



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering Drawing

### Course

Field of study

Aerospace 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

compulsory

### Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

Tutorials

Projects/seminars

15

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

PhD. Eng. Dominik Wilczyński

email: dominik.wilczynski@put.poznan.pl

Tel. No.: 61 224-4512

Faculty of Mechanical Engineering

Piotrowo Str. 3, 60-965 Poznań

Responsible for the course/lecturer:

PhD. Eng. Maciej Berdychowski

email: maciej.berdychowski@put.poznan.pl

Tel. No.: 61 224-4512

Faculty of Mechanical Engineering

Piotrowo Str. 3, 60-965 Poznań

### Prerequisites

Fundamental knowledge on geometry and stereometry.

Fundamental knowledge on theory of machines and machine parts.

Problem solving skills with the use of the knowledge and skills of information acquisition from the selected sources.

Understanding the necessity of enlarging the competences, willingness to take a cooperation in a team.



### Course objective

Mastership of basic principles of image construction of spatial objects on the plane. Training of spatial imagination.

Learning the methods and principles of engineering drawing. Practical skills of preparing the technical documentation. Skills of "reading" the engineering drawing.

### Course-related learning outcomes

#### Knowledge

has basic knowledge in the field of the main branches of technical mechanics: statics of kinematics and dynamics of the material point and rigid body and strength of materials, including the basis of theory of elasticity and plasticity, performance hypotheses, methods for calculating beams, membranes, shafts, joints and other simple structural elements.

has ordered, theoretically founded knowledge in the field of engineering graphics and machine construction: technical drawing, projection of objects, basic principles of engineering graphics, the use of graphic computer programs CAD (Computer Aided Design) in the construction of machines.

has basic knowledge necessary to understand social, economic, legal and other non-technical conditions of engineering activities.

#### Skills

1. is able to communicate using various techniques in a professional environment and other environments using a formal record of construction, technical drawing, concepts and definition of the scope of the studied field of study.
2. can use verbal communication in one additional foreign language at the level of everyday language, can describe issues in the field of the studied field of study in this language, can prepare technical documentation for descriptive and engineering tasks, transport and / or logistics.
3. can draw a schematic and a simple machine element in accordance with the principles of technical drawing.

#### Social competences

1. understands the need to learn throughout life; can inspire and organize the learning process of others.
2. is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions.
3. correctly identifies and resolves dilemmas related to the profession.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written exam, credit, project.

### Programme content



1. Introduction, standardization in engineering drawing.
2. Projection of 3D objects on the plane of the drawing.
3. Presentation of object interior with the use of sectional views, types of sectional views.
4. Presentation of object cross-section with the use of revolved section.
5. The application of geometrical constructions for drawing the objects.
6. Lines of intersection of typical solids.
7. Dimensioning.
8. Tolerances for production drawings and fits for assembly drawings.
9. Geometrical Product Specification.
10. Production drawings for shaft and hub. Splines.
11. Production drawings for gear wheels.
12. Assembly drawings of screw joints and splined connections.
13. Simplifications for rolling bearings drawings.
14. The principles of drawing welds and welded joints.
15. The design of bearing modulus.
16. The analysis ("reading") of assembly drawings.

### Teaching methods

Lecture: multimedia presentation, illustrated with examples on the board.

Exercises and projects: performance of tasks given by the teacher - practical exercises

### Bibliography

Basic

1. Dobrzański T., Rysunek techniczny maszynowy, WNT, W-wa 1997.
2. Lewandowski T., Rysunek techniczny dla mechaników, WSiP, W-wa 2009.
3. Figurski J., Popis St., Rysunek techniczny zawodowy w branży mechanicznej i samochodowej, WSiP, Warszawa 2016.
4. Bober A., Dudziak M., Zapis konstrukcji, PWN, W-wa 1999.
5. Bajkowski J., Podstawy zapisu konstrukcji, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2014.



6. Jankowski W. Geometria Wykreślna. Wydawnictwo P.P. 1999 r.
7. Korczak J., Prętki Cz. Przekroje i rozwinięcia powierzchni walcowych i stożkowych. Wydawnictwo P.P. 1999 r.
8. Loska J., Zbiór zadań ćwiczeniowych z rysunku technicznego, Wyd. Politechniki Śląskiej, Gliwice 1982.

Additional

1. Poradnik mechanika, Wydawnictwo Rea-SJ Sp. z o.o. Warszawa 2014
2. Freuch T.E., Vierck C.I., Fundamentals of engineering drawing, McGraw-Hill Book Co., New York 1960.
3. 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	120	4,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for exercises, preparation for tests/exam, project preparation) <sup>1</sup>	60	2,0

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