

# POLITECHNIKA KRAKOWSKA IM. TADEUSZA KOŚCIUSZKI

## KARTA PRZEDMIOTU

obowiązuje studentów rozpoczynających studia w roku akademickim 2017/2018

Wydział Inżynierii Lądowej

Kierunek studiów: Budownictwo

Profil: Ogólnoakademicki

Forma studiów: stacjonarne

Kod kierunku: BUD

Stopień studiów: I

Specjalności: Bez specjalności - studia w języku angielskim

### 1 INFORMACJE O PRZEDMIOCIE

NAZWA PRZEDMIOTU	Geometria wykreślna
NAZWA PRZEDMIOTU W JĘZYKU ANGIELSKIM	Descriptive Geometry
KOD PRZEDMIOTU	WIL BUD oIS C16 17/18
KATEGORIA PRZEDMIOTU	Przedmioty kierunkowe
LICZBA PUNKTÓW ECTS	3.00
SEMESTRY	1

### 2 RODZAJ ZAJĘĆ, LICZBA GODZIN W PLANIE STUDIÓW

SEMESTR	WYKŁAD	ĆWICZENIA AUDYTORYJNE	LABORATORIA	LABORATORIA KOMPUTERO- WE	PROJEKTY	SEMINARIUM
1	15	0	0	0	15	0

### 3 CELE PRZEDMIOTU

**Cel 1** Ability to provide representation methods of three-dimensional(3D)objects on a two-dimensional (2D) plane

**Cel 2** Ability to "read" 2D drawings and to provide their restitution into a 3D space

**Cel 3** Ability to think in a 3D space and to analyse 3D relationships between spatial elements of the constructions.  
Developing spatial visualization abilities.

Cel 4 Ability to communicate design ideas on the base of graphical representation of the designed structure

#### 4 WYMAGANIA WSTĘPNE W ZAKRESIE WIEDZY, UMIEJĘTNOŚCI I INNYCH KOMPETENCJI

- 1 Knowledge of basic axioms and theorems of Euclidean geometry
- 2 Knowledge of basic planimetric constructions, ability to distinguish planimetric form stereometric representations
- 3 Ability to determine simple 2D and 3D objects and to construct their planar intersections

#### 5 EFEKTY KSZTAŁCENIA

**EK1 Wiedza** Graduate will know the basic graphical representation methods applied for creating technical documentation of engineering design project.

**EK2 Wiedza** Graduate will get the relevant knowledge required for the further scientific development and research.

**EK3 Umiejętności** Graduate will be able to communicate design ideas by using various projection methods to represent designed objects.

**EK4 Umiejętności** Graduate will be able to "read" technical drawings.

**EK5 Kompetencje społeczne** Graduate will gain ability to effectively communicate in a teamwork both at branch-works and at interdisciplinary communities.

#### 6 TREŚCI PROGRAMOWE

WYKŁAD		
LP	TEMATYKA ZAJĘĆ OPIS SZCZEGÓŁOWY BLOKÓW TEMATYCZNYCH	LICZBA GODZIN
<b>W1</b>	Course Introduction & Objectives. Projective Space Definition. Infinite Elements in Projective Space. Projection methods classification and invariants. Multiview projection: U.S Standard and European standard (PN-EN ISO 5456-2: 2002).	3
<b>W2</b>	Mongean Projection Method. Point, line and plane representation. Auxiliary views. Perpendicularity. measuring distances, surface area and dihedral angles.	2
<b>W3</b>	Five Platonic solids.	1
<b>W4</b>	Axonometric projection: oblique and orthographic axonometry. Isometric projection (PN-EN ISO 5456-3:2002).	2
<b>W5</b>	Topographic projection. Point, line and plane representation. Application of the topographic mapping into the earth works. Cuts and fills around a road or a platform. Profile and cross-section construction. Roofs development.	3
<b>W6</b>	Perspective projection method: theory and application (PN-EN ISO 5456-4:2006).	2
<b>W7</b>	Rectilinear surfaces applied in building constructions: cylinder of revolution, cone of revolution, parabolic - hyperboloid. Sphere and its sections with a plane.	2

