

| Veranstaltungsname      |
|-------------------------|
| <b>Game Development</b> |
| Lehrende                |
| Prof. Maic Masuch       |

| Semester | Turnus | Sprache  | Prüfungsnummer |
|----------|--------|----------|----------------|
| 2        | WS     | Englisch | ZKD Neu        |

| SWS | Präsenzleistung | Eigenleistung | ECTS |
|-----|-----------------|---------------|------|
| 4   | 60              | 120           | 6    |

| Lehrform                                          |
|---------------------------------------------------|
| Projektarbeit in Kleingruppen, Workshops, Übungen |
| Prüfungsform                                      |
| Mündliche Prüfung                                 |
| Beschreibung                                      |

This course focuses on the practical conception, implementation, and iterative development of digital games through the creation of a playable prototype. Students work in small teams to design, develop, and deliver a complete game experience, applying both technical and organizational principles of modern game production.

The course introduces game development using a contemporary game engine (Unity) and covers core aspects such as gameplay implementation, prototyping, and system integration. Students gain hands-on experience in programming, including the use of AI-assisted development tools, and learn how to translate design concepts into functional game systems.

A central component of the course is project-based teamwork structured around agile development methodologies. Students apply Scrum practices, use version control systems and repositories, and organize their work through iterative development cycles, including milestone presentations and continuous playtesting.

The course emphasizes rapid prototyping, testing, and refinement. Students learn to evaluate their game with respect to playability, usability, and player experience, and to iteratively improve their prototype based on feedback.

**The course Game Development is closely integrated with the parallel course Game Design. While Game Design can be completed as an independent lecture, Game Development is designed to be taken in conjunction with Game Design.** While Game Design provides the conceptual and theoretical foundation, this course focuses on implementation and production. Together, they ensure a strong alignment between theory and practice within a complete game development pipeline.

## Lernziele

After successful completion of the course, students will end with a playable prototype. The learning objectives include:

### Development & Implementation

- Implementing core gameplay mechanics using a modern game engine (Unity)
- Translating design concepts into functional, playable systems
- Applying basic programming and AI-assisted development techniques

### Prototyping & Iteration

- Developing and iteratively refining a playable game prototype
- Conduct playtesting and evaluating usability and player experience

### Project & Teamwork Skills

- Applying agile methods (Scrum) in a team-based project
- Using version control and collaborative development workflows
- Planning and communicating development progress effectively

### Reflection & Presentation

- Reflecting on design and implementation decisions
- Presenting and documenting a game project in a structured manner

## Literatur

- Fullerton, Tracy – *Game Design Workshop: A Playcentric Approach to Creating Innovative Games*, 5th Edition, CRC Press, 2024.
- Schell, Jesse – *The Art of Game Design: A Book of Lenses*, 3rd Edition, CRC Press, 2019.
- Scott Rogers – *Level Up! The Guide to Great Video Game Design*, 3rd Edition, John Wiley & Sons Inc, 2024.
- Paris Butterfield-Addison, Jon Manning & Tim Nugent – *Unity Development Cookbook: Real-Time Solutions from Game Development to AI*, 2nd Edition, O'Reilly Media, 2023.
- Mesmar, Fawzi – *Demystifying Creativity: On Originality in Game Development*, 2nd Edition, CRC Press, 2024.
- Clinton Keith – *Agile Game Development with Scrum*, 1st Edition, Addison-Wesley Professional, 2010.

#### **Vorleistung**

- Parallele Belegung der Veranstaltung Game Design
- Erfahrungen mit Unity hilfreich