UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Vision in Virtual and Augmented Reality

2627-2-F1702Q015-F1702Q01501

Aims

Specific Learning Outcomes (LO)
By the end of the module, a successful student will have gained:

1. Knowledge and Understanding
   Students will demonstrate knowledge and understanding of the role of the eye and the visual system in relation to virtual and augmented reality environments, including the optometric challenges associated with these technologies. They will be able to understand the difference between seeing and perceiving, with a particular focus on the taxonomy of visual illusions.
2. Applying Knowledge and Understanding
   Students will learn to calculate the visual demands of specific virtual or augmented reality environments on accommodation and binocular vision. They will be able to develop perceptually realistic environments thanks to the knowledge of some basic elements of visual perception, like the problem of constancy in perception.
3. Making Judgements
   By the end of the course, students will be able to critically evaluate the optometric characteristics of individuals and their suitability for success in virtual or augmented reality environments.
4. Learning Skills
   The course will equip students with the skills necessary to independently explore and analyze optometric and vision science literature related to virtual and augmented reality.

Contents

The module will address the role of the eye and visual system in virtual and augmented reality environments, while also exploring the applications of VR and AR technologies in optometry and vision science.

Detailed program

Lectures

1. The Eye and the visual system in managing VR and AR (FZ)
2. Optometric issues in VR and AR (FZ)
3. VR/AR technology applications in vision care (FZ)
4. Augmented reality spectacles and CL (FZ)
5. Extended reality in optometry education (FZ)
6. Seeing and thinking (RA)
7. The problem of constancy in visual perception (RA)
8. Some basic principles in visual perception: to recognize, to localize and to fragment (RA)
9. Visual Illusion (RA)
10. Illusion or reality? (RA)

Prerequisites

See curricular prerequisites for the admission Master's Degree Program

Teaching form

21 hours in presence Lectures: 14 delivered by Fabrizio Zeri and 7 by Rossana Actis Grosso
All lessons will be recorded and uploaded on the elearning page of the module.

The official language of the course is English

Textbook and teaching resource

Lecturers' handouts

Semester

First Semester

Assessment method

Written test (carried out in the laboratory on examonline) on the topics seen in lectures. The written test includes both closed multiple choice questions and open questions and covers all the topics seen in class. Regarding the practical part, the questions include both closed multiple answers, open answers, and questions regarding how the student would project a simple VR/AR application. Oral exam upon request by the professor or the student.

Office hours

Appointment needed

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | REDUCED INEQUALITIES | SUSTAINABLE CITIES AND COMMUNITIES