

CS2260 Human-Computer Interaction

Level: 2

Credits: 10

Teaching Period: 2

Module Tutor: Mr BS Doherty

Aims

To provide computing or closely related subject undergraduates with deeper knowledge, advanced skills and understanding to allow them to contribute to development, design, evaluation and management of human-computer interfaces, using appropriate technologies, techniques, and procedures and with awareness of legal and social contexts.

Content

Interactive systems: defining the problem; identifying tasks, activities and processes; defining usability; examples.

The human user: channels of communication (visual, auditory, manipulative); theories of human memory (short-term, long-term); variability and limits of human capabilities; theories of human reasoning and problem-solving; tasks and strategies.

Interactive devices and technologies: survey of current technologies (keyboards, pointing devices, displays, hardcopy, audio, etc); use of graphics, colour, presentation of text.

Design of interfaces: system structure (applications, interface management, presentation or device control); design methods; dialogue design and styles (menu systems, direct manipulation, command languages, etc); windowing systems; new ideas in interfaces (eg virtual reality).

Tools and techniques for the construction of interfaces.

Evaluation: testing and evaluating interactive systems; evaluation and the design process; methods of evaluation (observation and monitoring, interviews and questionnaires, benchmarking, etc).

Organisational issues: users and their environment; design methodologies (user participation); cooperative work; case studies.

Teaching

Lectures: 22 hours; practical tasks: 10 hours; further study and examination: 68 hours

Assessment

Written exam: 100% (2 hours, May/June) The exam will include questions related to the practical tasks

Module outcomes

What the student should gain from successful completion of the module

*Teaching/Learning
Methods*

*Assessment
Methods*

Knowledge and Understanding

Aware of human factors impacting effective human-computer interaction.

Understand the principles of systematic user interface design.

Able to design and implement effective computer interfaces.

Understand and be able to apply interface evaluation techniques.

Lectures literature- and laboratory-based projects, supported by self-study using other materials

Exam

Intellectual Skills

Consideration of issues in integrating theory and practice

Critically evaluate new and emerging techniques and information technologies for full awareness of the interface ramifications.

Coursework, literature study, tutorial questions

Exam

Professional/Subject-Specific Skills

Analyse, design, build and evaluate human-computer interfaces

Evaluate and select appropriate technologies and tools

Lectures including case studies, selected tutorial/project problems

Exam with questions related to practical tasks undertaken during module

Transferable Skills

Abstract information from unstructured sources at a level sufficient to keep up to date and communicate with computing professionals

Demonstrate research skills and make effective use of various sources.

Reading beyond the lectures. Research skills developed through both the taught element and the project.

Exam with a scenario-based question to test interpretive and deductive powers.

Learning resources

Dix, Finlay, Aboud & Beale: Human-Computer Interaction. Pearson Prentice-Hall, Third ed, 2004

Preece et al: Human-Computer Interaction, Addison-Wesley, 1994.

Other study requirements to take this module

CS1410 Java Program Development or CS2300 Java Program Construction

CS1240 or CS1280 Internet Computing