Title (Units): **COMP 3620 Human-Computer Interaction (3,2,1)**

Course Aims: This course provides an introduction to and overview of the field of human-computer interaction (HCI). HCI is an interdisciplinary field that integrates theories and methodologies from computer science, cognitive psychology, design, and many other areas. Issues include: command languages, menus, forms, and direct manipulation, graphical user interfaces, computer supported cooperative work, information search and visualization, World Wide Web design, input/output devices, and display design. Students will learn the fundamental concepts of human-computer interaction and user-centered design thinking. Students will work on both individual and team projects to design, implement and evaluate computer interfaces.

Prerequisite: **For CS, COMP2220 Software Engineering**
For IS, COMP2010 Structured Systems Analysis & Design; COMP2020 Object Oriented Systems Analysis & Design

Learning Outcomes (LOs):

Upon successful completion of this course, students should be able to:

No.	Learning Outcomes (LOs)
	Knowledge
1	Describe and apply core theories, models and methodologies from the field of HCI
2	Describe what the user-centered design cycle is and explain how to practice this approach to design websites or other interactive software systems
3	Analyze one after another the main features of a GUI: the use of colors, organization and layout of content, filling the interface with useful and relevant information, and communication techniques; and to critique designs in order to provide better solutions
4	Explain how to gauge the usability of digital environments, tools and interfaces
5	Describe and discuss current research issues and future work in the field of HCI
	Professional Skill
6	Conduct user and task analysis
7	Implement simple graphical user interfaces with modern software tools such as Visual Basic or Java Swing toolkit
8	Critique and evaluate existing websites and other interactive software using guidelines from human factor theories
	Attitude
9	Build up team spirit
10	Enhance self-learning capability

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Assessment:

The central focus of the course is a semester-long team project, in which students will design, implement and evaluate a user interface. Teams will be incrementally led through the phases of ethnographic study and requirements analysis, scenario-based design, paper prototyping, computer prototyping, and several methods of usability analysis and evaluation.

No.	Assessment Methods	Weighting	Remarks
1	Continuous Assessment	**40%**	Students are required to implement and evaluate a GUI prototype in a small team. 30% is allocated for the group project. The remaining 10% is allocated for assignment(s) and/or mid-term test.
2	Examination	**60%**	The final examination is designed to evaluate students' understanding in different parts. The questions will include fundamental, analytic and design types in order to distinguish different levels of understanding of human computer interaction design.

Rubrics:

Excellent (A)	• Achieve the first eight LOs, demonstrating an excellent mastery of both the theoretical and practical aspects of the knowledge and skills in the selected topics • Able to develop correct solutions to problems in human-computer interaction, accompanied by in-depth analysis and insight • Demonstrate a thorough understanding and solid knowledge of the principles and techniques of human-computer interaction • Able to draw on a variety of techniques and relevant knowledge and appropriately apply them to new situations and real-life problems
Good (B)	• Achieve the first eight LOs, demonstrating a good understanding of the associated concepts and underlying methodologies in the selected topics • Able to develop correct solutions to problems in human-computer interaction, accompanied by adequate explanations • Demonstrate a competent level of knowledge of the principles and techniques of human-computer interaction • Ability to make use of appropriate techniques and knowledge and apply them to new situations and problems
Satisfactory (C)	• Achieve most of the first eight LOs, demonstrating a basic level of understanding of the associated concepts and underlying methodologies in the selected topics • Able to provide acceptable solutions to problems in human-computer interaction • Demonstrate an adequate level of knowledge of the principles and techniques of human-computer interaction • Ability to make use of some techniques and knowledge and apply them to familiar situations and problems
Marginal Pass (D)	• Achieve most of the first eight LOs, with minimal understanding of the associated concepts and underlying methodologies in the selected topics • Able to provide solutions to simple problems in human-computer interaction • Demonstrate a basic level of knowledge of the principles and techniques of human-computer interaction • Ability to apply some techniques and knowledge to a limited number of typical situations and problems
Fail (F)	• Achieve less than five of the first eight LOs, with little understanding of the associated concepts and underlying methodologies in the selected topics • Unable to provide solutions to simple problems in human-computer interaction • Knowledge of the principles and techniques of human-computer interaction falling below the basic minimum level • Unable to apply techniques or knowledge to familiar situations or problems

Learning Outcomes and Weighting:

Content	LO No.
I. Introduction and Human Computer Interaction	1
II. HCI Design Process	2, 3
III. Designing and Conducting Experiments	3, 4, 8
IV. Tools & the Future	5, 7
Group Project	6-10

References:

Human-Computer Interaction, Third Edition by Alan Dix et al, Prentice Hall (2004)
Interaction Design: Beyond Human-Computer Interaction, Second Edition by Preece, Rogers and Sharp, Wiley (2002)
Usability Engineering: Scenario-Based Development of Human-Computer Interaction, First Edition by Rosson, M. and Carroll, J., Morgan Kaufmann (2001)
Usability Engineering (Interactive Technologies), First Edition by Nielsen, J., Morgan Kaufmann (1993)
Designing the User Interface: Strategies for Effective Human-Computer Interaction, Fifth Edition by Shneiderman, B., Plaisant, C., Cohen, M. and Jacobs, S., Addison Wesley (2009)

Course Content in Outline:

Topic

I. Introduction to Human Computer Interaction
- A. Interactivity and interaction design
- B. Understanding and conceptualizing interaction
- C. Understanding users and how interfaces affect users
- D. Heuristics and usability

II. HCI Design Process
- A. Process of interaction design
- B. Design, prototyping and construction
- B. Direct manipulation/Mental model
- C. Graphic design
- D. Information design and data visualization

III. Designing and Conducting Experiments
- A. How to design experiments
- B. How to analyze study data
- C. How to learn and iterate from studies

IV. Tools & the Future
- A. Software tools
- B. Social software
- C. Design for collaboration and communication