Course code: ……. **Plan position:** ……

A. INFORMATION ABOUT THE COURSE

B. Basic information

Name of course	Geodesy and Geoinformation
Field of studies	Civil engineering
Level of studies	Bachelor's degree
Profile of studies	general academic
Form of studies	full-time (weekdays)
Specialty	
Unit responsible for the field of studies	Faculty of Civil and Environmental Engineering and Architecture
Name and academic degree of teacher(s)	Małgorzata Sztubecka PhD Eng.
Introductory courses	no requirements
Introductory requirements	no requirements

C. Semester/~~week~~ schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
Summer	30						6

2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
KNOWLEDGE			
K1	Student knows geodetic technologies; has basic knowledge enabling the use of computer maps in the process of investment implementation	K_W08	P6S_WG
K2	Student knows issues in the field of GIS	K_W08	P6S_WG
SKILLS			
S1	Student can plan and carry out an experiment and analyze the obtained results of the experiment	K_U04 K_U15	P6S_UW
S2	Student is able to explain and justify making choices regarding solutions based on a spatial database.	K_U04 K_U15	P6S_UW
SOCIAL COMPETENCES			

SC1	Student is prepared to cooperate with a engineer of geodesy and is aware of the social role of an engineer	K_K11	P6S_KK

3. TEACHING METHODS

A. Traditional methods used ***

Multimedia lectures, laboratory exercises

B. Distance learning methods used ***

Synchronous method
Remote lectures in the form of a videoconference, remote discussion

Asynchronous method

4. METHODS OF EXAMINATION

Colloquium; presentation

5. SCOPE

Lectures	Tasks of geodesy and geoinformation. Map issues: map definition, coordinate systems, map scale. Units of length, area, and angle. Measurement accuracy. Altitude coordinate system. Leveling: absolute height, relative height, height difference, leveling methods. Contour map. GPS (Global Positioning System). Digital maps. Geographic Information System. Basic functions and operation of GIS programs. Database structure. Data management and transformation of spatial data. Data analysis and visualization. Examples of GIS applications.
Laboratories	

6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation	……
K1			x		x	
K2			x		x	
S1			x		x	
S2			x		x	
SC1			x		x	

7. LITERATURE

Basic literature	1. Łyszkowicz A., Łyszkowicz S., 2010. Surveying. Preskrypt. Oficyna Wydawnicza Politechnika Warszawska 2. Olaya V. 2018. Introduction to GIS. https://volaya.github.io/gis-book/en/gisbook.pdf
Supplementary literature	1. Schofield W., Breach M. Engineering Surveying. Elsevier, 2007 2. Huisman O., de By R.A. 2009. Principles of GIS. https://webapps.itc.utwente.nl/librarywww/papers_2009/general/principlesgis.pdf

8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	30
	Supervision hours	10
Student's own work	Preparation for classes	40
	Reading assignments	50
	Other (preparation for exams, tests, carrying out a project etc)	50
Total student workload		180
	Number of ECTS points	6