Title (Units): **COMP4045 Human-Computer Interaction (3,2,1)**

Course Aims: 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: COMP2015 Data Structures and Algorithms or Any other ITEC course at Level 2 or above

Course Intended Learning Outcomes (CILOs):
Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	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 interactive software systems
3	Analyze one after another the main features of interactive systems, and explain how to gauge the usability of digital environments, tools and interfaces
	Professional Skill
4	Conduct user and task analysis
5	Implement graphical user interfaces with modern software tools
6	Critique and evaluate interactive software using guidelines from human factor theories

Calendar Description: This course provides an introduction to and overview of the field of human-computer interaction (HCI).

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1 - 6	Students will learn the concepts via lectures and in-class exercises.
1 - 6	Students will be assigned labs and assignments to promote their skills.
4 - 6	Students will be assigned projects to promote their knowledge and skills.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Continuous Assessment – Group Project	30%	3 - 6	30% is allocated for the group project, for which students are required to implement and evaluate a prototype in a small team.
2	Continuous Assessment – Lab exercises and Individual Assignments	20%	3 - 6	20% is allocated for lab exercise and individual assignments.
3	Examination	50%	1-4	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.

Assessment Rubrics:

Excellent (A)	• Achieve all the six CILOs, 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 all the six CILOs, 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 six CILOs, 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 six CILOs, 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 four of the six CILOs, 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

Course Content and CILOs Mapping:

Content		**CILO No.**
I	Introduction and Human Computer Interaction	1
II	HCI Design Process	2, 3
III	Designing and Conducting Experiments	3, 4, 6
IV	Tools & the Future	3, 5

References:

- Interaction Design: Beyond Human-Computer Interaction, 4th Edition by Jenny Preece, Helen Sharp, Yvonne Rogers, John Wiley & Sons (2015)

- Human-Computer Interaction: An Empirical Research Perspective, 1st Edition by Scott MacKenzie, Morgan Kaufmann (2013)
- Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests, 2nd Edition by Jeffrey Rubin, Dana Chisnell, Jared Spool, Wiley (2008)
- Designing the User Interface: Strategies for Effective Human-Computer Interaction, 6th Edition by Shneiderman, B., Plaisant, C., Cohen, M. Jacobs, S., Elmqvist, N. and Diakopoulos, Nicholas. Pearson (2016)

Course Content:

Topic

I. Introduction and 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
   C. Direct manipulation/mental model
   D. Graphic design
   E. 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