



Subject card

Subject name and code	Mobile Multimedia Applications, PG_00063914						
Field of study	Informatics						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group		Optional subject group Specialty subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marek Kulawiak				
	Teachers		dr inż. Marek Kulawiak				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	E-learning hours included: 0.0						
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	45		6.0		24.0	75
Subject objectives	The goal of the subject is to familiarize the students with technologies applicable to mobile multimedia application development.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_U12] is able, to an increased extent, to analyze the operation of components and systems related to the field of study, as well as to measure their parameters and study their technical characteristics, and to plan and carry out experiments related to the field of study, including computer simulations, interpret the obtained results and draw conclusions	The student is able to design and develop software using the technologies and programming environments dedicated to multimedia applications.	[SU4] Assessment of ability to use methods and tools
	[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	The student knows and uses a satellite navigation system.	[SW2] Assessment of knowledge contained in presentation
	[K7_W04] knows and understands, to an increased extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or other elements or programmable devices specific to the field of study, and organization of work of systems using computers or such devices	The student knows how to generate and display three-dimensional graphics in their own applications.	[SW1] Assessment of factual knowledge
	[K7_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, making assessment and critical analysis of the prepared software as well as a synthesis and creative interpretation of information presented with it	The student is able to utilize sensors built in a mobile device.	[SU3] Assessment of ability to use knowledge gained from the subject
Subject contents	1. Augmented reality in mobile devices 2. Sensors and multimedia in mobile devices 3. Sound processing in mobile devices 4. Satellite navigation 5. Open GL ES and game engines		
Prerequisites and co-requisites	Object-oriented programming		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	60.0%	33.0%
	Colloquium	60.0%	34.0%
	Laboratory	60.0%	33.0%
Recommended reading	Basic literature	A. Munshi, D. Ginsburg, D. Shreiner: OpenGL ES 2.0 Programming Guide, Addison-Wesley, 2010	
	Supplementary literature	C. Morales, D. Nelson: Mobile 3D Game Development: From Start to Market; Charles River Media, 2007	

	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	<p>Describe three types of sensors found in modern mobile devices.</p> <p>What reference systems are used in mobile devices and computer graphics?</p> <p>List the pros and cons of using video game engines.</p>	
Work placement	Not applicable	

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