

## COURSE OUTLINE

### INTERACTIVE AUDIOVISUAL DEVELOPMENT FOR DIGITAL EXHIBITIONS AND CULTURAL EVENTS

#### 1. GENERAL

<b>SCHOOL</b>	CLASSICS AND HUMANITIES		
<b>DEPARTMENT/UPS</b>	HUMANITIES / DIGITAL APPLICATIONS IN ARTS AND CULTURE		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE – LEVEL 6		
<b>COURSE CODE</b>	XXXXX	<b>SEMESTER</b>	8 <sup>TH</sup>
<b>COURSE TITLE</b>	INTERACTIVE AUDIOVISUAL DEVELOPMENT FOR DIGITAL EXHIBITIONS AND CULTURAL EVENTS		
<b>TEACHING ACTIVITIES</b> <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>		<b>TEACHING HOURS PER WEEK</b>	<b>ECTS CREDITS</b>
		3	5
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
<b>COURSE TYPE</b> <i>Background, General Knowledge, Scientific Area, Skill Development</i>	SCIENTIFIC AREA		
<b>PREREQUISITES:</b>	NO		
<b>TEACHING &amp; EXAMINATION LANGUAGE:</b>	GREEK		
<b>COURSE OFFERED TO ERASMUS STUDENTS:</b>	YES		
<b>COURSE URL:</b>	<a href="https://eclass.duth.gr/courses/XXXXXX/">https://eclass.duth.gr/courses/XXXXXX/</a>		

#### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b> <i>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.</i>	
<p>Upon successful completion of the course, participants will be able to:</p> <ul style="list-style-type: none"> <li>design and implement interactive audiovisual projects, incorporating image, sound, and motion using tools such as Unity, Unreal Engine, and Adobe Creative Suite,</li> <li>utilize programming languages, such as C# and Python, for developing digital applications and augmented and virtual reality (AR/VR) experiences with tools like Vuforia and Oculus SDK,</li> <li>apply cultural digital content management platforms to create and manage interactive exhibitions and cultural events,</li> <li>create multimedia narrative experiences that integrate technology into storytelling and the content of digital exhibitions,</li> <li>design immersive experiences for audiences using augmented and virtual reality technologies, blending art and technology,</li> <li>evaluate and optimize audience interaction experiences with digital applications, considering aesthetic, functional, and accessibility parameters.</li> </ul>	
<b>General Skills</b> <i>Name the desirable general skills upon successful completion of the module</i>	
<i>Search, analysis and synthesis of data and information, ICT Use</i>	<i>Project design and management Equity and Inclusion</i>
<i>Adaptation to new situations</i>	<i>Respect for the natural environment</i>
<i>Decision making</i>	<i>Sustainability</i>
<i>Autonomous work</i>	<i>Demonstration of social, professional and moral responsibility and sensitivity to gender issues</i>
<i>Teamwork</i>	<i>Critical thinking</i>
<i>Working in an international environment</i>	<i>Promoting free, creative and inductive reasoning</i>
<i>Working in an interdisciplinary environment</i>	
<i>Production of new research ideas</i>	

- Search, analysis and synthesis of data and information,
- Adaptation to new situations
- Autonomous work
- Teamwork
- Working in an interdisciplinary environment
- Production of new research ideas
- Project design and management
- Critical thinking and self-reflection
- Equity and Inclusion
- Demonstration of social, professional and moral responsibility and sensitivity to gender issues
- Promoting free, creative and inductive reasoning

