



**Semester I Examinations 2010/ 2011**

**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. 1  
Repeat Paper

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Internal Examiner(s) Dr. Jim Duggan  
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**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

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**Q.1** You have been asked to design an application suitable for a mobile device to facilitate parking at NUI, Galway. It is envisaged that the application could then be deployed in other organisations (both public and private sector organisations). Once deployed on the registered user's phone, the application will indicate the available car park spaces for the user (staff, student, visitor) on campus. The application will also facilitate payment of parking tariffs by registered users, enabling the "Pay & Display" tariff to be paid via the phone (or website) and "topped up" in the same way should the user be delayed at a meeting etc.

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.

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- (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.

[5]

**Q. 2. (a)** Given that good design is dependent on good designers, comment on the role of **effective design education** in interaction design. Your answer should include consideration of theories, principles, models, and guidelines, and be supported by relevant examples.

[ 9]

**(b)** Successful HCI is heavily dependent on *evaluation*. You are keen to propose a more rigorous evaluation methodology for your organisation. Prepare a memo outlining the shortcomings of the traditional evaluation techniques deployed by your organisation (usability lab testing of prototype and final designs), and proposing the benefits of this new evaluation approach (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 *learn*? What are the properties of an interactive system that make it easy to *learn* for beginners to intermediate and expert users?

[4]

**Q. 3. (a)** “Within a decade, industry watchers say, the spoken interface will fundamentally alter the way we interact with machines, just as the GUI did a decade ago.” Chris Chinnock (1995)

Discuss the above statement in light of developments in interaction over the past 15 years.

[ 9]

**(b)** Comment on the role of *posture* in interactive system design: what it is and how it impacts the design choices made.

[ 5]

**(c)** Choose an appropriate *requirements collection strategy* for each of the following situations. In each case identify: the participants, the technique to be used, the representative tasks to be examined, and any evaluation or verification techniques that would be appropriate.

- (i)** You are designing a new web-based project management application for project management professionals.
- (ii)** You have been assigned responsibility for developing a web site for your local sports club.
- (iii)** You want to design a new game application for the iPhone.

[ 6]

**Q. 4. (a)** You have been tasked with developing a prototype UI (User Interface) for your company’s new home entertainment system. The brief highlights the need to minimise users’ negative emotions (frustration, fear, anger, etc.) when using this new system. Discuss the design issues that this new UI raises, and outline a conceptual model for the design.

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**(b)** Your company has commissioned a number of evaluation studies which have shown that your users find your software products consistently “difficult to use”. Write a one-page memo to your colleagues in your company on the importance of **mental models** to the success of the interactive systems designed by your company.

[ 6]

**(c)** Users confront very different usability challenges on handheld devices from those they encounter when interacting with a Web site on a computer. Analyse the differences between the interactions on both platforms and identify appropriate usability testing strategies for mobile device applications.

[ 6]