

Semester S8	ENSEA	New !
	<b>Image and Virtual Reality</b>	
US Credits : 3	Lecture : 36h, Laboratory 28h	Language : English

### Summary

This course introduces digital signal processing for images, computer vision, virtual and augmented reality. After formal lecturing on these concepts, students will develop a project in teams of two students.

### Prerequisites

- Imperative programming (C language)
- Object oriented programming (JAVA)
- Algorithms design

### Contents

- Image generation, camera types
- Image processing, linear filtering
- Mathematical morphology, pattern recognition (Hough transform), segmentation
- Computer vision: camera calibration, stereovision, structured light
- Virtual reality: VR helmets technology, 3D modeller, 3D engine
- Augmented reality: effects insertion, image synthesis

### Textbooks

- Digital Image Processing, Gonzales & Woods, 3<sup>rd</sup> edition, Pearson
- Unity 5.x Game Development Blueprints, John P. Doran, 2016, PACKT
- Game Engine Architecture, Jason Gregory, 2014, CRC press

### Similar to the following courses

- IIT Chicago
- University at Buffalo
- University of Pittsburgh
- University of Illinois at Urbana-Champaign
- Mississippi State University
- University of Michigan at AA
- Michigan Tech