POZNAN UNIVERSITY OF TECHNOLOGY

COURSE DESCRIPTION CARD - SYLLABUS

Course name
CAD [S2LiK1>CAD]

Course

Field of study	Year/Semester
Aerospace Engineering	1/1
Area of study (specialization)	Profile of study
Unmanned Aerial Vehicles	general academic
Level of study	Course offered in
second-cycle	Polish
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
0	30	0

Tutorials	Projects/seminars
0	0

Number of credit points

2,00

Coordinators   Lecturers

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Prerequisites

The student has a basic knowledge of the construction of rail vehicles and their role in the modern world
The student is able to use technical drawing and has spatial imagination in to read, understand and create
three-dimensional models of technical objects and their The student is able to use the acquired knowledge
to analyze specific phenomena and processes occurring in the operation of rail vehicles. The student is
able to solve specific problems appearing during the construction of technical objects. The student is able
to cooperate in a group, assuming different roles in it. The student is able to define priorities important in
solving the posed before him tasks. The student shows independence in solving problems, gaining and
improving the acquired knowledge and skills.

Course objective

The aim of the course is to learn how to use the SolidWorks CAD program on the example of model design
rockets. Students acquire the ability to make models of single parts, assemblies and technical
documentation. Optionally, students can obtain the following certificates: Certified SolidWorks Assiciate
and Certified SolidWorks Professional.

Course-related learning outcomes

Knowledge:
1. has knowledge in the field of mathematics, including algebra, analysis, theory of differential equations, necessary for numerical solving of boundary problems, inverse problems, optimization, statistical analyzes
2. 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. has the ability to self-study with the use of modern teaching tools, such as remote lectures, websites and databases, teaching programs, e-books
2. is able to obtain information from literature, the Internet, databases and other sources. Can integrate the obtained information, interpret and draw conclusions from it, as well as create and justify opinions
3. is able to assess the usefulness and use the tools integrated with the spatial modeling packages, and correctly interpret their results

Social competences:
1. understands the need for lifelong learning; can inspire and organize the learning process of other people
2. is able to properly define the priorities for the implementation of the task set by himself or others

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Passing a test in the form of a business rocket model presentation test, 2D construction documentation and model flight test. An additional component of the final grade in the subject is activity in the classroom and social skills while working in a group, assessed by the teacher.

Programme content

• using the CAD program interface (adjusting it to user preferences),
editing of the view position, modification of the graphic representation of the designed object, built-in 3D visualization program tools
• using the OpenRocket program interface (creating a rocket concept, flight simulation,
tuning the structure to the design requirements)
• reading technical drawings, creating and modifying 2D sketches, creating sketches adaptive, duplicating operations
• Create solid features by Extrude, Path, Shape
and by rotation, their modification by cutting operations and hole wizard, duplicating operations
• creating assemblies of many parts, creating mates between components
• creating technical documentation of designed technical objects, editing the sheet, inserting an annotation

Course topics

The subject of the classes is mastering the CAD computer aided design tool. In addition, students develop, design and produce their own rocket models, which are then assessed and tested for flight at the EPPG Kąkolewo airport.

Teaching methods

Laboratory (experiment) method (students conduct experiments independently)

Bibliography

Basic
1. Domański J.: SolidWorks 2014. Projektowanie maszyn i konstrukcji. Praktyczne przykłady (ebook), Wydawnictwo Helion 2015.
2. Samouczek programu SolidWorks.
3. Babiuch M.: SolidWorks 2009 PL. Ćwiczenia, Wydawnictwo Helion 2009.

Additional
1. Dobrzański T., Rysunek techniczny maszynowy, Wydawnictwo Naukowo-Techniczne 2013.

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	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)	30	1,00