Universidad Zaragoza

Year : 2020/21

27237 - Industrial Organic Chemistry

Syllabus Information

Academic Year: 2020/21
Subject: 27237 - Industrial Organic Chemistry
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.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as:

- Lectures (3.5 ECTS): 35 hours.
- Guided assignments and seminars (1 ECTS): 10 hours.
- Visits to chemical companies (0.5 ECTS): 5 hours.

4.2.Learning tasks

The course includes 50 hours of face-to-face activities with the following learning tasks:

- 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.

Methodology:

- 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.

Methodology:

- Visit preparation.
- Visit discussion

4.3.Syllabus

The course will address the following topics:

- Overview of the chemical industry in the world.
- Overview of the chemical industry in Spain.
- Basic chemical products derived from petroleum and natural gas.
- Ethylene and its derivatives.
- Propylene and its derivatives.
- C4 fraction and its derivatives.
- BTX fraction and its derivatives.
- Products from coal and other sources.
- Possible alternatives to the current petrochemicals. Renewable sources.
- Green chemistry.
- Solvents
- Industrial catalysts.
- The polymer and auxiliary industry.
- Pharmaceutical chemistry.
- Agrochemicals and pesticides.
- Food industry.
- Surfactants. Detergents.
- Dyes and pigments.
- Cosmetics and hygiene. Perfumes
- Paper and derivatives industry.
- Explosives, propellants and detonators.
- Enology.
- Adhesives.
- Chemical products and environmental contamination. Alternative chemical processes with less environmental impact.

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Facultad de Ciencias web (https://ciencias.unizar.es/grado-en-quimica-0).

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=27237&year=2019