COURSE NAME

Name: **TOPOGRAFY**
Code: 101130
Curriculum: **DEGREE IN CIVIL ENGINEERING** Year: 2
Name of the module to which it belongs: COMMON MODULE FOR THE CIVIL 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 study area of the Degree that gives skills for the exercise of the profession of Technical Civil Engineering.
CB2	Have and understand updated and cutting-edge knowledge related to the field of study of the degree of Technical Civil Engineering.
CB3	Be able to apply the knowledge acquired to their work or vocation in a professional manner. Prepare and defend arguments in the relevant knowledge area.
CB4	Solve problems within the study area of Civil Engineering.
CB5	Gather and analyse relevant data within the study area of Civil 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.
CEC1	Knowledge of the essential topographic techniques to obtain measurements, create maps, establish layouts, implement defined geometries on the ground or track movements of structures or earthworks.

OBJECTIVES

The student will learn various topographic techniques that provide a foundation for subsequent application in the different fields of activity of Civil Engineering graduates, Knowledge of the essential topographic techniques to obtain measurements, create maps, establish layouts, implement defined geometries on the ground or track movements of structures or earthworks.

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.