



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering graphics - working drawings [S1TOZ1>Glw]

### Course

Field of study

Circular System Technologies

Year/Semester

1/2

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

polish

Form of study

full-time

Requirements

elective

### Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

### Number of credit points

1,00

### Coordinators

dr inż. Piotr Wesolowski

piotr.wesolowski@put.poznan.pl

### Lecturers

dr inż. Adam Andrzejewski

adam.andrzejewski@put.poznan.pl

### Prerequisites

The student who starts the subject: can present basic knowledge in the field of chemical engineering, machinery and chemical industry equipment necessary to create a technical drawing; has the ability to work in a collective to perform the tasks assigned to him in the field of creating technical documentation; understands the need for continuous training and setting ambitious goals on the way to achieve higher education.

### Course objective

Obtaining knowledge in the field of machine technical drawing and chemical apparatus in the form of detailed and assembly drawing as well as the use of CAD tools for the preparation of technical documentation.

### Course-related learning outcomes

Knowledge:

1. the student knows the methods and principles of graphical notation of the construction (k\_w19).
2. the student knows the nomenclature, construction and principle of operation of structural elements of machines and mechanical devices (k\_w20).

3. the student has basic knowledge related to the selection of devices used in circular system technologies (k\_w21).

Skills:

1. the student is able to obtain information from literature, databases and other sources related to circular system technologies, also in a foreign language, integrate them, interpret them, and draw conclusions and formulate opinions (k\_u01).

2. the student is able to plan and organize work individually and in a team (k\_u08).

3. the student can read and execute technical drawings and technological schemes (k\_u18).

4. the student knows how to use specialist software for development of graphic design documentation (k\_u19).

Social competences:

1. the student demonstrates independence and inventiveness in individual work, as well as effectively interacts in a team, playing various roles in it; objectively assesses the effects of his own work and that of team members (k\_k02).

2. the student objectively assesses the level of his knowledge and skills, understands the importance of improving professional and personal competences adequately to the changing social conditions and the progress of science (k\_k05).

3. the student participates in discussions and is able to conduct discussions, is open to different opinions and ready to assertively express feelings and critical remarks (k\_k08).

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

Current control activity.

Presentation and defense of the completed project in front of the group.

### Programme content

As part of the course, students become familiar with the principles of creating technical documentation in the form of executive and assembly drawings. At the same time, they will learn about the principles of using CAD software, by means of which they will create an assembly drawing of the chemical industry apparatus based on normalized elements characterized by appropriate standards. As part of drawings of chemical apparatus, information is obtained regarding both the typical elements of chemical apparatus, such as cylindrical elements, bottoms and covers, stubs and manholes, etc. and selected chemical devices in their entirety. The drawing elements of technical documentation of process projects are also introduced on the examples of processes directly related to environmental protection. Drawing and design exercises from the creation of technical drawings, are carried out using CAD drawing programs.

### Teaching methods

1. Participation in the lecture.

2. Participation in consultations.

### Bibliography

Basic

1. Rysunek techniczny maszynowy, Dobrzański T., WNT, Warszawa, 2005.

2. Rysunek techniczny dla wydziałów chemicznych, Heim A., Krakowiak T., Malec Z., Wydawnictwo Politechniki Łódzkiej, Łódź, 1981.

3. AutoCad 2019 PL. Pierwsze kroki, Pikoń A., Helion, Gliwice, 2018.

Additional

1. AutoCad 2019 PL, Pikoń A., Helion, Gliwice, Helion, Gliwice, 2018.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,00
Classes requiring direct contact with the teacher	16	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	9	0,50