Brief Course Description
(50-words or less)
Issues in the design, development, and evaluation of user interfaces for computer systems. Concepts in human factors, usability, and interface design, and the effects of human capabilities and limitations on interaction with computer systems.

Extended Course Description / Comments
This course is an introduction to Human-Computer Interaction and focuses primarily on user-centered design techniques. Students will work on a semester-long team-based project, identifying a problem in a novel domain, interviewing users, and subsequently develop and test prototype solutions.

Pre-Requisites and/or Co-Requisites
CSCI 2720
Data Structures

Required, Elective or Selected Elective
Selected Elective Course

Approved Textbook
Author(s): Sharp, Preece, Rogers
Title: Interaction Design Edition: 3rd

Specific Learning Outcomes
(Performance Indicators)
This course presents an introduction to Human-Computer Interaction. At the end of the semester, all students will be able to do the following:
1. Apply the principles of user-centered design, via group projects, in formulating user interface prototypes in novel domains.
2. Create a hierarchical task analysis to analyze and specify which tasks should be supported in a user interface.
3. Gather design requirements from users and conduct a requirements analysis.
4. Describe the paradigm shifts in HCI and explain the causal factors for each.
5. Develop and implement a testing plan for evaluating a user interface design.
6. Develop and implement benchmark testing.
7. Generate several user interface design alternatives that satisfy a set of user requirements.
8. Use programming or a software package to create prototypes.
9. Assess and compare the success of a user interface along multiple dimensions.
10. Evaluate the trade-offs of usability considerations (e.g. novice vs experienced users, efficiency) in all stages of the design process.
ABET Learning Outcomes

Graduates of the program will have an ability to:

A. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

B. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.

C. Communicate effectively in a variety of professional contexts.

D. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

E. Function effectively as a member or leader of a team engaged in activities appropriate to the program’s discipline.

F. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Relationship Between Student Outcomes and Learning Outcomes

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Major Topics Covered

- **HCI Historical Perspectives**  5-hours
  Introduction & Need for HCI, Paradigm Shifts, Historical Figures

- **Human-Factors**  3-hours
  Cognition, Sensation and Perception Motor Skills

- **User-Centered Design**  11-hours
  Stakeholder Analyses, Brainstorming Exercises, Design Alternatives Prototyping, Testing & Evaluation Plans

- **User Interface Design**  13-hours
Data Collection Techniques  7-hours Interviews, Surveys, Observational Techniques, Controlled Studies, Cognitive Models, Cognitive Walkthroughs, Thinkaloud Study, Task Analyses, Data Analyses

Groupwork  4-hours

Special Topics
Miscellaneous
Examinations

Course Master: Dr. Ari Schlesinger

Last modified by: Dr. Ari Schlesinger on 2/16/2024