



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

**Mechatronic drives**

		<b>Course</b>
Field of study		Year/Semester
Construction and operation of means of transport		3/6
Area of study (specialization)		Profile of study
Industrial Mechatronics		general academic
Level of study		Course offered in
First-cycle studies		Polish
Form of study		Requirements
full-time		compulsory

		<b>Number of hours</b>
Lecture	Laboratory classes	Other (e.g. online)
30	15	0
Tutorials	Projects/seminars	
0	0	
<b>Number of credit points</b>		
2		

		<b>Lecturers</b>
Responsible for the course/lecturer:		Responsible for the course/lecturer:
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Faculty of Mechanical Engineering		

**Prerequisites**

KNOWLEDGE: Physics, General mechanics, Fundamentals of machine construction, Engineering graphics, Fundamentals of electronics and electrical engineering

SKILLS: Describing the basic phenomena, Constructing mechanical and electrical systems, analyzing technical and electrical documentation

SOCIAL COMPETENCES: Is aware of the responsibility for decisions made in the construction process

### Course objective

Getting to know the structure and components of the mechatronic system

### Course-related learning outcomes

Knowledge



Has a basic knowledge of the methods of linear measurements, measurements of stresses, strains, velocities, temperatures and fluid streams, including measurements of these quantities by electrical means

#### Skills

1. Can obtain information from literature, the Internet, databases and other sources. Can integrate the obtained information, interpret and draw conclusions from it, and create and justify opinions
2. Can search in catalogs and manufacturers' websites ready-made machine components to be used in their own projects.

#### Social competences

1. Is ready to critically assess the knowledge and content received

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

During the classes, students are divided into 5 parallel subgroups in which they perform laboratory exercises in a fixed cycle of classes. At the beginning of the meeting, students take an oral test consisting of 3 basic questions related to the currently performed laboratory exercise. A final grade is given on the basis of the average grade value for all classes.

#### Programme content

During the course, students perform the following laboratory exercises

1. TESTING THE HYSTERESIS OF BINARY PROXIMITY SENSORS
2. MEASUREMENT OF ROTATIONAL SPEED
3. PROGRAMMING THE SIEMENS LOGO CONTROLLER
4. BASICS OF KNOWLEDGE ABOUT STEP-BY-STEP MOTORS
5. SYSTEM OF AUTOMATIC ADJUSTMENT OF POSITION

#### Teaching methods

During the classes, a laboratory method is used based on the implementation of 5 exercises in which students in a group of 3 carry out exercises and prepare reports describing the results of measurements and works.

#### Bibliography

##### Basic

1. Heimann B., Gerth W., Popp K.: Mechatronika, Komponenty, Metody, Przykłady, PWN, Warszawa 2001
2. Schmidt D.: Mechatronika, wydawnictwo REA, Warszawa 2002



3. Świder J.: Sterowanie i automatyzacja procesów technologicznych technologicznych układów mechatronicznych, Wyd. Politechniki Śląskiej, Gliwice 2002

Additional

### Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	45	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	15	0,5

<sup>1</sup> delete or add other activities as appropriate