

3D Video Game Development and Virtual Reality

Targeted skills

- Use computer programming (C++ and C#) to create synthetic images representing 3-dimensional (3D) scenes.
 - Master the mathematical tools used to describe objects in space.
 - Give these images a realistic rendering thanks to effects of light and textures.
- Program the behavior of characters interacting in a virtual universe.
 - Manage their movements and coordinate their movements.
 - Manage collisions and their interaction with the environment.
 - Model their behavior with artificial intelligence for steering, path finding or decision making.
- Use specialized software to get fast results.
 - Create 3D objects and animation videos.
 - Develop a game by reusing existing components.
 - Integrate virtual reality devices.
- Participate efficiently in a video game development project.
 - Know the process, the stages and the actors involved.
 - Work in a team. Apply an agile method.

General information

Audience	International students
Language of teaching	English
Calendar	1 October - 21 December
Volume	300 hours (200 sessions of 1,5 hour)

Courses

Technical Module (15 credits)	90 sessions
• Mathematics for 3D image synthesis	10 sessions
• 3D image synthesis and rendering techniques	10 sessions
• Physical engine for video game development	10 sessions
• 3D libraries and development tools. Shaders.	20 sessions
• Artificial intelligence for video game development	10 sessions
• Development with a game engine	20 sessions
• Project management for video game development	10 sessions

Project (15 credits)	110 sessions
• Team project: video game development, with possibility of using virtual reality devices.	110 sessions

Optional module (1 course to select)	12 sessions
• French as a foreign language	12 sessions
• English	12 sessions