Co-funded by the
Erasmus+ Programme
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AUGMENTED AND VIRTUAL REALITY

1. SYLLABUS INFORMATION

1.1. Course title
Augmented and Virtual Reality

1.2. University
University of Bordeaux

1.3. Semester
2nd year, 1st semester

2. COURSE DETAILS

2.1. Course nature
Compulsory

2.2. ECTS Credit allotment
3

2.3. Recommendations
Basic knowledge in Image Processing

2.4. Faculty data
Prof. Pascal Desbarats -LaBRI - firstname.lastname@u-bordeaux.fr

3. COMPETENCES AND LEARNING OUTCOMES

3.1. Course objectives
Augmented Reality and Virtual Reality are fast growing fields, thanks to the apparition of devices such as the HoloLens, MagicLeap, and Oculus, with many potential applications for the industry, the medical sector, and the general public. We will introduce the many challenges raised by AR and VR to convincingly merge virtual objects with our real world: Real-time 3D registration, 3D reconstruction including for instance stereo reconstruction or depth from defocus, realistic rendering, visualisation, and user interaction.

3.2. Course contents

1. History of AR and VR and Applications
2. Principles and Problems
3. Algorithms for AR and VR
4. Interactions

3.3. Course bibliography

- Multiple View Geometry in Computer Vision, Second Edition. Richard Hartley and Andrew Zisserman, Cambridge University Press, March 2004
- Augmented Reality: Principles and Practice, Dieter Schmalstieg and Tobias Hollerer. Addison-Wesley Professional

4. TEACHING-AND-LEARNING METHODOLOGIES AND STUDENT WORKLOAD

Activity	Hours
Lectures	12
Tutored computer lab	24

5. EVALUATION PROCEDURES AND WEIGHT OF COMPONENTS IN THE FINAL GRADE

- Project: 100%