

Degree	Type	Year	Semester
4313385 Industrial Chemistry and Introduction to Chemical Research	OB	0	2

Contact

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Use of languages

Principal working language: english (eng)

Prerequisites

No requirements needed

Objectives and Contextualisation

The student will become familiar with analytical and instrumental techniques structural and / or synthesis techniques and chemical products formulation determination.

Skills

- Analyse and use the data in autonomous fashion in complex laboratory experiments and relate them with the appropriate chemical, physical or biological theories, and including the use of primary bibliographic sources.
- Be capable of working in a team and adapting to multidisciplinary teams.
- Correctly evaluate the risks and environmental and socio-economic impact associated to special chemical substances.
- Evaluate responsibility in the management of information and knowledge in the field of Industrial Chemistry and Chemical Research.
- Evaluate the human, economic, legal and ethical dimension of professional practice, as well as the environmental implications of one's work.
- Innovate in chemical synthesis and analysis methods related with different areas of Chemistry.
- Operate with advanced instrumentation for chemical evaluation and structural determination.
- Show a respectful attitude to the opinions, values, behaviours and practices of others.
- Students should be able to integrate knowledge and face the complexity of making judgements from information which, being incomplete or limited, include reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
- Students should know how to apply the knowledge acquired and the capacity to solve problems in new or little-known areas within broader (or multidisciplinary) contexts related to their area of study
- Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously

Learning outcomes

1. Analyse experimental results in comparison with the bibliography and drawing conclusions.
2. Be capable of working in a team and adapting to multidisciplinary teams.
3. Evaluate responsibility in the management of information and knowledge in the field of Industrial Chemistry and Chemical Research.

4. Evaluate the human, economic, legal and ethical dimension of professional practice, as well as the environmental implications of one's work.
5. Make correct use of specialised laboratory instruments and materials for the determination of properties and analysis of chemical products.
6. Propose and develop protocols for analysis and chemical synthesis in a professional laboratory.
7. Recognise the risks associated with the chemical system that is the subject of study, as well its environment by adopting the appropriate measures.
8. Show a respectful attitude to the opinions, values, behaviours and practices of others.
9. Students should be able to integrate knowledge and face the complexity of making judgements from information which, being incomplete or limited, include reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
10. Students should know how to apply the knowledge acquired and the capacity to solve problems in new or little-known areas within broader (or multidisciplinary) contexts related to their area of study
11. Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
12. Suitable synthetic methods used for the formulation of chemicals

Content

See methodology section

Methodology

In the specialty "Chemical Research Advanced" these practices are conducted in a research laboratory of the Chemistry Department of the UAB under the supervision of a professor who will act as a tutor. For practice in a Research Institute, the head will be a staff member researcher with recognized experience.

In the specialty "Chemistry in Industry" these practices will be carried out in laboratories of chemical companies. The tasks to be carried out will be learning and practicing techniques of analysis and synthesis in an industrial chemical laboratory. Each student will have a supervisor in the company that will ensure progress and quality of its work and issue a report at the end of his stay. This report will be used by the Coordination Committee for student assessment.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Tutorials	5	0.2	1, 10
Type: Supervised			
Research supervision	260	10.4	1, 5, 7, 10
Type: Autonomous			
Autonomous work by student	105	4.2	1, 2, 5, 7, 8, 10

Evaluation

The ability to develop a correct activity in the lab will constitute the main source of information to be taken into account for the evaluation of the study.

The final grade will be obtained from:

- 70% final report of the activities carried out by the student provided by the supervisor of the company or research laboratory.

- 30% final report provided by the student.

Both reports will be delivered to the Master's coordinator at the end of the training period at the company or research laboratory.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Final Report provided by the student	30%	5	0.2	2, 3, 4, 6, 7, 9, 10, 11
Final report provided by the supervisor	70%	0	0	1, 3, 5, 8, 12

Bibliography

No bibliography