



## 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

full-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

polish

Requirements

elective

### Number of hours

Lecture

30

Laboratory classes

15

Other (e.g. online)

Tutorials

15

Projects/seminars

0

### Number of credit points

6

### Lecturers

Responsible for the course/lecturer:

dr inż. Aleksandra Rewolińska

email: [aleksandra.rewolinska@put.poznan.pl](mailto:aleksandra.rewolinska@put.poznan.pl)

Institute of Working Machines and Motor Vehicles

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

dr inż. Kasper Górny

email: [kasper.gorny@put.poznan.pl](mailto:kasper.gorny@put.poznan.pl)

Institute of Working Machines and Motor Vehicles

ul. Piotrowo 3, 60-965 Poznań

### Prerequisites

Basic knowledge of elementary geometry and stereometry.

Basic knowledge of machine science and machine parts.

The ability to solve problems based on the acquired knowledge and the ability to obtain information from the indicated sources

### Course objective

Mastering the basic rules of constructing images of spatial creations on a plane.

Shaping spatial imagination.



Understanding the methods and principles of recording the structure. Acquiring the practical skills of creating drawing documentation and the ability to "read" drawings.

### Course-related learning outcomes

#### Knowledge

Has a basic knowledge of the standardized rules of notation of structures and engineering graphics

#### Skills

Is able to prepare technical documentation, descriptive and drawing engineering tasks

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

#### Social competences

He 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 consult experts in the event of difficulties in solving the problem on its own

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written exam of the lecture, completion of laboratories and exercises on the basis of the completed tasks and final credit.

### Programme content

Methods of recording the geometric form of the structure, standardized elements of recording, drawing economy

Executive drawing:

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



- 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

Assembly drawing, mechanical and kinematic diagrams

### Teaching methods

1. Lecture: multimedia presentation, supplemented with examples given on the blackboard
2. Laboratories: Illustrated teaching boards or multimedia presentations, supplemented with examples on the board; performing tasks given by the teacher – practical exercises
3. Exercises: Illustrated teaching boards or multimedia presentations, supplemented with examples on the blackboard; solving tasks shaping spatial imagination and demonstrating the rules applicable to the preparation of technical documentation

### Bibliography

Basic

1. Dobrzański T., Rysunek techniczny maszynowy, WNT, W-wa 2017.
2. Lewandowski T., Rysunek techniczny dla mechaników, WSiP, W-wa 2009.
3. Bajkowski J., Podstawy zapisu konstrukcji, Oficyna Wyd. Polit. Warszawskiej, 2014
4. Bober A, Dudziak M., Zapis konstrukcji, PWN, W-wa 1999.
4. Jankowski W. Geometria Wykreślna. Wydawnictwo P.P. 1999 r.
6. Korczak J., Prętki Cz. Przekroje i rozwinięcia powierzchni walcowych i stożkowych. Wydawnictwo P.P. 1999 r.
7. Loska J., Zbiór zadań ćwiczeniowych z rysunku technicznego, Wyd. Politechniki Śląskiej, Gliwice 1982

Additional

1. Freuch T.E., Vierck C.I., Fundamentals of engineering drawing, McGraw-Hill Book Co., New York 1960.
2. Freuch T.E., Vierck C.I., Engineering drawing and graphic technology, McGraw-Hill Book Co., New York 1972.



### Breakdown of average student's workload

	Hours	ECTS
Total workload	180	6,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	120	4,0

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