



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Design and construction in CAD / CAM systems

### Course

Field of study

Mechanical Engineering

Area of study (specialization)

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

Tutorials

Projects/seminars

15

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Andrzej Gessner

Responsible for the course/lecturer:

### Prerequisites

The student starting this subject should have basic knowledge of machine construction, principles of creating technical drawings and selection of construction materials. He should be able to think logically, know the basics of using any design support system, use information obtained from the internet, and understand the need to learn and acquire new knowledge.

### Course objective

The aim of the course is to learn the principles of design and construction of machinery and equipment using the CAD / CAM support system in the scope of modules: solid and surface modeling, flat documentation, CAM.

### Course-related learning outcomes

Knowledge

1. The student should be able to describe the element design process.
2. The student should be able to describe the rules for selecting the blank.
3. The student should be able to list the ways of fixing the workpiece.



### Skills

1. The student should be able to design a simple element in a given CAD / CAM system.
2. The student should be able to choose the mounting and tools for the indicated workpiece.
3. The student should be able to create a machining program for a given subject.

### Social competences

1. Student is able to cooperate in a group.
2. Student understands the need for lifelong learning due to the constant development of CAD / CAM technology.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Laboratory: Credit based on reports from 6 exercises performed.

Project: Credit based on the completed project.

### Programme content

As part of the course, students learn the principles of design and construction of machinery and equipment and the technology of their manufacture using the ZW3D supporting system. During the laboratory, students perform 6 exercises, gradually becoming familiar with the individual selected modules of the program: solid modeling, surface modeling, documentation, assemblies, machining.

As part of the project, they develop a model, flat documentation and production technology (blank, clamping, tools, machining program) for the indicated part (e.g. clamping device element).

### Teaching methods

Laboratory: exercises based on proprietary laboratory instructions.

Project: developing an individually assigned project topic.

### Bibliography

#### Basic

1. Instructions for laboratory exercises
2. ZW3D training materials available on the internet.

#### Additional

1. E. Lisowski, Modelowanie geometrii elementów maszyn i urządzeń w systemach CAD 3D, Wydawnictwo Politechniki Krakowskiej, Kraków 2003
2. Z. Weiss, Techniki komputerowe w przedsiębiorstwie, Wydawnictwo Politechniki Poznańskiej, Poznań 1998



### Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	30	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	20	1,0

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