



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Computer aided design I

### Course

Field of study

Aerospace Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/3

Profile of study

general academic

Course offered in

Polish

Requirements

elective

### Number of hours

Lecture

15

Laboratory classes

30

Other (e.g. online)

Tutorials

Projects/seminars

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Piotr Krawiec prof. PP

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Responsible for the course/lecturer:

dr inż. Jarosław Adamiec

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### Prerequisites

The student starts this subject should be familiar with the rules of the classic construction notation. Skillfully use the Windows operating system. You also need skills to obtain information from the sources indicated and be ready to work as part of a team.

### Course objective

Students learn methods of creating parts and integration in three-dimensional 3D space, acquiring the ability to perform 2D technical documentation and visualization of designed products. The use of messages from the general classic record of construction.

### Course-related learning outcomes

Knowledge

1. Has knowledge necessary to understand issues in the field of theory of construction materials and materials science, theory of machines and mechanisms, theory of drives and mechatronic systems



2. Has structured knowledge in the field of engineering graphics: technical drawing, object projection, basic principles of engineering graphics, the use of CAD (Computer Aided Design) computer programs in machine design
3. Has expanded knowledge necessary to understand profile subjects and specialist knowledge about construction, methods of construction, manufacture, operation, aircraft control, safety systems, economic impact

#### Skills

1. Is able to prepare technical descriptive and drawing documentation
2. Is able to analyze technical solutions, is able to search in the catalogs and on the websites of manufacturers ready components of machinery and equipment, including transport and storage facilities, as well as assess their suitability for use in their own technical and organizational projects
3. Is able to use popular packages for editing technical drawings to a degree enabling the creation of drawing documentation in accordance with applicable drawing standards. Has 3D modeling skills, is able to interpret their results correctly

#### Social competences

1. Is aware of the importance of professional behavior, compliance with professional ethics and respect for cultural diversity
2. Is aware of the responsibility for their own work and readiness to comply with the principles of teamwork and taking responsibility for jointly implemented tasks
3. Is aware of the importance and understands the non-technical aspects and effects of mechanical engineer activities and its impact on the environment, and responsibility for decisions

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

Learning outcomes presented above are verified as follows:

Completing the lecture in writing at the last meeting. Completing the laboratory based on tasks from 2D and 3D modeling.

#### Programme content

CAD history, raster graphics, vector graphics, 3D graphics. Areas of application of CAD, CAM, CAE systems. The place of computer graphics in CIM. Practical knowledge of the possibilities of parameterization, adaptivity, variants in the context of CAD joining. During laboratory classes, the implementation of the production process in the 3D system by the preliminary design, 3D model, 2D documentation, assembly of the assembly, animation of the operation of the product.

#### Teaching methods

Lecture: multimedia presentation, illustrated with examples given with the projector's recommendation. Laboratory exercises: multimedia presentation illustrated with examples given on the board and performing tasks given by the teacher - practical exercises



## Bibliography

### Basic

1. Krawiec Piotr (red.), Grafika komputerowa dla mechaników (wyd. VI rozszerzone i zmienione), wyd. Politechniki Poznańskiej, 2020.
2. Foley J., Dam A., Hughes J., Phillips R., Wprowadzenie do grafiki komputerowej, Warszawa, WNT 2001.
3. Kiciak P., Podstawy modelowania krzywych i powierzchni: zastosowania w grafice komputerowej, Warszawa, WNT 2000.

### Additional

1. Krawiec Piotr (red.), Grafika komputerowa (wyd. V rozszerzone) wyd. Politechniki Poznańskiej, 2011.
2. Dudziak Marian, Krawiec Piotr, Wspomaganie projektowania i zapisu konstrukcji, Wydawnictwo PWSZ w Kaliszu, 2012.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	99	4,0
Classes requiring direct contact with the teacher	49	2,0
Student's own work (literature studies, preparation for laboratory classes / preparation for the test, preparation of the project) <sup>1</sup>	50	2,0

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