

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Computer Engineering and Informatics		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	CEID_24YXXX	SEMESTER	Winter
COURSE TITLE	Human Computer Interaction		
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, Tutorials, Laboratory		3 (L), 1(T), 1 (L)	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialised general knowledge, Skills development		
PREREQUISITE COURSES:	Recommended prerequisite knowledge: Good familiarity with the courses • CEID_22Y103 Introduction to Programming • CEID_23Y106 Object-Oriented Programming • CEID_23Y205 Introduction to Algorithms • CEID_23Y351 Artificial Intelligence • CEID_23Y332 Software Technology • CEID_24Y338 Web Programming and Systems or equivalents.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek. The course may be offered in English for Erasmus students.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	https://eclass.upatras.gr/courses/CEID1490/		

(2) LEARNING OUTCOMES

Learning outcomes <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> Consult Appendix A • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B • Guidelines for writing Learning Outcomes
Upon successful completion of this course, students will be able to develop new knowledge and skills as follows: 1. Knowledge and Understanding: ○ Comprehend Core HCI Theories and Principles: Demonstrate a deep understanding of fundamental theories, models, and concepts of Human-Computer Interaction, including underlying principles from cognitive psychology, social sciences, and design. ○ Understand Interdisciplinary Nature: Explain how HCI integrates knowledge from diverse fields (e.g., computer science, psychology, business, design) to create effective and user-centered computational

systems. 2. Applying Knowledge and Understanding: ○ Apply Human-Centered Design (HCD) Processes: Systematically apply iterative Human-Centered Design (HCD) methodologies to real-world problems, from initial user research to design and evaluation. ○ Conduct User Research and Analysis: Independently conduct and synthesize user research (e.g., interviews, surveys, contextual inquiry) to identify user needs, goals, and contexts, and create appropriate user representations (e.g., personas, user stories, scenarios). ○ Design and Prototype Interactive Systems: Develop and iterate on interactive system designs, utilizing various prototyping techniques (e.g., wireframes, mockups, interactive prototypes) and adhering to established design principles and patterns. ○ Evaluate System Usability and Experience: Select, plan, and execute appropriate qualitative and quantitative evaluation methods (e.g., usability testing, heuristic evaluations) to assess the usability, usefulness, and user experience of interactive systems. 3. Making Judgements: ○ Critically Evaluate Designs: Critically appraise existing interactive system designs, identifying strengths, weaknesses, and areas for improvement based on HCI principles, user research, and evaluation findings. ○ Address Ethical, Societal, and Accessibility Considerations: Make informed judgments and formulate reasoned arguments regarding the ethical, societal, and accessibility implications of interactive systems, considering issues such as privacy, security, inclusivity, fairness, and potential harm or damage. ○ Justify Design Decisions: Propose and justify design decisions and evaluation methodologies based on evidence, theoretical frameworks, and an understanding of diverse user populations and contexts. 4. Communication Skills: ○ Communicate Design Rationale and Research Findings: Effectively communicate user research findings, design concepts, and evaluation results to technical and non-technical audiences using appropriate visual, written, and oral communication methods. ○ Collaborate in Team Environments: Work effectively as part of a team in design and development projects, managing collaboration, distributing tasks, and resolving conflicts to achieve common goals. 5. Learning Skills: ○ Engage in Continuous Learning: Demonstrate the ability to learn independently, adapt to new technologies and design methodologies, and engage in reflective practice for continuous professional development in the evolving field of HCI. ○ Problem-Solve Creatively: Apply creative problem-solving skills to address complex challenges in designing user-friendly and impactful interactive systems.																			
General Competences <i>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?</i> <table> <tr> <td><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></td><td><i>Project planning and management</i></td></tr> <tr> <td><i>Adapting to new situations</i></td><td><i>Respect for difference and multiculturalism</i></td></tr> <tr> <td><i>Decision-making</i></td><td><i>Respect for the natural environment</i></td></tr> <tr> <td><i>Working independently</i></td><td><i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i></td></tr> <tr> <td><i>Team work</i></td><td><i>Criticism and self-criticism</i></td></tr> <tr> <td><i>Working in an international environment</i></td><td><i>Production of free, creative and inductive thinking</i></td></tr> <tr> <td><i>Working in an interdisciplinary environment</i></td><td><i>.....</i></td></tr> <tr> <td><i>Production of new research ideas</i></td><td><i>Others...</i></td></tr> <tr> <td></td><td><i>.....</i></td></tr> </table>		<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>	<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>	<i>Decision-making</i>	<i>Respect for the natural environment</i>	<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>	<i>Team work</i>	<i>Criticism and self-criticism</i>	<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>	<i>Working in an interdisciplinary environment</i>	<i>.....</i>	<i>Production of new research ideas</i>	<i>Others...</i>		<i>.....</i>
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(3) SYLLABUS

