

Course Title	Interactive System Design for Web Systems				
Course Code	WSS550				
Course Type	Specialization (Elective)				
Level	Master (2nd Cycle)				
Semester	2 or 3				
Teacher's Name	Andreas Constantinides, PhD and Achilleas Achilleos, PhD				
ECTS	10	Lectures / week	3	Laboratories / week	0
Course Purpose	<p>Human Computer Interaction (HCI) is the area that focuses on the design and use of computer technologies with emphasis on User Interface (UI) design as well as the utilization of novel design ways and tools that human beings use and interact with computers. Interactive Design (ID) is the area in HCI that particularly deals with the interaction between human and computers and tries to make systems usable. It focuses more on User Experience Research and User Experience Design. In particular, ID tries to understand what is going on in the interaction between users and systems as well as what the user wants and what the system does. For example, it examines the ergonomics (i.e., the digital/physical characteristics of the interaction) and how these influence its effectiveness, it studies how the dialog between user and system is influenced by the style of the interface as well as the social and organizational context that the interaction takes place, which affects both the user and the system and many more.</p> <p>Moreover, with the advancements in Web Systems and Ubiquitous Computing devices the need for designing human computer interfaces that can interpret and support user's intentions by utilizing modern and advance web technologies is greater than ever. Thus, this specialization course also includes a practical orientation in client-side application design and development, as well as server-side service development using advanced internet technologies. It will focus on learning practical skills, techniques and best practices used for the modern and rapid development of full-stack, open-source JavaScript-based applications. Finally, it overviews the main challenges and implications of the Semantic Web, Internet 2.0 and Cloud computing for advanced web application development.</p> <p>The purpose of this course is to provide students with the knowledge of the essential tools and techniques in order to extend critical awareness of the issues and challenges associated with human computer interaction and interactive system design, enhance their understanding on interactive design on web and mobile systems, to enable students to learn advanced interaction design techniques, such as adaptive and responsive design, and to become acquainted with cutting-edge web technologies and apply them in practice for full stack web application development.</p>				

Learning Outcomes	<p>By the end of the course, students should be able to:</p> <ul style="list-style-type: none"> • Describe the emerging topics on Human Computer Interaction (HCI) design in making more comprehensive and user-friendly computer-based systems. • Identify and clearly describe the main challenges and issues on HCI and Interactive Design. • Understand the theoretical dimension of human factors in the acceptance of computer interfaces and identify the impact of usable interfaces in the performance of Mobile and Web systems. • Understand modern concepts, principles and methods for implementing advanced Internet application tools. • Identify techniques and practices across various platforms and tools for designing interactive interfaces, standardization, analysis and evaluation. • Critically evaluate various web technologies and web systems and identify their strengths and weaknesses. • Demonstrate creative skills in designing competing user interfaces in web and mobile systems. • Familiarize with advanced internet technologies and implement them in practice for full-stack web development. 		
Prerequisites	WSS502	Corequisites	None
Course Content	<p>This course consists of the following ten chapters:</p> <ul style="list-style-type: none"> • Chapter 1 is the introductory session for the whole module • Chapters 2-4 deals with topics related to human and computer systems as well as their interaction. • Chapter 5 deals with selected topics on HCI such as prototyping techniques, requirement and task analysis, personas and task description techniques. • Chapter 6 focuses on the evaluation of prototypes, UIs and systems design. • Chapters 7 and 8 focuses on applying advance client side frameworks and tools for web interface design (Bootstrap.js) and web application development (Angular.js) • Chapter 9 deals with server-side web-system architectures and tools (Express.js, Node.js, MongoDB) for implementing web services (Restful Web APIs) • Chapter 10 deals with business models for web application development with Internet 2.0 and Cloud Computing tools. 		
Teaching Methodology	<p>The course is designed to introduce and explain the material students are expected to learn through lectures (3 hours per week) in classrooms or lectures theatres, by means of traditional tools or using computer demonstration.</p> <p>Lecture notes and presentations are available through the web (e-learning</p>		

	<p>platform) for students to use in combination with the textbooks. Furthermore, theoretical principles are explained by means of specific examples and for solving specific problems using practical examples. Students are also advised to use the subject's textbook or reference books for further reading and practice.</p> <p>Auditory exercises, where examples regarding matter represented at the lectures, are solved and further, questions related to particular open-ended topic issues are compiled by the students and answered, during the lecture or assigned as homework.</p> <p>Furthermore, group projects are assigned to the students, where literature search is encouraged to identify a specific problem related to some issue, gather relevant scientific information about how others have addressed the problem, design and implement a solution as well as report the final solution in written and orally, via a presentation.</p> <p>Moreover, a number of case study readings are also considered, so as to demonstrate the relevance and practical applicability of mobile and ubiquitous computing methods and systems covered in the various units of this course. Case-studies can illustrate that what students have studied in each chapter is not just of academic or theoretical value but also has value in terms of improving real-life challenges.</p>
Bibliography	<p>The following textbooks are associated with topics considered at various points throughout this course:</p> <ul style="list-style-type: none"> • A. Dix et al. (2004), Human-Computer Interaction third edition, Prentice Hall, 2004. • J. Preece et al. (2002), Interaction Design, Wiley, 2002 • Brennon Williams (2011), Microsoft Expression Blend 4 Unleashed, Pearson, 2011 • Sven Casteleyn, Florian Daniel, Peter Dolog, Maristella Matera, "Engineering Web Applications", Book: Data-Centric Systems and Applications, 2009, ISBN: 978-3-540-92200-1 (Print) 978-3-540-92201-8 (Online). • Pressman R.S. and D. Lowe, "Web Engineering", Mc. Graw-Hill (2009). <p>The above textbooks are recommended as sources of additional reading for students so as to elaborate on the course's material. Students can also find additional examples that they can use for practice.</p> <p>Furthermore, students are also encouraged to explore other online / print sources that are related to topics covered in this course.</p>
Assessment	<p>The Students are assessed via continuous assessment throughout the duration of the Semester, which forms the Coursework grade and the final written exam. The coursework and the final exam grades are weighted 50% and 50%, respectively, and compose the final grade of the course.</p> <p>Various approaches are used for the continuous assessment of the students, such as class participation and laboratory work, group project design, implementation and presentation. The assessment weight, date and time of each type of continuous assessment is being set at the beginning of the semester via the course outline. An indicative weighted continuous</p>

	<p>assessment of the course is shown below:</p> <ul style="list-style-type: none"> • Participation Activities (10% of total marks for module) • One marked (group) project (30% of total marks for module) • Presentation of group project (10% of total marks for module) • One closed-book, 3-hour exam (50% of total marks for module) <p>Students are prepared for final exam, by revision on the matter taught, problem solving and concept testing and are also trained to be able to deal with time constraints and revision timetable.</p> <p>The criteria considered for the assessment of each type of the continuous assessment and the final exam of the course are: (i) the comprehension of the fundamental concepts and theory of each topic, (ii) the application of the theory in solving related problems and (iii) the ability to apply the above knowledge in complex real-life problems.</p> <p>The final assessment of the students is formative and summative and is assured to comply with the subject's expected learning outcomes and the quality of the course.</p>
Language	English