

## FACULTY OF **ENGINEERING**

DEGREE COURSE: **CIVIL AND ENVIRONMENTAL ENGINEERING BS**

**SUBJECT:** TOPOGRAPHIC SURVEY

**LECTURER:** ALESSANDRA BORGHI

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### **OBJECTIVES**

This teaching provides the student the fundamental knowledge on classical and modern geomatic techniques to describe the territorial and artificial objects in a metric way and with a specific level of accuracy. The topographic survey and the cartographic representation are the basis of any knowledge and territorial planning and they are necessary for any restoration and repair to buildings, roads and other infrastructures.

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### **CONTENTS**

Physical geodesy:

- the figure of the Earth;
- reference systems and related surfaces;
- global and local coordinate systems.

Measuring instruments:

- measurement of heights, angles and distances;
- modern tools for surveying;
- GPS positioning.

Cartography:

- the mapping problem;
- projections;

Representations.

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### **LEARNING OUTCOMES**

- Knowledge of the main reference systems and coordinate systems used into the world to describe and represent the Earth surface.
- The topographic measurement instruments: from classical levels and theodolites to total stations and GPS.
- The basics of cartography.

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### **ASSESSMENT**

Written exam: multiple choice and open questions

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### **RECOMMENDED TEXTBOOKS**

The teacher will provide the student with sufficient support material.  
For a deeper investigation in Geodesy, please refer to the following book:

- G. Seeber, Satellite Geodesy, 2nd Edition. deGruyter (2003)

