COURSE DESCRIPTION CARD - SYLLABUS

Course name

Mechatronic systems in working machines

Course

Field of study

Construction and operation of means of transport

Year/Semester

2/2

Area of study (specialization)

Profile of study

general academic

Level of study

Second-cycle studies

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

0

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

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tel. 61-6652225

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Knowledge: Has basic knowledge of the theory of mechanisms, automatics, electrical engineering and electronics

Skills: Can analyze the basic functions of mechatronic components and knows their application

Social competences: General communication skills and the ability to work in a team

Course objective

Formation of a general understanding of the essence of mechatronic systems, the scope of applications of these systems in the present and future technology, especially in the field of working machines

Course-related learning outcomes

Knowledge

1. Has an elementary knowledge of the nature of mechatronic systems in working machines

2. Has a basic knowledge of the elements of mechatronic systems

3. Has a basic knowledge of the directions of development of mechatronic systems in working machines

Skills

1. Can describe the basic properties and application of mechatronic elements

2. Understands the directions and importance of changes in social life caused by the advances in mechatronic systems

Social competences

1. Understands the directions and importance of changes in social life caused by the advances in mechatronic systems

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Control work or written test

Programme content

1. On the essence of mechatronic systems;

2. Elements of mechatronic systems. Actuators (motors and drives);

3. Elements of mechatronic systems. Actuators (Cd motors and drives);

4. Elements of mechatronic systems. Sensors;

5. Elements of mechatronic systems. Sensors continued;

6. Mathematical models of mechatronic systems;

7. Microcontrollers and digital technology in mechatronic systems on the selected example;

Teaching methods

1. Lecture with multimedia presentation

Bibliography

Basic

1. Heinmann B. Gerth W. Popp K. Mechatronika. PWN. 2001 (tłum. Z niem).

2. Shetty D. Kolk R. A. : Mechatronics system design PWS Publishing Company 1997.

Additional

1. Isermann R. : Mechatronic systems. Springer Verlag 2005.

2. Tarnowski W. Kiczkowiak T. Kęska W. Ociepa Z. Napędy w urządzeniach mechatronicznych. Politechnika Koszlińska 2015.

3. Praca Zbiorowa red. Jan Szlagowski. Automatyzacja pracy maszyn roboczych. Metodyka i zastosowania

Breakdown of average student's workload

	Hours	ECTS
Total workload	45	2,0
Classes requiring direct contact with the teacher	15	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	30	1,0

[1] delete or add other activities as appropriate