DEGREE CURRICULUM

INDUSTRIAL CHEMISTRY PROCESSES

Coordination: BARTOLÍ SOLER, ESTHER

Academic year 2022-23

INDUSTRIAL CHEMISTRY PROCESSES 2022-23

Subject's general information

<table>
<tr><td>Subject name</td><td>INDUSTRIAL CHEMISTRY PROCESSES</td></tr>
<tr><td>Code</td><td>102348</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
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<tr><th>Degree</th><th>Course</th><th>Typology</th><th>Modality</th></tr>
<tr><td>Master's Degree in Leather Engineering</td><td></td><td>COMPLEMENTARY TRAINING</td><td>Attendance-based</td></tr>
<tr><td>Master's Degree in Leather Engineering</td><td>1</td><td>COMPLEMENTARY TRAINING</td><td>Blended learning</td></tr>
<tr><td></td><td>3</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><td>PRALAB</td><td>PRAULA</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>0.4</td><td>2.6</td><td>3</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>BARTOLÍ SOLER, ESTHER</td></tr>
<tr><td>Department</td><td>INFORMÀTICA I ENGINYERIA INDUSTRIAL</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>60 hours classroom lessons
Self study 90 hours</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Distribution of credits</td><td>3 Teoria, 2,6 praula, 0,4 pralab</td></tr>
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INDUSTRIAL CHEMISTRY PROCESSES 2022-23

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
BARTOLI SOLER, ESTHER	esther.bartoli@udl.cat	6	

Learning objectives

At the end of the course the student must be able to:

- Interpret the different processes in industrial chemistry.

- Explain the differences between small and large scale processes (type of reagents, temperature control, ..).

- Analyze the different methods of catalysis at the industrial level.

- Make a critical study of an industrial process.

- Obtain a global vision of the problems of the chemical industry, the available resources and the replacement routes in case of exhaustion.

- Compare the different raw materials, analyze the methods of obtaining products from these.

- Formulate the diagram and balance (raw materials, energy, water and waste) of any process.

- Delve deeper into powerful products such as polymers.

- Recognize and evaluate the impact of these industries and their products on the environment

Competences

Basics

B03 That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

B04 That students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.

B05 That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

Generals

CG3. To synthesize basic and technological subjects, which enable them to learn new methods and theories, and provide them with versatility to adapt to new situations.

CG4. To solve problems with initiative, make decisions, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of Industrial Chemical Engineering.

CG7. To analyze and assess the social and environmental impact of technical solutions.

CG10. To work in a multilingual and multidisciplinary environment.

Specific

CE20. To analyze, design, simulate and optimize processes and products.

CE22. To design, manage and operate simulation, control and instrumentation procedures of chemical processes.

Transversal

CT1. To develop a proper understanding and oral and written expression of Catalan and Spanish.

CT3. To iImplement new technologies and technologies of information and communication.

CT5. To apply essential notions of scientific thinking.

Subject contents

Fundamental contents of the subject

T.1 Introduction to industrial chemistry

T2 Sodium Chloride Electrolysis

T3 Sulfur and sulfuric acid

T.4 Ammonia and nitric acid

T.5 Phosphates

T.6 potassium chloride

T.7 Petroleum

T.8 Acetylene

T.9 Polymers

Methodology

Methodology

- Theory in classes of large groups: Expositive classes by the teacher, with the explanation of concepts, materials and the work plan.
- For each module, exercises will be proposed individually and autonomously, which will be evaluated by the teacher.
- Preparation of a topic, with presentation and oral and written communication.

Students also have the responsibility to reinforce their knowledge independently, based on the didactic material facilitated and / or recommended by the teacher.

Development plan

Week	Methodology	Classroom/Virtual hours	Hours of autonomous work

1-8	Preparation Topics and presentation Visit and presentation project	30	50
9	Exam 1 (E1))	2	
10-15	Preparation Topics and presentation Visit and presentation project	26	40
16	Exam 2 (E2)	2	

Evaluation

In the middle of the semester there will be a written test (E1) that corresponds to the subject taught during this first part and that represents 20% of the overall mark. At the end of the semester there will be another written test (E2) that corresponds to the subject taught during this second part which represents 20% of the overall grade. There will also be a grade of: Preparation and presentation of the topics of the subject (CI) which represents 35% of the overall grade and a grade of preparation and presentation of the scheduled visits (VI) which represents 25% of the global note.

The final grade of the course will be determined by:

NO1 = CI * 0.35 + VI * 0.25 + E1 * 0.200 + E2 * 0.20

Those who have not passed the subject at the first opportunity will be able to take a final recovery exam (ER) that will include all the material taught during the course.

The final grade of the course will be:

NO2 = 0.40 ER + 0.35CI + 0.25 VI

Tests E1, E2, and ER will be held on the dates set by the Directorate of Studies.

Bibliography

- Subject notes
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- Perrin, R; Scharff, J.P. C*himie industrielle.* 2e éd. Paris: Masson, 2002. ISBN 2-10-006747-8
- Mujlionov, I.P. et al; *Tecnologia Quimica Industrial vol 2*, Moscu ed.Mir, 1979
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- Gary, J.H.; Handwerk, G.E. (1980). *Refino de petróleo : tecnología y economía.* Barcelona: Reverté. ISBN
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- Wittcoff, H.A.; Reuben, B.G. *Productos químicos orgánicos industriales*. Mexico: Limusa, 1987. ISBN 968-18-1882-2. 2 vols.
- Weissermel, K.; Arpe, H-J. Química orgánica industrial : productos de partida e intermedios más importantes. 2ªed. Barcelona: Reverté, 1981. ISBN 84-291-7989-5
- Revistes vàries de Química Industrial i d'Enginyeria Química