Politechnika Krakowska im. Tadeusza Kościuszki

Karta przedmiotu

obowiązuje studentów rozpoczynających studia w roku akademickim 2021/2022

Wydział Inżynierii Lądowej

Kierunek studiów: Budownictwo

Profil: Ogólnoakademicki

Forma sudiów: stacjonarne

Kod kierunku: BUD

Stopień studiów: I

Specjalności: Bez specjalności - studia w języku angielskim

1 Informacje o przedmiocie

Nazwa przedmiotu	Geodezja
Nazwa przedmiotu w języku angielskim	Geodesy
Kod przedmiotu	WIL BUD oIS C19 21/22
Kategoria przedmiotu	Przedmioty kierunkowe
Liczba punktów ECTS	2.00
Semestry	2

2 Rodzaj zajęć, liczba godzin w planie studiów

Semestr	Wykład	Ćwiczenia audytoryjne	Laboratoria	Laboratoria komputerowe	Projekty	Seminarium
2	15	0	30	0	0	0

3 Cele przedmiotu

Cel 1 familiarize with the angular,linear and levelling surveys used in civil engineering

Cel 2 familiarize with mapping and reading surveying drawings

Cel 3 acquire the skills of performing angular, linear and levelling surveys

Cel 4 acquire the skills of mapping and map reading

4 Wymagania wstępne w zakresie wiedzy, umiejętności i innych kompetencji

1 basic knowledge of mathematics

5 Efekty kształcenia

EK1 Wiedza knows the rules for mapping and reading surveying drawings

EK2 Wiedza knows basic methods of angular and linear surveys

EK3 Wiedza knows basic methods of levelling surveys

EK4 Umiejętności can perform basic angular and linear surveys and create geodetic documentation for them

EK5 Umiejętności can perform basic levelling surveys and create geodetic documentation for them

EK6 Umiejętności can use geodetic maps in work

6 Treści programowe

Wykład		
Lp	Tematyka zajęć Opis szczegółowy bloków tematycznych	Liczba godzin
W1	Initial concepts, tasks and division of surveying, types of measurements, surveying instructions	1
W2	Geoids, height reference system, reference surfaces, cartographic projections, coordinate systems	1
W3	Map definition, map division, scale and map content, digital map, principal map, map deformation, K-1 instruction	1
W4	Methods of distance measuring: direct, indirect, optical, digital, GPS, distance measurement accuracy	1
W5	Straight line setting out, line setting out by the obstacle, setting out using right angle prism	1
W6	Structure of theodolite, types of theodolites (optical, digital), reading systems, instrumental errors and their removal, instrument verification before surveying	1
W7	Angle measurement in horizontal plane using different methods and angle calculation, angle measurement in vertical plane and angle calculation, error calculation, Gaussian distribution, law of the propagation of errors	1
W8	Bearings and azimuth, angle calculation, points coordinates calculation, surfaces area	1
W9	Traverses, traverse calculation, intersections (linear and angular), space resection	1

Wykład		
Lp	Tematyka zajęć Opis szczegółowy bloków tematycznych	Liczba godzin
W10	Structure on levelling instrument, types of instruments, rod readings, instrumental errors, types of levelling	1
W11	Levelling traverse, traverse calculation, bench marks, levelling accuracy, profile levelling	1
W12	Surface levelling methods, contour lines interpolation, level setting out	1
W13	Topographic surveys, traverse net, tachymeter surveying, polar and orthogonal surveying, frontages as controlling method	1
W14	Surveying at construction site, vertical deviations of the columns and factory chimneys, deformations in horizontal planes, control surveying	1
W15	GIS definition, map features, metadata, GIS analysis	1

Laboratoria		
Lp	Tematyka zajęć Opis szczegółowy bloków tematycznych	Liczba godzin
L1	Surveying principals - Units of measure, azimuths and distance calculation, using K-1 instruction	2
L2	Linear surveying - Straight line setting out,projection of the point on the straight line, distance measurement, calculation of mean distance error	2
L3	Orthogonal survey of details - Details surveying with the right angle prism and the type	2
L4	Structure of engineerings level - Structure of engineerings level, levelling an instrument, main condition testing	2
L5	Levelling traverse - Elevation determination in loop traverse	2
L6	Profile measurement - Linear and elevation survey of a profile, plotting of profile in 1:50/100 scale	2
L7	Grid levelling - Area levelling using grid method, plotting of contour map in 1:250 scale	2
L8	Structure of theodolite - Structure of optical theodolite, setting up and levelling the instrument, horizontal and vertical angle measurements	2
L9	Horizontal angle measurement - Horizontal angle measurement in 3 series, calculation of mean angular error	2
L10	Loop traverse measurement - Loop traverse measurement, computation of coordinates	2

Laboratoria		
Lp	Tematyka zajęć Opis szczegółowy bloków tematycznych	Liczba godzin
L11	Topographic surveys - Polar surveying of details, coordinates computation in local coordinate system, topographical data mapping in 1:250 scale	2
L12	Trigonometric levelling - Levelling an inaccesible point by vertical angle and distance surveying	2
L13	Mapping part 1 - Determining of linear and superficial map deformation, designing of a diagonal scale	2
L14	Mapping part 2 - Coordinates computation, area computation,linear and angular calculations, station description plotting	2
L15	Accuracy analysis of trygonometric levelling - mean function error calculation	2

7 Narzędzia dydaktyczne

N1 Lecture

N2 Multimedia presentations

N3 laboratory

N4 work in group

N5 individual work