### 3. COURSE CONTENT

1. **Introduction to Interactive Audiovisual Applications**
  - **Theory:** Overview of the field of digital exhibitions and cultural events, cutting-edge technologies, digital tools, objectives, and course structure.
  - **Workshop:** Introduction to digital tools and platforms, familiarization with the Unity environment.
2. **Basic Principles of Designing Interactive Experiences**
  - **Theory:** Theories of interactive design, user experience (UX/UI), examples from cultural events and exhibitions.
  - **Workshop:** Designing a basic interactive experience in the Unity or Unreal Engine environment.
3. **Programming Environments Unity or Unreal Engine I**
  - **Theory:** Introduction to the programming environments Unity or Unreal Engine, basic functions, and interface.
  - **Workshop:** Creating a basic scene using Unity or Unreal Engine, setting up interactions.
4. **Programming Environments Unity or Unreal Engine II**
  - **Theory:** Advanced techniques in Unity or Unreal Engine.
  - **Workshop:** Integrating 3D models and animation into an interactive scene.
5. **Programming Languages for Interactive Applications: C# and Python**
  - **Theory:** The C# and Python programming languages for interactive applications.
  - **Workshop:** Developing basic scripts for interactions in Unity or Unreal Engine.
6. **Digital Multimedia Tools: Image and Sound**
  - **Theory:** Using GIMP and Audacity for multimedia creation and audio editing.
  - **Workshop:** Creating multimedia (images and animation) and integrating them into interactive applications.
7. **Digital Cultural Content Management Platforms**
  - **Theory:** Introduction to platforms for managing digital cultural content.
  - **Workshop:** Practical usage, creating a digital exhibition.
8. **Creating Augmented Reality (AR) I**
  - **Theory:** Introduction to augmented reality (AR) and tools (Vuforia).
  - **Workshop:** Developing a basic AR application, introducing interactions.
9. **Creating Virtual Reality (VR) I**
  - **Theory:** Introduction to virtual reality (VR) and tools (Oculus SDK).
  - **Workshop:** Creating a basic VR application, developing virtual worlds and interactions.
10. **Creating AR/VR Applications II**
  - **Theory:** Advanced AR/VR techniques, integrating multimedia and storytelling.
  - **Workshop:** Developing advanced AR/VR applications, incorporating multimedia.
11. **Multimedia Story telling and Digital Exhibitions**
  - **Theory:** The theory of multimedia storytelling, combining multimedia and interactive narratives.
  - **Workshop:** Creating multimedia narratives for digital exhibitions.
12. **Evaluating Interactive Experiences and Users**

- **Theory:** Methods for evaluating interactive experiences, adapting UX, aesthetics, and accessibility.
  - **Workshop:** Evaluating and improving an interactive application.
13. **Presentation of Final Projects and Evaluation**
- **Theory:** Presentation and evaluation of students' final projects, feedback.
  - **Workshop:** Final presentation of projects and discussion.

## 1. LEARNING & TEACHING METHODS - EVALUATION

<p style="text-align: center;"><b>TEACHING METHOD</b> <i>Face to face, Distance learning, etc.</i></p>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Active learning (hands-on learning) - Experiential learning</li> <li>• Collaborative learning</li> </ul>																
<p style="text-align: center;"><b>USE OF INFORMATION &amp; COMMUNICATIONS TECHNOLOGY (ICT)</b> <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i></p>	<p>Use of ICT in teaching and communication with students</p> <ul style="list-style-type: none"> <li>• PPT presentations</li> <li>• Use of digital tools and platforms</li> <li>• Teaching material, announcements and communication through the eClass platform</li> <li>• Student study of supplementary material related to course content</li> <li>• Communication with students via email</li> </ul>																
<p style="text-align: center;"><b>TEACHING ORGANIZATION</b> <i>The ways and methods of teaching are described in detail.</i> <i>Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research &amp; analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.</i></p> <p><i>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Workload/semester</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">26</td> </tr> <tr> <td>Laboratory Exercise</td> <td style="text-align: center;">13</td> </tr> <tr> <td>Final Project</td> <td style="text-align: center;">30</td> </tr> <tr> <td>Weekly Projects / Tests</td> <td style="text-align: center;">38</td> </tr> <tr> <td>Bibliographic research &amp; analysis</td> <td style="text-align: center;">40</td> </tr> <tr> <td>Written examination</td> <td style="text-align: center;">3</td> </tr> <tr> <td><b>Total</b></td> <td style="text-align: center;"><b>150</b></td> </tr> </tbody> </table>	<i>Activity</i>	<i>Workload/semester</i>	Lectures	26	Laboratory Exercise	13	Final Project	30	Weekly Projects / Tests	38	Bibliographic research & analysis	40	Written examination	3	<b>Total</b>	<b>150</b>
<i>Activity</i>	<i>Workload/semester</i>																
Lectures	26																
Laboratory Exercise	13																
Final Project	30																
Weekly Projects / Tests	38																
Bibliographic research & analysis	40																
Written examination	3																
<b>Total</b>	<b>150</b>																
<p style="text-align: center;"><b>STUDENT EVALUATION</b> <i>Description of the evaluation process</i></p> <p><i>Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others</i></p> <p><i>Please indicate all relevant information about the course assessment and how students are informed</i></p>	<p>Formative</p> <p>Weekly Projects: 40%</p> <p>Assignment (mandatory): 30%</p> <p>Final Exam: 30%</p>																

