

CS3189: USER-CENTRED INTERACTION DESIGN

New Syllabus Proposal

Effective Term

Semester B 2024/25

Part I Course Overview

Course Title

User-centred Interaction Design

Subject Code

CS - Computer Science

Course Number

3189

Academic Unit

Computer Science (CS)

College/School

College of Computing (CC)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

CS2310 Computer Programming or
CS2311 Computer Programming or
CS2313 Computer Programming or
CS2360 Java Programming

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course is intended for students in computing and related disciplines whose work focuses on human-computer interaction issues in the design of computer systems. The course stresses the importance of user-centred design and usability in the development of computer applications and systems, focusing on design practices from industry. Students will be taken through the analysis, design, development, and evaluation of human-computer interaction methods for computer systems. They will acquire hands-on design and implementation skills through laboratory exercises and assignments. The course also covers HCI design principles and emphasizes the importance of contextual, organisational, and social factors in system design.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the importance of user-centred design and usability in the development of computer applications and systems.		x	x	
2	Apply human-computer interaction methods for the analysis, design, development, and evaluation of computer systems.			x	
3	Demonstrate hands-on design and implementation skills through laboratory exercises and assignments.			x	
4	Identify and consider contextual, system, and user related factors in the design of computer systems.		x		
5	Collaborate effectively with peers to design and implement an interactive prototype that solves a real-world problem.				x

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

LTAs	Brief Description	CILO No.	Hours/week (if applicable)	
1	Lecture	Students will examine a comprehensive overview of user-centered design principles, usability concepts, and their significance in developing computer systems.	1, 4	3 hours per week

2	In-class workshop	Students will participate in interactive discussions and analyze case studies of real-world examples of successful user-centered designs, exploring their impact on user satisfaction and system effectiveness.	1, 2, 3, 4, 5	8 hours per semester
3	Quiz	Students will complete a quiz to demonstrate their understanding of key concepts and principles related to user-centered design and usability.	1	
4	Individual assignments	Students will read assigned materials and conduct research tasks, exploring scholarly articles, industry reports, and case studies on user-centered design and usability practices.	1, 2, 3, 4	
5	Group project	Students will work in small groups to collaboratively analyze, design, develop, and evaluate a computer system using human-computer interaction methods. This project will involve conducting user research, creating prototypes, and performing usability testing.	1, 2, 3, 4, 5	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Design exercise	1, 2, 3, 4	10	
2	Group project	1, 2, 3, 4, 5	40	
3	Participation	1, 2, 3, 4, 5	20	

Continuous Assessment (%)

70

Examination (%)

30

Examination Duration (Hours)

2

Minimum Examination Passing Requirement (%)

30

Additional Information for ATs

For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

Assessment Rubrics (AR)

Assessment Task

1. Design exercise

Criterion

Problem-solving skills
Creativity and innovative ideas
Application of user-centered design principles
Utilization of the design lifecycle

Excellent (A+, A, A-)

Excellent: Demonstrates exceptional problem-solving skills by identifying and analyzing complex design problems, proposing innovative solutions, and effectively addressing user needs. Displays exceptional creativity and innovative ideas, going beyond the expected requirements with original and unique solutions. Applies user-centered design principles and effectively utilizes the design lifecycle.

Good (B+, B, B-)

Shows strong problem-solving skills by identifying and analyzing design problems, proposing effective solutions, and addressing user needs. Displays creativity and innovative ideas, providing thoughtful and inventive solutions that meet the requirements effectively. Applies user-centered design principles and utilizes the design lifecycle effectively.

Fair (C+, C, C-)

Displays adequate problem-solving skills by identifying and addressing design problems with some effectiveness, but with minor gaps in addressing user needs. Exhibits some level of creativity and innovation, but the solutions may lack originality or fail to fully meet the requirements. Applies user-centered design principles to some extent and demonstrates an understanding of the design lifecycle.

Marginal (D)

Exhibits limited problem-solving skills, with difficulties in identifying and addressing design problems and inadequate consideration of user needs. Displays limited creativity and innovation, with solutions that are largely conventional and do not fully meet the requirements. Demonstrates a limited understanding and application of user-centered design principles and the design lifecycle.

Failure (F)

Fails to demonstrate effective problem-solving skills, with an inability to identify and address design problems or meet user needs adequately. Fails to demonstrate creativity and innovation. Does not apply user-centered design principles or utilize the design lifecycle effectively.

Assessment Task

2. Group project

Criterion

Collaboration and Communication
Deliverable Quality
Problem-solving Skills
Time Management and Meeting Deadlines

Excellent (A+, A, A-)

Actively collaborates and effectively communicates within the group, demonstrating a high level of cooperation, division of tasks, and mutual support to achieve project goals. Produces high-quality deliverables that meet or exceed the project requirements. Shows strong problem-solving skills and applies user-centered design principles in the project. Demonstrates effective time management and meets all deadlines.

