DEREE COLLEGE SYLLABUS FOR: ITC 4230 HUMAN COMPUTER INTERACTION

UK LEVEL: 6
UK CREDITS: 15
US CREDITS: 3/0/3

(Same as CS 4230)
(Updated Fall 2013)

PREREQUISITES:	CS 1070 Introduction to Information Systems MA 1009 Mathematics for Business, Economics and Sciences
CATALOG DESCRIPTION:	Foundations of human computer interaction. Interaction design basics. HCI in the software process. Cognitive models and theories. Application of concepts and methodologies of software engineering, human factors and psychology to address ergonomic, cognitive, and social factors in the design and evaluation of interactive computer systems.
RATIONALE:	The course exposes students to the field of human-computer interaction (HCI). HCI is an interdisciplinary field that integrates theories and methodologies from computer science, cognitive psychology, design, and several other areas. The course covers current theory and practice in interface design, and intends to expand students' awareness of the issues that determine the usability of an interactive computer system. Basic programming knowledge is recommended
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: 1. Describe and analyse the human and the computer processing models. 2. Identify and compare the different interaction models and critically discuss the significance of ergonomics. 3. Analyse the main approaches to user support. 4. Evaluate HCI design rules and usability principles and their application on software development. 5. Implement universal design principles and multi-modal interaction by designing a user interface for an interactive system.
METHOD OF TEACHING AND LEARNING:	In congruence with the learning and teaching strategy of the College, the following tools/activities are used: • Lectures, class discussions, problem-solving sessions, and review of real-world cases based on specific theoretical concepts. • Office hours held by the instructor to provide further assistance to students. • Use of the Blackboard Learning platform to further support communication, by posting lecture notes, assignment instruction, timely announcements, and online submission of assignments
ASSESSMENT:	Summative: Research Project (2,000-2,500 words; case study: data collection, synthesis, critical evaluation, interface design) — 40 Final Examination (2-hour comprehensive): short answers to essay questions — 60 Formative: In-class, 1-hour, "diagnostic" test (short answers to essay questions) — 0 The formative assessment aims to shape teaching along the semester and prepare students for the summative assessments. The research project tests Learning Outcomes 4 and 5.

	The final examination tests Learning Outcomes 1-4. (Guidelines and assessment rubrics are distributed on the first day of classes along with the course outline.)
READING LIST:	REQUIRED MATERIAL: Dix, Finley, Abowd, Beale, Human-Computer Interaction, Pearson - Prentice Hall, latest edition. Instructor's notes
RECOMMENDED MATERIAL:	On library reserve: 1. Galitz, W., The Essential Guide to User Interface Design, Wiley, latest edition. 2. Jones M., Marsden G., Mobile Interaction Design, Wiley, latest edition. 3. Schneidermann, B., Plaisant C., Designing the User Interface, Pearson, latest edition. 4. Preece, Rogers, Sharp, Interaction Design, Wiley, latest edition. Journals: • HCI Journal, Lawrence Erlbaum Associates. • ACM Interactions journal. • BIT - Behaviour and Information Technology journal, Taylor & Francis. • IJHCI - International Journal of HCI, Lawrence Erlbaum Associates. • IJHCS - International Journal of Human-Computer Studies, Elsevier. • IWC - Interacting with Computers, British HCI Group Elsevier Science Publishers. • Psychnology: The Other Side of Technology, Gamberini - Riva – Spagnolli. Articles: • Sulaiman, Suziah, Blandford, Ann, Cairns, Paul. "Haptic experience and the design of drawing interfaces." Interacting with Computers 22.3 (2010): 193-205 • Norman, Donald A."People are from earth, machines are from outer space." ACM Interactions 16.1 (2009): 39-41 • Zaharias, Panagiotis, Poylymenakou, Angeliki. "Developing a usability evaluation method for e-learning applications: beyond functional usability." IJHCI 25.1 (2009):75-98
COMMUNICATION REQUIREMENTS:	Daily access to the course's site on the College's Blackboard CMS. Effective presentation skills using proper written and oral English.
SOFTWARE REQUIREMENTS:	Oracle JDeveloper, latest release
WWW RESOURCES:	www.hcibook.com www.hcibib.org www.usernomics.com www.dontclick.it/ www.pixelcentric.net/interface.php www.designofsites.com www.wiley.com/college/galitz www.wiley.com/go/mobile www.wileyeurope.com/college/lazar www.id-book.com
INDICATIVE CONTENT:	1. Foundations a) The human • Input – output channels

- Human memory
- Thinking
- Emotion
- Individual differences / Psychology and the design of IS

b) The computer

- Input / Output devices
- Physical controls, sensors and special devices
- Memory, Processing and networks

c) The interaction

- Models of interaction
- Frameworks and HCI
- Ergonomics
- Interaction styles
- Interactivity
- The context of the interaction
- Experience, engagement and fun

d) Paradigms for Interaction

2. Design Process

a) Interaction design basics

- The process of design
- User focus
- Scenarios
- Navigation design
- Screen design and layout
- Iteration and prototyping

b) HCI in the software process

- The s/w life cycle
- Usability engineering
- Iterative design and prototyping
- Design rationale

c) Design rules

- Principles to support usability
- Standards/Guidelines
- Golden rules and heuristics
- HCI patterns

d) Universal design

- Principles
- Multi-modal interaction
- Designing for diversity

e) User support

- Requirements/Approaches
- Adaptive help systems
- Designing user support systems