NUI Galway
OÉ Gaillimh

Semester I Examinations 2009/ 2010

Exam Code(s)	3IF121; 3BA1; 4BA1;1MF1; 1SD1
Exam(s)	B.Sc. in Information Technology B.A. MSc in Software Design and Development Higher Diploma in Software Design and Development
Module Code(s)	CT318 CT865
Module(s)	Human Computer Interaction
Paper No. Repeat Paper	1
External Examiner(s) Internal Examiner(s)	Prof. Michael O'Boyle Prof. Gerard Lyons * Ms. Karen Young
Instructions:	Candidates should answer **Question 1** and **two other** questions. All questions carry equal marks.
Duration	2 hours
No. of Pages	3

Requirements:
MCQ
Handout
Statistical/ Log Tables
Cambridge Tables
Graph Paper
Log Graph Paper
Other Materials

Release to Library: Yes ☐ o ☐

Q.1 You have been asked to design an **interactive kiosk system** to support a **bike rental** scheme in Galway in support of the city's efforts to become more environmentally conscious. The system will operate similarly to those deployed in other large European cities (Dublin, Barcelona, Brussels, etc.) which facilitate short journeys within the city: i.e. bicycles are kept at a number of parking stations throughout the city, and members of the public can borrow a bicycle at any time and return it to any parking station after use. The system design must be robust enough for public settings, enable user data input (user details etc.) and payment details (credit card: a deposit amount to cover damage or theft of bike will be frozen on the card); it should also provide maps of interest and identify bike-drop-off points and general bike availability.

Your company has indicated that they want an initial, early design submission from you to include the following:

(a) A PACT analysis for this application.

[5]

(b) A paper prototype of three of the interface screens, representing the system's functional organisation and overall "look and feel". Clearly outline your rationale for each of the design choices you make (e.g. interaction styles).

[9]

(c) An evaluation plan, clearly outlining what activities, when, how and by whom the evaluation activities will be undertaken, for the system which will support comprehensive testing of your design.

[6]

Q. 2. (a) Given that good design is dependent on good designers, not expensive tools, comment on the role of **software tools** in interaction design. Support your answer with relevant examples.

[8]

(b) HCI incorporates the study of novel interaction techniques with technology. Current interactions largely rely on vision (screen presentation of information) and touch (keyboard, touch-screens, etc.). You have been asked to propose a new interactive technique for a system being developed for use in a busy scientific laboratory environment. Prepare a memo outlining the shortcomings of traditional interaction in this context, and proposing the benefits of this new interactive technique (including successful examples of its application in other contexts) to be presented to your company's management team.

[7]

(c) What makes something easy to use? What are the properties of an interactive system that make it easy to use for beginners to intermediate and expert users?

[5]

Q. 3. (a) Design principles are intended to cover all interactive systems. Their generalisability is both their strength and weakness. Discuss the role of design principles in developing good interactive **web-based systems**. In your answer consider the importance of context in the application of these principles.

[9]

(b) Comment on the efficacy of *Anthropomorphism* in interactive system design.

[5]

(c) Choose an appropriate evaluation method for each of the following situations. In each case identify: the participants, the technique used, the representative tasks to be examined, measurements that would be appropriate, and an outline plan for carrying out the evaluation.

(i) You are designing a new web-based project management application and you wish to test what type of icons will be easiest to learn.

(ii) You have an idea for a new parking control system to be used by staff and students of NUI, Galway to reduce search time for a vacant car park space, and resulting traffic congestion on campus.

(iii) You have designed and implemented a new game application for the iPhone and want to evaluate it before release.

[6]

Q. 4. (a) EZ-Pal is your friendly mobile companion. EZ-Pal moves from your alarm clock to your mobile phone to your TV. EZ-Pal helps you with things such as recording your favourite TV programme, setting the security alarms, heating and lighting on your house, remembering your shopping list and remembering special days such as birthdays. Discuss the **design issues** that EZ-Pal raises and outline a conceptual model for the design.

[9]

(b) Write a one-page memo to your colleagues in your software design company, proposing the adoption of more rigorous user goal evaluation during design to improve the success of the interactive systems designed by your company.

[5]

(c) In designing an interactive application, the ***posture*** of the application should be appropriate for the user task. Describe the three different application ***postures*** and how each ***posture*** informs the resulting interaction design, paying specific attention to the design of error messages.

[6]