. Thermo Data Engine. NIST Thermo Data Engine. Reference properties of pure components in database. Pure component estimation. Binary mixtures. Data evaluation. Data regression.

3. Reliable Definition of New Components. Automatic properties estimation. Reviewed properties estimation.

Principios Metodológicos/Métodos Docentes

Classes are developed in the computer room in a practical way. The professor guides the class by explanations followed by the development of practical cases. Examples are provided to students to build on the knowledge acquired in the classroom.

Criterios y sistemas de evaluación

- Oral and / or written test 35%
- Assignments 60%
- Assessment of the student's attitude and participation in the training activities 5%

Tabla de Dedicación del Estudiante a la Asignatura/Plan de Trabajo

ON-SITE ACTIVITIES
HOURS
OFF-SITE ACTIVITIES
HOURS
Lectures
15
Self-study and individual work
40
Practical classes
5
Study and autonomous group work
28
Workshops
5

Computing room classes
20

Total on-site
45
Total off-site
68

Responsable de la docencia (recomendable que se incluya información de contacto y breve CV en el que aparezcan sus lineas de investigación y alguna publicación relevante)

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Idioma en que se imparte

English