GUÍA DOCENTE ABREVIADA DE LA ASIGNATURA

G716 - Industrial Chemistry

Grado en Ingeniería en Tecnologías Industriales

Curso Académico 2017-2018

1. DATOS IDENTIFICATIVOS				
Título/s	Grado en Ingeniería en Tecnologías Industriales		Tipología y Curso	Obligatoria. Curso 4
Centro	Escuela Técnica Superior de Ingenieros Industriales y de Telecomunicación			
Módulo / materia	MATERIA QUÍMICA INDUSTRIAL MÓDULO DE SELECCIÓN DE TECNOLOGÍAS ESPECÍFICAS			
Código y denominación	G716 - Industrial Chemistry			
Créditos ECTS	6	Cuatrimestre	Cuatrimestral (1)	
Web				
Idioma de impartición	Inglés		Forma de impartición	Presencial

Departamento	DPTO. DE QUIMICA E INGENIERIA DE PROCESOS Y RECURSOS.
Profesor responsable	JAVIER RUFINO VIGURI FUENTE
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Número despacho	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 3. DESPACHO PROFESORES (S3013)
Otros profesores	BERTA GALAN CORTA ALBERTO COZ FERNANDEZ

3.1 RESULTADOS DE APRENDIZAJE
- Apply and execute basic calculations to solve mass and heat transfer unit operations and ideal reactors.
- Create and interpret chemical process designs at preliminary level
- Apply modern process simulation tools to industrial process subsystems synthesis and analysis

4. OBJETIVOS

The objective for the students is to be able to interpret industrial processes based on chemical reaction, apply separation unit operations to raw material and product purification and to be able to create, analyze and evaluate preliminary chemical process designs to meet desired needs.

6. ORGANIZACIÓN DOCENTE

	CONTENIDOS
1	PART I: 1.- INTRODUCTION 1.1.-Introduction to the Industrial Chemistry
2	PART II: 2.- MATERIALS and ENERGY FLOW ANALYSIS 2.1.-Mass and energy balances. 2.2.-Mass transfer and separation unit operations. 2.3.-Materials flow analysis. Valorization 2.4.- Case studies
3	PART III: 3.- CHEMICAL REACTION ENGINEERING and BIOTECHNOLOGY. 3.1.- Chemical kinetics 3.2.- Chemical reactor design. 3.3.- Unit operations involving chemical reaction. 3.4.- Bioprocess Engineering 3.5.- Case studies
4	PART IV 4.- PROCESS SYSTEM ENGINEERING 4.1.- Preliminary process design 4.2.- Product design 4.3.- Modeling, simulation and optimization 4.4.- Practical Classes. Simulation of case studies with mass and energy balances, unit operations and chemical reator.

7. MÉTODOS DE LA EVALUACIÓN

Descripción	Tipología	Eval. Final	Recuper.	%
Individual Exam 1	Examen escrito	No	Sí	30,00
Individual Exam 2	Examen escrito	No	Sí	30,00
Practical work	Evaluación en laboratorio	No	Sí	20,00
Case Studies	Trabajo	No	Sí	20,00
TOTAL				100,00

Observaciones

Partial exams with a minimum average grading of 5 (0-10 mark system) to access to the continuous assessment. Minimum of 90 % attendance at practical class. Mínimum 90% of the cases study must be submitted. February and September final exams will be related to the fail parts during continuous assessment (partial exams 1 and 2 and practical work). If less than 90% of the “cases studies” are submitted or the documents are submitted after the deadline, the percentage of this mark will be included in the final exams.

Observaciones para alumnos a tiempo parcial

Part-time students may choose between the continuous assessment or assessment in February and September.

8. BIBLIOGRAFÍA Y MATERIALES DIDÁCTICOS

BÁSICA

Felder R.M., Rousseau R.W., 2005. 3rd Ed. Elementary principles of chemical processes. John Wiley & Sons, Inc

Geankoplis C.J., 2007. Transport processes and separation process principles: (includes unit operations) 4th. ed. Prentice Hall Professional Technical Reference

Levenspiel O., 1999. Chemical reaction engineering. 3rd Ed. John Wiley & Sons

Fogler H.S., 2006, Elements of chemical reaction engineering. 4th Ed. Prentice Hall, PTR

Seider W., Seader J., Lewin D., Widagdo S., 2001. Product and process design principles. 3rd Ed. John Wiley & Sons.

Allen, DT, Shonnard, DR, 2002. Green Engineering "Environmentally conscious design of chemical processes" . PH-PTR

Shuler, M.L., Kargi, F. 2002, Bioprocess Engineering. Basic Concepts. Prentice Hall

Himmelblau D.M., Riggs, J.B., 2003. Basic Principles and calculations in chemical engineering:International Ed. Addison-Wesley

Simpson, R., Sastry, S., 2013, Chemical and Bioprocess Engineering. Springer.

Asokan, K., 2007. Chemical Process Calculations: Lecture Notes. Ed. Universities Press.

Roy, H., 2016, Reaction engineering Principles. CRC Press.

Esta es la Guía Docente abreviada de la asignatura. Tienes también publicada en la Web la información más detallada de la asignatura en la Guía Docente Completa.