



Subject card

Subject name and code	Visualization and Multimedia in Technology, PG_00038327						
Field of study	Automation, Robotics and Control Systems						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies	Subject group			Specialty subject group Subject group related to scientific research in the field of study		
Mode of study	Part-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Metrology and Information Systems -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Anna Golijanek-Jędrzejczyk				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	10.0	0.0	0.0	20
	E-learning hours included: 0.0						
Adresy na platformie eNauczanie:							
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	20		4.0		26.0	50
Subject objectives	The aim of the course is to prepare students to work on designing ergonomic interaction systems for automation devices.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W02] has a structured knowledge of the application of information systems to improve the reliability, efficiency, speed and mobility of control and management systems						
[K7_K02] can interact and work in a group assuming various roles and identify priorities for the achievement of a specific task		The student is able to work in a group.		[SK2] Assessment of progress of work [SK1] Assessment of group work skills [SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work			
Subject contents	Lectures Information theory. The concept of visualization, data visualization, scientific visualization. Historical examples of scientific visualization. Traps visualization: visual illusions - formation mechanisms. Unambiguous and ambiguous visual illusions. Visualization of data - the relationship between the presentations of data: graphic forms. Selection of graphic type and dimensionality range fields and dependencies. One-dimensional and multidimensional range visualization. Improving the readability of data visualization: ordering data. Methods of symbolic data presentation, the role of size, multidimensional symbols. The role of color in visualization. Inquiries in the visualization. Design of visualization systems. Visualization in technical sciences and natural sciences. Multimedia techniques. Media opportunities. The use of media in the visualization. Laboratory Preparing a user-friendly visualization system for a device/system. Preparing documentation for the designed system.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Practical exercise		60.0%		100.0%		

Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Cooper A., Wariaci rządzą domem wariatów. Dlaczego produkty wysokich technologii doprowadzają nas do szaleństwa i co zrobić, żeby tego uniknąć. 2004. 2. Jacek Matulewski, Tomasz Dziubak, Marcin Sylwestrzak, Radosław Płoszajczak: "Grafika. Fizyka. Metody numeryczne. Symulacje fizyczne z wizualizacją 3D." Wydawnictwo Naukowe PWN 2010. 3. 3. Garr Reynolds: „Zen prezentacji. proste pomysły i ważne zasady”. Helion 2009.
	Supplementary literature	<ol style="list-style-type: none"> 1. Bednarek J., Multimedia w kształceniu. PWN, Warszawa 2006. 2. Paul Beynon-Davies: „Inżynieria systemów informacyjnych”. WNT W-wa 2004.
	eResources addresses	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. Definition of visualization. 2. Classification and characteristics of visualization. 3. Data and methods of symbolic presentation. 4. Steps in designing visualization systems. 5. Rules for the drafting of technical documentation. 	
Work placement	Not applicable	

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