



## Subject card

Subject name and code	Mobile Multimedia Applications, PG_00048297						
Field of study	Informatics, Biomedical Engineering, Biomedical Engineering, Biomedical Engineering						
Date of commencement of studies	February 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Optional 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			2.0		
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						
Mobilne aplikacje multimedialne 2022/2023 - Moodle ID: 23822 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23822">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23822</a>							
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		4.0		1.0	50
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_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	Student is able to utilize sensors build in a mobile device.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K7_U11] can manage team work	Student is able to design a schedule of activities and assign tasks within the team.	[SU1] Assessment of task fulfilment
	[K7_U05] can plan and conduct experiments related to the field of study, including computer simulations and measurements; interpret obtained results and draw conclusions	The student is able to design and develop software using the technology and programming environments dedicated 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.	Student knows and uses a satellite navigation system.	[SW2] Assessment of knowledge contained in presentation
[K7_W04] Knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices	Student knows the methods of using web services in their own of applications.	[SW1] Assessment of factual knowledge	
Subject contents	1. Augmented Reality in mobile devices  2. Sensors and multimedia on mobile devices.  3. Video processing on mobile devices.  4. Unity3D environment  5. Open GL ES		
Prerequisites and co-requisites	Object-oriented programming		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	50.0%	33.0%
	Colloquium	50.0%	34.0%
	Project	50.0%	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		

Example issues/ example questions/ tasks being completed	What reference systems are used in mobile devices and computer graphics?  Describe the basic components of a video game engine.  Describe the coordinate systems applicable to augmented reality applications.
Work placement	Not applicable