COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering Graphics

Course

Field of study

Technical Physics

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

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

30

Other (e.g. online)

0

Tutorials

0

Projects/seminars

15

Number of credit points

5

Lecturers

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

Piotrowo 3 Street, 61-138 Poznań

Responsible for the course/lecturer:

Prerequisites

Basics of engineering. Elementary knowledge of the construction and operation of machines and devices. Preparation of classic technical documentation. Basic knowledge of Windows and Microsoft Office.

Course objective

Understanding the principles of graphic design of construction in a rectangular and axonometric throws arrangement. Shaping spatial imagination and skills to perform and read technical drawings. Getting acqauinted with the methodology for building three-dimensional models in the CAD system, familiarize with the procedures for performing 2D and 3D documentation in the CAD system.

Course-related learning outcomes

Knowledge

1. The student knows the principle of graphic design of construction, rectangular and axonometric throws and drawing layers and cross-sections and performing technical documentation.

2. The student identifies drawing simplifications and can choose standardized elements.

3. The student knows the principles of dimensioning, tolerances and passages.

4. The student knows the construction procedures for CAD 3D models.

5. The student knows the procedure for generating 2D and 3D technical documentation and simulations in CAD 3D systems.

Skills

1. The student solves graphic tasks requiring spatial imagination in rectangular and axonometric projections.

2. The student performs connection drawings and some machine components: machine shafts, sleeves, levers, gears housings, etc..

3. The student performs assembly and working drawings. He can perform dimensioning of the elements according to the technology of execution.

4. The student can choose proper standarized elements.

5. The student design the elements and simple assemblies of machines in CAD 3D systems.

6. The student performs assembly and disassembly simulations and simulations of the functioning of selected machine assemblies.

7. The student generates production documentation in the CAD system.

Social competences

1. The student can think creatively and innovatively. It learns from its mistakes.

2. The student recognizes the impact of knowledge and professional development on the level of their life and society.

3. The student can think pro-ecologically.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Assessment of knowledge and practical skills on written exam. Projects: Current assessment of sketches on classes. Periodic checking and assessment of technical drawings. Test of knowledge of rules and practical skills for solving drawing tasks. Evaluation of an individual project. Credit a laboratory based on the effects of work and practical test.

Programme content

1. Technical drawings in a rectangular and axonometric projection system.

2. Views and sections.

3. Connections of machine parts. Drawing simplifications.

4. Dimensioning of the elements.

5. Production and assembly drawings.

6. Designing of production in the CAD 3D system (preliminary design, 3D model, 2D documentation, assembly, animation of the assemblies).

Teaching methods

Lecture: Ilustrated presentation with examples given on a blackboard, solving tasks.

Laboratory classes: practical exercises, documentation, discussion, teamwork.

Project classes: Individual work on of the student's design, discussion.

Bibliography

Basic

1. Bajkowski J.: Podstawy zapisu konstrukcji. Wydawnictwo PolitechnikiWarszawskiej 2018.

2. Dobrzański T.: Rysunek techniczny maszynowy. PWN Warszawa 2019.

3. Lewandowski T.: Rysunek techniczny dla mechaników. WSiP Warszawa 2018

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

5. Jankowski M.: Elementy grafiki komputerowej, WNT Warszawa 1990.

6. Krawiec P. (red): Grafika Komputerowa – laboratorium. Wydawnictwo Politechniki Poznańskiej Poznań 2011.

Additional

1. Bober A., Dudziak M.: Zapis konstrukcji. PWN Warszawa 1999.

2. Giełdowski L.: Rzutowanie prostokątne. Widoki. Ćwiczenia i zadania rysunkowe WSiP 1998

3. Giełdowski L.: Rysunek techniczny. Przekroje. WSiP 2010

4. Giełdowski L.: Wymiarowanie. Ćwiczenia i zadania rysunkowe, WSiP 1999

5. Osiński J.: Wspomagane komputerowo projektowanie typowych zespołów i elementów maszyn. PWN Warszawa 1994.

Breakdown of average student's workload

	Hours	ECTS
Total workload	134	5,0
Classes requiring direct contact with the teacher	64	2,5
Student's own work (literature studies, preparation for laboratory classes, preparation for tests/exam, project preparation) [1]	70	2,5

[1] delete or add other activities as appropriate