SUBJECT TEACHING GUIDE

G73 - Chemistry

Double Degree in Physics and Mathematics
Degree in Physics
Degree in Physics

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Double Degree in Physics and Mathematics Degree in Physics Degree in Physics			Type and Year	Optional. Year 5 Optional. Year 4
Faculty	Faculty of Sciences				
Discipline	Subject Area: Chemistry Mention in Applied Physics				
Course unit title and code	G73 - Chemistry				
Number of ECTS credits allocated	6	Term		Semester based (1)	
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. DE QUIMICA E INGENIERIA DE PROCESOS Y RECURSOS.
Name of lecturer	ROSA MARTIN RODRIGUEZ
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Other lecturers	MIGUEL GARCIA IGLESIAS

3.1 LEARNING OUTCOMES
- To know and connect different Chemistry aspects (electrochemistry, environment and materials) to the matter studied in other disciplines of the Physics Degree.
- To apply Chemistry knowledge (water, atmosphere, green chemistry) to provide solutions to environmental issues of our society (in order to increase quality of life)
- To apply Chemistry knowledge in new materials science research.

4. OBJECTIVES
To understand and connect the Chemical Science with other disciplines of study in the Physics Degree.
To understand and analyze the applications and uses of acid-base and oxidation-reduction chemical reactions and its implication in the society.
To know and understand the main functional groups of organic chemistry, their structure and reactivity.
To know and apply chemistry in Materials Science, particularly nanomaterials and biomaterials.

6. SUBJECT PROGRAM	
CONTENTS	
1	Introduction, previous concepts of chemistry. Kinetic balance of the chemical reactions. Acid-base reactions. RESOLUTION OF PROBLEMS/QUESTIONS. LABORATORY EXPERIENCES.
2	Electrochemistry: Spontaneous and non spontaneous electrochemical processes. Applications as batteries or galvanic cells. Electrolytic cells, applications. RESOLUTION OF PROBLEMS/QUESTIONS. LABORATORY EXPERIENCES.
3	Organic Chemistry: Main Functional Groups. Structure and reactivity of organic compounds. RESOLUTION OF PROBLEMS/QUESTIONS. LABORATORY EXPERIENCES.
4	Chemistry of materials: Polymeric materials, nanomaterials and biomaterials. Synthesis methods and characterization techniques. RESOLUTION OF PROBLEMS/QUESTIONS. LABORATORY EXPERIENCES.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Evaluation method Description: Written exam. Written exam Two written exams will be done. The first one will be realized after the explanation of blocks 1 and 2. The second one will be done after the blocks 3 and 4.	Written exam	No	Yes	55,00
Evaluation method Description: Individual task. Development and exposition of a bibliographic work relation with the subject contents.	Work	No	No	10,00
LABORATORY PRACTICES	Laboratory evaluation	No	No	35,00
TOTAL				100,00

Observations

Both attendance at practices and submitting the report of the same is mandatory.
In the laboratory, the use of gown and safety glasses that students must acquire will be compulsory. Without this material, entry to the laboratory will not be allowed (UC laboratory work regulations).
The recovery will be a written exam and will be done on the date assigned by the centre at the end of the semester.
In the extraordinary Assessment, the qualification of the individual or group work will be maintained (10%), and of the laboratory practices (35%) and a Written Exam (55%) will be carried out.

Observations for part-time students

Part-time students must do the work (10%) and, in the written examination, they must answer questions related to laboratory practices (90%). The extraordinary call will maintain the qualification of the Work (10%) and a written examination (90%).

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

R. Chang, “Química”. Ed. Mc Graw Hill. 2013 (11ª Ed.).

L. Mangonon, "Ciencia de materiales". Prentice Hall. 2002.