

COURSE DESCRIPTION CARD – SPECIMEN

Faculty of Electrical Engineering									
Field of study	Automatic and Robotics							Degree level and programme type	Bachelor's degree
Specialization/ diploma path	-							Study profile	-
Course name	Visualization of Industrial Processes							Course code	IS-FEE-10070S
								Course type	elective
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer
	15			30				No. of ECTS credits	4
Entry requirements	-								
Course objectives	Introduction to the visualization systems used in industrial applications on the example of SCADA - Wonderware InTouch software.								
Course content	<p>Lecture: Introduction to Supervisory Control And Data Acquisition systems: evolution, classification, types, characteristics. SCADA-HMI systems architecture: functions, capabilities (data processing, data recording, alarming, security). Communication in SCADA-HMI systems: DDE protocol, OPC protocol. Examples of SCADA-HMI systems.</p> <p>Project: Project in the InTouch environment: visualisation windows, tags and animation links, scripts and QuickScript, alarming, historic and real-time trends, communication with DDE protocol (external applications), communication with PLC controllers, project publication,</p>								
Teaching methods	Power Point presentations, Wonderware System Platform software, instructions								
Assessment method	lecture – written test; project – project implementation, presentation and discussion								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	knows and understands architecture of SCADA-HMI systems,								
LO2	knows and understands functions and tasks fulfilled by SCADA-HMI systems								
LO3	knows programming languages suitable for SCADA systems								
LO4	can design efficient visualisation system of given								

	technological process		
L05	can configure scripts and implementation them in visualization systems		
L06	can create individual and team projects		
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	written test	L	
L02	written test,	L	
L03	written test,	L	
L04	project evaluation, activity on classes	P	
L05	project evaluation, activity on classes	P	
L06	project evaluation, activity on classes	P	
Student workload (in hours)		No. of hours	
Calculation	Participation in lectures	15	
	Participation in project classes	30	
	Preparation for exams/tests	15	
	Working on projects, reports, etc.	45	
	Participation in consultations	2	
TOTAL:		107	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		48	1,5
Student workload – practical activities		77	3
Basic references	<ol style="list-style-type: none"> 1. Wonderware ArchedrA System Platform in a Virtualized Environment Implementation Guide, 2014 2. InTouch HMI Getting Started Guide, 2014 3. InTouch HMI Scripting and Logic Guide, 2008 4. Wonderware® OPCLink, 2003 5. J. Paul Guyer: An Introduction to Fundamentals of SCADA Systems, 2017 		
Supplementary references	<ol style="list-style-type: none"> 1. Stuart A. Boyer, SCADA: Supervisory Control and Data Acquisition, 2004 2. Wright E., Practical SCADA for Industry, 2003 		
Organisational unit conducting the course	Department of Automatic Control and Robotics	Date of issuing the programme	
Author of the programme	Michał Ostaszewski, PhD	17.02.2020	

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

S – seminar