

## SUBJECT TEACHING GUIDE

G73 - Chemistry

Double Degree in Physics and Mathematics  
Degree in Physics

Academic year 2021-2022

1. IDENTIFYING DATA					
Degree	Double Degree in Physics and Mathematics 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	M. CARMEN PESQUERA GONZALEZ				
E-mail	carmen.pesquera@unican.es				
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 3. DESPACHO (S3091)				
Other lecturers	ROSA MARTIN RODRIGUEZ				

3.1 LEARNING OUTCOMES
- Be able to solve problems and issues relating to the matter given
- Be able to write a report or bibliographic work on some aspects of the knowledge acquired.
- Be able to apply knowledge to resolution of problems in the areas of electrochemistry, environmental chemistry, organic chemistry and materials

#### 4. OBJECTIVES

Know and Chemical Science connect with the subject matter of other disciplines of study Physics Degree.

To include/understand and to analyze the applications and uses of the chemical reactions of acid-base, oxidation reduction and its implication in the society.

Know and understand the main functional groups of organic chemistry, structure and reactivity.

Know and apply chemistry in Materials Science

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	Introduction previous concepts of chemistry. Kinetic balance of the chemical reactions. Acid-base reactions. RESOLUTION OF PROBLEMS/Questions. LABORATORY PRACTICES
2	Spontaneous and non spontaneous electrochemical processes. Applications of batteries or galvanic cells. Electrolytic cells, applications. RESOLUTION OF PROBLEMS/Questions. LABORATORY PRACTICES.
3	Organic Chemistry: Principal Functional Groups. Structure and reactivity of organic compounds. RESOLUTION OF PROBLEMS/Questions. LABORATORY PRACTICES.
4	Chemistry of materials: Polymeric materials, synthetic and natural polymers. Polymerization. Nanomaterials. Biomaterials. RESOLUTION OF PROBLEMS/Questions. LABORATORY PRACTICES.

#### 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	Yes	Yes	50,00
Evaluation method Description: Working individually or in group. Development and exposition of a bibliographic work relation with the subject contents.	Work	No	No	15,00
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, except for students to part time. 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 (15%), and of the laboratory practices (35%) and a Written Exam (50%) will be carried out. In case of contingency, the entire development of the practices will be explained in videos made in the laboratory by the teacher who will be uploaded to the Moodle Platform and the students will submit questions related to the practices viewed.

##### Observations for part-time students

Part-time students must do the work (15%) and, in the written examination, they must answer questions related to laboratory practices (85%). The extraordinary call will maintain the qualification of the Work (15%) and a written examination (85%).

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

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

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