COURSE DESCRIPTION CARD - SYLLABUS

Course name
Engineering graphics

Course

Field of study
Chemical Technology

Year/Semester
I/1

Area of study (specialization)

Profile of study
general academic

Level of study
First-cycle studies

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars
30

Number of credit points

3

Lecturers

Responsible for the course/lecturer:
Ph.D. Eng. Piotr Tomasz Mitkowski

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Responsible for the course/lecturer:

Prerequisites

Student has basic knowledge of mathematics - geometry (core curriculum for secondary schools, basic level) and has skills of solving elementary technical problems on the basis of possessed knowledge.

Course objective

1. To provide students with basic knowledge of the principles and rules of technical drawing and selected aspects of descriptive geometry necessary to perform drawings and documentation of the basic process equipment and fittings.

2. Developing the student's reading skills and independent drawing projects of machines' parts used in the chemical and related industries.

Course-related learning outcomes

Knowledge

1. Student has knowledge of the rules and principles of technical drawing and the basis needed to start using the computer-aided design (CAD) tools in the field of engineering graphics. [K_W15]

2. Student has knowledge about the appropriate drawing of basic elements of machinery equipment and reading of arrangement (schematic) and assembly drawings. [K_W16]

Skills

1. Student uses the indicated sources of knowledge (list of basic literature) with understanding and is able to acquire knowledge from other literature sources. [K_U01]

2. Student can use the acquired rules and principles of technical drawing for the proper preparation of technical documentation during a design of the chemical or other equipment. [K_U03]

3. Student can solve basic design tasks in the area of drawing documentation. [K_U010]

Social competences

1. Student understands the need to learn and improve her/his professional and personal competencies. [K_K01]

2. Student is able to properly priorities design tasks in an assigned project, with respect to the preparation of engineering drawing. [K_K04]

3. Student correctly recognizes design problems and makes the right choices related to the completion of projects, in accordance with the principles of professional ethics. [K_K05]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Practical application of acquired skills in the form of hand drawings of given engineering graphics problems and practical test.

Programme content

The course discusses:

1. Basic normalized rules for making a technical drawing.
2. Drawing of selected geometric constructions applicable in a technical drawing.
3. Rectangular projection.
4. Axonometric projection.
5. Views and sections.
6. Dimensioning.
7. Fastening of machine elements - permanent and non-permanent joints.
8. Determining the outlines of cross-sections of surfaces with planes and mutual penetration of solids.
9. Executive drawing of selected elements of technical equipment of chemical apparatus.
10. Assembly drawing of the apparatus applicable in the chemical industry.

Teaching methods

Multimedia presentation, materials shared in the university's e-Learning system.

Bibliography

Basic

1. Simmons C.H., Phelps N., Maguire The Late Dennis E., Manual of Engineering Drawing. Technical Product Specification and Documentation to British and International Standards, Fourth edition, Elsevier, 2012, ISBN: 78-0-08-096652-6.

2. ISO Drawing Standards.

3. Materials delivered by the lecturer.

Additional

1. Agaciński P.: Grafika inżynierska, Wyd. Politechniki Poznańskiej, Poznań 2014.

2. Dobrzański T. : Rysunek techniczny maszynowy, (wyd.25) WNT Warszawa 2013.

3. Oleniak J. : Rysunek techniczny dla chemików, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2013.

4. Pikoń J., Helman J., Janowicz R., Sąsiadek B.: Atlas konstrukcji aparatury chemicznej, Wyd. Politechniki Śląskiej, Gliwice 1985.

5. Gutowski A.: Ćwiczenia z rysunku technicznego, WSiP, Warszawa 1992.

6. Frencz Th.E., Vierck C.J.: Engineering Drawing and Graphic Technology, McGraw Hill Book Comp., New York 1975.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	50	2,0
Student's own work (literature studies,preperation of hand-drawings, preparation for classes, preparation for tests) [1]	25	1,0

[1] delete or add other activities as appropriate