LABORATORIA		
LP	TEMATYKA ZAJĘĆ OPIS SZCZEGÓŁOWY BLOKÓW TEMATYCZNYCH	LICZBA GODZIN
<b>L1</b>	Multiview projection: U.S Standard and European standard (PN-EN ISO 5456-2: 2002).	1
<b>L2</b>	Sketching as an indispensable element in engineering practice. Lines and curves freehand sketching. Tangential lines to circles. Construction of an ellipse, parabola, hyperbola.	2
<b>L3</b>	Mongean projection: points, lines and planes representation. Basic constructions. Auxiliary Views. True shape and size of plane and True length line. Dihedral angles.	2
<b>L4</b>	The five Platonic solids: a composition made of a tetrahedron, an octahedron and a cube.	2
<b>L5</b>	Axonometric projection: orthogonal axonometry of a designed composition of solids. Oblique axonometry of the same composition (PN-EN ISO 5456-3: 2002).	2
<b>L6</b>	Topographic projection. Designing of cuts and fills around a road/ platform construction. Roof design. True shape and size of a roof surface. Dihedral angle between the adjacent roof surfaces.	2
<b>L7</b>	Roof coverings: a rectilinear or a curvilinear patch of surface. 3D Visualization.	2
<b>L8</b>	Perspective projection: perspective drawing of the Platonic solids composition used within L4 (PN-EN ISO 5456-4:2006).	2

## 7 NARZĘDZIA DYDAKTYCZNE

**N1** Wykłady

**N2** Prezentacje multimedialne

**N3** Ćwiczenia laboratoryjne

**N4** Zadania tablicowe

**N5** Konsultacje

## 8 OBCIĄŻENIE PRACĄ STUDENTA

FORMA AKTYWNOŚCI	ŚREDNIA LICZBA GODZIN NA ZREALIZOWANIE AKTYWNOŚCI
<b>Godziny kontaktowe z nauczycielem akademickim, w tym:</b>	
Godziny wynikające z planu studiów	30
Konsultacje przedmiotowe	10
Egzaminy i zaliczenia w sesji	5
<b>Godziny bez udziału nauczyciela akademickiego wynikające z nakładu pracy studenta, w tym:</b>	
Przygotowanie się do zajęć, w tym studiowanie zalecanej literatury	15
Opracowanie wyników	0
Przygotowanie raportu, projektu, prezentacji, dyskusji	30
<b>SUMARYCZNA LICZBA GODZIN DLA PRZEDMIOTU WYNIKAJĄCA Z CAŁEGO NAKŁADU PRACY STUDENTA</b>	<b>90</b>
SUMARYCZNA LICZBA PUNKTÓW ECTS DLA PRZEDMIOTU	3.00

## 9 SPOSOBY OCENY

### OCENA FORMUJĄCA

F1 Kolokwium

F2 Projekt indywidualny

F3 Zadanie tablicowe

### OCENA PODSUMOWUJĄCA

P1 Egzamin pisemny

P2 Średnia ważona ocen formujących

### WARUNKI ZALICZENIA PRZEDMIOTU

W1 Obecność na zajęciach

W2 Zaliczenie pozytywne wszystkich ocen formujących

### KRYTERIA OCENY

EFEKT KSZTAŁCENIA 1	
NA OCENĘ 2.0	Unjustified absence in the practice lab. hours. Due to mistakes a negative grade from one or more assignments and/or negative grade from the final exam produce overall "Fail" result. Design projects not personally created.

NA OCENĘ 3.0	Design projects created personally by a student but delivered after the deadline and completed after numerous corrections and with a significant help by the tutor.
NA OCENĘ 3.5	Design projects created personally by a student but delivered after the deadline and completed after one or two corrections by the tutor. Fair level of drawing aesthetics.
NA OCENĘ 4.0	Design projects created personally by a student and delivered in due time but completed after one or two corrections by the tutor. Design project created without accurate graphical technique if regards line types, line weights and drawing aesthetics.
NA OCENĘ 4.5	Design projects created personally by a student and delivered in due time. Design project created with accurate graphical technique if regards line types, line weights and drawing aesthetics.
NA OCENĘ 5.0	Design projects created personally by a student and delivered in due time. Design project created with high level of aesthetics in terms of graphical technique (the line types, line weights and drawing aesthetics).
EFEKT KSZTAŁCENIA 2	
NA OCENĘ 2.0	Lack of knowledge of various projection methods, their classification and properties.
NA OCENĘ 3.0	Fair knowledge of various projection methods, their classification and properties.
NA OCENĘ 3.5	Sufficient knowledge of various projection methods, their classification and properties.
NA OCENĘ 4.0	Good knowledge of various projection methods, their classification and properties.
NA OCENĘ 4.5	Detailed knowledge of various projection methods, their classification and properties.
NA OCENĘ 5.0	Excellent knowledge of various projection methods, their classification and properties.
EFEKT KSZTAŁCENIA 3	
NA OCENĘ 2.0	Lack of ability to create relevant views in the projection methods used for graphical representation of designed project.
NA OCENĘ 3.0	Ability to create relevant views in the projection methods used for graphical representation of designed project. Correct drawing delivered after the deadline and completed after numerous corrections and with a significant help by the tutor.
NA OCENĘ 3.5	Requirement as for the grade 3.0 but the drawing completed after one or two corrections by the tutor. Fair level of drawing aesthetics.
NA OCENĘ 4.0	Requirement as for the grade 3.5 but the drawing completed after one or two corrections by the tutor. Good level of drawing aesthetics.

