

SUBJECT TEACHING GUIDE

G555 - Teaching the Natural Environment I

Degree in Primary Education Teaching

Academic year 2020-2021

1. IDENTIFYING DATA					
Degree	Degree in Primary Education Teaching			Type and Year	Compulsory. Year 3
Faculty	School of Teacher Training				
Discipline	Subject Area: Teaching and Learning of Experimental Sciences Module: Training in Teaching and the Discipline				
Course unit title and code	G555 - Teaching the Natural Environment I				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web	http://personales.unican.es/mierja/docencia/educacion/dmn1.html				
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

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3.1 LEARNING OUTCOMES

- To recognize the structure, elements and essential aspects of the curricula in physics and chemistry and its relationship with other sciences.
- Present problematic situations and design activities in the field of teaching of these sciences and know how to solve the problems related to this matter.
- To integrate the content of these sciences in our natural, social and cultural context
- To develop appropriate teaching resources to the corresponding stage and promote the significant learning related to these sciences.
- To train the teachers to promote the school research.
- To apply the didactic knowledge to design processes, development and evaluation of the curricula.
- To recognize and assess the importance of scientific literacy as the basis of their personal development and for use in the classroom.

4. OBJECTIVES

- To promote the exploratory activity of students through situations related to the knowledge of the environment , in particular the physical environment, living beings and knowledge of his own body.
- To know the main contributions of the Natural Sciences to the primary education curricula.
- To develop a critical interest in the study of science , to help them understand the importance of Natural Science as part of culture, their impacts and their interactions (CTSA relations, science, technology, society and environment), in particular, the role that science plays in our lives, in the transformation of the environment, etc.
- To know the basics of didactic of experimental sciences to design educational interventions that facilitate the development of scientific knowledge.
- To know the characteristics of the main difficulties in the teaching-learning process of experimental sciences, as well as the most common characteristics of the knowledge of the students (prior knowledge) on the different aspects in the area of experimental sciences.
- To train students in solving real problems of Experimental Sciences (Physics and Chemistry) associated with real contexts.
- To promote scientific curiosity of students and their interest in experimental sciences
- To understand the importance of the development of scientific literacy in the population to know the main scientific and technological phenomena and their social and personal repercussions.

6. COURSE ORGANIZATION	
CONTENTS	
1	<p>IMPORTANCE OF THE SCIENTIFIC-DIDACTICAL EDUCATION IN SCIENCE.</p> <ol style="list-style-type: none"> 1. Introduction to science. 2. Scientific education and Scientific didactics.
2	<p>THE PHYSICAL PROCESSES.</p> <ol style="list-style-type: none"> 2. Introduction to Physics. Movement and Forces. 3. Work and Energy. 4. Heat and Temperature 5. Waves and Light. 6. Electricity and Magnetism. 7. Fluids.
3	<p>THE CHEMICAL PROCESSES.</p> <ol style="list-style-type: none"> 8. Introduction to Chemistry. Basic Concepts. 9. The Chemical processes. 10. The structure of Matter. 11. Chemical reactions. Stoichiometry. Dissolutions. 12. The Periodic Table. 13. The Water. 14. The Chemical Bond.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Theoretical and practical exam	Written exam	Yes	Yes	60,00
Laboratory practices	Laboratory evaluation	No	No	20,00
Classroom tasks	Work	No	No	20,00
TOTAL				100,00
Observations				
Both lab practices and classroom tasks are not recoverable. Lab Practices require the use of certain infrastructures, materials and resources, which are available at specific periods throughout the semester. Due to the inherent characteristics of these practices they may not be done at different periods than those established during the regular course .				
Observations for part-time students				
Those students with partial enrollment must perform lab practices simultaneously with the rest of students. The obligatory nature of the laboratory practices is contemplated in Article 15.2 of the Regulation of Evaluation Processes of the University of Cantabria.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

CAÑAS, A., MARTIN-DIAZ, M.J. y NIEDA, J. (2007). Competencia en el conocimiento y la interacción con el mundo físico. La competencia científica. Madrid. Alianza Editorial.

GIL- PÉREZ, D. (1986). La metodología científica y la enseñanza de las ciencias: unas relaciones controvertidas. Enseñanza de las Ciencias, 4 (2), 111-121.

PERALES, F. J. y CAÑAL, P. (2000). Didáctica de las ciencias experimentales. Teoría y práctica de la enseñanza de las ciencias. Alcoy: Marfil.

Física para la ciencia y la tecnología (5ª Edición). VOLÚMENES 1 y 2. Paul A. Tipler, Gene Mosca. Editorial Reverté.

Química. Un proyecto de la ACS (American Chemical Society). Editorial Reverté.