

Subject Description Form

Subject Code	COMP303
Subject Title	Human Factors and User Interfaces
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: COMP201 Co-requisite/Exclusion: Nil
Objectives	<ul style="list-style-type: none"> • To provide students with a broad view of both theoretical and practical issues in human factors for design of human-computer interfaces. • To equip students with knowledge and understanding of the nature of human computer interactions, human characteristics, computer system and interface architecture. • To equip students with sound skills in design, development and evaluation of user interfaces.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <p><i>Professional/academic knowledge and skills</i></p> <p>(a) Understand and appreciate the human factors and the theoretical issues involved in human-computer interaction design;</p> <p>(b) Apply the theoretical design principles to the design and evaluation of user interfaces;</p> <p>(c) Collect user requirements, design a human-computer interface according to these requirements, and evaluate the design;</p> <p><i>Attributes for all-roundedness</i></p> <p>(d) Solve problems by using systematic approaches;</p> <p>(e) Solve complex problems in groups;</p> <p>(f) Write technical reports and present the findings.</p> <p>Alignment of Programme Outcomes:</p> <p>Programme Outcome 1: This subject contributes to having students practice their writing skills through report writing and project documentation.</p> <p>Programme Outcome 3: This subject contributes to this outcome through lectures in which students are taught about the ethical implications of the design decisions that they make.</p>

Programme Outcome 4: This subject contributes to developing student critical thinking through assignments and a project that will require them to practice their problem solving and critical thinking skills.

Programme Outcome 5: This subject contributes to problem solving with programming skills through implementing a project with proper design and implementation.

Programme Outcome 7: This subject contributes to team work through group assignments and a group-based project that allows students to practice cooperation and team spirit.

**Subject Synopsis/
Indicative Syllabus**

Topic	Duration of Lectures
1. Nature of Human Computer Interaction (HCI) Definitions and importance of HCI; history and intellectual roots of HCI; roles various disciplines play within HCI.	2.5
2. Evaluation Role of evaluation; evaluation techniques; experiments and benchmarking.	5
3. Human Characteristics Perception and representation; models and limits of human memory; mental models; use of metaphors; support user aspects of language, social and organizational aspects; input and output devices: performance characteristics (human and system); speech input and output.	7.5
4. Dialogue interactions and formal models Task analysis and predictive modeling; dialogue interaction: types and techniques; multimedia and non-graphical dialogues; response time; statistical models for describing interaction processes.	7.5
5. Awareness and CSCW CSCW, awareness and situated awareness, groupware; awareness and design issues; awareness in MMORPGs; interaction patterns; design rationale for CSCW-oriented applications.	7.5
6. Design guidelines and metrics User-centered design and task analysis; software engineering design models; structural HCI design and envisioning design; standards and metrics; guidelines to support design; standards and metrics; documentation and on-line information.	3.5
7. Development and applications Design rationale; participatory design and prototyping; user interface management systems; WWW applications designs; groupware; collaborative work and virtual environments.	1.5
Total	35

	<p>Laboratory Experiment: HCI tools (e.g. Visual Basic or Flash).</p>																																							
<p>Teaching/Learning Methodology</p>	<p>During the lectures, students will come across the common concepts, methods, and issues in HCI, and will be supplemented by mini-cases and in-class exercises. Students are required to actively participate in the case discussion and the Q&A exercises.</p> <p>During the tutorials, students will have the opportunity to practice, apply, and present what they have learned. They will also be able to share their ideas and experience, as well as learn from each other.</p> <p>Students will learn not only in the class but also through various coursework activities.</p>																																							
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1" data-bbox="432 707 1458 1081"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th>f</th> </tr> </thead> <tbody> <tr> <td>Continuous assessment</td> <td>65%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Examination</td> <td>35%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>100 %</td> <td colspan="6"></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>The course will be assessed by assignments, projects, and tests.</p> <p>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. In addition, the programming part of the projects reflects implementation skills. Tests are used to assess independent problem solving and critical thinking skills.</p>		Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d	e	f	Continuous assessment	65%	✓	✓	✓	✓	✓	✓	Examination	35%	✓	✓	✓	✓			Total	100 %						
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<p>Student Study Effort Required</p>	<table border="1" data-bbox="424 1559 1506 2016"> <tr> <td colspan="2">Class contact:</td> <td></td> </tr> <tr> <td>▪ Lecture</td> <td></td> <td>35 Hrs.</td> </tr> <tr> <td>▪ Tutorial/Lab</td> <td></td> <td>14 Hrs.</td> </tr> <tr> <td colspan="2">Other student study effort:</td> <td></td> </tr> <tr> <td>▪ Reading and self learning</td> <td></td> <td>14 Hrs.</td> </tr> <tr> <td>▪ Coursework</td> <td></td> <td>45 Hrs.</td> </tr> <tr> <td colspan="2">Total student study effort</td> <td>108 Hrs.</td> </tr> </table>		Class contact:			▪ Lecture		35 Hrs.	▪ Tutorial/Lab		14 Hrs.	Other student study effort:			▪ Reading and self learning		14 Hrs.	▪ Coursework		45 Hrs.	Total student study effort		108 Hrs.																	
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<p>Reading List and</p>	<p>Textbook:</p>																																							

References

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

Reference Books:

1. Dix, J. Finlay, G. Abowd, and R. Beale, *Human-Computer Interaction*, 3rd Edition, Prentice Hall, 2004.
2. P.K. Andleigh and K. Thakrar, *Multimedia Systems Design*, Prentice Hall, 1996.
3. M.E.S. Morris and R.J. Hinrichs, *Web Page Design: A Different Multimedia*, Prentice Hall, 1996.