



COURSE DESCRIPTION CARD - SYLLABUS

Course name

ENGINEERING GRAPHICS

Course

Field of study

biomedical 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

English

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

Number of credit points

0

Lecturers

Responsible for the course/lecturer:

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Faculty of Civil and transport Engineering

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

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 engineering graphics, allowing designing objects, machine elements; formulate and analyze problems; look for solution concepts; select and evaluate solution options; use knowledge bases in engineering design, technical drawing; read drawings and diagrams of machinery, equipment and technical systems; describe their structure and operating principles.

Skills

Is able to obtain information from literature and other properly selected sources from biomedical engineering.

Can communicate using various techniques in a professional environment and other environments.

Has the ability to self-study. Has the preparation necessary to work in an industrial environment.

Social competences

Understands the need for lifelong learning; can inspire and organize the learning process of others.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit based on a test consisting of 2 detailed theoretical and drawing questions

Tutorials: Credit on the basis of a briefcase with drawings (drawings made in class and at home) and colloquium with drawing tasks

Programme content

1. Methods of recording the geometric form of the structure, 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 (including the principles of: dimensioning from machining bases; dimensioning from structural bases; dimensioning from measuring bases; non-closing the dimensional chain; principle of avoiding dimensions; principle of omitting 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 shown 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 joints; threads and threaded connections; splined and multi-card connections; springs; gears and wheels

3. Assembly drawing

4. Kinematic schemes

Teaching methods

1. Lecture with multimedia presentation (form of informative lecture with elements of problem and conversation lecture)

2. Tutorials - 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.Rydzanicz I.: Rysunek techniczny jako zapis konstrukcji, WNT, Warszawa 2004

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	2,0
Classes requiring direct contact with the teacher	45	1,0
Student's own work (literature studies, preparation for tutorials, preparation for tests, project preparation) ¹	45	1,0

¹ delete or add other activities as appropriate