27237 - Industrial Organic Chemistry

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	452 - Degree in Chemistry
ECTS	5.0
Year	4
Semester	Second semester
Subject Type	Optional
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The methodology followed in this course is based on the following formative activities:

- Theory sessions (3.5 ECTS): 35 hours.

- Guided assignments and seminars (1 ECTS): 10 hours.

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- Visits to chemical companies (0.5 ECTS): 5 hours.

5.2.Learning tasks

The course includes 50 hours of face-to-face activities according to:

- Formative activity 1: Acquisition of basic knowledge about Industrial Organic Chemistry. This activity covers 35 hours of participative lectures in the whole class. The explanatory sessions will include the exposition of the objectives of the topic, the development of the contents and, previously, classroom materials will be available, including a repository of the lecture notes used in class, as well as recommended bibliography and other course-specific learning materials.

- Formative activity 2: Guided assignments and seminars. This activity covers 10 hours of oral presentations in the whole class.

Metodology:

- Individual or group assignments consisting of documentation search on current topics related to Industrial Organic Chemistry.
- Elaboration of essays.
- Oral presentation and critical and participative discussion.
- Complementary conferences by external specialists in certain topics related to the course.

-Formative activity 3: Visit to one or two chemical companies. This activity will be developed in small groups.

Metodology:

- Visit preparation.
- Visit discussion

5.3.Syllabus

The course will address the following topics:

-Sources for energy and raw materials.

-Basic chemicals derived from petroleum and natural gas.

-Chemicals from coal and other sources.

-Alternatives to Petrochemistry: renewable raw materials.

-Industrial catalysts.

-Polymer industry.

-Pharmaceutical chemistry.

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-Agrochemicals and pesticides.

-Food industry.

-Tensioactive agents. Detergents.

-Dyes and pigments.

-Cosmetics and hygiene. Perfumes.

-Industry of paper and derivatives.

-Explosives, propellants and detonators.

-Enology.

-Solvents.

-Adhesives.

-Chemicals and pollution. Alternative processes with lower environmental impact. Energy saving. Sustainable chemistry.

5.4.Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the "Facultad de Ciencias" (Faculty of Science) website: http://ciencias.unizar.es/

5.5.Bibliography and recommended resources

BB	Arpe, H.J.. Industrial Organic Chemistry. 5ª Wiley-VCH. 2010
BB	H. A. Wittcoff, B. G. Reuben, J. S. Plotkin. Industrial Organic Chemicals. - 3rd. ed. Wiley. 2013
BB	Wittcoff, Harold A.. Productos químicos orgánicos industriales. V. 1, Materias primas y fabricación / Harold A. Wittcoff, Bryan G. Reuben ; colaborador en la traducción María Teresa Aguilar Ortega ; revisión M. Cristina Pérez de Bratoeff. - [1ª ed.], 7ª reimp. México [etc.] : Limusa, cop. 2000
BB	Wittcoff, Harold A.. Productos químicos orgánicos industriales. V.2, Tecnología, formulaciones y usos / Harold A. Wittcoff, Bryan G. Reuben ; colaborador en la traducción M. Cristina Sangenis Franchini ;

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[1a ed.], 6a reimp. México [etc.] : Limusa,
cop. 2000

URLs:

Consejo Europeo de la Industria Química
[http://www.cefic.org/]
Federación Empresarial de la Industria
Química Española
[http://www.feique.org]
Química Orgánica Industrial - Universidad
de Valladolid
[https://www.eii.uva.es/organica/qoi/qoi.php]
The Essential Chemical Industry - online
[http://essentialchemicalindustry.org/]