ADVANCED TOPICS IN MULTIMEDIA AND COMPUTER GRAPHICS (MSC)

COURSE OUTLINE

Responsible: Athanasios Malamos

1. GENERAL			
SCHOOL	School of Engineering		
ACADEMIC UNIT	MSc in Informatics Engineering		
LEVEL OF STUDIES	Postgraduate		
COURSE CODE	ΜΠ100Ι	**SEMESTER**	1st
COURSE TITLE	Advanced Topics in Multimedia and Computer Graphics		

INDEPENDENT TEACHING ACTIVITIES if credits are awarded for separate components of the course	**WEEKLY TEACHING HOURS**	**CREDITS**
	5	7.5
Total	**5**	**7.5**

COURSE TYPE general background, special background, specialised general knowledge, skills development	Ειδικότητας
PREREQUISITE COURSES	None
LANGUAGE OF INSTRUCTION and EXAMINATIONS	English
OFFERED TO ERASMUS STUDENTS	Yes (in English) — Winter Semester
COURSE WEBSITE (URL)	https://eclass.hmu.gr/courses/ECE108/

2. LEARNING OUTCOMES

Learning outcomes

The course aims to give students the cutting edge knowledge on creating applications enhanced with multimedia (video, audio, text) and graphics. The course covers in theory and practice of the novel technologies of multimedia and especially on the internet environment. The course studies important topics related to platforms and protocols streaming technologies and web3D technologies. In the course laboratory there is an internship in graphics and multimedia on the internet and in the use of cutting-edge technologies.

General Competences

Upon successful completion of the course the student:

1. Knows the methodologies of design and development of multimedia and graphic applications on the internet.
2. Uses cutting-edge technologies and tools used to develop multimedia and computer graphics applications in a browser environment and the Internet.
3. Integrates knowledge from different areas, such as usability and user-machine interface, internet technologies and computer systems, etc.
4. Designs and develops innovative applications required to serve the specialized needs of companies operating in the field of online games, telecommunications, information, entertainment, etc.

3. SYLLABUS

Theory Lecture Units

- Introduction. Internet, protocols and servers.
- Introduction to web programming on the browser side
- Multimedia technology with emphasis on the internet
- Real-time applications using streaming technology
- Three dimensional technology on the internet
- Sound and virtuality.
- Advanced topics in graphics
- Physics in graphics and multimedia applications
- Coexistence of graphics and multimedia in applications
- Applications in education, entertainment, social networks and telecommunications, etc.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc.	Lectures and Lab projects
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, communication with students	The course belongs in the area of Informatics & Computer Engineering
TEACHING METHODS The manner and methods of teaching are described in detail.	**Activity** / **Semester workload** Lectures / 50 Lab Exercises / 40 Lab Projects / 85 **Course total** / **175**
STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure	The course evaluation is mainly based on small project reports and exercises during the semester and a final project where you will develop an application or make a literature research of your choice.

5. ATTACHED BIBLIOGRAPHY

- "HTML5 and Javascript Projects," Jeanine Meyer, APRESS
- "Foundation Game Design with HTML5 and Javascript" , Rex Van Der Spuy, **APRESS**
- www.w3.org SVG, Declarative 3D, WEBRTC
- www.x3dom.org
- www.web3d.org
- www.threejs.org
- Multimedia Tools and Applications, Journal, Editor Springer
- International Journal of Interactive Multimedia and Artificial Intelligence (UNIR), open access