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| Course Title | Human Computer Interaction | | | |
| Course Code | ACSC299 | | | |
| Course Type | Compulsory | | | |
| Level | BSc (Level 1) | | | |
| Year / Semester | 2nd , 3rd | | | |
| Teacher's Name | Andreas Constantinides, PhD | | | |
| ECTS | 5 | Lectures / week | 2 | Laboratories/week 1 |
| 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 and User Experience (UX) principles as well as the utilization of novel design ways and tools that human beings use and interact with computers.</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 technologies, such as Visual C# and Android smartphone application design.</p> | | | |
| Learning Outcomes | <p>By the end of the course, students should be able to:</p> <ul style="list-style-type: none"> • Explain the theoretical foundations of designing for interaction between humans and computers and discuss what and who is involved in the process of interaction design. • Explain the user experience and describe how to characterize the user experience in terms of usability, user experience goals, and interactive system design principles. • Describe Windows Concepts and Interfaces as well as discuss how to design interfaces for different environments, people, places, and activities. • Present an overview of the major interface developments, ranging from WIMPs (windows, icons, menus, and pointer) to wearables. • Describe prototyping activities with regards to systems interfaces design. • Demonstrate basic knowledge on designing user interfaces and developing windows applications using Visual C#. • Demonstrate basic knowledge on designing user interfaces for smartphone applications on Android. | | | |
| Prerequisites | ACSC182, ACS183 | Corequisites | ACSC382 | |
| Course Content | This course consists of the following chapters: | | | |

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| | <p>Introduction to Human-Computer Interaction: Explain 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 interaction design, the human factor etc.</p> <p>Interaction Design: Explain what is communication and collaboration, the main kinds of social mechanisms that are used by people to communicate and collaborate, the range of collaborative systems that supports this kind of social behavior, how field studies inform the design of collaborative systems, etc.</p> <p>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.</p> <p>Web Interfaces: 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.</p> <p>Introduction to Interactive System Design: Includes what 'doing' interaction design involves, some advantages of involving users in development, the main principles of a user-centered approach, etc.</p> <p>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.</p> <p>Visual C# Windows Applications: Design and implement Windows Applications. Use forms, controls, menus and dialog boxes, modify their properties, write code for their events and employ their methods in Visual C#. Have the ability to experiment with and use new controls, properties, events and methods.</p> <p>Android Applications Design: Explain the major differences of user interfaces between windows applications and smartphone applications. Introduce major tools and environments including Eclipse and Android Studio. Use Android applications activities and major controllers (e.g., buttons, data fields, checkboxes). Orientation and layouts of android smartphones. Introduce XML and Java programming for Android Application development. How to get an application in the market (security, privacy, copyrights and certificates).</p> |
| Teaching Methodology | The course is structured around lectures (2 hours per week) and laboratories (1 hour per week) as well as group projects with final project presentation, laboratory exercises and individual work. During the lectures, students are encouraged to participate in discussions enabling the exchange of ideas and examples. Laboratory exercises are handed to |

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| | <p>students and their solutions are discussed at laboratory periods. Additional tutorial time at the end of each lecture is provided to students as well as additional notes for each section of the course and worksheets, which process in the lab or as homework. Students are expected to demonstrate the necessary effort to become confident with the different concepts and topics of the course.</p> <p>Lecture notes and presentations are available through the web (e-learning 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> |
| Bibliography | <p><u>Textbooks:</u></p> <ul style="list-style-type: none"> • Alan Dix, et al, Human-Computer Interaction, 3rd Edition, Prentice Hall, 2004. • Helen Sharp, Yvonne Rogers, Jenny Preece. Interaction Design: beyond human-computer interaction (2nd edition), www.id-book.com • John Sharp, Microsoft Visual C# 2008 Step by Step, Microsoft Press, 2007. • Professional Android 2 Application Development, Reto Meier, 576 pages, November, 2010 <p><u>References:</u></p> <ul style="list-style-type: none"> • Ben Shneiderman and Catherine Plaisant, Designing the User Interface, 4th Edition, Addison Wesley, 2005. |
| 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 mid-term test, 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 assessment of the course is shown below:</p> <ul style="list-style-type: none"> • Mid-term Test (15% of total marks for module) • Participation Activities (Lab work)(10% of total marks for module) • One marked (group) project (15% of total marks for module) • Presentation of group project (10% of total marks for module) • One closed-book, 3-hours exam (50% of total marks for module) <p>Students are prepared for final exam, by revision on the matter taught,</p> |

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| | problem solving and concept testing. 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. |
| Language | English |