

**Course Outline – 2007/2008 Academic Year
IAT 334-3: Interface Design
School of Interactive Arts and Technology**

Instructor: Ron Wakkary

Prerequisite: Completion of 48 credits; IAT 102 is recommended.

Course Description:

Interaction with the information system and other humans via computers is directly shaped by the user interface. Thus, the ultimate success of an information system depends on this crucial component. This course provides students with an introduction to the design of human-computer interfaces, covers design methods, prototyping and evaluation of user interfaces. Issues of interactivity and its relation to human contexts and technological systems will be examined. The role of aesthetic, symbolic, affective and cultural factors will be assessed in concert with scientific and technological issues. While the class is primarily focused on visual interfaces on computer monitors and hand held devices, it culminates with considerations of increasingly physical interactions in ubiquitous environments. Students will produce and assess working prototypes.

Courses Objectives:

In this course students will:

Develop familiarity with the software architecture of graphical user interfaces.

- Understand the widget hierarchy of a graphical user interface (GUI) system
- Understand the event loop concept and the event queue
- Understand the client-server model
- Understand the role of graphic design in gui architecture, including hierarchy, organization of text and image (lay out), color, fonts and bitmaps

Ability to design, lay out and implement a graphical user interface.

- Analyze the requirements for an interface
- Identify and decompose the tasks required of the application
- Map the tasks to user interface components
- Implement functionality via callback functions
- Select and structure appropriate fonts, colors, images and interaction techniques and feedback
- Understand user interface design in specific domains
- Become familiar with theories and motivations of visual interaction design

Ability to implement a variety of interaction techniques.

- Implement techniques: as rubber-banding, dragging, zooming, cut, copy, paste and direct manipulation
- Implement feedback techniques such as highlighting, blinking, state messages
- Implement context sensitive help messages for the user

Familiarity with the graphical user interface software development process.

- Understand how specification grammars can aid in designing a user interface
- Understand the role of rapid prototyping for new applications
- Understand user interface management systems for maintenance of applications

Understanding human factors issues in user interface design.

- Understand the diversity of users with respect to both general computer knowledge and application domain knowledge
- Understand the diversity of users with respect to physical, cognitive and perceptual abilities, differing personalities, identity and cultural differences
- Understand how to design user interfaces for people with disabilities such as limited vision, color blindness, limited hearing and limited mobility

Understanding methods and processes.

Note: These outlines are drafts and are subject to change.

- Be able to conduct requirements analysis and design implementation
- Perform usability evaluation and redesign
- Understand phases of iteration
- Become familiarized with interactive design using multimedia, networking and advanced features

Understanding and navigating cultural and scientific paradigms and frameworks.

Delivery Method: Studio Lab

Evaluation:

Participation: 20%

Assignments: 20%

Presentation: 20%

Documentation: 20%

Portfolio Project: 20%

Texts, Resources & Materials:

Required Text:

“Designing the User Interface: Strategies for Effective Human-Computer Interaction” (2004) by Ben Shneiderman & Catherine Plaisant; 4th Edition; Addison Wesley; ISBN 0321197860

Reference Texts:

“The Human Interface: New Directions for Designing Interactive Systems” by Jef Raskin

“Paper Prototyping: The Fast and Easy Way to Design and Refine User Interfaces” by Carolyn Snyder

Resources:

Computer Lab, Sensors, Digital Cameras

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