

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	Social Sciences		
<b>ACADEMIC UNIT</b>	Cultural Technology and Communication		
<b>LEVEL OF STUDIES</b>	Undergraduate		
<b>COURSE CODE</b>	EPI 304	<b>SEMESTER</b>	4th
<b>COURSE TITLE</b>	Human Computer Interaction I		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <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>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
Lectures		2	4
Laboratories		2	2
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		4	6
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Core Course/General Background		
<b>PREREQUISITE COURSES:</b>	None		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.aegean.gr/courses/131129/">https://eclass.aegean.gr/courses/131129/</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b></p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> <li>• Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</li> <li>• Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</li> <li>• Guidelines for writing Learning Outcomes</li> </ul>
<p>At the end of this course, the students will be able to:</p> <ul style="list-style-type: none"> <li>• Describe the processing steps according to human cognitive models</li> <li>• Describe levels of human memory</li> <li>• Describe the laws of organizing visual stimuli</li> <li>• Describe definitions of attention, stimuli and attention-based design rules</li> <li>• Compare automatic and controlled cognitive processes</li> <li>• Describe the main theories of knowledge representation and cognitive models</li> <li>• Identify the different interaction devices, compare them and distinguish their advantages and disadvantages as well as conclude which are the most suitable for specific tasks</li> <li>• Differentiate the different interaction styles used in a given interface</li> <li>• Compare the advantages and disadvantages of different styles of interaction</li> <li>• Choose the most user-friendly and interactive interaction styles</li> </ul>

- Describe the main features and typical applications of virtual reality systems and collaboration support systems
- Indicate areas of technology development for people with disabilities
- Describe step by step a typical process of developing an interactive system
- Identify at which stage of development a system evaluation should be inserted
- Describe and explain the method of user and task analysis
- Know design rules for interactive systems
- Report basic design rules for interactive systems and be able to apply them to the systems they are designing
- Describe the process of evaluating Interactive Systems (ICs) with analytical, experimental and exploratory methods
- Compare the advantages and limitations of each of these 3 evaluation approaches
- Apply heuristic rules to evaluate interactive system design
- Indicate criteria for choosing the most appropriate method for assessing an interactive system
- Indicate guidelines, instructions and standards for usability assessment

### 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*  
*Adapting to new situations*  
*Decision-making*  
*Working independently*  
*Team work*  
*Working in an international environment*  
*Working in an interdisciplinary environment*  
*Production of new research ideas*

*Project planning and management*  
*Respect for difference and multiculturalism*  
*Respect for the natural environment*  
*Showing social, professional and ethical responsibility and sensitivity to gender issues*  
*Criticism and self-criticism*  
*Production of free, creative and inductive thinking*  
*.....*  
*Others...*  
*.....*

- 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
- Collaboration and teamwork
- Search, analysis and synthesis of knowledge
- Promoting creative and inductive thinking
- Knowledge and know-how to other environments

### (3) SYLLABUS

This course is an introduction to multimedia and the available technologies applied for multimedia systems development. The course is divided into three sections. The first section introduces the basic multimedia concepts, relevant terminology, as well as issues related to digitization of analogue data, compression, data storage and representation of various media: hypertext, graphics, audio and video. The second section introduces the required hardware and software for the creation, processing and reproduction of multimedia data. In addition, available authoring tools for the development of multimedia data are introduced. While the third section of the course is referred to issues related to the design and development of multimedia data. The course tutorials introduce multimedia authoring tools used in the market. A brief structure of the course is the following:

- Introduction to the topic
- The actors and the components of an interactive system
- Theoretical foundation
- Cognitive models

- Sensory perception
- Attention and memory
- Knowledge organization and mental models
- Social characteristics of human behavior
- Input, output and hybrid devices for interaction
- Text readability
- Interaction methods
- Design methodologies for interactive systems
- Guidelines and usability rules
- Evaluation of interactive systems
  - Analytical methods
  - Experimental methods
  - Exploratory methods
  - Templates, questionnaires and formal methods
- Introduction to advanced topics of natural and Intelligent Interaction

