

Course Description and Topical Outline

Learning Objectives:

Students will be able to:

1. Learn how to make a case for the importance of HCI in system development.
2. Describe the goals of user interface design and evaluation.
3. Apply an integrated perspective to the usability design process.
4. Characterize HCI design in terms of cognitive processes.
5. Learn strategies and techniques for designing dialogue styles.
6. Assess critically the design trade-offs of using different interaction styles.
7. Be able to identify the key elements of graphic user interfaces.
8. Learn how to select the appropriate evaluation method and conduct usability evaluation studies.

Course Outline and Syllabus:

Purpose:

This is an intensive course in the guidelines, techniques, and concepts of designing human-computer interface and interaction strategies. Participants will learn how to design usable display screens and user interfaces. Emphasis is placed on techniques and guidelines to design, critique and evaluate direct manipulation styles, graphic user interfaces, windowing systems, different types of screens, dialogues, transaction codes, types of interaction, on-line help lectures, team design projects, usability critiques of selected material, and examples of interface components which are designed for usability.

Prerequisite by topic: Selection of an area of specialization

Topics:

Introduction and Overview:

Usability and productivity (1 hr)
Human factors approaches (1 hr)
User requirements (1 hr)
User compatible design (1 hr)
Usability in the software cycle (1 hr)

Human Characteristics:

User-centered design (2 hrs)
Individual differences (2 hrs)
Human information processing (2 hrs)

Design process:

Design approaches (user-centered methods, structured HCI design) (3 hrs)
Usability engineering (Audience analysis techniques, task analysis) (3 hrs)
Evaluation techniques (3 hrs)
Example systems and case studies (2 hrs)

Interactive information processing:

Organizing information (1 hr)
Processing information (1 hr)
Packaging information (2 hrs)

Designing the Interaction:

Modes of communication (1 hr)

Commands, codes, and messages, response time (2 hrs)

Displaying Information:

Information processing factors (1 hr)

Format and information grouping (1 hr)

Display encoding (1 hr)

Graphic User Interface Design:

What is the direct information interface (1 hr)

Graphic user interface layout and design (3 hrs)

Icons, graphics (2 hrs)

Designing Usable Screens and Dialogues:

Data entry, fill-in forms, and transaction screens (1 hr)

Inquiry dialogues (1 hr)

Menu dialogues (1 hr)

Command language dialogues (1 hr)

Graphic interface screens (1 hr)

Exams (2 hrs)

Suggested Texts:

Don Norman, "Design of Everyday Things"

Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human-Computer Interaction"

Jakob Nielsen, "Usability Engineering"

Preece et al's "Interaction Design"