Course name: 202 "IT Design and Development for Video Games" 1 **[9 ECTS]**

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Description: This course exposes students to major issues in video game programming: image synthesis, solid geometry, physics and network. It allows them to grasp these concepts both at the low level of directly manipulating the C++ code of a simple engine completely unknown to them, and manipulating the advanced tools of a market engine.

Prerequisites: Programming in c++, ability to choose appropriate data structures. Also able to confidently operate advanced data structures as well as more low-level representations. Have the basics of solid geometry. Previous experience in operating a game engine, produced from simple first prototypes. Ability to peruse documentation and adapt information recovered online.

Learning: Understanding the basics of a simple game engine code written in c++. Amending this basis to develop a particular universe and a gameplay. Knowing the basic principles of image synthesis for video games. Knowing how to write simple shaders, and create effects linked to the manipulation of vertexes and fragments, in forward and differed. Writing the physical behaviour of a solid manipulated by a controller and managing its collisions in a simple case. Understanding the principles of architecture and service quality of the synchronous networks and the special features specific to their use in the game. Manipulating a standard market game engine and exploring its advanced tools.

Assessment methods:
Session 1
- MCQ in lessons, submission of projects [60% of the overall mark]
- Partial in the form of MCQ / exercises [40% of the overall mark]

Session 2

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