



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering graphics and CAD

### Course

Field of study

Safety Engineering - Full-time studies - First-cycle studies

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

sem.2

Profile of study

general academic

Course offered in

Requirements

compulsory

### Number of hours

Lecture

10

Tutorials

8

Laboratory classes

8

Projects/seminars

Other (e.g. online)

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Józef Gruszka, prof.PP

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tel. 665 33 77

ul. Jacka Rychlewskiego 2, 60-965 Poznań

Responsible for the course/lecturer:

### 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

P6S\_WG\_01 knows issues related to engineering issues (physics, chemistry, materials science, manufacturing technologies, material strength, mechanics)

P6S\_WK\_03 knows development trends and best practices in the field of security engineering

P6S\_WK\_04 knows the basic methods, techniques, tools and materials used in preparation for conducting scientific research and solving simple engineering tasks using information technology, information protection and computer support

#### Skills

P6S\_UW\_04 is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks, also using information and communication methods and tools

P6S\_UU\_01 is able to identify changes in requirements, standards, regulations and technical progress and the reality of the labor market, and based on them determine the needs of supplementing knowledge

#### Social competences

P6S\_KK\_02 is aware of the recognition of the importance of knowledge in solving problems in the field of security engineering and continuous improvement

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Formative evaluation:

- a) Laboratory: 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) Laboratory: 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 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) Laboratory: exercise method with elements of demonstration method and causerie method according to the program content.

## Bibliography

Basic

1. Dobrzański T., Rysunek techniczny maszynowy, Wydawnictwo WNT, Warszawa 2015.
2. Filipowicz K., Kowal A., Kuczaj M., Rysunek techniczny, Wydawnictwo Politechniki Śląskiej, Gliwice 2016.
3. Zakres aktualnych aktów normatywnych z zakresu rysunku technicznego .

Additional

1. Molasy R., Rysunek techniczny : chropowatość i falistość powierzchni, tolerancje geometryczne i tolerowanie wymiarów, Wydawnictwo Politechniki Świętokrzyskiej, Kielce, 2016.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	36	4,0
Classes requiring direct contact with the teacher	26	3,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	10	2,0

<sup>1</sup> delete or add other activities as appropriate