## COURSE NAME

Name: **CARTOGRAPHIC AND TERRITORY ORGANIZATION**
Code: 101208
Curriculum: **DEGREE IN ENERGY ENGINEERING AND MINERAL RESOURCES** Year: 3
Name of the module to which it belongs: SPECIFIC TO MINING
**Subject: CARTOGRAPHIC AND TERRITORY ORGANIZATION**
Nature: OBRIGATORY Duration: FIRST SEMESTER
ECTS Credits: 6 Classroom hours: 60
Face-to-face classroom percentage: 40% Non-contact hours: 90 Online

## FACULTY DETAILS

Name: CANO JÓDAR, ENRIQUE (Coordinator)
Department: GRAPHIC AND GEOMATICS ENGINEERING
Area: CARTOGRAPHIC ENGINEERING, GEODESY AND PHOTOGRAMMETRY
Location of the office: EPS Belmez. Old building. (2nd Floor)
E-Mail: um1cajoe@uco.es Phone number: 957213052

## SKILLS

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| CB1 | Have and understand specific knowledge of the field of study of mining engineering. |
| CB4 | Solve problems within the study area of Mining Engineering. |
| CB5 | Gather and interpret relevant data within the study area of mining engineering in order to make judgments that include reflection on social, scientific or ethical issues. |
| CB7 | Possess learning skills necessary to undertake further studies with a high degree of autonomy. |
| CU2 | Know and refine the user level of ITs. |
| CEEM7 | Elaboration of Thematic Cartography. |
| CEEM14 | Ecology and spatial planning. Territorial and urban planning and management. |

## OBJECTIVES

To provide students with theoretical and practical knowledge on geodesy and mapping due to its relationship with mining cartography, as well as mining cartography focused on solving problems when determining the perimeters of mining claims, ecology and land management, territorial and urban planning and management, knowledge of underground topography, necessary to obtain the skills in the specific technology Mining Operations module. (CEEM7, CEEM14).

## CONTENTS:

### 1. Theoretical contents

BLOCK I.- GEODESY AND MAPPING.
Topic 1.- GEODESY CONCEPTS.
Topic 2.- SPANISH GEODESY NETWORK.
Topic 3.- GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS).
Topic 4. - CARTOGRAPIC CONCEPTS.
Topic 5.- LAMBERT PROJECTION.
Topic 6.- UTM PROJECTION.
BLOCK II.- MINING CARTOGRAPHY AND LAND USE PLANNING.
Topic 7.- LAND USE PLANNING.

Topic 8.- MINING CARTOGRAPHY.
Topic 9.- APPLICATION FOR AND DEMARCATION OF MINING CLAIM. STAKING OUT.
BLOCK III.- UNDERGROUND AND SURFACE TOPOGRAPHY.
Topic 10. UNDERGROUND TOPOGRAPHY. REGULATORY PLANS.
Topic 11.- MEASURING ANGLES. MEASURING DISTANCES.
Topic 12.- ORIENTATION OF UNDERGROUND WORKS.
Topic 13.- ALTIMETRIC METHODS.
Topic 14.- MINE GROUND-BREAKING. STAKING OUT.
Topic 15.- SURFACE MINING. BASIC CONCEPTS.
Topic 16.- DESIGN AND CONSTRUCTION OF MINING TRACKS.
Topic 17. REMOTE SENSING.

### 2. Practical contents.

The practical classes will be carried out both in the field and in the office.
Practical 1.- Geodesy problems. Cartographic projections.
Practical 2.- GPS observation.
Practical 3.- Applying for and delimiting a mining claim.
Practical 4.- Staking out a claim / Law of 1980.
Practical 5.- Orienting underground workings.
Practical 6.- Mine ground-breaking.
Practical 7.- Designing mining tracks