

1. Course number and name

CMP 352 – Human Computer Interaction

2. Credits and contact hours

3 credit hours, 3 contact hours

3. Instructor's or course coordinator's name

Dr. Michel Pasquier

4. Textbook, title, author, and year

Y. Sharp, H. Rogers, J. Preece. *Interaction Design: Beyond Human-Computer Interaction*, 3rd edition, Wiley, 2011.

Other supplemental materials

Supplements from the companion website: <http://www.id-book.com/>. Case studies.

5. Specific course information

a. Brief description of content of the course (catalog description)

Examines human behavior in relation to user interface design. Analyzes the conceptual models formed by users and evaluates user interface design. Examines multimedia interfaces, usability engineering, user interface design, and project organization. Studies interface representation and user-centered prototyping tools. Examines a number of case studies. Requires a project.

b. Prerequisites or co-requisites

Prerequisites: CMP 256 (GUI Design and Programming) or COE 312 (Software Design for Engineers), and CMP 305/COE 311 (Data Structures and Algorithms)

c. Indicate whether a required, elective, or selected elective course in the program

Selected Elective

6. Specific goals for the course

a. Specific outcomes of instruction

This course requires the student to demonstrate the following:

1. Describe the foundational concepts and principles of human-computer interaction (HCI) and user-centered design.
2. Explain cognition and cognitive framework and their influence on the design of user-centered interfaces and applications.
3. Use appropriate data gathering techniques, such as interviews, user observation and questionnaires, to establish users' needs and usability requirements.
4. Model users using personas and mental models.
5. Discover and represent design alternatives via prototyping methods, such as sketches and storyboards.
6. Evaluate software user interfaces using various approaches and methods to test and assess the usability and effectiveness of information systems.
7. Formulate design recommendations for improving or correcting usability issues based on HCI principles and heuristic usability guidelines.

8. Apply user-centered design and usability engineering principles to design and evaluate user interfaces for a software application.

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

This course contributes in a significant way to the accomplishment of the following program outcomes:

Program outcome	Emphasis in this course
(a) an ability to apply knowledge of computing and mathematics appropriate to the discipline	○
(b) an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution	●
(c) an ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs	●
(d) an ability to function effectively on teams to accomplish a common goal	◐
(e) an understanding of professional, ethical, legal, security and social issues and responsibilities	
(f) an ability to communicate effectively with a range of audiences	○
(g) an ability to analyze the local and global impact of computing on individuals, organizations, and society	
(h) recognition of the need for and an ability to engage in continuing professional development	○
(i) an ability to use current techniques, skills, and tools necessary for computing practice	●
(j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	
(k) An ability to apply design and development principles in the construction of software systems of varying complexity	

Emphasis: ● High; ◐ Medium; ○ Low; Blank – Nothing Specific Expected

7. Brief list of topics to be covered

- i. HCI and interaction design foundational concepts and principles
- ii. Understanding users – Cognition and Cognitive Frameworks
- iii. Overview of interaction design process
- iv. Identifying needs and establishing usability requirements
- v. Model users using personas and mental models
- vi. Conceptual Design – Metaphors, Interactions and Interface Styles
- vii. Prototyping – low fidelity and high fidelity prototypes
- viii. Physical Design - usability engineering design guidelines
- ix. Evaluation and usability testing
- x. Design and evaluation of user interfaces for Web applications