POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Engineering Graphics [S1AiR1>GI]

Course

Field of study
Automatic Control and Robotics

Year/Semester
2/4

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
0

Other (e.g. online)
0

Tutorials
0

Projects/seminars
30

Number of credit points

4,00

Coordinators

mgr inż. Tomasz Batura
tomasz.batura@put.poznan.pl

Lecturers

Prerequisites

The student starting the subject should have expanded and in-depth knowledge of selected branches of mathematics. He should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

Course objective

Transfer of knowledge as well as education and development of skills regarding methods of preparing and reading technical drawings used in the documentation of elements of automation and robotics systems.

Course-related learning outcomes

Knowledge
K1_W3. Has ordered and theoretically founded general knowledge in the field of general mechanics: statics, kinematics and dynamics, including the knowledge necessary to understand the principles of modeling and construction of simple mechanical systems. Knows and understands typical engineering technologies, principles and techniques for constructing simple automation and robotics systems;
K1_W20. Knows and understands typical engineering technologies, principles and techniques for constructing simple automation and robotics systems.

K1_W23. Knows the methods, techniques, tools and materials used to solve simple engineering tasks in the field of automation and robotics.
Skills
K1_U2. Can read and understand project technical documentation and simple technological diagrams of automation and robotics systems.
K1_U24. Is able to assess the usefulness of routine methods and tools for the design of automation and robotics systems, and choose and apply the right method and tools.
K1_U25. Is able to design simple mechanical components for various applications (including material properties).
Social competences
K1_K5. Is aware of the need for a professional approach to technical issues, meticulous reading of documentation and environmental conditions in which devices and their components can function. He is ready to comply with the rules of professional ethics and to demand that of others, respecting the diversity of views and cultures.
K1_K3. Is aware of the responsibility for own work and readiness to comply with the principles of teamwork and taking responsibility for jointly implemented tasks; can manage a small team, set goals and set priorities for achieving them; is ready to perform responsible professional roles.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit in the form of a multiple-choice test.
Project: Evaluation of completed projects

Programme content

Lecture. Basic principles for preparing technical project documentation, including: selection of drawing type, projection principles, dimensioning, tolerance and surface roughness description. Modeling and representation methods of 3D objects used in CAD systems. Methods for modeling structures consisting of more elements and interactions between them (modeling mechanisms). Reverse engineering methods in the field of geometric features of objects (3D scanning) and methods of rapid prototyping (FDM, STL, SLS, DLP) will be presented.
Project.
It includes independent modeling of parts and mechanisms, their spatial graphic representation in the form of presentations and the implementation of two-dimensional technical drawings made with the help of the CAD Autodesk Inventor environment. Design and manufacture of elements by rapid prototyping techniques and the use of reverse engineering techniques to verify the quality of manufactured elements.

Teaching methods

Lecture: multimedia presentation, illustrated with real examples of technical solutions.
Project: consultation with the teacher, presentations, implementation of projects.

Bibliography

Basic
1. T.Dobrzański, Rysunek Techniczny Maszynowy, WNT Warszawa.
2. Dokumentacja i tutoriale środowiska Autodesk Inventor.
Additional
1. J. D. Foley i inni, Wprowadzenie do grafiki komputerowej, WNT Warszawa

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	4,00
Classes requiring direct contact with the teacher	50	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	40	2,00