COURSE DESCRIPTION CARD - SYLLABUS

Course name
Computer-aided Engineering Drawing [S1IZarz1E>KGI]

Course

Field of study
Engineering Management

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
15

Projects/seminars
0

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

Basic knowledge of high school in geometry and drawing.

Course objective

Introduction of the most important information from the field of technical drawing including Polish standards. Familiarization with electrical, architectural and construction drawings and machine construction based on the information from the machine drawing. The ability to read technical drawing.

Course-related learning outcomes

Knowledge:
The student defines types of technical drawings, including mechanical, hydraulic, pneumatic, electrical, chemical, and architectural-construction drawings [P6S_WG_16].
The student describes and identifies the formats of technical drawing sheets and standardized elements of technical drawings used in engineering graphics [P6S_WG_16].
The student characterizes types and arrangements of projections, views, and sections on technical drawings [P6S_WG_16].
The student recalls and describes methods of dimensioning, tolerancing dimensions, and specifying

shape and position on technical drawings [P6S_WG_16].
The student recognizes symbols of surface roughness and waviness on technical drawings [P6S_WG_16].
The student lists types of machine part connections shown in technical drawings [P6S_WG_16].
The student describes elements of schematic drawings for mechanical, hydraulic, pneumatic, thermal energy, vacuum technology, electrical, chemical, and architectural-construction systems [P6S_WG_16].
The student explains the applications of different types of drawings, including assembly, detailed, diagrams, and nomograms in engineering practice [P6S_WG_16].

Skills:
The student prepares technical drawings, adhering to required norms and standards [P6S_UW_14].
The student reads and interprets schematic drawings of mechanical, hydraulic, pneumatic, thermal energy, vacuum technology, electrical, chemical, and architectural-construction systems [P6S_UW_14].
The student uses computer-aided engineering graphics to design simple parts and components of machinery [P6S_UW_15].
The student applies graphic tools for visualizing and presenting engineering projects [P6S_UW_15].

Social competences:
The student justifies the impact of engineering activities on the environment and demonstrates responsibility for decisions made in the context of environmental aspects [P6S_KR_01].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative evaluation:
a) Exercise: based on the assessment of the current exercise progress of the technical drawing
b) Lecture: based on the answers to questions concerning the material from previous lectures
Summary evaluation:
a) Exercise: credit in the form of technical drawings from the implemented contents of the program
b) Lecture: credit in the form of a selection test

Programme content

The subject program includes the following topics: types of drawings, sheet formats, types and arrangement of projections, views and cross-sections, dimensioning, elements of electrical and architectural-construction drawings.

Course topics

The program of subject includes the following topics: types of drawings, sheet formats, standardized technical drawing elements, types and distribution of sections, views and intersections, dimensioning, tolerance of dimensions, shape and position , determination of surface roughness and waviness, connection of machine parts, axles, arbour, bearings, clutches and brakes. Drawing and reading of schemes: mechanical, hydraulic, pneumatic, thermal energy and vacuum technology, electrical drawing elements, chemical and architectural - construction. Drawings: Executives, assemblies, graphs and nomograms.

Teaching methods

Educational methods:
a) Lecture: Monographic lecture using a computer with the division of program content into separate thematic issues in relation to the thematic scope of the exercises.
b) Excercise: exercise method with elements of demonstration method and causerie method according to the program content.

Bibliography

Basic:
Józef Gruszka, Kamil Wróbel, Adam Radecki (2021), Zarządzanie doborem narzędzi inżynierskiej grafiki komputerowej w projektowaniu ergonomicznym, Monografia (w opracowaniu), Wydawnictwo Politechniki Poznańskiej.
Piotr Agaciński (2014), Grafika inżynierska, Politechnika Poznańska. Wydawnictwo Politechniki

Poznańskiej, Poznań 2014
Tadeusz Dobrzański (2019), Rysunek techniczny maszynowy, Wydawnictwo Naukowe PWN.
Andrzej Kania (2016), Geometria wykreślna z grafiką inżynierską. Cz. 2, Rzuty Monge'a, Wydawnictwo Politechniki Śląskiej.
Filipowicz K., Kowal A., Kuczaj M., Rysunek techniczny, Wydawnictwo Politechniki Śląskiej, Gliwice 2016.
Zakres aktualnych aktów normatywnych z zakresu rysunku technicznego.

Additional:
Molasy R., Rysunek techniczny : chropowatość i falistość powierzchni, tolerancje geometryczne i tolerowanie wymiarów, Wydawnictwo Politechniki Świętokrzyskiej, Kielce, 2016.
Andrzej Kania (2016), Geometria wykreślna z grafiką inżynierską. Cz. 1, Rzut cechowany, Wydawnictwo Politechniki Śląskiej.
Tomasz Geisler, Wojciech Sochacki (2017), Grafika inżynierska, Wydawnictwo Politechniki Częstochowskiej.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	70	3,00