Subject Description Form

Subject Code	COMP3423
Subject Title	Human Computer Interaction
Credit Value	3
Level	3
Pre-requisite / Co-requisite / Exclusion	**Pre-requisite**: COMP1011 **Exclusion:** COMP2222
Objectives	The objectives of this subject are to: • provide students with a broad view of both theoretical and practical issues in human factors for design of human-computer interfaces; • equip students with knowledge and understanding of the nature of human computer interactions, human characteristics, computer system and interface architecture; • equip students with sound skills in design and evaluation of user interfaces; • equip students with computing techniques and paradigms in interface and interaction development; and • provide students with a broad view of the state of interactive software development in today's industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: *Professional/academic knowledge and skills* (a) Understand and appreciate the human factors and the theoretical issues involved in human-computer interaction design; (b) Apply the theoretical design principles to the design and evaluation of user interfaces; (c) Collect user requirements, design a human-computer interface according to these requirements, and evaluate the design; and (d) Possess the ability to design and develop computer systems for different kinds of human interaction. *Attributes for all-roundedness* (e) Solve problems by using systematic approaches; (f) Solve complex problems in groups; and (g) Write technical reports and present the findings.

Subject Synopsis/ Indicative Syllabus	**Topic** **1. Nature of Human Computer Interaction (HCI)** Definitions and importance of HCI; historical context of HCI; roles various disciplines play within HCI. **2. Human Characteristics** Perception and representation; models and limits of human memory; mental models; use of metaphors; user aspects of language, social and organizational aspects; input and output devices: performance characteristics (human and system); speech input and output. **3. Formal and Conceptual Models** Task analysis and predictive modeling; dialogue interaction: types and techniques; multimedia and non-graphical dialogues; response time; statistical models for describing interaction processes. **4. Design Guidelines and Methods** User-centered design and task analysis; structural HCI design; design rationale; standards and metrics; documentation and on-line information. **5. Development and Applications** Event-driven paradigms, MVC Model, Design rationale; Iterative design and prototyping; WIMP and post-WIMP user interfaces; Mobile device platforms; web/mobile accessibility **6. Evaluation** Role of evaluation; evaluation techniques; experiments and benchmarking.
Teaching/ Learning Methodology	<u>Lectures, Tutorials and Labs</u> The subject material will be delivered through lectures, tutorials and labs. Lectures will provide the main body of the subject materials. Where possible, guest lectures and/or case studies will be used to give the subject material more relevancy to real-world scenarios. Tutorials and labs will provide students with more in-depth opportunities to explore the lecture materials and practice the lecture concepts. Where possible, a hands-on, interactive approach will be used. <u>Projects and Assignments</u> Projects and assignments will provide students with in-depth opportunities to practice the lecture concepts, as well as to assess their ability to apply these concepts in practical scenarios. <u>Examinations and Tests</u> Examinations and tests will assess students on their grasp of subject material.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						
		a	b	c	d	e	f	g
Continuous Assessment	**60%**							
1. Projects, Assignments and Tests		✓	✓	✓	✓	✓	✓	✓
Final Examination	**40%**	✓	✓		✓	✓		
Total	100%							

The course will be accessed by assignments, projects, and tests.

Assignments are designed to reinforce the concepts and methods learned in the class. Projects are used to develop students' analytic and problem solving skills. The written part of the assignments and projects helps student develop their organization and documentation skills. The oral part of the coursework allows students to present their ideas and communicate effectively to the audience. Tests are used to assess independent problem solving and critical thinking skills.

Student Study Effort Expected

Class contact:	
▪ Lecture, Tutorials, Workshops and Labs	39 Hrs.
Other student study effort:	
▪ Assignments, Coursework, Reading, Exam	66 Hrs.
Total student study effort	105 Hrs.

Reading List and References

Textbook:

1. Shneiderman, B. and Plaisant, C., *Designing the User Interface: Strategies for Effective Human-Computer Interaction*, 5th Edition, Addison Wesley, 2010.

Reference Books:

1. Dix, J. Finlay, Abowd, G., and Beale, R., *Human-Computer Interaction*, 3rd Edition, Prentice Hall, 2004.

2. Andleigh, P.K. and Thakrar, K., *Multimedia Systems Design*, Prentice Hall, 1996.

3. Morris, M.E.S. and Hinrichs, R.J., *Web Page Design: A Different Multimedia*, Prentice Hall, 1996.