



### 1. Course number and name

RB-S1-19-W25-31, Surveying I

### 2. Credits and contact hours\*

2 ECTS, lectures: 15 hours\*\*, classes: 5 hours\*\*, laboratory: 10 hours\*\*

### 3. Instructor's or course coordinator's name

Magdalena Wróblewska, PhD Eng.

### 4. Text book, title, author, and year

- Anderson J., Mikhail E.: Surveying: Theory and Practise. WCB/McGRAW-HILL, New York, 1998.
- Assur V.L., Filatov A.M.: Practical Guide to Surveying. Mir Publishers Moscow 1998.
- Hycner R., Dobrowolska-Wesołowska M.: Geodesy, Surveying and Professionals Ethics. Wydawnictwo Gall, 2008.
- Kavanagh B., Slattery D.: Surveying with Construction Applications. Pearson 2013.

### 5. Specific course information

#### a. brief description of the content of the course (catalog description)

##### Lectures:

Reference surfaces. Coordinate systems (height). Geodetic methods of measuring and calculating height differences. Calibration, adjustment and maintenance of the level. Topographic maps. Area and volume measurements. Principles of angular measurements and distances.

##### Classes:

Reading of maps, measuring distances and angles on maps. Making cross sections from data read from paper map.

##### Laboratory:

Surveying instruments in practice - level, adjustments and maintenance. Determining highest of benchmark, measuring distances, making inventory of stair case/road, measuring profile and cross section of terrain.

#### b. prerequisites or co-requisites

No prerequisites and additional requirements

#### c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

Required.



## **6. Specific goals for the course**

### **a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic**

The student knows and understands:

- Student knows basic geodesic-cartographical elaborations and ways of gaining of spatial datas.
- Students understands the nature and aim of geodesic works performed for needs for the building process.

The student can:

- Student can handle with geodesic-cartographical documentation,
- Students gets the knowledge required for realization of basic calculations and geodesic measurement which are necessary on the building site,
- Student are familiar with geodesic-cartographical law .

### **b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.**

K2A\_W03, , K2A\_U07

## **7. Brief list of topics to be covered**

1. General introductory information: organization of classes, basic definitions, division of geodesy, main tasks in the construction process,
2. Spatial reference system: coordinate systems (height), geodetic control network, legal regulations,
3. Leveling in theory: introductory information, divisions of leveling, geodetic methods of measuring and calculating height differences, geodetic equipment for altitude measurement, errors and observations theory,
4. Leveling in practice: level instrument settings, calibration, adjustment and maintenance of the level, procedure of measuring the difference between the level of the height of points, determining the height of the working benchmark, measuring profile and cross section of terrain, monitoring building structures,
5. Basic calculations in surveying: calculation of surface area and volume, work on maps (topographic map, height map), making cross sections.

\*- Consultations were not included in the contact hours

\*\* -per semester