

SUBJECT TEACHING GUIDE

G379 - Fundamentals of Chemistry

Degree in Energy Resources Engineering

Academic year 2019-2020

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 2 - I. AMBIENTAL (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	%
Laboratory works Mínimum mark: 0,00 Date: the evaluation is performed during the experiments are carried out and a written report is also requested. Contribution to the overall grading mark: 20%.	Laboratory evaluation	No	Yes	20,00
Working case studies Mínimum mark: 0,00 Date: a written report is requested a week after each case study is completed. Contribution to the overall grading mark: 20%.	Work	No	Yes	20,00
Written exam Mínimum mark: 5,00 Date: in dates fixed by the School for the February call or the September call. 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 (September) and in the same form of the tests of the ordinary evaluation. Those students who have not passed the parts of computer practices and work, will be able to return the corrected reports before the date of the extraordinary examination of September in order to be evaluated again.				
Observations for part-time students				
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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.