UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Technical Sciences

Course title: Introduction to Mechatronics

ECTS credit allocation (and other scores): 4

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 60

Course coordinator/ Department and e-mail: Kamil Duda, Department of Mechatronics, kamil.duda@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Analysis of the structure of a mechatronic system (sensors, controls, actuators, and connecting elements). Basic programming of control systems in a selected programming language. Examination of sensors, actuators, and controllers

LECTURES: A Historical Overview and Development Prospects for Mechatronic Systems. A Profile of a Mechatronics Graduate. The Concept of Synergy in Mechatronic Systems. The Structure of Mechatronic Systems. Control in Mechatronic Systems. Signals in Mechatronic Systems. Signal Processing in Mechatronic Systems, Sensors and Actuators Used in Mechatronic Systems, and a Discussion of the Physical Phenomena Associated with Their Operation. Human-Machine Interfaces

Learning purpose: Prepare students to analyse various mechatronic systems in terms of physical phenomena, knowledge of main elements of mechatronic systems.

On completion of the study programme the graduate will gain:

Knowledge: Students are expected to know physical foundations of modern electronic devices

Skills: Students are expected to calculate typical parameters of electronic devices

Social Competencies: Students are expected to co-operate in group in order to achieve presumed goals and are aware of the need of lifelong learning

Basic literature: Mechatronics: fundamentals and applications, (ed.) Clarence W. de Silva

Supplementary literature: David Halliday, Robert Resnick, Jearl Walker, Fundamentals of physics

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 60

Student's independent work: 40