

Course name: 203 "IT Design and Development for Video Games 2" [9 ECTS]

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Description: This course allows students to cover more specific concepts in video game development: artificial intelligence, mathematics, procedural animation and content synthesis: low level with noise synthesis and high level with the procedural generation of game levels.

Prerequisites: C++ programming, ability to choose appropriate data structures. The ability to correctly manipulate advanced data structures as well as more low-level representations. A basic knowledge of solid geometry. Previous experience manipulating a game engine and creating first, simple prototypes. Ability to peruse documentation and adapt information found online.

Learning: Understanding the main principles of artificial intelligence applied to video games. Understanding and manipulating generative systems. First of all from a general viewpoint (L systems, grammars, bořds etc.). Then, more specifically: generating a sample sequence using an algorithm or a mathematical function which is simple but in a controlled manner, and knowing how to generate a game level using more advanced algorithms. Understanding the main procedural animation algorithms and their limits. Knowing how to peruse a research article in order to extract an algorithm to be applied. Being familiar with the state of the art in generation systems for game content.

Assessment methods:

Session 1

- MCQ in the lesson, delivery of projects [60% of the overall mark]
- Partial in the form of MCQ / exercises [40% of the overall mark]

Session 2

- Improvement of projects and bibliographical summary report of the concepts not yet mastered