COURSE OUTLINE (1)

GENERAL

SCHOOL	Social Sciences		
ACADEMIC UNIT	Cultural Technology and Communication		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	KPLR117	**SEMESTER**	7th
COURSE TITLE	Virtual Reality		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	5
The organisation of teaching and the teaching methods used are described in detail at (d).	3	5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Elective Course/General Background
PREREQUISITE COURSES:	3D Computer Graphics
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	https://eclass.aegean.gr/courses/

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A x *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*

x *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B* x *Guidelines for writing Learning Outcomes*

At the end of this course, the students will be able to:

- Create photorealistic 3D graphics using software programs.
- Present the appropriate techniques for developing virtual environments with high photorealistic specifications that can operate either autonomously (in the form of video or photos) or in combination with computer and mobile application software (in the form of models, scenes and animation).
- Acquire the basic knowledge of 3D animation to develop mixed reality applications (virtual/augmented reality).

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*Production of new research ideas*

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working in an interdisciplinary environment
- Production of free, creative and inductive thinking
- Transfer of know-how in other environments
- Working independently
- Practice Critical Thinking

(3) SYLLABUS

This course covers as wide range of 3D Graphics and Virtual Reality production and research aspects. In detail, the course introduces students to the basics of Virtual and Mixed Reality, along with Real-Time Rendering. Finally, students use 3D Graphics and Visual Scripting to develop Virtual Reality interactive applications and games.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of free software for laboratory education (Unity 3D). Use ICT in teaching and communication with students.

TEACHING METHODS

The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of nondirected study according to the principles of the ECTS

Activity	***Semester workload***
Lectures	13 *3 hours =39 hours
Lecture's study	13*4 hours = 52 hours
Laboratory Preparation and semester assignment	34 hours
Course total	125 hours

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	The evaluation of student's performance evaluation is conducted at the end of the semester with a Virtual Reality Project. Moreover, weekly assignments are completed by the students. Those assignments scores are taken into account during their final evaluation grade.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

ΚΩΝΣΤΑΝΤΙΝΟΣ ΜΟΥΣΤΑΚΑΣ ΙΩΑΝΝΗΣ ΠΑΛΙΟΚΑΣ ΔΗΜΗΤΡΙΟΣ ΤΖΟΒΑΡΑΣ ΑΘΑΝΑΣΙΟΣ ΤΣΑΚΙΡΗΣ ΓΡΑΦΙΚΑ ΚΑΙ ΕΙΚΟΝΙΚΗ ΠΡΑΓΜΑΤΙΚΟΤΗΤΑ ΣΕΑΒ ISBN: 78-960-603-255-4.

Θεο άρης Θ Μπεμ Α Γρα ικά Αρ ές και Αλγόριθμοι Σ ΑΘΑΝΑΣΟΠΟΥΛΟΣ ΣΙΑ Ο Ε 1999, ISBN: 978-960-11-0004-3.

H. Bakers Γρα ικά Υπολογις ν με OpenGL Α Τζιόλα ιοι Α Ε ISBN: 978-960-418-257-2.

- Related academic journals:

- IEEE Transactions on Visualization and Computer Graphics, IEEE Society
- ACM Transactions on Graphics
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems
- Visual Computer
- IEEE Computer Graphics and Applications
- Computers and Graphics
- Graphical Models