# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Computer aided design [S1Lot2>KWP]

## Course

Field of study
Aviation

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
compulsory

## Number of hours

Lecture
15

Laboratory classes
30

Other
0

Tutorials
0

Projects/seminars
0

## Number of credit points

2,00

## Coordinators

prof. dr hab. inż. Piotr Krawiec
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## Lecturers

## Prerequisites

A student starting this subject should know the rules of classical construction notation. Efficiently use the Windows operating system. He should also have the ability to acquire information from the indicated sources and be ready to cooperate within the team.

## Course objective

Students will learn the methodology of designing parts and assemblies in three-dimensional 3D space, acquiring the skills to create 2D technical documentation and designed visualizations products. Using knowledge of classical construction notation.

## Course-related learning outcomes

Knowledge:
1. has an ordered, theoretically founded knowledge in the field of engineering graphics and machine construction: technical drawing, object projection, basic principles of engineering graphics, the use of CAD (Computer Aided Design) graphic programs in the construction of machines

Skills:

1. is able to communicate using various techniques in the professional environment and other environments field of study studied
Social competence
1. is aware of the social role of a graduate of a technical university, in particular understands the need to formulate and convey to the society, in an appropriate form, information and opinions on engineering activities, technological achievements, as well as the achievements and traditions of the engineer profession
2. correctly identifies and resolves dilemmas related to the profession of an aerospace engineer

Social competences:
-

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Completion of the lecture in writing at the last meeting. Passing the laboratory based on the task from 2D and 3D modeling.

## Programme content

History of CAD, Raster graphics, vector graphics, 3D graphics. Areas of application of CAD systems, CAM, CAE. The place of computer graphics in Computer Integrated Manufacturing CIM.
Practical knowledge of the possibilities of parameterization, adaptability and variants in professional settings
CAD systems. During laboratory classes, implementation of the product design process in the 3D system through preliminary design, 3D model, 2D documentation, assembly of the assembly, animation of the product operation.
PART - 66 (PRACTICE - 22.5 hours)
MODULE 7A. TECHNICAL SERVICE ACTIVITIES
7.14 Handling of materials
7.14.1 Thin sheet
Marking and calculating bending clearance;
Working of thin sheet metal, including bending and forming;
Thin sheet performance test [2]

## Course topics

Adaptive design
The principle of operation of screen editors
Construction of a task in the CAD system language
CAD system architecture
Methods of internal computer description of construction objects
Computer representation of an object in a 3D system
Exchange of graphic information between CAX packages
Applications of Reverse Engineering techniques
Rapid Inspection

## Teaching methods

Lecture: multimedia presentation, illustrated with examples given using a projector.
Laboratory exercises: multimedia presentation, presentation illustrated with examples on the board and completing the tasks given by the teacher - practical exercises

## Bibliography

Basic:
1. Krawiec Piotr (ed.), Computer graphics for mechanics (6th edition, extended and changed), ed. Poznań University of Technology, 2020.
2. Foley J., Dam A., Hughes J., Phillips R., Introduction to computer graphics, Warsaw, WNT 2001.
3. Kiciak P., Basics of modeling curves and surfaces: applications in computer graphics,

Warsaw, WNT 2000.

Additional:
1. Krawiec Piotr (ed.), Computer graphics (5th extended edition) ed. Poznań University of Technology, 2011.
2. Dudziak Marian, Krawiec Piotr, Supporting the design and recording of structures, PWSZ Publishing House
in Kalisz, 2012.

## Breakdown of average student's workload

| | Hours | ECTS |
|---|---|---|
| Total workload | 50 | 2,00 |
| Classes requiring direct contact with the teacher | 45 | 1,50 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 5 | 0,50 |