GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Game Design, PG_00047980		
Field of study	Informatics		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2025/2026
Education level	first-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	4	Language of instruction	Polish
Semester of study	7	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department of Intelligent Interactive Systems -> Faculty of Electronics, Telecommunications and Informatics		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Mariusz Szwoch	
	Teachers	dr inż. Mariusz Szwoch	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	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	4.0	51.0	100

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

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W41] Knows and understands, to an advanced extent, the operation and evaluation criteria of data processing, storage and transfer methods, including computational algorithms, artificial intelligence and data mining	Shows the history of games development and components of games engines.	[SW1] Assessment of factual knowledge
[K6_W01] knows and understands, to an advanced extent, mathematics necessary to formulate and solve simple issues related to the field of study	Shows the history of games development and components of games engines.	[SW1] Assessment of factual knowledge
[K6_U03] can design, according to required specifications, and make a simple device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	Student differenciates and characterises different genres of video games. Shows the history of games development and components of games engines.	[SU4] Assessment of ability to use methods and tools
[K6_U43] can analyse date and formulate, apply and assess appropriate formal models and algorithms for solving problems in the field of information systems and applications	Student differenciates and characterises different genres of video games. Shows the history of games development and components of games engines.	[SU4] Assessment of ability to use methods and tools
[K6_W05] Knows and understands, to an advanced extent, methods of supporting processes and functions, specific to the field of study	Student differentiates and characterizes different genres of video games. Shows the history of game development and components of game engines.	[SW1] Assessment of factual knowledge

Subject contents

1. Introduction
2. Video games: definition, kinds, evolution history
3. Basic video game concepts (goals and rules, gameplay, challanges 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

Prerequisites and co-requisites

Computer Graphics - basic level

Multimedia and Interfaces

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Practical exercise	51.0%	50.0%
Written exam	51.0%	30.0%
Presences and activity	51.0%	10.0%
Presentation at a lecture	51.0%	10.0%

Recommended reading	Basic literature	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.
	Supplementary literature	No requirements
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.