

## COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Mechanical Engineering									
Field of study	Erasmus							Degree level and programme type	Master's degree
Specialization/ diploma path	-							Study profile	-
Course name	Programming of industry applications							Course code	IS-FME-00213W
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	Winter
	30			15				No. of ECTS credits	5
Entry requirements	Identification of Control Plants, Programmable Logic Controller								
Course objectives	To provide the students with possibilities of control of production processes with using Profinet, Profibus and Asibus interfaces and PLC controllers located on didactic industry line FESTO MPS-500.								
Course content	<p><b>Lecture:</b> Introduction Industry line of the FESTO MPS-500, discussion of TIA PORTAL software, and also ASI Bus, Profinet and Profibus interfaces, RFID systems. <b>Laboratory Classes:</b> Discussion about chosen module of the FESTO MPS-500, programming PLC controller and testing on the real lab-stand.</p>								
Teaching methods	<p><b>Lectures:</b> blackboard lectures, multimedia presentations and showing some examples, discussions  <b>Project:</b> work in groups, discussion, homework assignments  Self- study under supervision: tutorial sessions with worked examples, discussion, problem solving, homework assignments.</p>								
Assessment method	Test/ Evaluation report								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	Student known methods of PLC hardware to programming PLC controllers							K_W02	
LO2	Student knows modern industry interfaces							K_W07	
LO3	Student can use methods to hardware PLC configuration and PLC softwares.							K_U01,K_U03	
LO4	Student is able to work in a team							K_U10	
LO5									
LO6									

Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
LO1	Test	L	
LO2	Test	L	
LO3	Test and evaluation report	L/LC	
LO4	Test and evaluation report	LC	
Student workload (in hours)		No. of hours	
Calculation	Lecture attendance	30	
	Participation in classes, laboratory classes	15	
	Preparation for classes, laboratory classes, projects	16	
	Participation in the student-teacher sessions related to classes/project	15	
	Implementation of project task	6	
	Working on projects, reports	16	
	Preparation for and participation in the exams/test	10	
	<b>TOTAL:</b>	<b>108</b>	
Quantitative indicators		HOURS	No. of ECTS credits
<b>Student workload – activities that require direct teacher participation</b>		<b>51</b>	<b>2</b>
<b>Student workload – practical activities</b>		<b>57</b>	<b>3</b>
<b>Basic references</b>	1. Teaching materials of Siemens: <i>Automating with PROFINET: Industrial Communication Based on Industrial Ethernet</i> , 2008 2. Teaching materials of Siemens: <i>Automating with SIMATIC S7-300 inside TIA Portal</i> , 2014		
<b>Supplementary references</b>	1. Teaching materials of Siemens company related to PLC programming in TIA Portal software, 2013		
<b>Organisational unit conducting the course</b>	<b>Department of Mechatronics Systems and Robotics</b>	<b>Date of issuing the programme</b>	
<b>Author of the programme</b>	<b>Andrzej Koszewnik, D.Sc</b>	<b>28.06.2020</b>	

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

**S – seminar**

Please notice!

Depending on number of students enrolled for the subject hours of tuition are as follows (for each 30 hours given in course description card):

1 – 2 students - 5 hours of tuition hours;

3 – 4 students - 8 hours of tuition;

5 – 6 students - 11 hours of tuition;

7 – 8 students - 15 hours of tuition;

9 and more students - hours of tuition given by a teacher as regular classes.

