

SUBJECT TEACHING GUIDE

1136 - GIS and Land Management

Master's Degree in mining engineering

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Academic year 2025-2026

1. IDENTIFYING DATA					
Degree	Master's Degree in mining engineering Master's Degree in mining engineering			Type and Year	Compulsory. Year 2 Compulsory. Year 2
Faculty	School of Mines and Energy Engineering				
Discipline	MINING				
Course unit title and code	1136 - GIS and Land Management				
Number of ECTS credits allocated	3	Term	Semester based (1)		
Knowledge Field	Architecture, construction, building and urban planning, civil engineering Architecture, construction, building and urban planning, civil engineering				
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA GEOGRAFICA Y TECNICAS DE EXPRESION GRAFICA				
Name of lecturer	RAUL PEREDA GARCIA				
E-mail	raul.pereda@unican.es				
Office	E.P. de Ingeniería de Minas y Energía. Planta: + 3. DESPACHO CONTRATADOS DE INVESTIGACIÓN (303)				
Other lecturers					

4. OBJECTIVES

- Know and manage the different existing figures on land use in mining areas .
- Know how to manage spatial information used in engineering, especially mining, using tools and methodologies of GIS.

6. SUBJECT PROGRAM	
CONTENTS	
1	<p>Practical Fundamentals of Geographic Information Systems:</p> <ul style="list-style-type: none"> - Basic concepts and tools of GIS Vector - Basic concepts and tools of GIS Raster - Case studies on management of mining areas,
2	<p>1. Theoretical Foundations of Planning Mining:</p> <ul style="list-style-type: none"> 1.1 Spatial planning in the mining sector. 1.2- territorial planning and development models in the mining sector. 1.3.- territorial planning and mineral resources. 1.4.- Application of legislación minera in territorial planning. 1.5.- sectoral and territorial planning units. 1.6.- territorial development and sustainable mining. <p>2. Theoretical Foundations of Geographic Information Systems:</p> <ul style="list-style-type: none"> 2.1 Introduction to the fundamental concepts and operations. 2.2 Structure and data format. 2.3 Algebra map 2.4 Spatial interpolation of data. 2.5.- Generation of thematic mapping. 2.6.- Management and GIS spatial analysis.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Development of a project Spatial Environments Mineros	Written exam	Yes	Yes	40,00
At the end of the academic year, a final project will be proposed, which will cover mainly the practical content of the subject.	Work	No	Yes	20,00
This assessment activity will consist of follow-up tests on two distinct parts: on the one hand, follow-up tests on theoretical content, and on the other, follow-up tests on practical content.	Laboratory evaluation	No	Yes	40,00
TOTAL				100,00
Observations				
<p>If the student does not achieve the minimum grade on the ordinary/extraordinary assessment, the overall grade for the course will be the lower of 4.9 and the weighted average of the assessment tests [Article 35 of the UC Assessment Process Regulations].</p> <p>All students who do not pass the course on the ordinary exam may take the extraordinary exam, with the grade obtained in the practical and project-based assessments being honored. If the student so wishes, they may retake an assessment of the practical and project-based assessments, with the most favorable grades for the student being honored.</p>				
Observations for part-time students				
<p>Part-time students will be offered the following alternative assessment:</p> <ul style="list-style-type: none"> - The practical assessment will take place on a date agreed upon by the instructor and the student at the beginning of the semester. - The assignment assessment will be based on an equivalent project, on a date agreed upon by the instructor and the student at the beginning of the semester. - The regular and extraordinary exams for the course will be the same. <p>Students must contact the instructor during the first two weeks of the semester to arrange assessment dates and assignments.</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

OLAYA FERRERO, V.: Sistemas de Información Geográfica. Impreso por Bubok. España. 2011

BOSQUE SENDRA, J.: Sistemas de Información Geográfica. Rialp,S.A. España. 1992.

FELICISIMO PEREZ, A. M.: Modelos digitales del terreno: principios y aplicaciones en las Ciencias Ambientales. Pentalfa Ediciones, Madrid.1994

VALENCIA MARTINEZ DE ANTOÑANA, J.: Pasado, presente y futuro de las infraestructuras de datos espaciales. Impreso por Bubok, España. 2008