NA OCENĘ 4.5	Requirement as for the grade 4 but the drawing completed independently by the student. Good level of drawing aesthetics.
NA OCENĘ 5.0	Requirement as for the grade 4.5. High level of drawing aesthetics.
EFEKT KSZTAŁCENIA 4	
NA OCENĘ 2.0	Lack of ability to "read" 2D views in various projection methods and to correctly classify them.
NA OCENĘ 3.0	Ability to "read" the 2D views created in various projection methods Ability to provide correct classification of the views with a significant help from the teacher's side.
NA OCENĘ 3.5	Requirement as for the grade 3.0. Ability to provide correct classification of the views with a little help from the teacher's side.
NA OCENĘ 4.0	Requirement as for the grade 3.5. Ability to provide correct classification of the views with a fair help from the teacher's side.
NA OCENĘ 4.5	Good level of ability to "read" 2D views in various projection methods and to correctly classify them.
NA OCENĘ 5.0	Excellent level of ability to "read" 2D views in various projection methods and to correctly classify them.
EFEKT KSZTAŁCENIA 5	
NA OCENĘ 2.0	Lack of co-operation and communication over the design projects within a teamwork.
NA OCENĘ 3.0	Fiar co-operation and communication within a teamwork.
NA OCENĘ 3.5	Basic co-operation and communication within a teamwork.
NA OCENĘ 4.0	Good co-operation and communication within a teamwork.
NA OCENĘ 4.5	Very good co-operation and communication within a teamwork.
NA OCENĘ 5.0	Excellent co-operation and communication within a teamwork.

## 10 MACIERZ REALIZACJI PRZEDMIOTU

EFEKT KSZTAŁCENIA	ODNIESIENIE DANEGO EFEKTU DO SZCZEGÓŁOWYCH EFEKTÓW ZDEFINIOWANYCH DLA PROGRAMU	CELE PRZEDMIOTU	TREŚCI PROGRAMOWE	NARZĘDZIA DYDAKTYCZNE	SPOSOBY OCENY
EK1		Cel 1 Cel 2 Cel 3	w1 w2 w3 w4 w5 w6 w7 l1 l2 l3 l4 l5 l6 l7 l8	N1 N2 N3 N4 N5	F1 F2 F3 P1 P2
EK2		Cel 1 Cel 2 Cel 3 Cel 4	w1 w2 w3 w4 w5 w6 w7 l1 l2 l3 l4 l5 l6 l7 l8	N1 N2 N3	F2 P2
EK3		Cel 1 Cel 3	w1 w2 w3 w4 w5 w6 w7 l1 l2 l3 l4 l5 l6 l7 l8	N1 N2 N3	F1 F2 P1 P2
EK4		Cel 2 Cel 3	w1 w2 w3 w4 w5 w6 w7 l1 l2 l3 l4 l5 l6 l7 l8	N1 N2 N3	F1 F2 P1 P2
EK5		Cel 4	w1 w2 w3 w4 w5 w6 w7 l1 l2 l3 l4 l5 l6 l7 l8	N3 N4 N5	F3

## 11 WYKAZ LITERATURY

### LITERATURA PODSTAWOWA

[4] **Górska Renata** — *Descriptive Geometry Freshmen level course addressed to engineering students*, Kraków, 2013, PK

### LITERATURA UZUPEŁNIAJĄCA

[1] **Przewłocki Stefan** — *Geometria wykreślna*, Olsztyn, 2000, Wyd. Uniwersytetu Warmińsko-Mazurskiego

### LITERATURA DODATKOWA

[1] **Górska Renata** — *Descriptive Geometry*, , 0, elf2.pk.edu.pl

[2] <http://www.arch.pg.gda.pl/ztw/> - Podręczniki do zdalnego nauczania geometrii wykreślnej

## 12 INFORMACJE O NAUCZYCIELACH AKADEMICKICH

### OSOBA ODPOWIEDZIALNA ZA KARTĘ

dr hab. inż. prof. PK Lidia Żakowska (kontakt: [lzakowsk@pk.edu.pl](mailto:lzakowsk@pk.edu.pl))



## OSOBY PROWADZĄCE PRZEDMIOT

1 dr inż. Renata Górka (kontakt: rgorska@pk.edu.pl)

3 mgr inż.arch Marek Cyunel (kontakt: mcyunel@gmail.com)

## 13 ZATWIERDZENIE KARTY PRZEDMIOTU DO REALIZACJI

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(miejsowość, data)

(odpowiedzialny za przedmiot)

(dziekan)

PRZYJMUJĘ DO REALIZACJI (data i podpisy osób prowadzących przedmiot)

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