



COURSE DESCRIPTION CARD - SYLLABUS

Course name

TECHNICAL DRAWING WITH ELEMENTS OF DESCRIPTIVE GEOMETRY

Course

Field of study

Mechanical and Automotive Engineering

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

elective

Number of hours

Lecture

18

Laboratory classes

9

Other (e.g. online)

0

Tutorials

9

Projects/seminars

0

Number of credit points

6

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

Faculty of Civil and transport Engineeringul.

Piotrowo 3, 60-965 Poznań

Prerequisites

Knowledge: basic in mathematics, technology

Skills: using drawing instruments, logical thinking, obtaining information from the library

Social competences: understanding the need for learning and acquiring new knowledge

Course objective

Knowledge of methods and practical ability to use and create technical drawing documentation - machine drawing.

Course-related learning outcomes

Knowledge



Has basic knowledge of the basics of machine design and the theory of machines and mechanisms, including mechanical vibrations.

Has basic knowledge of the standardized rules of recording structures and engineering graphics.

Has elementary knowledge of law, in particular security, copyright and security law industrial property and its influence on the development of technology.

Skills

Can prepare a technical descriptive and drawing documentation of an engineering task.

Can draw a diagram and a simple machine element by hand in accordance with the rules of technical drawing.

Can organize and substantively manage the process of designing and operating a simple machine from a group of machines from the group covered by the selected diploma path.

Social competences

Is ready to critically assess his knowledge and received content.

Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on his own.

Is ready to fulfill social obligations and co-organize activities for the benefit of the social environment.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit - written exam

Tutorials: Assessment based on a file with drawings (drawings made in class and at home) and a test consisting of drawing tasks

Laboratory classes: Pass based on the completed project of drawing documentation (drawings made in class and at home) and a test related to the project

Programme content

1. Methods of recording the geometric form of the structure, geometric shaping of technical forms, determination of surface features of elements, standardized elements of recording, drawing economy

2. Executive drawing:

a) rectangular projection, views and cross-sections (European projection method (reference system, layout of projections, basic projections), projection rules, presentation rules: flat surfaces and repeating elements; auxiliary views; detail of the construction enlarged; straight cutting plane; bended cutting plane; half cutting plane; partial cutting plane; walls cutting plane, ribs in selection, wheel arms, etc.; permeation lines in a simplified and accurate manner (e.g. penetration of cylinders, cuboid with a cylinder, theoretical penetration lines));



b) dimensioning (principles including: dimensioning from machining bases; dimensioning from structural bases; dimensioning from measuring bases; non-closing the dimensional chain; principle of non-repetition of dimensions; principle of omission of obvious dimensions; dimensioning of curvilinear contours; dimensioning of identical repeating elements; dimensioning of cone and wedge) and bevelled edges; regular polygons with an even number of sides and objects presented in one plan; dimensioning of arcs of circles and the length of the object being bent);

c) tolerances, roughness, (normal tolerances of free and tolerated linear dimensions; fits; shape and position tolerances; surface roughness); determination of heat treatment and coatings

d) drawing simplifications of welded, soldered and glued joints; threads and threaded connections; splined and multi-card connections; springs; bearings and seals; gear wheels and gears, ratchet mechanisms

3. Assembly drawing, mechanical and kinematic diagrams

Teaching methods

1. Lecture with multimedia presentation (form of informative lecture with elements of problem and conversation lecture)
2. Tutorials and laboratory classes - credit on the basis of colloquium, own homework and activity during classes (using classic methods, case study, discussion, practical exercises)

Bibliography

Basic

1. Dobrzański T.: Rysunek techniczny maszynowy, WNT, Warszawa 2009
2. Bober A., Dudziak M.: Zapis konstrukcji; Wyd. Politechniki Poznańskiej, Poznań 1996

Additional

1. Zbiór ćwiczeń projektowych z rysunku technicznego, praca zbiorowa pod redakcją R. Knosali, Wyd. Politechnika Śląska, Gliwice 1995
2. Rydzanicz I.: Rysunek techniczny jako zapis konstrukcji, WNT, Warszawa 2004

Breakdown of average student's workload

	Hours	ECTS
Total workload	150	6,0
Classes requiring direct contact with the teacher	50	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	100	4,0

¹ delete or add other activities as appropriate