

1. GENERAL

SCHOOL	ENGINEERING		
DEPARTMENT	PRODUCT AND SYSTEMS DESIGN ENGINEERING		
LEVEL OF STUDIES	UNDER GRADUATE		
COURSE CODE	4105	SEMESTER	8th
COURSE TITLE	VIRTUAL AND AUGMENTED REALITY		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
Lectures	3	6	
Laboratory			
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	<i>specialised general knowledge</i>		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK/ENGLISH		
COURSE DELIVERED TO ERASMUS STUDENTS	YES		
MODULE WEB PAGE (URL)	https://eclass.uowm.gr/courses/MRE264		

2. LEARNING OUTCOMES

Learning outcomes
<p>Virtual reality is related to the computer simulation or reconstruction of a real environment or situation. The user is immersed in the virtual world and feels that s/he coexists within it with proper use of the senses of sight, hearing and touch. On the other hand, augmented reality aims to enhance the sensory perception of the existing, real environment with the aim of easier understanding and interaction with it.</p> <p>The aim of the course is the study and understanding of the processes of design, development and evaluation of Virtual and Augmented Reality systems. Immersion, desktop, augmented reality and virtual world environments are examined and analyzed, and relevant issues and approaches are studied. The practical application of some of the issues analyzed is examined as a case study using relevant software (Unity, Blender, etc.)</p> <p>Upon successful completion of the course, students should be able to:</p> <ul style="list-style-type: none"> • Describe the basic principles and concepts of Virtual Reality. • Understand the differences between the various Virtual and Augmented Reality systems. • Evaluate the potential of Virtual and Augmented Reality systems as an advanced human-computer interaction medium

- Design a suitable system composition for simple or complex problems in different application areas
- Understand the theoretical principles and practical application of known methodologies for designing, developing and evaluating virtual reality applications.
- Develop functional prototypes in modern virtual and augmented reality development environments.

General Skills

Theoretical and practical background concerning the field of Virtual and Augmented Reality systems. Design, Development and Evaluation Skills.

3. COURSE CONTENTS

- Introduction to Virtual and Augmented Reality
- Virtual worlds
- Human Factors in Virtual Reality
- Imaging and Motion
- Input-output units and VR system architectures
- Experience and Interaction Design
- Evaluation
- Applications

4. TEACHING METHODS - ASSESSMENT

MODE OF DELIVERY	1. THEORY In class, face to face										
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<ul style="list-style-type: none"> ● Use of appropriate software ● Video and slide presentations ● Support of teaching process via the electronic platform e-class 										
TEACHING METHODS	<table border="1"> <thead> <tr> <th><i>Activity</i></th> <th><i>Semester workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>50</td> </tr> <tr> <td>Projects</td> <td>50</td> </tr> <tr> <td>Non-directed study</td> <td>50</td> </tr> <tr> <td>Course total</td> <td>150</td> </tr> </tbody> </table>	<i>Activity</i>	<i>Semester workload</i>	Lectures	50	Projects	50	Non-directed study	50	Course total	150
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Lectures	50										
Projects	50										
Non-directed study	50										
Course total	150										
ASSESSMENT METHODS	<ol style="list-style-type: none"> 1. (60%) Final written exam which includes: <ol style="list-style-type: none"> i. Short-answer questions ii. Multiple choice questions iii. Problem solving 2. (40%) Homework 										

5. ATTACHED

- Βοσινάκης, Σ. (2015): Εικονικοί Κόσμοι. Εκδόσεις Ελληνικών Ακαδημαϊκών Βιβλιοθηκών.
- Λέπουρας, Γ., Αντωνίου, Α., Πλατής, Ν., Χαρίτος, Δ., (2015). Ανάπτυξη συστημάτων εικονικής πραγματικότητας. Αθήνα:Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών.