

COURSE NAME

Name: **TOPOGRAFY**

Code: 101191

Curriculum: **DEGREE IN ENERGY ENGINEERING AND MINERAL RESOURCES**

Year: 2

Name of the module to which it belongs: COMMON MODULE FOR THE MINING BRANCH

Subject: TOPOGRAFY

Nature: OBRIGATORY Duration: FIRST SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

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

- CB1 Have and understand specific knowledge of the field of study of mining engineering.
- CB3 Be able to apply the knowledge acquired in professional contexts and to elaborate and defend arguments in the field of knowledge of mining engineering.
- CB4 Solve problems within the study area of Mining Engineering.
- CB5 Gather and analyse relevant data within the study area of Mining Engineering, in order to issue judgements that include a reflection on relevant topics of a social, scientific or ethical nature.
- CU2 Know and refine the user level of ITs.
- CEC8 Knowledge of topography, photogrammetry and cartography.

OBJECTIVES

That the student knows the different topographic techniques, which serve as a basis for the subsequent application in the different fields of action of the Graduate in Energy and Mining Resources.

CONTENTS:

1. Theoretical contents

BLOCK 1 - PRELIMINARY IDEAS.

TOPIC 1. SHAPE AND DIMENSIONS OF THE EARTH.

TOPIC 2. TOPOGRAPHIC CONCEPTS.

TOPIC 3. UNITS AND MEASUREMENTS.

TOPIC 4. ERROR THEORY.

BLOCK 2 - MEASUREMENT INSTRUMENTS AND TECHNIQUES.

TOPIC 5. ELEMENTS OF TOPOGRAPHIC INSTRUMENTS.

TOPIC 6. INSTRUMENTS I.

TOPIC 7. INSTRUMENTS II

BLOCK 3 - METHODS AND SURVEYS.

TOPIC 8. PLANIMETRIC METHODS.

TOPIC 9. ALTIMETRIC METHODS.

TOPIC 10. TOPOGRAPHIC SURVEY.
TOPIC 11. PHOTOGRAMMETRIC SURVEY.
TOPIC 12. CARTOGRAPHY
TOPIC 13. CONCEPT OF STAKING OUT. RELATIONSHIP WITH TOPOGRAPHY.
TOPIC 14. ENGINEERING SYSTEMS.
TOPIC 15. LONGITUDINAL PROFILE, TRANSVERSAL AND CROSS SECTION.
TOPIC 16. PLANIMETRIC AND ALTIMETRIC PLOTS.

2. Practical contents.

FIELD AND DESK EXERCISES (Small group)

BLOCK 1 AND BLOCK 2

Exercise 1. Setting up and levelling the theodolite. Measurement of horizontal and vertical angles.

BLOCK 3 - METHODS AND SURVEYS

Exercise 2. Resection with a theodolite

Exercise 3. Staking out points for construction: GPS

Exercise 4. Desk Work

Exercise 5. Topographic Survey: GPS Station

Exercise 6. Geometric levelling.

BLOCK 5 - CONSTRUCTION TOPOGRAPHY

Exercise 7. Linear Works application programs. Staking out baselines.

Exercise 8. Desk Work.