## 4. SUGGESTED BIBLIOGRAPHY

- Μπούνια, Α., Καταπότη, Δ. (επιμ.) (2021). Αναδυόμενες τεχνολογίες και πολιτιστική κληρονομιά. Αθήνα: Αλεξάνδρεια.
- Hartson, R., & Pyla, P. (2012). The UX Book: Process and Guidelines for Ensuring a Quality User Experience. Waltham, MA: Morgan Kaufmann.
- Hocking, J. (2018). Unity in Action: Multiplatform Game Development in C#. Shelter Island, NY: Manning Publications.
- Jerald, J. (2015). The VR Book: Human-Centered Design for Virtual Reality. New York, NY: Morgan & Claypool Publishers.
- Marty, P. F., & Burton Jones, K. (2008). Museum Informatics: People, Information, and Technology in Museums. New York, NY: Routledge.
- Miller, C. H. (2019). Digital Storytelling: A Creator's Guide to Interactive Entertainment. New York,

NY: CRC Press.

Moniem, M. A. (2016). *Mastering Unreal Engine: A Beginner's Guide*. Birmingham, UK: Packt Publishing.

Mullen, T. (2011). *Prototyping Augmented Reality*. Hoboken, NJ: Wiley.

Parisi, T. (2015). *Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile*. Sebastopol, CA: O'Reilly Media.

Preece, J., Rogers, Y., & Sharp, H. (2015). *Interaction Design: Beyond Human-Computer Interaction*. Chichester, UK: John Wiley & Sons.

Schmalstieg, D., & Hollerer, T. (2016). *Augmented Reality: Principles and Practice*. Boston, MA: Addison-Wesley.

Vaughan, T. (2014). *Multimedia: Making It Work*. New York, NY: McGraw-Hill Education.

Walhimer, M. (2015). *Designing Museum Experiences*. Lanham, MD: Rowman & Littlefield.

Schmalstieg, D., & Hollerer, T. (2016). *Augmented Reality: Principles and Practice*. Boston, MA: Addison-Wesley.

## ANNEX OF THE COURSE OUTLINE

### Alternative ways of examining a course in emergency situations

<b>Teacher (full name):</b>	XXXXXX
<b>Contact details:</b>	<a href="#">XXXXXX</a>
<b>Supervisors: (1)</b>	YES
<b>Evaluation methods: (2)</b>	Weekly Projects: 40% Assignment (mandatory): 30% Final Exam: 30%
<b>Implementation Instructions: (3)</b>	Written assessments and the final exam will be conducted via eClass on a date and time that will be announced in advance. Students will be informed of the exam duration and content well ahead of the scheduled exam.  The assignment must be submitted through eClass by a specified deadline.

- (1) Please write YES or NO
- (2) Note down the evaluation methods used by the teacher, e.g.
- *written assignment* or/and exercises
  - written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.
- (3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:
- a) in case of **written assignment and / or exercises**: the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.
  - b) in case of **oral examination with distance learning methods**: the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
  - c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
- There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.