

## **Educational objectives:**

This subject aims to teach urban engineering students to read topographic media and to make measurements on plans/topographic maps in three phases:

### **Phase A:**

-Describe precisely the physical elements (reliefs, construction, vegetation, hydrography and slopes) that characterize a given site and understand these details through a topographic map.

### **Phase B:**

-Realize and develop all the profiles allowing the understanding and communication of topographic elements in a site.

-Explain using topographic profiles: in length and across the different forms of urban space analyze.

### **Phase C:**

-Perform calculations of surfaces, volumes, leveling and angles then the choice of intervention types on the scale of an urban space.

Recommended Prior Knowledge

In this year, the student must activate the previous year's achievements at the level of the following modules: analysis of graphic documents, Introduction to technical drawings , cartography, physics, geometries and applied statistics drawing and then use them to read and process a chosen urban space. Also; it relies on graphic tools such as maps and topographic profiles for the analysis of an urban space and the updating of its physical characteristics.

## **The Content of the Module**

### **(Axis 1): notion of topographical basis**

Geodesy.

Shape of the earth and division of physical space.

Earth projection systems.

Geographical coordinates,

Digital Terrain Models (NTMs).

Slope map and/or topographic maps.

Main elements represented on a topographic map.

Leveling curves: definition, types and stroke.

Shape of the slopes: concave and convex.

## **(Axis 2) language of a topographic map**

### **1- Study of conventional signs in topography.**

Roads, Railways, Constructions and Hydrography.

The relief

The vegetation.

### **2. specifications and constraints retained from a topographic map.**

The rules of semiology.

The constraints of scale.

Technical constraints.

## **(Axis 3) how to read a topographic map?**

Implantation of urban spaces: types and characteristics.

Implementation of alignments.

Implantation of points in planimetry.

Implementation of altimetry marks.

Topographic profiles.

Stages of realization of a topographic profile.

Profiles in length /profiles in cross.

Reading a topographical profile in urban engineering.

## **Bibliography:**

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