



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Basics of engineering graphics

Course

Field of study

Management and Production Engineering

Area of study (specialization)

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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

Other (e.g. online)

Tutorials

30

Projects/seminars

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

Dr. Eng. Magdalena Mierzwiczak

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

Jana Pawła II 24, 60-965 Poznań,

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Prerequisites

Student has a fundamental knowledge in the field of mathematics (geometry) and technology and the ability to use drawing tools.

Course objective

Developing spatial imagination abilities, and familiarizing students with the principles of mapping of spatial objects in the plane. Developing students' ability to create technical documentation of objects and machine structures; developing an ability to read and interpret engineering drawings.



Course-related learning outcomes

Knowledge

Student has ordered knowledge of the principles of technical drawing. Understands the importance of drawing standards in engineering graphics.

Skills

Student can map the spatial object in a plane.

He can draw and dimension the basic elements of engineering structures.

Student has an ability to prepare and read engineering documentation.

He can use standards.

Has an ability of learning unaided.

Social competences

Student is able to work independently on the assigned task.

Understands the need of lifelong learning.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: a test consisting of 5 equally grade theoretical questions and 3 drawing tasks .

Tutorials: drawings prepared on the basis on sketches created during classes and a test consisting of 4 parts: first one: 8 short questions about symbols in the drawing, the other three relate to draw: cross-section, its dimensioning and also geometric construction.

Assessment rules: credit on the basis on a obtained points; tests: satisfactory grade after collecting at least 50% of the points provided for each of the required elements, a set of drawings prepared in accordance with the guidelines and corrections.

Programme content

Lecture: Introduction to engineering graphics. Standardization of technical drawing. Basic elements of technical drawing: drawing sheets, drawing scale, drawing lines, technical characters, drawing plates. Geometric constructions. Determination of cross-sections of solids, line penetration and expansion of solid surfaces.

Tutorials: European orthogonal projections. Isometric and dimetry projections. Simple and complex cross-sections; half-view and half-section; partial section and section through the rib; examples. Special cases of views and sections: partial and auxiliary view, expanded view and cross-section, broken-out and broken-out of views and sections, enlarged details of the object. Connections: separable and inseparable. Dimensioning. Dimensioning rules and ordinal recommendations in practice. Roughness, tolerance and fit in drawing. Detailed drawings of the basic machine parts: shaft, bushing. Assembly drawings.



Teaching methods

Lecture: multimedia presentation illustrated by examples given on a blackboard, analysis and solving of tasks related to geometric constructions.

Tutorials: multimedia presentation illustrated by examples given on a blackboard, drawing exercises, self-solved tasks, discussion.

Bibliography

Basic

Dobrzański T., Rysunek techniczny maszynowy. WNT, Warszawa 2013.

Bajkowski J., Podstawy zapisu konstrukcji. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2011.

Bober A., Dudziak M.: Zapis konstrukcji. Wyd. Politechniki Poznańskiej, Poznań 1996.

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4
Classes requiring direct contact with the teacher	55	2,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	45	1,5

¹ delete or add other activities as appropriate