GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Technologies of Interaction, PG_00067092		
Field of study	Informatics		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study 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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Intelligent Interactive Systems -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mariusz Szwoch	
	Teachers	dr inż. Mariusz Szwoch	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	12.0	0.0	0.0	15.0	0.0	27
	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	27	12.0	86.0	125

Subject objectives	
	Learning the basics, principles, methodology and technology of video game design based on modern game engines..

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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	Student presents methods of creating video games using various game engines and programming languages.Creates video games for various platforms using game engines.	[SW1] Assessment of factual knowledge
[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	Student distinguishes and characterizes different types of video games. Presents the history of video game development and the components of game engines. Presents methods for development of video games using different game engines. and programming languages. Creates video games for different platforms using game engines.	[SU4] Assessment of ability to use methods and tools
[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study	Student distinguishes and characterizes different types of video games. Presents the history of video game development and the components of game engines. Presents methods for development of video games using different game engines. and programming languages. Creates video games for different platforms using game engines.	[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	Student distinguishes and characterizes different types of video games. Presents the history of video game development and the components of game engines. Presents methods for development of video games using different game engines. and programming languages. Creates video games for different platforms using game engines.	[SU4] Assessment of ability to use methods and tools

Subject contents

Course content – lecture

1. Introduction
2. Video games: definition, kinds, evolution history
3. Basic video game concepts (goals and rules, gameplay, challenges and actions, game modes, balancing etc.)
4. Video games genres
5. Video games elements: core mechanics, user interface, interaction models and perspectives, gameplay modes, shell menus and screens
6. Games hardware: PC, consoles, mobile devices
7. Elements of game development process: player-centric approach, idea, project, scenario, plot,
8. Game project documentation
9. Design teams - tasks, members and their competences
10. Artificial intelligence
11. Types of game levels and their designing rules
12. Interactivity and user interface
13. Game Engines
14. Sample game development environments (Unity Engine, Unreal Engine)
15. Supporting tools, Speed Tree

<table>
<tr><td>Prerequisites and co-requisites</td><td>Computer Graphics - basic level

Multimedia and Interfaces

Object programming</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Practical exercise</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>Written exam</td><td>50.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1. E. Adams: Fundamentals of Game Design, New Riders, 2013.
2. M. Essam: Mastering Unity Game Development with C#, Packt Publishing 2024.
3. H. Ferrone: Learning Design Patterns with Unity, Packt Publishing 2024.
4. A. Godbold: Mastering UI Development with Unity, Packt Publishing 2024.
5. S.H. Cameron: Unity 2022 By Example, Packt Pub. 2024.
6. N.A. Borromeo: Hands-On Unity Game Development, Packt Publishing 2024.
7. G. Visai: Cinematic Photoreal Environments in Unreal Engine 5, Packt Publishing, 2024.
8. L. Palmeri: Architectural Visualization in Unreal Engine 5, Packt Publishing, 2024.
9. S. Butler: Game Development Patterns with Unreal Engine 5, Packt Publishing, 2024.
10. M. Secchi: Multiplayer Game Development with Unreal Engine 5, Packt Publishing, 2024.</td></tr>
<tr><td>Supplementary literature</td><td>No requirements</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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