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
## Introduction to mechatronics
**Course**

| Field of study | Year/Semester |
|---|---|
| Construction and Exploitation of Means of Transport | 1/2 |
| Area of study (specialization) | Profile of study |
| --- | general academic |
| Level of study | Course offered in |
| First-cycle studies | Polish |
| Form of study | Requirements |
| full-time | compulsory |

## Number of hours

| Lecture | Laboratory classes | zakładki. |
|---|---|---|
| 15 | **Błąd! Nie zdefiniowano zakładki.** | Other (e.g. online) |
| Tutorials | Projects/seminars | **Błąd! Nie zdefiniowano zakładki.** |
| **Błąd! Nie zdefiniowano zakładki.** | **Błąd! Nie zdefiniowano** | |

**Number of credit points**

1

## Lecturers

Responsible for the course/lecturer:

dr inż. Jarosław Adamiec

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tel. 61 665 2054

Faculty of Mechanical Engineering

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

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## Prerequisites

Knowledge: physics, general mechanics, fundamentals of machine construction, engineering graphics, basics of electronics and electrical engineering

Skills: description of basic phenomena, construction of mechanical and electrical systems, analysis of technical and electrical documentation

Social competence: is aware of the responsibility for decisions made during the construction process

## Course objective

Learning the structure and components of the mechatronic system.

## Course-related learning outcomes

Knowledge

1. knowledge of the origin and development of mechatronics
2. knowledge of the structure and operation of the sensors
3. knowledge of communication systems

Skills

1. identification of mechatronic systems
2. analyses of control systems used in mechatronic systems
3. diagnosing faults in mechatronic systems

Social competences

1. understands the impact of mechatronic systems on user safety
2. is aware of the environmental impact of mechatronic systems
3. is aware of the importance of non-technical aspects and effects of the engineer-mechatronics activities

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Short tests after the lecture. Testing from the lecture at the end of the semester.

## Programme content

The origin and development of mechatronics as a multidisciplinary science. The essence of the mechatronic system, basic components and their role in the system. General structure of sensors and actors. Role of processors and principles of communication in the system. Practical examples of mechatronic systems (from the field of technological, manipulation, transport and common use machines).

## Teaching methods

**Błąd! Nie zdefiniowano zakładki.**

## Bibliography

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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

1. Gawrysiak M.: Mechatronika i projektowanie mechatroniczne, Wyd. elektroniczne, Białystok 1997.

2. Urządzenia i systemy mechatroniczne, wydawnictwo REA, Warszawa 2009.

3. Olszewski M.: Podstawy mechatroniki, wydawnictwo REA, Warszawa 2006.

**Breakdown** of average student's workload

|  | Hours | ECTS |
|---|---|---|
| Total workload | 30 | 1 |
| Classes requiring direct contact with the teacher | 15 | 0,5 |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1] | 15 | 0,5 |

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[1] delete or add other activities as appropriate