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face-to-face supported by Distance learning infrastructure and approaches														
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Online and open source software for lab sessions														
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail.</i> <i>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.</i>  <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<table border="1"> <thead> <tr> <th>Activity</th><th>Semester workload</th></tr> </thead> <tbody> <tr> <td>Lectures</td><td>13 *2 hours =26 hours</td></tr> <tr> <td>Lectures' study</td><td>13*5 hours = 65 hours</td></tr> <tr> <td>Laboratory Practice</td><td>13*2 = 26 hours</td></tr> <tr> <td>Laboratory Preparation and semester assignment</td><td>50 hours</td></tr> <tr> <td></td><td></td></tr> <tr> <td>Course total</td><td><b>167 hours</b></td></tr> </tbody> </table>	Activity	Semester workload	Lectures	13 *2 hours =26 hours	Lectures' study	13*5 hours = 65 hours	Laboratory Practice	13*2 = 26 hours	Laboratory Preparation and semester assignment	50 hours			Course total	<b>167 hours</b>
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<b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure</i>  <i>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</i>  <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<p>The basic student assessment method is the final written exam which includes short answer questions as well as creative discussion on critical design or evaluation aspects. Also during the workshop sessions exercises are discussed and grouped into an optional project delivered and evaluated at the end of the semester. This project is evaluated additively to the written exams.</p> <p>The evaluation criteria are clearly stated during the first lecture and depicted in the educational material offered in the course's e-class.</p>														

## (5) ATTACHED BIBLIOGRAPHY

### - Suggested bibliography:

- Κουτσάμπασης Παναγιώτης, Αλληλεπίδραση Ανθρώπου-Υπολογιστή: Αρχές, μέθοδοι και παραδείγματα, 2011, ΕΚΔΟΣΕΙΣ ΚΛΕΙΔΑΡΙΘΜΟΣ ΕΠΕ, Κωδικός Βιβλίου στον Εύδοξο: 12279101, ISBN: 978-960-461-439-4
- Αβούρης Νικόλαος , (2000). ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΕΠΙΚΟΙΝΩΝΙΑ ΑΝΘΡΩΠΟΥ ΥΠΟΛΟΓΙΣΤΗ. ΕΚΔΟΣΕΙΣ: ΔΙΑΥΛΟΣ Α.Ε., ΑΘΗΝΑ, ISBN: 978-960-531-098-1. (ΑΡ. ΕΥΔΟΞΟΣ, 12172).
- DIX, FINLAY, ABOWD, BEALE, (2007). ΕΠΙΚΟΙΝΩΝΙΑ ΑΝΘΡΩΠΟΥ-ΥΠΟΛΟΓΙΣΤΗ 3η ΕΚΔΟΣΗ. ΕΚΔΟΣΕΙΣ: Γκιούρδας Μ. , ΑΘΗΝΑ, ISBN: 960 512 503X. (ΑΡ. ΕΥΔΟΞΟΣ, 12304).
- Dix, A. (2009). Human-Computer Interaction. In: LIU, L., ÖZSU, M.T. (eds) Encyclopedia of Database Systems. Springer, Boston, MA. [https://doi.org/10.1007/978-0-387-39940-9\\_192](https://doi.org/10.1007/978-0-387-39940-9_192)
- Nardi, B. A. (Ed.). (1995). Context and consciousness: activity theory and human-computer interaction. mit Press, ISBN: 9780262280419, <https://doi.org/10.7551/mitpress/2137.001.0001>
- Αβούρης, Ν., Κατσάνος, Χ., Μουστάκας, Κ., Τσέλιος, Ν., (2016). Εισαγωγή στην Αλληλεπίδραση Ανθρώπου - Υπολογιστή (2η έκδοση), ISBN: 978-960-530-165-1 .

### - - Related scientific magazines:

- ACM Transactions on Interactive Intelligent Systems
- ACM Transactions on Computer-Human Interaction
- Journal on Multimodal User Interfaces, Springer
- IEEE Transactions on Human-Machine Systems
- IEEE Transactions on Affective Computing
- Personal and Ubiquitous Computing, Springer
- User Modelling and User-Adapted Interaction, Springer
- Pervasive and Mobile Computing, Elsevier
- Computer Supported Cooperative Work, Springer
- International Journal of Human-Computer Interaction, Taylor & Francis
- IEEE Transactions on Cybernetics