COURSE OUTLINE

GENERAL

SCHOOL	Sciences and Engineering		
ACADEMIC UNIT	Computer Science		
LEVEL OF STUDIES	1st Cycle		
COURSE CODE	COMP-263	**SEMESTER**	Fall/Spring
COURSE TITLE	Human Computer Interaction		

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**
	2.5	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialization
PREREQUISITE COURSES:	Sophomore Standing
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

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
● *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*

After completion of the course students are expected to be able to:

● Understand the Computer and Human-Computer Interaction (HCI). Students will understand what interaction design is. We look at the difference between good and poor design, highlighting how products can differ radically in how usable they are. We then describe what and who is involved in the process of interaction design. The user experience, which has become a central concern of interaction design, is then introduced. Finally, we outline how to characterize the user experience in terms of usability, user experience goals, and design principles.

● Have an insight to Human Capabilities. Students should be able to understand core cognitive

aspects of interaction design. Specifically, we consider what humans are good and bad at and show how this knowledge can be used to inform the design of technologies that both extend human capabilities and compensate for their weaknesses.

- Interactive Systems Design. Students should have a clear understanding of HCI principles that influence a system's interface design, before writing any code. Such preliminary thinking involves ideas about user needs and demands and what kinds of designs might be appropriate for each implementation context.
- Interfaces' Design and Prototyping. Students will understand that the interfaces' design emerges iteratively, through repeated design–evaluation–redesign cycles involving users. Broadly speaking, there are two types of design: conceptual and physical. The former is concerned with developing a conceptual model that captures what the product will do and how it will behave, while the latter is concerned with details of the design such as screen and menu structures, icons, and graphics.
- Windows Concepts and Interfaces. Students will have the skills and knowledge to consider how to design interfaces for different environments, people, places, and activities. To begin with, we give an overview of paradigmatic developments in interaction design. We then present an overview of the major interface developments, ranging from WIMPs (windows, icons, menus, pointers) to wearables. For each one, we outline the important challenges and issues confronting designers, together with illustrative research findings and products.
- Quantitative Analysis – Evaluation – Redesign. Students will have the skills to understand why evaluation is important, what needs to be evaluated, where that evaluation should take place, and when in the product lifecycle evaluation is needed. We introduce three evaluation approaches and key evaluation methods, and examine short evaluation case studies which illustrate them. For each one we look at the aim of the evaluation, at what stage the evaluation was done during design, the techniques that are used to collect and analyze the data, and the challenges that the evaluators encountered).
- Research Topics in HCI. Students will be able to understand the multi- disciplinarity of the subject by presenting research dimensions on various areas, such as cognitive psychology / sciences, sociology, computing, mobility, etc., and with the use of real cases will realize the importance of incorporating such issues in the design and development of interfaces and information systems increasing usability and satisfaction.

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*
	Respect for difference and multiculturalism
Adapting to new situations	*Respect for the natural environment*
Decision-making	*Showing social, professional and ethical responsibility and sensitivity to*
Working independently	*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	*Others…*
	…….

The course primarily aims at the following general competencies:
- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Adapting to new situations
- Decision-making
- Team work

- Working in an interdisciplinary environment
- Respect for difference and multiculturalism
- Respect for the natural environment
- Production of new research ideas
- Project planning and management
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Criticism and self-criticism
- Production of free, creative and inductive thinking

SYLLABUS

- Introduction to Human-Computer Interaction: Includes the difference between good and poor interaction design, what interaction design is and how it relates to human-computer interaction and other fields, what is involved in the process of interaction design, the different forms of guidance used in interaction design, etc.
- Interaction Design: Involves communication and collaboration, the main kinds of social mechanisms that are used by people to communicate and collaborate, the range of collaborative systems that have been developed to support this kind of social behavior, how field studies and socially based theories can inform the design of collaborative systems, etc.
- Understanding Users, Cognitive and Affective Factors: Involves what cognition and affection is and why it is important for interaction design, the main ways cognition and affection has been applied to interaction design, a number of examples in which cognitive research has led to the design of more effective interactive products, mental models, conceptual frameworks that are useful for interaction design, etc.
- The Computer and Human-Computer Interaction: Involves the various devices and implementation beds as well as technological constraints and opportunities, the problem space, how to conceptualize interaction, the pros and cons of using interface metaphors as conceptual models, the relationship between conceptual design and physical design, etc.
- Web Interfaces: Concerns an introduction of the notion of a paradigm and set the scene for how the various interfaces have developed in interaction design, overview of the many different kinds of interfaces, highlight of the main design and research issues for each of the different interfaces, considerations which interface is best for a given application or activity, etc.
- Introduction to Interactive System Design: Includes what 'doing' interaction design involves, some advantages of involving users in development, the main principles of a usercentered approach, etc.
- Discuss Data Gathering and Requirements Analysis with focus in HCI aspects: Discusses how to plan, run and analyze successful data gathering schemes based on previous knowledge, which could include tools and methods as interviews, questionnaires, observations, etc. taking into consideration the HCI influential aspects taught in previous chapters.
- Interfaces Design and Prototyping: Includes prototyping and different types of prototyping activities with regards to systems interfaces design, production of simple prototypes from the models developed during the requirements activity, production of a conceptual model for a product, use of scenarios and prototypes in design, a range of tool support available for interaction design, etc.
- Usability Testing & Analytic Evaluation: Involves usability testing through examples, the basics of experimental design, the methods used in usability testing, the role of field studies in evaluation, the important concepts associated with inspection methods, how heuristic evaluation can be adapted to evaluate different types of interactive products, what is involved

in doing heuristic evaluation and various kinds of walkthrough, how to perform predictive technique, and when to use them, the advantages and disadvantages of using analytical evaluation, etc.

- Evaluation: Includes the conceptual, practical, and ethical issues involved in evaluation, how observation, interviews, and questionnaires are used in evaluation, the key concepts and terms used in evaluation, the three main evaluation approaches and key evaluation methods within the context of real evaluation studies, how the approaches and methods are used for different purposes at different stages of the design process, the practical challenges that evaluators have to consider when doing evaluation, etc.

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 ICT in teaching / Χρήση ΤΠΕ* *Communication with students / Επικοινωνία με Φοιτητές*		
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 non-directed study according to the principles of the ECTS*	*Activity*	*Semester workload*	
	Lectures	35	
	Design workshops and activities	20	
	Project	40	
	Weekly Preparation	25	
	Exam Preparation	30	
	Course total	*150*	
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.*	Final Exam, Coursework, Other activities (Discussions, Case analysis, etc.)		

ATTACHED BIBLIOGRAPHY

Required Textbooks / Readings:				
Title	**Author(s)**	**Publisher**	**Year**	**ISBN**

| Interaction design: Beyond Human-Computer Interaction, 6/e | Y. Rogers, H. Sharp, J. Preece | John Wiley & Sons | 2023 | 978-1-119-90109-9 |

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Designing the User Interface, 5/e	Shneiderman B., Plaisant C., Cohen M., Jacobs S.	Pearson	2013	9781292037011
Intelligent User Interfaces: Adaptation and Personalization Systems and Technologies Systems	C. Mourlas, P. Germanakos	IGI Global	2008	
Interactive Technologies: HCI Models, Theories, and Frameworks: Toward a Multidisciplinary Science	J. Carroll	San Francisco: California: Morgan Kaufmann	2003	
Understanding Mobile Human-computer Interaction	S. Love	Amsterdam: Butterworth-Heinemann	2005	
The Human-dimensions of Human-computer Interaction:	E. McKay	Amsterdam: IOS Press	2008	