



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Game design [N2Inf1-ZTI>PGK]

Course

Field of study

Computing

Year/Semester

1/2

Area of study (specialization)

Advanced Internet Technologies

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

part-time

Requirements

elective

Number of hours

Lecture

16

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

16

Number of credit points

4,00

Coordinators

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Lecturers

dr inż. Jędrzej Marszałkowski

Prerequisites

Students beginning this course should have basic knowledge of programming techniques and languages, operating systems, and Internet technologies. He or she should have general programming skills and the ability to obtain information from indicated sources. He/she should also understand the need to broaden his/her competencies and be ready to start cooperation within the team. Moreover, in social competencies, the student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, and respect for other people.

Course objective

1. To acquaint students with knowledge about the non-programmatic aspects of computer game development: game design, game market and modern game marketing. 2. To provide skills and competencies that provide the basis for creating your own project in the game market or for working in game development companies.

Course-related learning outcomes

Knowledge:

1. has structured and theoretically based general knowledge related to the design of computer games

2. has advanced detailed knowledge of computer game design
3. knows of development trends and the most important new developments in the field of computer game design
4. has an advanced and detailed knowledge of the processes taking place in the computer game design cycle

Skills:

1. is able to plan and conduct experiments, including computer measurements and simulations, interpret the results obtained and draw conclusions from the design of computer games
2. is able to use simulation and experimental methods to formulate and solve engineering tasks in the field of computer game design
3. is able to integrate knowledge from various areas of computer science (and, if necessary, knowledge from other scientific disciplines) and apply a system approach, including non-technical aspects, when formulating and solving engineering tasks in the field of computer game design
4. is able to evaluate the usefulness and possibility of using new achievements (methods and tools) and new computer game design products
5. is able to assess the usefulness of methods and tools used to solve an engineering task in the field of computer game design, consisting of the construction or evaluation of an IT system or its components, including the limitations of these methods and tools
6. is able to design a computer game according to a given specification, taking into account non-technical aspects

Social competences:

1. understands that knowledge and skills in computer game design are rapidly becoming obsolete in an ever-changing market

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

As lectures are concerned, the assumed educational results are verified by assessing the knowledge, skills, and competencies demonstrated as part of the project defense.

In terms of laboratories, verification of the assumed educational results is carried out by

- the assessment of the student's preparation of single project increments for subsequent laboratory classes and the evaluation of skills related to laboratory tasks,
- evaluation and defense of tasks performed by students during classes.

Programme content

The lecture will cover topics such as game markets for small companies and individual developers, games as startups, the modern game market, Rapid Application Development tools, game mechanics, economic systems in games, applications of games in education and marketing, ludology, new technology law, and specifications of non-computer games. Laboratory classes will include exercises, workshops, and projects related to game design, creating mechanics, level design, and working with legal documents.

Course topics

As part of the lecture, the following topics will be discussed:

Game markets available for small companies and individual developers: mobile games, indie games, self-publishing.

Game as a startup. Attracting investors. Game marketing, methods of acquiring players, business models, profitability principles. Performance and security issues.

The contemporary game market. Modern digital distribution and its impact on games, producers, distributors, and consumers.

Tools and technologies for Rapid Application Development, applicable for both prototyping and creating multiplatform games.

Game mechanics, their security and exploits, powergaming. Creating mechanics, principles, and practice. The role of mathematics and probability calculus in mechanics.

Economic simulation systems in computer games, analysis of existing systems, creating economic

systems.

Modern applications of games in education and marketing: edutainment, gamification. Simulation and decision-making games. Innovative types of games: serious games, alternate reality games, augmented reality games, and their applications.

Introduction to ludology (game science), a scientific discipline studying games using techniques from humanities and social sciences, such as cultural studies, sociology, psychology, and even economics.

Legal system elements relevant to the game industry, the internet industry, and the IT industry in general (known as new technology law), particularly copyright law.

Specifications of non-computer games, whose components permeate into computer games: board games, role-playing games (RPGs), live-action role-playing (LARP), outdoor games.

Laboratory classes are conducted in the form of exercises grouped entirely, consisting of multiple hours, mini-hackathons held in the computer lab. The exercises are carried out by small student teams. In the laboratory classes, selected lecture topics will be deepened, and workshops and projects will be implemented:

Working with documents developed during game design, particularly the Game Concept Document and game pitch.

Creating a game concept, game concept compo.

Workshops on creating mechanics, mechanics design using Rapid Application Development environment – programming in a scripting language.

Level design workshops, teaching players mechanics, prototyping levels that teach players in a low-code environment.

Level design workshops, scaling game difficulty, difficulty curve, prototyping a game with multiple levels in Rapid Application Development environment – programming in a scripting language.

Workshops on creating game mechanics and gameplay systems, resource flows, designing such a system in subsequent steps.

Working with legal documents, such as the Copyright Transfer Agreement.

Own game project in the following stages:

Creating the concept and Game Concept Document,

Developing a more detailed description of the game mechanics and low-level gameplay,

Creating a prototype of the mechanics and gameplay using paper prototyping,

Testing and improving the mechanics and gameplay.

Teaching methods

1. Lecture: multimedia presentation, multimedia show, demonstration, discussion.

2. Laboratory exercises: practical exercises, discussion, teamwork, brainstorming with games, workshops, case studies, demonstration.

Bibliography

Basic

1. Projektowanie gier: podstawy, Ernest Adams, 2011 Helion

2. Grywalizacja: jak zastosować mechanizmy gier w działaniach marketingowych, Paweł Tkaczyk., 2012 Helion

3. Grywalizacja: mechanika gry na stronach WWW i w aplikacjach mobilnych, Gabe Zichermann, Christopher Cunningham, 2012 Helion

Additional

1. Ludzie i gry, Roger Caillois, 1997, Oficyna Wydawnicza Volumen

2. The Art of Game Design: A book of lenses, Jesse Schell, 2008 Elsevier

3. A Theory of Fun for Game Design, Raph Koster, 2004 Paraglyph Press

4. Specyfikacja GameMaker: <http://help.yoyogames.com/home> oraz <http://wiki.yoyogames.com>

5. Gamestorming: A Playbook for Innovators, Rulebreakers, and Changemakers, Dave Gray, Sunni Brown, James Macanufo, 2010 O'Reilly

6. Homo Ludens, 2009-2018, ludologiczny periodyk naukowy, <http://ptbg.org.pl/HomoLudens/>

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	32	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	68	2,50