

IMA5004	Multimedia applications and games in augmented reality
Period : S9 / P4	ECTS : 4
	Language : English

Organization:

- Teaching Load / Total Load: 45/90
- Lectures/Exercices/Labs/Final Exam 1: 18/6/21/0

Assessment:

Two-students group should provide a full implementation of an augmented reality game or interactive application. The application will be presented and defended at the final session in front of a jury. The final mark will take into consideration the application implementation and the answer to jury's questions.

Objectives:

To have the capabilities and skills required for the design and implementation of interactive 3D applications, in general, and augmented reality games, in particular, according to the following three directions:

- technologies for 3D modeling
- technologies for 3D rendering
- technologies for user interaction
- technologies for combining natural and graphics content in real time

Reference to CDIO Syllabus:

- 1.3 Advanced engineering fundamental knowledge, methods and tools
- 2.1 Analytical reasoning and problem solving
- 2.2 Experimentation, investigation and knowledge discovery
- 3.1.2 Team Operation
- 4.7.3 Creating New Solution Concepts

Keywords:

3D Content, augmented reality, synthetic images, authoring tools, video games, rendering engines.

Prerequisites:

- Mathematical skills in 3D geometry
- Programming skills (javascript)

Course outlines:

- Mixed and Augmented Reality concepts and technologies: system architecture, informational and computational viewpoints

- Anatomy and physiology of a game: what are the elements forming a game and how they are mixed together?
- Basics on 3D graphics data representation
- Basics on interactive multi-media content
- Basics in Augmented reality, sensors, camera
- Handling User Interaction

Learning materials and literature:

Literature:

- Greg Kipper, Joseph Rampolla, Augmented Reality: An Emerging Technologies Guide to AR,
- Gerry Kim, Christine Perey, Marius Preda, Mixed and Augmented Reality Reference Model, ISO/IEC 18039
- Traian Lavric, Marius Preda, Augmented Reality Application Format, 2nd Edition, ISO/IEC 23005-13

Person in charge:

Dr. Marius PREDA (marius.preda@telecom-sudparis.eu)

Lecturers:

From Télécom SudParis:

- Dr. Marius PREDA
- Traian LAVRIC

Guest lecturers:

- Nicolas BONVALET (Game Consulting)