Week 1: Introduction to HCI, UCD, and Ethical Foundations

Week 2: Understanding the User - User Research Methods & Ethical Data Collection

Week 3: Understanding the User - Analysis, Representation, & Bias

Week 4: Design Principles, Interaction Styles, & Persuasive Design

Week 5: High and Low Fidelity Prototyping

Week 6: Presentation and Discussion of the Course Project

Week 7: Accessibility and Inclusive Design

Week 8: Evaluation Methods - Part 1 (Formative & Expert-Based Ethics)

Week 9: Evaluation Methods - Part 2 (Summative & User Testing Ethics)

Week 10: Presenting Empirical Findings & Ethical Statistical Reporting

Week 11: Emerging Interaction Paradigms in HCI

Week 12: HCI and AI part I: Human-AI Interaction

Week 13: HCI and AI part II: AI for HCI Research

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Ex cathedra.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	The slides of the course and additional supplementary material are freely available from the course's website. Communication with students is done through a dedicated e-forum.	
TEACHING METHODS <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>	Activity	Semester workload
	Lectures	3x13 = 39
	Tutorials (exercises)	1x13 = 13
	Laboratory exercises	1x13 = 13
	Individual study, preparation and problem solving	3x13 = 39
	Weekend study	3x13 = 39
	Study during the 3 "empty weeks" (2 weeks of vacation and 1 week of exam preparation)	4x3 = 12
	Course total	155
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i>	The language of instruction and examination is Greek. Special provisions (lecture notes and examinations in English) can be made for foreign students.	

<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>	• The final grade is based on performance in the final examination (70% of the total grade) and course project (30% of the total grade). The evaluation criteria are posted on the course website. • The final examination is written, of graded difficulty, and includes multiple choice questionnaires and short-answer questions (70%). • During the course, students are assigned an HCI-related project, requiring the application of user research and evaluation skills (30%).
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(5) ATTACHED BIBLIOGRAPHY

<i>- Suggested bibliography in English:</i> • Shneiderman B, Plaisant C., Cohen M., Jacobs S., Elmqvist N., Katsavounis Stefanos, Souravlas Stavros (Editors), <i>User Interface Design</i>, 6th Revised Edition, 2023 • Avouris N., Katsanos Ch., Tselios, Moustakas K. <i>Introduction to Human Computer Interaction</i>, 2nd edition, 2020 • Preece J., Rogers Y., Sharp H., <i>Interaction Design</i>, 4th Edition, 2016 • Koutsambasis P. <i>HUMAN-COMPUTER INTERACTION: PRINCIPLES, METHODS AND EXAMPLES</i>, 1st edition, 2011 <i>- Related academic journals:</i> • ACM Transactions on Computer-Human Interaction • ACM/IEEE International Conference on Human Robot Interaction • Behaviour & Information Technology (Taylor & Francis) • Computers in Human Behaviour (Elsevier) • IEEE Transactions on Affective Computing • IEEE Transactions on Human-Machine Systems • International Journal of Human-Computer Interaction (Taylor & Francis) • International Journal of Human-Computer Studies (Elsevier) • Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies • International Journal of Interactive Mobile Technologies
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