

Digital Games and Virtual Worlds

COURSE CONTENT:

1. Digital Games and Learning:

- Basic Concepts: Game-based learning, digital games, virtual worlds
- Educational digital games vs. Gamification
- Core elements of virtual worlds – Example: Minecraft (software presentation)
- DESIGN: Initial brainstorming for designing a game

2. Playing vs. Designing Digital Games:

- Game design by educators for students to play (learning through play)
 - How to design a "good" educational game
 - Design stages – The importance of mockups/storyboards and rapid prototyping
 - Designing a meaningful gaming experience
 - Approaches to integrating learning into games (intrinsic/extrinsic, closed/open structure, synchronous/asynchronous)
- Game design by students – Connecting with learning theory through creation. Examples of best practices
- Game design platforms Scratch and Alice
- Other game design platforms (e.g., ARIS Games, Gamestar Mechanics, Twine) – key features – comparison
- DESIGN: Introduction to Scratch and Alice design platforms. Students attempt to transfer their game ideas to one of the two platforms presented – refining and enhancing the original concept

3. Modifying Digital Games:

- Game modification – definition and player practices
- Game modification and learning
- DESIGN – Discussion: each student discusses the evolution of their idea, implementation challenges, and ways to encourage students to alter the game

4. Half-Baked Games: A Pedagogical Approach to Game Modification:

- What are "half-baked" games
- Analyzing a half-baked game – pedagogical design – characteristics
- Modifying a half-baked game – recording the learning process
- Ideas for creating a half-baked game
- DESIGN – Discussion: each student discusses their idea's progress and issues faced. After the discussion, they refine the initial concept and explore how to "half-bake" their game

5. Categories of Digital Games:

- Massively Multiplayer Online Role-Playing Games (MMOs)
- Adventure and puzzle games (text-based adventures, interactive movies)
- Ubiquitous computing games (RPGs)
- Simulation games
- Strategy games
- Constructionist games
- Core concepts: Narrative, Ludology, Procedural Rhetoric, Immersion, and Adjuncts
- DESIGN – Discussion: each student discusses the progress of their idea, challenges, and the educational value of the game, with time at the end to enhance the game description

6. Analysis of Digital Games:

- Basic game mechanics – Examples
- Game rules
- The concept of game balance
- What makes a game a game?
- Digital games and concept representation
- DESIGN – Discussion: each student discusses their idea's development and challenges. Emphasis on the educational value of the game, with time at the end to refine the game description

Detailed Description of Units:

This course focuses on both theoretical discussions and analyses of digital games and virtual worlds, as well as the practical aspect of game design. These two processes progress in parallel to enrich the design process with theoretical insights. Each unit ends with time dedicated to designing a digital game, forming part of the students' final project.

Unit 1 introduces core concepts of the course: (a) Game-based learning, (b) Digital games, and (c) Virtual worlds. Two approaches to game-based learning are analyzed (gamification vs. educational digital games), and the main characteristics of virtual worlds are presented, using Minecraft as an example.

In **Unit 2**, digital game design is examined from two perspectives: (a) designing educational digital games for students to learn through playing. This includes the process of designing a "good" educational game, the stages of design (planning cycles, rapid prototyping, testing, redesign), creating meaningful learning experiences, and various approaches to embedding learning in games. (b) The learning that emerges when students engage in designing digital games, linking to constructionist learning theory and the maker movement. Students are introduced to game design tools such as Scratch and Alice 3.0, along with other game design platforms, and they experiment with these platforms to implement their game ideas.

Unit 3 explores the concept of modifying digital games, beginning with modification practices among player communities. The significance and educational value of adapting games for learning are discussed. Students read articles on best practices in applying game modification to the learning process and present their findings.

Unit 4 focuses on half-baked games as a pedagogical approach to facilitate game modification in learning. A half-baked game is analyzed under this framework, with students playing and attempting to modify it while documenting their learning process using structured self-observation.

Unit 5 presents the main categories of digital games, covering Massively Multiplayer Online Role-Playing Games (MMOs), adventure and puzzle games, ubiquitous computing games (RPGs), simulation games, strategy games, and constructionist games. Core game concepts are explained and analyzed, including narrative, ludology, procedural rhetoric, immersion, and adjuncts.

In **Unit 6**, the essential components that create a gaming experience are analyzed, including mechanics, rules, objects and characters, storyline, graphics and aesthetics, the game's semiotic system, interaction possibilities, and game balance. The playful nature of games and their role as a medium for concept representation are also discussed.

The course is structured to enable students to apply theoretical insights in practice, as they progressively design a digital game, refining and evolving their ideas with each unit's insights. This game serves as the core of their final project and course evaluation.