COURSE DESCRIPTION CARD - SYLLABUS

Course name

Computer graphics

Course

Field of study

Transport

Year/Semester

1/2

Area of study (specialization)

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

Number of hours

Lecture

0

Laboratory classes

18

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr hab.inż. Piotr Krawiec prof. PP

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Faculty of Mechanical Engineering

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

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tel. 61-6652254

Faculty of Mechanical Engineering

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Prerequisites

KNOWLEDGE: Student has a basic knowledge in the field of engineering graphics. Student knows how to use Windows operating system and understands basic concepts associated with this working environment.

SKILLS: Student can use a computer and peripheral devices, can use gained knowledge to analyse particular practical problems and quickly make decisions. Student has good imagination and three-dimensional orientation.

SOCIAL COMPETENCES: Student can cooperate with the group. Student can define tasks and priorities of fulfilling them. Student shows independence in solving problems and gaining and perfecting acquired knowledge and skills.

Course objective

Passing information about the rules of modern CAD systems' working and essential methods of three-dimensional modelling to students. Students acquire the knowledge about systems used to design automation and skills of proper designing of three-dimensional models and creating associated technical documentation.

Course-related learning outcomes

Knowledge

The student knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of an engineering nature engineering

Skills

The student is able - in accordance with the given specification - to design (create a model of a fragment of reality), formulate a functional specification in the form of use cases, formulate non-functional requirements for selected quality characteristics) and implement a device or a widely understood system in the field of means of transport, using appropriate methods, techniques and tools

The student has the ability to formulate tasks in the field of transport engineering and their implementation using at least one of the popular tools

Social competences

The student understands that in technology, knowledge and skills very quickly become obsolete

The student is aware of the social role of a technical university graduate, in particular, he/she understands the need to formulate and transfer to the society, in an appropriate style, information and opinions on engineering activities, technological achievements, as well as the achievements and traditions of the transport engineer profession

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Current assessment for the implementation of project tasks carried out during laboratory classes.

Programme content

Learning the functionality of the CAD 2D system (AutoCAD) through the use of geometric constructions to draw plate type elements, making documentation using rectangular projection, dimensioning, generating sections, layouts. Learning the possibilities of parameterization in the 2D system, mastering the principles of creating parts as blocks with attributes. In 3D design (Autodesk Inventor Professional), create sketches (geometric, dimensional and parametric constraints). Modeling of elements and assemblies. Technical documentation, associativity of 3D/2D models. Modeling of sheet metal and welded structures. Designing teams using adaptability. Animation, visualization of parts and assemblies.

Dynamic simulation of mechanisms. Practical understanding of graphical information exchange between CAx systems.

Teaching methods

Multimedia presentation, interactive practical example, design collective and individual tasks.

Bibliography

Basic

1. Andrzej Pikoń, AutoCAD 2018 PL. Gliwice : Helion, copyright 2018.

2. Krawiec Piotr (red.), Grafika komputerowa dla mechaników (wyd. VI zmienione i rozszerzone) wyd. Politechniki Poznańskiej, 2020.

Additional

1. Krawiec Piotr (red.), Grafika komputerowa (wyd. V rozszerzone) wyd. Politechniki Poznańskiej, 2011

2. Zbiór ćwiczeń, Autodesk® Inventor® 2018: kurs professional / Fabian Stasiak. Ekspert Books, 2018.

3. Foley J., Dam A., Hughes J., Phillips R., Wprowadzenie do grafiki komputerowej, Warszawa, WNT 2001.

4. Kiciak P., Podstawy modelowania krzywych i powierzchni: zastosowania w grafice komputerowej, Warszawa, WNT 2000.

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	3,0
Classes requiring direct contact with the teacher	18	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	42	2,0

[1] delete or add other activities as appropriate