

SUBJECT TEACHING GUIDE

G379 - Fundamentals of Chemistry

Degree in Energy Resources Engineering

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Degree in Energy Resources Engineering			Type and Year	Compulsory. Year 1
Faculty					
Discipline	Subject Area: Advanced Basic Training Module: Training in Common with the Mining Branch				
Course unit title and code	G379 - Fundamentals of Chemistry				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIAS QUIMICA Y BIOMOLECULAR				
Name of lecturer	AURORA GAREA VAZQUEZ				
E-mail	aurora.garea@unican.es				
Office	E.P. de Ingeniería de Minas y Energía. Planta: + 1. DESPACHO DE AURORA GAREA VAZQUEZ (147)				
Other lecturers	RUBEN ALDACO GARCIA				

3.1 LEARNING OUTCOMES

- Understanding the chemical principles of thermochemistry, spontaneity and chemical equilibrium, and calculations of chemical reactions (stoichiometry, reactants, products, yield). These subjects are oriented to applications in energetic and mining resources.

4. OBJECTIVES

Introducing and motivating to students to the applications of some chemical principles related to the stoichiometry and thermochemistry in the calculations of chemical reactions, oriented to case studies of interest in the fields of energetic and mining resources.

6. COURSE ORGANIZATION	
CONTENTS	
1	PART I. Elements and chemical compounds.
2	PART II. Liquids, solids, chemical reactions in aqueous media.
3	PART III. Gases.
4	PART IV. Thermochemistry.
5	PART V. Chemistry of transition-metal elements.
6	PART VI. Organic chemistry.
7	PART VII. Chemistry and environment.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Working case studies and practice evaluation Minimum mark: 5,00 Date: during the semester after each activity is completed, attendance required for the evaluation. Contribution to the overall grading mark: 40%.	Work	No	Yes	40,00
Written exams of the subject Minimum mark: 5,00 Date: Halfway through the semester and in dates fixed by the School for the ordinary and extraordinary evaluation calls. Contribution to the overall grading mark: 60%.	Written exam	Yes	Yes	60,00
TOTAL				100,00
Observations				
The recovery will take place in the special period dedicated to the effect (extraordinary evaluation call) and in the same form of the tests of the ordinary evaluation. Those students who have not passed the parts of practices and work, will be able to return the corrected reports before the dates of the examination calls fixed by the School, in order to be evaluated again.				
Observations for part-time students				
The evaluation of the subject can be adapted to the partial time students upon request.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Teh Fu Yen, Chemistry for Engineers, 2008, Imperial College Press.

James Wei, Product Engineering, 2007, Oxford University Press.

Raymond Chang, Química, 2010, 10ª ed, McGraw Hill.

Jerry Bell, Química: Un proyecto de la American Chemical Society, 2005, Reverté.

Guillermo Calleja Pardo, Introducción a la Ingeniería Química, 1999, Síntesis.

Angel Vian Ortuño, Introducción a la Química Industrial, 1994, Reverté. Impresión digital a partir de 2006.

Theodore L. Brown, H. Eugene Lemay, et al., Química. La Ciencia Central, 2009, 11ª ed, Pearson.

Peter Atkins, Loretta Jones, Principios de Química, 2006, 3ª ed, Panamericana.