

# 3D, Mixed and Augmented Reality

**Person in charge:** Maria TROCAN

**Prerequisite:** IG.2307/IG.2407, IG.2405

**Organization:** 24hrs lectures, 24 hrs project

**Evaluation:** Exam, project

**ECTS:** 5 credits

## Context

Augmented and Mixed Reality, an active area since the 1990s, has recently gained popularity because of the opportunity to be implemented across heterogeneous tools such as smart phones, game consoles, etc. Augmented Reality is the concept of superimposing the information generated by a computer over the physical world. Mixed Reality is somewhat broader and includes the fields of augmented reality, augmented virtuality and virtual reality.

## Objectives

### *Skills*

This module provides a practical introduction to these new interface technologies and it provides the background for a whole range of applications e.g. multimedia (video games), medical (surgery etc.) exploiting these technologies.

### *Knowledge*

This module enables students to develop the following concepts and skills:

- **Concepts**
  - Introduction: Mixed Reality, definition and history of the Augmented Reality and camera calibration models
  - 3D modeling
  - Mixed reality systems, application areas
  - Tracking technologies
  - Real-time visualization: visual coherence
  - Augmented Reality systems design
  - Visualization techniques for Mixed Reality: applications (video games, medicine)

- **Know-How**
  - 3D design software use

## **Pedagogical Approach**

Lectures, practical work, project.

## **References**

Lecture notes.