



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering Graphics - working drawing

### Course

Field of study

Environmental Protection Technologies

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

I/2

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

Dominik Mierzwa, Ph. D.

Responsible for the course/lecturer:

### 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. Has basic knowledge related to the selection of materials used in the construction of apparatus and installations used in environmental protection technologies. (K\_W03)



2. Has knowledge of chemical engineering, machine science and chemical industry equipment necessary to create technical documentation, process, and technological design. (K\_W10)

#### Skills

1. Works individually and works effectively in a team to create technical documentation of the apparatus used in the chemical industry, and documentation of process and technological design. (K\_U02)

2. Uses CAD computer programs supporting the creation of technical drawings. (K\_U07)

#### Social competences

1. Understands the need for further training and raising their professional and personal competences. (K\_K01)

2. Can properly define priorities for the implementation of the task specified by him and others. (K\_K04)

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The final grade is determined based on the project carried out using CAD software.

#### 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

Multimedia presentation supported by examples presented on the board and in AutoCAD.

#### 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  | 50    | 2,0  |
| Classes requiring direct contact with the teacher                         | 25    | 1,0  |
| Student's own work (literature studies, project preparation) <sup>1</sup> | 25    | 1,0  |

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