



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Interim project

Course

Field of study

Construction and operation of means of transport

Area of study (specialization)

Industrial mechatronics

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

60

Number of credit points

5

Lecturers

Responsible for the course/lecturer:

DSc Eng. Krzysztof Talaśka

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Faculty of Mechanical Engineering

ul. Piotrowo 3, 61-138 Poznań

Responsible for the course/lecturer:

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Prerequisites

Knowledge: Mechanics and strength of materials. Machine construction basics. Basics of hydraulics and pneumatics. Mechatronics. Fundamentals of engineering computer science.

Skills: Defining functions and tasks of machines. Designing mechatronic structures using CAD software. Design of process control and regulation systems. Introducing elements of automation and robotics.

Social competences: The student understands the need to expand his competences, shows readiness to cooperate within the team.



Course objective

Implementation of an individual design of a mechatronic mechanical device with automation and robotics elements.

Course-related learning outcomes

Knowledge

1. Has a basic knowledge of the basics of machine design and the theory of machines and mechanisms, including mechanical vibrations.
2. Is aware of the latest trends in machine construction, ie automation and mechatronization, automation of machine design and construction processes, increased safety and comfort of operation, use of modern construction materials.
3. Has extended basic knowledge necessary to understand specialist subjects and specialist knowledge about the construction, construction methods, manufacturing and operation of a selected group of working, transport, thermal and flow machines covered by the WMRT specialization profile, in particular: mechatronic systems.

Skills

1. Can organize and substantively manage the process of designing and operating a simple machine from a group of machines from a group covered by a selected specialty.
2. Can create a system diagram, select elements and perform basic calculations using ready-made computational packages of mechanical, hydrostatic, electric or hybrid machine drive system.
3. Can plan and carry out the process of constructing uncomplicated machine assemblies or machines and formulate requirements for electronic components and automatic control systems for industry specialists in mechatronic systems.
4. Can competently advise on the selection of a machine for a given application in the industry covered by the selected specialty, based on the acquired knowledge about a given group of machines.

Social competences

1. Is ready to critically evaluate the knowledge and content received.
2. Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Completion of the course is based on a project individually prepared by the student.

Programme content

Designing the geometric and movement structure of a mechanical device. Kinematics and dynamics of motion elements, design of drive systems. Mechatronic control and regulation systems, electric,



pneumatic and hydraulic control. Application of programmable controllers. Sensory. Manipulating machines, robotics. Engineering informatics.

Teaching methods

Practical use of the skills acquired during the classes in the implementation of individual final work by the student - project method.

Bibliography

Basic

1. Dietrich M.: Podstawy konstrukcji maszyn, WNT Warszawa 1999, 3 tomy
2. Schmid D.: Mechatronika, Europa-Lehrmittel, polish edition REA Warszawa 2002,

Additional

1. Piśmiennictwo z zakresu specjalności i tematyki pracy dyplomowej
2. Honczarenko J.: Elastyczna automatyzacja wytwarzania, obrabiarki i systemy obróbkowe, WNT Warszawa 2000

Breakdown of average student's workload

	Hours	ECTS
Total workload	127	5,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	102	4,0

¹ delete or add other activities as appropriate