UNIVERSITY
OF WARMIA AND MAZURY
IN OLSZTYN

Faculty of Technical Sciences

Course title: FUNDAMENTALS OF 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: Piotr Drogosz, Department of Mechatronics, piotr.drogosz@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Technical application of logic systems, mechanical structures used as logic functions, electro switches used as logic functions, pneumatic and electropneumatic valves used as logic functions, hydraulic and electrohydraulic valves used as logic functions

LECTURES: Introduction to technical documentation of machines, introduction to machine control, introduction to technical application of logic systems, examples of mechanical structures used as logic functions, examples of electro switches used as logic functions, examples of pneumatic and electropneumatic valves used as logic functions, examples of hydraulic and electrohydraulic valves used as logic functions

Learning purpose: Prepare students to design, implement and service modern control systems of machines.

On completion of the study programme the graduate will gain:

Knowledge: Knowledge about technical application of logic systems

Skills: Ability to design, implement and service modern control systems of machines

Social Competencies: Ability to work in a team, awareness of responsibility for the usage of modern control systems of machines

Basic literature: Iserman, Rolf, Mechatronic Systems – Fundamentals, Springer-Verlag London Limited 2005, ISBN 978-1-85233-693-6. Bradley David, Russel David W, Mechatronics in Action – Case Studies in Mechatronics – Applications and Education, Springer-Verlag London 2010, ISBN 978-1-4471-5754-0. Jabloński Ryszard, Březina Tomas, Mechatronics – Recent Technological and Scientific Advances, Springer-Verlag Berlin Heidelberg 2012, ISBN 978-3-642-43373-3.

Supplementary literature: Reif, Konrad, Automotive Mechatronics – Automotive Networking, Driving Stability Systems, Electronics, Springer Fachmedien Wiesbaden 2015, ISBN 978-3-658-03974-5. Mas Francisco Rovira, Hansen Alan C, Zhang Qin, Mechatronics and intelligent Systems for Off-road Vehicles, Springer-Verlag London Limited 2011, ISBN 978-1-4471-5709-0. Necsulescu Dan, Advanced Mechatronics – Monitoring And Control Of Spatially Distributed Systems, World Scientific Singapore 2009, ISBN 9789812771810.

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 64

Student's independent work: 36