Digital media and game development - opis przedmiotu

Informacje ogólne

Nazwa przedmiotu	Digital media and game development
Kod przedmiotu	11.3-WE-INFD-DMaGD-Er
Wydział	Wydział Nauk Inżynieryjno-Technicznych
Kierunek	Informatyka
Profil	ogólnoakademicki
Rodzaj studiów	Program Erasmus drugiego stopnia
Semestr rozpoczęcia	semestr letni 2024/2025

Informacje o przedmiocie

Semestr	2
Liczba punktów ECTS do zdobycia	6
Typ przedmiotu	obowiązkowy
Język nauczania	angielski
Sylabus opracował	• dr hab. inż. Marek Sawerwain, prof. UZ

Formy zajęć

Forma zajęć	Liczba godzin w semestrze (stacjonarne)	Liczba godzin w tygodniu (stacjonarne)	Liczba godzin w semestrze (niestacjonarne)	Liczba godzin w tygodniu (niestacjonarne)	Forma zaliczenia
Wykład	15	1	-	-	Zaliczenie na ocenę
Laboratorium	30	2	-	-	Zaliczenie na ocenę
Projekt	15	1	-	-	Zaliczenie na ocenę

Cel przedmiotu

- To familiarize students with the design and production of computer games or digital media.
- Presentation of the requirements of the electronic entertainment industry.
- Shaping basic skills in preparing for work as a game designer or digital media creator.

Wymagania wstępne

Computer Graphics, 3D Games Programming

Zakres tematyczny

Game study. History of video games. Types and categories of video games. Game evaluation in terms of technology, narration, playability, interaction and aesthetics.

Digital media study. Computer animations and special effects. Digital media evaluation in terms of technology, narration and aesthetics.

Game design theory. Principles and methodology of game production. Game concept (mechanics, game rules, world modeling). Game economy (simulations, rules of play, "rewards and punishments" for a player, complexity of the game, interaction and player experience building).

Digital Storytelling. Linear and nonlinear narration. Scripts and screenplays. Principles of digital drama. Build of character.

Game programming. Physics and games. Environment for game development. Data representations (component oriented model, ECS pattern). Artificial Intelligence of non playable characters (NPC).

Game Assets. Design of computer game components or computer animation. Designing a soundtrack and sound elements.

Level Design. Designing virtual worlds - the level of the game or the scenography of film/animation.

Document Creation. Development of a document containing the concept of game/animation, scenario, asset description and illustrations, scenography description and illustrations, description of selected project environment, description of data format and code components, user demography, comparison with similar games.

Game creations/Films production. Developing of a prototype game or multimedia application. Evaluation of the prototype.

Metody kształcenia

Lecture: conventional lecture
Laboratory: laboratory exercises, group work
Project: project method, discussions and presentations

Efekty uczenia się i metody weryfikacji osiągania efektów uczenia się

Opis efektu	Symbole efektów	Metody weryfikacji	Forma zajęć
Can design and implement a multimedia application capable to working in a variety of hardware and software environments.		• obserwacja i ocena aktywności na zajęciach • sprawdzian z progami punktowymi	• Laboratorium
Can design application with 3D graphics and digital media.		• obserwacja i ocena aktywności na zajęciach • sprawdzian z progami punktowymi	• Laboratorium
Can present a documentation or scenario for a multimedia application or digital film.		• projekt • pisemne sprawozdanie z projektu	• Projekt
Determines the priorities of the realised project		• obserwacja i ocena aktywności na zajęciach • sprawdzian z progami punktowymi	• Laboratorium • Projekt
Knows main notions of 3D graphics and digital media.		• sprawdzian z progami punktowymi	• Wykład
Student is aware of the dynamic development of methods of computer graphics and media.		• sprawdzian z progami punktowymi	• Wykład
Student can creatively use the available tools for designing applications with 3D graphics and media		• obserwacja i ocena aktywności na zajęciach • sprawdzian z progami punktowymi	• Laboratorium
Student has knowledge of the principles of game design and digital media.		• sprawdzian z progami punktowymi	• Wykład
Student is able to work in a team which are working on multimedia project.		• obserwacja i ocena aktywności na zajęciach • sprawdzian z progami punktowymi	• Laboratorium • Projekt

Warunki zaliczenia

Lecture - obtaining a positive grade in written exam.
Laboratory - the main condition to get a pass are sufficient marks for all exercises and tests conducted during the semester.
Project - a condition of pass is to obtain positive marks from all project tasks and preparation written report of project.
Calculation of the final grade: = lecture 40% + laboratory 30% + project 30%.

Literatura podstawowa

1. Borromeo, N.A.: Hands-On Unity 2022 Game Development, 3rd edition, Packt Publishing, 2022.
2. Computer Games: 6th Workshop, CGW 2017, Held in Conjunction with the 26th International Conference on Artificial Intelligence, IJCAI 2017, Melbourne, VIC (In: Computer and Information Science), Editors: Cazenave, T., Winands, M.H.M., Saffidine, A. Springer, 2018.
3. Ciesla, R.: Mostly Codeless Game Development: New School Game Engines, Apress, 2017.
4. Doran, J.P., Casanova, M.: Game Development Patterns and Best Practices, Packt Publishing, 2017.
5. Förstner, W., Wrobel, B. P.: Photogrammetric Computer Vision: Statistics, Geometry, Orientation and Reconstruction, 1st ed., Springer, 2016.
6. Goodwin, S.: Polished Game Development From First Steps to Final Release, Apress, 2016.
7. Jerald, J.: The VR Book: Human-Centered Design for Virtual Reality (ACM Books), Morgan & Claypool Publishers, 2015.
8. Nystrom, R: Game Programming Patterns, Genever Benning, 2014.
9. Adams, E.: Fundamentals of Game Design, 2nd edition, New Riders, 2009.
10. Fox, B.: Game Interface Design, Thomson, 2005.
11. Freeman, D.: Creating Emotion in Games: The Craft and Art of Emotioneering, New Riders, 2003.
12. Rucker, R.: Software Engineering and Computer Games, Addison Wiley, 2002.

Literatura uzupełniająca

1. Sung, K., Smith, G.: Basic Math for Game Development with Unity 3D: A Beginner's Guide to Mathematical Foundations, Apress, 2019.
2. Nandy, A., Biswas, M.: Neural Networks in Unity C# Programming for Windows 10 UWP, Apress 2018.
3. Herhuth, E.: Pixar and the Aesthetic Imagination: Animation, Storytelling, and Digital Culture, University of California, reprint edition, 2017.
4. Doppioslash, C.: Physically Based Shader Development for Unity 2017: Develop Custom Lighting Systems, Apress 2017.
5. Adams, E.: Fundamentals of Game Design, 3rd edition, New Riders, 2013.
6. Adams, E., Dormans, J.: Game Mechanics: Advanced Game Design, New Riders , 2012.
7. Bateman, C.: Game Writing: Narrative Skills for Videogames, Cengage Learning, 2006.
8. Adams, E.: Break Into The Game Industry: How to Get A Job Making Video Games, McGraw-Hill Osborne Media , 2003.
9. Morrison, M.: Teach Yourself Game Programming, Sams Publishing, 2002.

Uwagi

-- no comments --

Zmodyfikowane przez prof. dr hab. inż. Krzysztof Patan (ostatnia modyfikacja: 09-04-2024 17:54)