CSC/CPE 484 User-Centered Interface Design and Development

1. CSC/CPE 484 User-Centered Interface Design and Development

2. credit units  4  contact hours  6

3. Course Coordinator: Franz Kurfess


5. a. Course Description: Introduction to the importance of user-centered principles in the design of good interfaces and effective human-computer interaction. Topics include: study of human characteristics affected by interface design, effective requirements, data collection and analysis, user-centered approaches to software engineering, and evaluation of interface and interaction quality. 3 lectures, 1 laboratory.

b. Prerequisite: Junior standing and CSC/CPE 205.

c. Required/Elective/Selective Elective for CPE, CSC, EE, SE

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6. a. Course Goals/Outcomes

The student will be able to:

- Students are expected to acquire knowledge of a) basic issues in user interface design and human-computer interaction (HCI); b) how HCI fits into the software design process, and c) basic techniques for user requirements data collection and analysis. They should be able to recognize and recall basic HCI terminology, concepts and principles.

- Students are expected to demonstrate understanding of a) the impact of interface design decisions on the outcome of the software product, b) implications of interface design decisions on the end users’ ability to work with the software product, and c) the potential impact of the software on the users’ performance.

- Students should be able to apply basic techniques of requirements data collection and analysis, and to apply user-centered techniques to the engineering of software systems.

- Students are also expected to learn how to evaluate “good” and “bad” interface designs, and how to apply particular metrics in this effort. They should also learn how to construct basic testing and evaluation metrics for their own software products.

- Students will enhance their oral, written, creative and visual communication skills through interface design, presentation of those designs, as well as through reporting on other people’s designs.
• Students learn how to use basic textual, audio, and video instruments in the collection of user-centered data.
• Students are expected to develop basic awareness of the impact of interface design on supporting “universal access” – i.e., computer users with cultural, gender and/or physical ability differences.
• Students are exposed to the use of human subjects in the design of requirements and/or usability data collection experiments, as both investigators and subjects.

b. How Student Outcomes addressed
(“B” = Basic level, “I” = Intermediate level, “A” = Advanced level)

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7. Major Topics Covered: (number of lecture hours each)
• Introduction to the field of interaction design and human-computer interaction (HCI) (3)
• Human aspects of HCI:
  o Cognitive frameworks for HCI (2)
  o Perception and Representation (2)
  o Attention and Memory Constraints (2)
• Reviews of Interface Designs (3)
• Data Collection Studio (3)
• Data Analysis Techniques (3)
• Interaction Design Methodologies:
  o Interaction Styles (3)
  o Input/Output Techniques (3)
  o Principles and Methods of User-Centered Design (3)
  o Formal Methods for Usability Testing (3)