CSC 484 User-Centered Interface Design and Development

1. CSC 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**: CSC 307 or CSC 308; junior standing.

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

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6. a. **Course Learning Objectives**

The student will be able to:

- **Recognize** and **recall** basic HCI terminology, concepts and principles including 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.

- **Evaluate** 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.

- **Apply** basic techniques of requirements data collection and analysis, and apply user-centered techniques to the engineering of software systems.

- **Evaluate** “good” and “bad” interface designs, and **explain** how to apply particular metrics in this effort.

- **Construct** basic testing and evaluation metrics for their own software products.

- **Employ** oral, written, creative and visual communication skills through interface design, presentation of those designs, as well as through reporting on other people’s
- Use basic textual, audio, and video instruments in the collection of user-centered data.
- Explain the impact of interface design on supporting “universal access” – i.e., computer users with cultural, gender and/or physical ability differences.
- Incorporate 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 user-centered design (UCD) and human-computer interaction (HCI) (3)
- Human aspects of UCD and HCI:
  - Cognitive frameworks for HCI (2)
  - Perception and Representation (2)
  - Attention and Memory Constraints (2)
- Reviews of Interface Designs (3)
- Data Collection Methods (3)
- Data Analysis Techniques (3)
- Interaction Design Methodologies:
  - Interaction Styles (3)
  - Input/Output Techniques (3)
  - Principles and Methods of User-Centered Design (3)
  - Formal Methods for Usability Testing (3)