Good (B+, B, B-)

Collaborates well within the group, communicates effectively, and contributes positively to the project, demonstrating good teamwork and coordination. Produces deliverables that meet the project requirements. Shows problem-solving skills and applies user-centered design principles in the project. Manages time effectively and meets most deadlines.

Fair (C+, C, C-)

Participates adequately within the group, but may occasionally exhibit challenges in communication, coordination, or division of tasks. Produces deliverables that partially meet the project requirements. Displays some problem-solving skills and applies user-centered design principles to some extent. Manages time reasonably well but may miss some deadlines.

Marginal (D)

Shows limited collaboration and teamwork within the group, with inconsistent communication and a lack of clear division of tasks. Produces deliverables that have significant gaps and do not fully meet the project requirements. Demonstrates limited problem-solving skills and struggles to apply user-centered design principles. Struggles with time management and misses several deadlines.

Failure (F)

Fails to collaborate effectively within the group, displaying poor communication, lack of coordination, and an inability to work together towards project goals. Produces deliverables that do not meet the project requirements. Fails to demonstrate problem-solving skills or apply user-centered design principles. Fails to manage time effectively and misses most deadlines.

Assessment Task

3. Course participation

Criterion

Class Engagement
Understanding of Course Material
Feedback and Contribution

Excellent (A+, A, A-)

Actively engages in class discussions, contributes insightful ideas and perspectives, asks relevant questions, and consistently demonstrates a high level of participation. Shows a deep understanding of the course material and consistently applies it to discussions and assignments. Provides constructive feedback to peers and contributes to a positive learning environment.

Good (B+, B, B-)

Engages in class discussions, contributes ideas and perspectives, asks questions, and demonstrates regular participation throughout the course. Shows a solid understanding of the course material and applies it to discussions and assignments. Provides feedback to peers and contributes to a positive learning environment.

Fair (C+, C, C-)

Participates adequately in class discussions, but may occasionally contribute minimally, ask few questions, or demonstrate inconsistent engagement. Shows an understanding of the course material and applies it to discussions and assignments to some extent. Occasionally provides feedback to peers and contributes to a positive learning environment.

Marginal (D)

Shows limited engagement in class discussions, with infrequent contributions, minimal questions, and inconsistent participation. Demonstrates a limited understanding of the course material and struggles to apply it to discussions and assignments. Rarely provides feedback to peers or contributes to a positive learning environment.

Failure (F)

Fails to actively engage in class discussions, rarely contributes, asks no questions, and demonstrates a lack of participation throughout the course. Displays a lack of understanding of the course material and fails to apply it to discussions and assignments. Does not provide feedback to peers or contribute to a positive learning environment.

Assessment Task

4. Examination

Criterion

Problem Analysis; Ideation and Creativity; Rapid Prototyping; Usability Considerations; Time Management

Excellent (A+, A, A-)

Quickly and accurately analyzes the design problem, identifying key user needs and constraints. Generates multiple innovative and relevant design concepts. Produces a clear, well-executed low-fidelity prototype that effectively communicates the design solution. Demonstrates strong consideration of usability principles in the design. Excellently manages time, completing all aspects of the challenge.

Good (B+, B, B-)

Analyzes the design problem well, identifying most user needs and constraints. Generates several good design concepts. Produces a competent low-fidelity prototype that communicates the design solution. Shows good consideration of usability principles. Manages time well, completing most aspects of the challenge.

Fair (C+, C, C-)

Provides a basic analysis of the design problem with some gaps. Generates a few design concepts, some of which may lack relevance or creativity. Produces a basic low-fidelity prototype with some unclear elements. Considers some usability principles but may miss key aspects. Time management is adequate but some elements may be rushed or incomplete.

Marginal (D)

Struggles to analyze the design problem effectively. Generates limited or irrelevant design concepts. Prototype is poorly executed or fails to communicate the design clearly. Shows minimal consideration of usability principles. Poor time management results in significant aspects of the challenge being incomplete.

Failure (F)

Fails to analyze the design problem. Unable to generate viable design concepts. Fails to produce a meaningful prototype. No evident consideration of usability principles. Unable to manage time effectively, resulting in largely incomplete work.

Part III Other Information**Keyword Syllabus**

- User-centred Interaction Design
- Human computer interaction
- Design life cycle
- Contextual inquiry
- Affinity Diagrams
- Brainstorming techniques
- Sketching & Crazy 8
- Balsamiq and Figma
- Heuristic evaluations
- Usability testing
- Graphical design workflow

Reading List

Compulsory Readings

Title	
1	Hugh Beyer and Karen Holtzblatt. 1997. Contextual Design: Defining Customer-Centered Systems. Morgan Kaufmann Publishers Inc., San Francisco, CA, USA.
2	Krug, Steve. Don't make me think!: a common sense approach to Web usability. Pearson Education India, 2000.

Additional Readings

Title	
1	Krug, Steve. Rocket surgery made easy: The do-it-yourself guide to finding and fixing usability problems. New Riders, 2009.
2	Norman, Don. The design of everyday things: Revised and expanded edition. Basic books, 2013.