



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

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

12

Laboratory classes

16

Other (e.g. online)

Tutorials

10

Projects/seminars

Number of credit points

6

Lecturers

Responsible for the course/lecturer:

Ph.D., D.Sc., Eng. Józef Gruszka, University
Professor

Responsible for the course/lecturer:

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Faculty of Engineering Management

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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

Knows issues related to engineering issues (physics, chemistry, materials science, manufacturing technologies, material strength, mechanics) [P6S_WG_01]

Knows development trends and best practices in the field of security engineering [P6S_WK_03]

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 [P6S_WK_04]

Skills

Is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks, also using information and communication methods and tools [P6S_UW_04]

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 [P6S_UU_01]

Social competences

Is aware of the recognition of the importance of knowledge in solving problems in the field of security engineering and continuous improvement [P6S_KK_02]

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, arbours, 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

Józef Gruszka, Kamil Wróbel, Adam Radecki (2021), Zarządzanie doбором 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 Pikoń (2019), AutoCAD 2020 PL : pierwsze kroki, Helion.

Andrzej Jaskulski (2020), AutoCAD 2021PL/EN/LT+ : metodyka efektywnego projektowania parametrycznego i nieparametrycznego 2D i 3D, Helion.

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.



Fabian Stasiak (2017), AutoCAD® LT 2018 w projektowaniu mechaniki; ExpertBooks.

Kossakowski, Paweł (2017), Modelowanie żelbetowych elementów konstrukcyjnych w programie Autodesk Autocad Structural Detailing 2015, Wydawnictwo Politechniki Świętokrzyskiej.

www.youtube.pl

Breakdown of average student's workload

	Hours	ECTS
Total workload	150	6,0
Classes requiring direct contact with the teacher	40	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	110	4,0

¹ delete or add other activities as appropriate