COURSE DESCRIPTION CARD - SYLLABUS

Course name
Computer aided design

Course

Field of study
Education in Technology and Informatics

Year/Semester
2/4

Area of study (specialization)
-

Profile of study
general academic

Level of study
First-cycle studies

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
15	30	0
Tutorials	**Projects/seminars**	
0	0	

Number of credit points

3

Lecturers

Responsible for the course/lecturer:
dr inż.Jakub Grabski

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tel. 61 665 21 77

Responsible for the course/lecturer:

Prerequisites

Basic knowledge of mathematics with particular emphasis on analytical geometry and vector calculus, knowledge of technical mechanics and elements of material strength, knowledge of the principles of technical drawing and creating technical documentation. Ability to read technical drawing and spatial imagination, the ability to obtain information from indicated sources. Understanding the need to expand your competences, readiness to cooperate within the team.

Course objective

1.To provide students with basic knowledge in the field of design and modeling of structures, within the scope defined by the program content appropriate for the field of study.

2. Developing students' skills of spatial modeling of all details, details and assemblies of objects using CAD programs.

3. Acquiring the ability to evaluate and optimize the designed structure.

Course-related learning outcomes

Knowledge

1. Student can choose the appropriate methods of spatial modeling of objects, independently make a design of any detail, knows the methods of defining the design of a structure consisting of previously prepared details, is able to formulate the technical documentation for this design [K1_W20].

2. Student assesses the designed structure in terms of its strength and stability correctly. Student knows the methods of structure optimization [K1_W10, K1_W18, K1_W20].

3. Student applies basic knowledge of computer-aided technical education [K1_W20] .

Skills

1. Student is able to use the mechanisms of spatial modeling of objects, is able to independently create a design of any detail, and to create a design of a structure consisting of previously prepared details, can prepare technical documentation for this design [K1_U09, K1_U10, K1_U22].

2. Student evaluates the designed structure, conduct its strength analysis and optimize it [K1_U08, K1_U09, K1_U22]

3. Student uses computer programs supporting the design process [K1_U09].

Social competences

1. Student is able to work on the assigned task independently and cooperate in a team taking various roles in it; shows in this work professionalism and responsibility for the decisions made [K1_K01].

2. Student follows the basic ethical rules [K1_K02].

3. Student thinks and acts in an entrepreneurial and innovative way [K1_K08].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:

- written test (pass). On the basis of the result (expressed as a percentage), the final grade for the lecture will be issued:

below 50% - insufficient

<50%; 60%) - satisfactory

<60%; 70%) - sufficient +

<70%; 80%) - good

<80%; 90%) - good +

<90%; 100%) - very good

Lab:

- passing the reports from the completed laboratory exercises,

- assessment of tests checking the current progress of students (3 tests).

The sum of the test points will be converted into a percentage result and will be the basis for the final grade:

below 50% - insufficient

<50%; 60%) - satisfactory

<60%; 70%) - sufficient +

<70%; 80%) - good

<80%; 90%) - good +

<90%; 100%) - very good

Programme content

1. Getting to know the SolidWorks program for structure modeling.

2. Examples of modeling various details, machine parts. Modeling of solids and surfaces.

3. Modeling of complex sets of machines and mechanisms.

4. Animation of the movement of mechanisms.

5. Strength assessment of modeled details and their assemblies using the finite element method.

Teaching methods

1. Lecture: multimedia presentation, presentation illustrated with examples given on the blackboard.

2. Laboratory exercises: practical exercises, conducting experiments, taking measurements, discussion, teamwork.

Bibliography

Basic

1. Babiuch M.:Solid Works 2006 w praktyce, Wydawnictwo HELION, Gliwice, 2007 [in Polish]

Additional

1. Dobrzański T.: Rysunek techniczny maszynowy, WNT, Warszawa, 2002 [in Polish].

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	1,8
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,2

[1] delete or add other activities as appropriate