GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Technologies of Interaction, PG_00067092 | | |
| Field of study | Informatics | | |
| Date of commencement of studies | October 2025 | Academic year of realisation of subject | 2025/2026 |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study<br>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 -> Wydziały Politechniki Gdańskiej | | |
| 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 | 12.0 | 0.0 | 15.0 | 0.0 | 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 |

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

<table>
<tr><td>Prerequisites and co-requisites</td><td>Computer Graphics - basic level<br><br>Multimedia and Interfaces<br><br>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>Written exam</td><td>50.0%</td><td>50.0%</td></tr>
<tr><td>Practical exercise</td><td>50.0%</td><td>50.0%</td></tr>
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</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1. E. Adams: Fundamentals of Game Design, New Riders, 2013.<br>2. M. Essam: Mastering Unity Game Development with C#, Packt Publishing 2024.<br>3. H. Ferrone: Learning Design Patterns with Unity, Packt Publishing 2024.<br>4. A. Godbold: Mastering UI Development with Unity, Packt Publishing 2024.<br>5. S.H. Cameron: Unity 2022 By Example, Packt Pub. 2024.<br>6. N.A. Borromeo: Hands-On Unity Game Development, Packt Publishing 2024.<br>7. G. Visai: Cinematic Photoreal Environments in Unreal Engine 5, Packt Publishing, 2024.<br>8. L. Palmeri: Architectural Visualization in Unreal Engine 5, Packt Publishing, 2024.<br>9. S. Butler: Game Development Patterns with Unreal Engine 5, Packt Publishing, 2024.<br>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>Adresy na platformie eNauczanie:</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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