Course Title	**Interactive System Design for Web Systems**				
Course Code	**WSS551**				
Course Type	**Specialization (Elective)**				
Level	Master (2nd Cycle)				
Year / Semester	1 / 2 (Spring)				
Teacher's Name	Andreas Constantinides, PhD Achilleas Achilleos, PhD				
ECTS	10	Lectures / week	3	Laboratories / week	0
Course Purpose and Objectives	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. 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. 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.				

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<tr><td>Learning Outcomes</td><td colspan="3">By the end of the course, students should be able to:
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.</td></tr>
<tr><td>Prerequisites</td><td>ACSC502</td><td>Required</td><td>None</td></tr>
<tr><td>Course Content</td><td colspan="3">This course consists of the following six units:
Unit 1 is the introductory session for the whole module
Units 2 and 3 deals with topics related to human and computer systems.
Unit 4 deals with selected topics on HCI such as prototyping techniques, requirement and task analysis, personas and task description techniques.
Unit 5 focuses on the evaluation of prototypes, UIs and systems design.
Units 6 and 7 focuses on applying advance client side frameworks and tools for web interface design (Bootstrap.js) and web application development (Angular.js)
Unit 8 deals with server-side web-system architectures and tools (Express.js, Node.js, MongoDB) for implementing web services (Restful Web APIs)
Unit 9 deals with business models for web application development with Internet 2.0 AND Cloud Computing tools</td></tr>
<tr><td>Teaching Methodology</td><td colspan="3">The methodology used to conduct the course is structured around lectures and laboratory exercises, so that students gain theoretical knowledge as well as practical skills. The taught part of the course is delivered to the students with the help of computer presentations. Lecture notes and presentations are available through the web (e-learning platform) for</td></tr>
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	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. Lectures are supplemented with supervised and unsupervised computer laboratory. Laboratories will include demonstrations of taught concepts and experimentation with related technologies. Additionally, during laboratory sessions, students apply their gained knowledge and identify the principles taught in the lecture sessions by means of working on different tasks and problems. Students are also allocated exercises for homework, assignments and/or group project to improve both their individual skills and team work.
Bibliography	The following textbooks are associated with topics considered at various points throughout this course: • A. Dix et al. (2004), Human-Computer Interaction third edition, Prentice Hall, 2004. • J. Preece et al. (2002), Interaction Design, Wiley, 2002 • Brennon Wiliams (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). 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. Furthermore, students are also encouraged to explore other online / print sources that are related to topics covered in this course.
Assessment	The formal assessment of this course consists of • **Participation Activities** (10% of total marks for module) • **One marked (group) project** (40% of total marks for module) • **One closed-book, 3-hour exam** (50% of total marks for module)
Language	English