SUBJECT DESCRIPTION FORM

Subject Title: Human Computer Interaction

Subject Code: COMP5517

Credit Value: 3

Pre-Requisite: Nil

Recommended Background Knowledge:

Basic knowledge of programming is required.

Mutual Exclusions: Nil

Learning Approach:

42 hours of class activities including - lecture, tutorial, lab, workshop seminar where applicable

Assessment:

Continuous Assessment	60%
Test and Examination	40%

Objectives:

- 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.

Learning Outcomes:

After completing the subject, students should be able to:

1. better understand various human factors in the design of human-computer interfaces;
2. learn the knowledge of system architecture and its development; and
3. evaluate and analyze the system design and user interfaces.

The Department reserves the right to update the syllabus contents. Please note that the learning approach for the same subject could vary slightly due to different delivery modes.

Keyword Syllabus:

Nature of Human Computer Interaction (HCI)
Definitions and importance of HCI; history and intellectual roots of HCI; roles various disciplines play within HCI.

Evaluation
Role of evaluation; evaluation techniques; experiments and benchmarking

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.

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.

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.

Development and applications
Design rationale; participatory design and prototyping; user interface management systems; WWW applications designs; groupware; collaborative work and virtual environments.

Advanced HCI
Human-robot Interaction; Ubiquitous Computing; Speech and natural language interfaces; Sensor networks; Tangible user interfaces

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Indicative Reading List:

- Dix, J. Finlay, G. Abowd, and R. Beale, Human-Computer Interaction, 3rd Edition, Prentice Hall, 2004.
- D. Norman, The Design of Everyday Things, Doubleday Business, 1990
- Shneiderman, Designing the User Interface: Strategies for Effective Human-Computer Interaction, 3rd Edition, Addison Wesley, 1998.
- W.J. Smith, ISO and ANSI Ergonomic Standards for Computer Products. A Guide to Implementation and Compliance. Prentice Hall, 1996.
- P.K. Andleigh and K. Thakrar, Multimedia Systems Design, Prentice Hall, 1996.
- M.E.S. Morris and R.J. Hinrichs, Web Page Design: A Different Multimedia, Prentice Hall, 1996.
- K. Mullet and D. Sano, Designing Visual Interfaces. Prentice Hall, 1995.