

COURSE SYLLABUS	
Course code	1080-BU200-ISA-0401
Course name	Surveying II
Course version	2026L
Level of education	first cycle programme
Form and mode of study	full-time study
Study profile	general academic profile
Field of study	Civil Engineering
Specialisation	-
Organizational unit	The Faculty of Civil Engineering
Implementing unit	The Faculty of Civil Engineering
Course unit	n/a
Course groups	-
Course status	Obligatory
Language of the course	English
Study stage code	BU000-S2-ISA-1080
Number of ECTS credits	2

Part I

01. Learning outcomes and the method of conducting classes

Learning outcomes	see table "Learning outcomes"
Forms of classes and the number of hours in the semester	
laboratory	15,00 h
lectures	10,00 h

02. ECTS balance

Number of ECTS credits	2	
Course workload	Hours	ECTS
Total number of hours and ECTS credits for the course:		
Hours and ECTS credits for courses involving direct participation of academic teachers	25	1,00
Hours and ECTS credits involving student's independent work	25	1,00
Total	50	2,00
Number of hours involving direct participation of academic teachers:		
Hours connected with class participation	25	
Other synchronous hours	0	
Total	25	
Number of hours involving student's independent work:		
Hours for student's independent work	25	

03. Course content

Course content	Fundamental issues in the field of geodesy and satellite measurements. Participation of the coordinate system in geodetic studies. Methods of obtaining geodetic data. Various measurements include linear, angular, height differences, and GNSS. Scope of participation of detailed measurements in engineering geodesy. Assessment of the reliability of results based on the accuracy of measurements. Preparation of cross-sections and longitudinal sections of the route. Designing a plane with a given slope. Measurement of vertical angles and their role in trigonometric measurement.
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Table: Learning outcomes

Knowledge

Part I

Outcomes code	W1
Description	The graduate knows the basic measurement instruments (levels, GNSS receiver), as well as measurement techniques used in engineering geodesy (various methods of height measurements, height measurements of inaccessible objects) and methods of developing measurement results; knows and understands selected facts constituting basic general knowledge in the field of reference systems and frames, solving geodetic tasks on a sphere and an ellipsoid and the Earth's gravitational field; the graduate has detailed knowledge related to the design and implementation of geodetic networks;
Related field-of-study learning outcomes	K1_W05, K1_W11
Skills	
Outcomes code	U1
Description	The graduate is able to use a computer and software for geodetic purposes; is able to prepare basic geodetic studies (longitudinal and cross-sections, simple route plans, designs of planes with a given slope);
Related field-of-study learning outcomes	K1_U20
Social competence	
Outcomes code	K1
Description	The graduate is ready to think and act entrepreneurially in geodesy engineering activities.
Related field-of-study learning outcomes	K1_K06

Part II

04. Year and semester of studies	
Year	2026L
Semester	2

05. Course leader and course teachers	
Course leader	Małgorzata Wińska
laboratory	Małgorzata Wińska
lectures	Małgorzata Wińska

06. Course objective	
Course objective	The aim of the course “ Surveying II” is to prepare students to independently plan, carry out, and process geodetic measurements used in the design and implementation of engineering structures, with particular emphasis on: • applying geometric levelling to determine and control the elevations of structures and elements of the longitudinal profile, • performing forward spatial intersection in order to accurately determine the position of points in the field, • designing and computing circular curves and carrying out longitudinal and cross sections for road routes and other linear structures, • using GNSS techniques in topographic and height surveying and for control networks, taking into account the accuracy and limitations of these methods.

07. Teaching methods and techniques	
laboratory	laboratory, measurements, operation of surveying instruments
lectures	lecture, multimedia presentation

08. Methods of verifying learning outcomes	
Knowledge	
Outcomes code	W1

Part II	
Description	The graduate knows the basic measurement instruments (levels, GNSS receiver), as well as measurement techniques used in engineering geodesy (various methods of height measurements, height measurements of inaccessible objects) and methods of developing measurement results; knows and understands selected facts constituting basic general knowledge in the field of reference systems and frames, solving geodetic tasks on a sphere and an ellipsoid and the Earth's gravitational field; the graduate has detailed knowledge related to the design and implementation of geodetic networks;
Verification methods	lectures: assessment of active class participation laboratory: written report
Skills	
Outcomes code	U1
Description	The graduate is able to use a computer and software for geodetic purposes; is able to prepare basic geodetic studies (longitudinal and cross-sections, simple route plans, designs of planes with a given slope);
Verification methods	lectures: assessment of active class participation laboratory: written report
Social competence	
Outcomes code	K1
Description	The graduate is ready to think and act entrepreneurially in geodesy engineering activities.
Verification methods	lectures: assessment of active class participation laboratory: written report
09. Required and recommended reading list	
Required reading	Schofield W., Breach M.: Engineering Surveying, 6th ed., Routledge, Uren J., Price W.F.: Surveying for Engineers, 5th ed., Macmillan.; Johnson A.: Plane and Geodetic Surveying, 2 vols.
Recommended reading	ASCE (ed.): Surveying and Geomatics Engineering: Principles, Technologies, and Applications (ASCE Manual of Practice 152).; Van Sickle J.: GPS and GNSS for Land Surveyors, 5th ed.
10. Other information	
Other information	In accordance with the Course Regulations.