

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-10059W
								Course type	elective
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
	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	
LO5	can configure scripts and implementation them in visualization systems	
LO6	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
LO1	written test	L
LO2	written test,	L
LO3	written test,	L
LO4	project evaluation, activity on classes	P
LO5	project evaluation, activity on classes	P
LO6	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
Student workload – activities that require direct teacher participation		48
Student workload – practical activities		77
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