POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Interim project

Course

Field of study	Year/Semester
Construction and operation of means of transport	1/2
Area of study (specialization)	Profile of study
Industrial mechatronics	general academic
Level of study	Course offered in
Second-cycle studies	polish
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
0	0	0
Tutorials	Projects/seminars	
0	60	

Number of credit points

5

Lecturers

Responsible for the course/lecturer:	Responsible for the course/lecturer:
DSc Eng. Krzysztof Talaśka	PhD Eng. Dominik Wilczyński
email: krzysztof.talaska@put.poznan.pl	email: dominik.wilczynski@put.poznan.pl
phone: 61 665 2246	phone: 61 224 4512
Faculty of Mechanical Engineering	Faculty of Mechanical Engineering
ul. Piotrowo 3, 61-138 Poznań	ul. Piotrowo 3, 61-138 Poznań

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.

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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 general knowledge of the principles and methods of constructing working machines, in particular the methods of functional and strength calculations, mathematical optimization of mechanical structures and modeling of machine structures in 3D systems.

2. Has in-depth knowledge of the construction and principles of operation as well as classification of machines from a selected group.

3. Knows the main development trends in the field of machine construction.

Skills

1. Can perform a medium complex design of a working machine or its assembly with the use of modern CAD tools, including tools for spatial modeling of machines and calculations using the finite element method.

2. Can develop a technical description, offer and construction documentation for a complex machine from a selected group of machines.

3. Can use a popular numerical system to program a simple system simulation task with a small number of degrees of freedom.

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.

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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	132	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]	107	4,0

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[1] delete or add other activities as appropriate