



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Geometry and engineering graphics

### Course

Field of study

Electrical 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

Tutorials

Laboratory classes

15

Projects/seminars

Other (e.g. online)

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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### Prerequisites

Fundamental knowledge on geometry and stereometry.



Fundamental knowledge on theory of machines and machine parts.

### 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

1. Has knowledge of the life cycle, design and operation of power equipment and systems, knows and understands the principle of their operation
2. Knows and understands the principles of graphic construction mapping, projection, cross-sections, dimensioning in engineering applications

#### Skills

1. Can read and understand catalog cards, application notes, standards and technical documentation as well as manuals for electrical equipment
2. Is able to independently plan and implement their own lifelong learning (e.g. second and third cycle studies) in order to improve professional and social competences
3. Can create a schematic of the mechanical, electrical and electronic system of machine components or electrotechnical devices
4. Is able to develop project documentation of an engineering task

#### Social competences

1. Is able to think and act in an entrepreneurial manner in the field of electrical engineering

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Written exam from lecture, passing laboratories on the basis of completed tasks / exercises.

### 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 analysis ("reading") of assembly drawings.

### Teaching methods

1. Lecture: multimedia presentation, supplemented with examples given on the board
2. Laboratories: Illustrated teaching boards or multimedia presentations, supplemented with examples on the board; performing the 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. 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	87	3,0
Classes requiring direct contact with the teacher	47	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	40	1,5

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