



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Basics of Technical Drawings and CAD [S1IŚrod2>PRT]

### Course

Field of study

Environmental Engineering

Year/Semester

1/1

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

0

Laboratory classes

15

Other

0

Tutorials

15

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

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### Lecturers

### Prerequisites

Basic knowledge about Windows operating system. Ability to work in team. Awareness of the need to continually update and supplement one's knowledge and skills.

### Course objective

Learning the skills necessary to prepare technical drawings, especially for HVAC and other building systems, using specialized CAD software.

### Course-related learning outcomes

Knowledge:

Basic principles of machine technical drawing (side-view, cross-section, dimensions, comments).

Rules applicable in architectural and building utility systems drawings (cross-view, dimensions, symbols).

Principles of drawing and symbols used in technical diagrams and axonometric/isometric drawings of building utility systems.

Knowledge on how to use selected CAD software.

Skills:

Student can prepare simple technical drawing on paper.  
Student can draw single part of mechanical device using CAD software.  
Student can draw simple building (plan view and cross-section) using CAD software.  
Student can make a drawing of simple building utility installation as a plan drawing, simple technical diagram and isometric diagram, using CAD software.

Social competences:

Awareness of the need to constantly acquire and expand knowledge in order to competently pursue the career in engineering.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Checking and grading technical drawings made by student during the classes.

### Programme content

Tutorials:

- general principles of technical drawing - paper sizes, drawing scale, tables, comments, line thicknesses, types of lines,
- mechanical drawing principles - side-view, section, details, dimensioning, dimensional tolerance, comments,
- construction drawing principles - projections, cross-sections, dimensioning, types of lines, hatches, comments,
- building utility systems drawing principles - drawing HVAC systems on existing construction drawings, drawing simple diagrams, axonometric view, isometric view, symbols, descriptions, specifications,
- preparing simple technical drawings on paper.

Laboratory classes:

- practical drawing exercises based on the knowledge provided in tutorials, using CAD software.

### Course topics

none

### Teaching methods

Exercises: multimedia presentation and practical tasks performed by students (drawing on paper).

Laboratory classes: multimedia presentation and practical tasks performed by students (drawing using CAD software).

### Bibliography

Basic:

Rysunek techniczny w mechanice i budowie maszyn, Paweł Romanowicz, PWN 2018 (available on IBUK web platform).

Additional:

Polish standards concerning technical drawings.

Manuals and tutorials made available by CAD software providers.

### Breakdown of average student's workload

|                                                                                                                                         | Hours | ECTS |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------|------|
| Total workload                                                                                                                          | 50    | 2,00 |
| Classes requiring direct contact with the teacher                                                                                       | 30    | 1,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 20    | 1,00 |