STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Fundamentals of geodesy**		Code **1010134231010125118**
Field of study **Environmental Engineering Extramural First-**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 3**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **20** Classes: **-** Laboratory: **10** Project/seminars: **-**		No. of credits **4**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences** **Technical sciences**		ECTS distribution (number and %) **4 100%** **4 100%**

Responsible for subject / lecturer:

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Budownictwa i Inżynierii Środowiska
Piotrowo 5

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of analytical geometry, trigonometry and knowledge of basic methods in the field of mathematical analysis.
2	**Skills**	Ability to solve basic tasks in the field of mathematics, geometry and trigonometry.
3	**Social competencies**	Knowlegde of working in group

Assumptions and objectives of the course:

Mastering geodesic techniques on a level which allows self-dependent accomplishment of length and angle measurement, assigning altitude differences with geometric leveling and trigonometric methods, area calculation. Ability to express geodesic tasks. Ability to assess measurements accuracy. Ability to use geodesic materials and documentation prepared in traditional technology and Terrain Information System (SIT).

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. The student describes the specificity of surveying efforts to prepare basic maps of the country and its role in the management of topographical space. - [K_W03]

2. Student wykonuje podstawowe obliczenia w geodezyjnych układach współrzędnych przestrzennych. - [K_W04]

3. Student distinguishes rules for the carrying out survey work to determine the spatial coordinates landscaping elements and their function and selects the correct methodology of geodetic measurement and test equipment to perform such a measurement. - [K_W04]

Skills:

1. Students solve simple tasks associated with the bill surveying indispensable for determining the situation and elevation terrain details on the basic map of the country on the account of the rectangular coordinates and polar coordinates). - [K_U14]

2. The student selects the measuring equipment needed to conduct a situational measurement, altitude or situation and elevation terrain details with the required accuracy for a given task. - [K_U14]

3. The student selects the measurement technology and methods of computation for implementation of the basic tasks of surveying and engineering business. - [K_U14]

Social competencies:

1. Students know how to work in group - [K_K02]

Assessment methods of study outcomes

Test of theoretical studies in the field of mapping and methods of measurement and calculation used in construction 1.5 hours. At the end of the semester,

Test on the use of methods of measurement, calculation and cartographic materials for the solution of engineering problems 2 hours. At the end of the semester,

Performance of specific tasks measuring and computing reports successively

Course description

Surveying tasks. Spatial information in engineering practice. Geodetic space, coordinate systems, classification of surveying. Map as a source of spatial information. Classification map based on the criterion of content and scale studies. Warp surveying. Geodetic measurement techniques. Surveying equipment: rangefinders, theodolites, total stations, levelers, GPS. Geodetic measurements situational, elevation, execution, control. Rating accuracy. Calculus and the theory of coordinate errors. Basic map in the form of analog and digital. Land Information System. Inventory measurements, measurement techniques, and presentation of results. Documentation of surveying in construction investment process.

Basic bibliography:

1. Geodezja, M. Wójcik, I. Wyczałek, WPP, Poznań, 2004
2. Geodezja. Podręcznik dla studiów inżynieryjno-budowlanych, M. Odlanicki-Poczobutt, PPWK, Warszawa, 1989
3. Construction Measurements, B.A. Barry, Wiley Interscience, New York, 1988

Additional bibliography:

1. Geodezja dla kierunków niegeodezyjnych, S. Przewłocki, PWN, Warszawa, 2004

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	20
2. Participation in laboratory classes	5
3. Preparation for laboratory classes	10
4. Completion (at home) of laboratory reports	5
5. Taking part in the consultation on the implementation of laboratory classes	5
6. Preparing for the end credits of laboratory classes	5
7. Preparing for exam and presence on the exam	10

Student's workload

Source of workload	hours	ECTS
Total workload	60	4
Contact hours	30	3
Practical activities	10	1