

## SUBJECT TEACHING GUIDE

968 - Physics and Chemistry in the Secondary Education Curriculum

Master's Degree in Secondary Education Teacher Training

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's Degree in Secondary Education Teacher Training			Type and Year	Optional. Year 1
Faculty	School of Teacher Training				
Discipline	Subject Area: Complements for Disciplinary Training Specific Module in the Speciality of Physics, Chemistry and Technology				
Course unit title and code	968 - Physics and Chemistry in the Secondary Education Curriculum				
Number of ECTS credits allocated	4,5	Term	Semester based (2)		
Web	http://moodle.unican.es				
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. FISICA APLICADA
Name of lecturer	RODRIGO ALCARAZ DE LA OSA
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Other lecturers	

### 3.1 LEARNING OUTCOMES

- 1. The student knows and applies innovative teaching proposals in the disciplines of Physics, Chemistry and Technology.
- 2. The student is able to critically analyse the performance of teaching, good practices and orientation.
- 3. The student is able to come up with alternatives and solutions to the problems regarding the teaching and learning of the disciplines.
- 4. The student knows and is able to apply methodologies and techniques based on educational research and assessment and is able to design and develop research, innovation and assessment projects.
- 5. The student is able to structure scientific contents according to their interdisciplinary nature along with the CTS coordinates.
- 6. Understand the meaning of "technological and scientific literacy" which is proposed from the CTS approaches.
- 7. The student knows how to apply the acquired knowledge to submit an innovative proposal in the framework of CTS for a curriculum unit.
- 8. The student is familiar with on-going innovation projects in Sciences and Technology.
- 9. The student has the ability to initiate innovation projects
- 10. The student is familiar with the resources that the network offers as educational innovative tools
- 11. The student knows about the employed methodology in IT subjects.

### 4. OBJECTIVES

- Know the regulations that regulate the activity of teachers and specify them in the didactic programming.
- Have a vision of the historical evolution of the contents and subjects of the areas of Technology, and Physics and Chemistry.
  - Know the current contents of the curricula of the specialties of physics and chemistry and of Technology and their continuity in the different stages.
  - Explain the situation of science and technology in the curricula of other Autonomous Communities and in neighboring countries.
  - Assume and assess the contribution of subjects to the acquisition of basic competences in compulsory education and in the rest of the teachings in which the teaching staff in these areas develop their functions.
  - Relate the curriculum with the training needs in today's society. Show a critical and reflective attitude towards the curricular contents of the subjects and promote the evolution of the contents in response to the needs formation of today's society.
  - Know the regulations that regulate diversification education.
  - Recognize the importance of measures of attention to diversity.

6. COURSE ORGANIZATION	
CONTENTS	
1	Contextualization of the subjects of the Technology area: General and specific regulations of each center and subject. Analysis of the evolution of the contents and curricula of technological subjects
2	The current curriculum of the subjects in the area of Technology: The curriculum of technology subjects in the ESO and in Baccalaureate. The curriculum in other CCAA and others countries. Regulations on attention to diversity. Development of the Technology curriculum.
3	Development of the Technology curriculum. Elaboration of an educational programming.
4	Contextualization of the subjects of the Physics area and Chemistry: Analysis of the evolution of the contents and curricula of the subjects of the area of ??Physics and Chemistry. The scientific literacy. Comparative analysis of curricula of our environment. Sources for the elaboration of a curriculum.
5	Current curriculum of the subjects in the area of ??Physics and Chemistry: The curriculum of the subjects of Physics and Chemistry in the E.S.O. The curriculum of the subjects of Physics and Chemistry in the Baccalaureate. Specific objectives of the Physics and Chemistry subjects.
6	Development of the Physics and Chemistry curriculum. Tests access to the university. The hidden curriculum in science. The current situation of science education. Attitudes towards science and its learning

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Class participation and daily homework. (group)	Work	No	Yes	50,00
Educational programming	Oral Exam	No	Yes	50,00
TOTAL				100,00
Observations				
<p><b>ORTHOGRAPHY</b> It is understood that university students have assumed linguistic abilities in relation to oral and written expression. Therefore, it is essential and mandatory to correct spelling (spelling, accentuation and punctuation), grammatical and lexical in the works and exams carried out as an essential condition to pass the subject.</p> <p><b>PLAGIARISM</b> Regarding the fraudulent performance (plagiarism) of the evaluation tests, the qualification will comply with the provisions of article 54.1 of the regulation of the evaluation processes of the University of Cantabria: 'The fraudulent performance of the tests or activities of evaluation will directly suppose the qualification of failure, 0 'in the subject.</p> <p><b>CITATION RULES</b> Finally, the Board of the Center approved that the Faculty assumes the APA STANDARDS as a citation criterion for all academic works. Although these standards have different editions, as an initial reference we attach the link of the BUC hoping that it will be a reference and help for its application: <a href="http://web.unican.es/buc/recursos/guias-y-tutoriales/guia?g=28">http://web.unican.es/buc/recursos/guias-y-tutoriales/guia?g=28</a></p> <p>The written exam will not be an essential requirement if the student has fully passed the other assessment methods</p>				
Observations for part-time students				
<p>Observations Part Time Evaluation.</p> <p>Students with partial enrollment who choose not to attend class must contact the teachers responsible for the subject before the start of the course. They will have to carry out a series of activities and a final exam. The activities will have a weighting of 50%, they must be delivered on date and have a grade higher than 5 points to be able to pass the course. The exam will be related to all the contents of the subject and will have a weighting of 50%. In this section, the student must also obtain a minimum grade of 5 points.</p>				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
<p>Título: Ciencia para todos en secundaria. Autor: Reid, D.J. y Hudson, D. ISBN: 978-84-277-1043-6 Editorial: Narcea Contenido: El libro proporciona fundamentación teórica y riqueza práctica a la tarea diaria del profesorado, aportando experiencias de atención a la diversidad realizadas en Centros de Educación Secundaria e ideas al debate ciencia para todos/ ciencia para científicos.</p> <p>Título. Normativa y Legislación en Cantabria. Toda la legislación autonómica se puede descargar libremente en : <a href="http://www.educantabria.es/normativa_y_legislacion/norm_y_legis-principal/pagina-de-presentacion/normativapresentacio">http://www.educantabria.es/normativa_y_legislacion/norm_y_legis-principal/pagina-de-presentacion/normativapresentacio</a></p> <p>Título: Resultados de estudios de evaluación: PISA y TIMMS Disponible en PDF en : <a href="http://www.institutodeevaluacion.mec.es/">http://www.institutodeevaluacion.mec.es/</a></p> <p>Título: Materiales relacionados con el currículo y la programación colgados por el profesorado en la plataforma virtual.</p>

