



## **Autumn Examinations 2013/ 2014**

**Exam Code(s)** 3BCT121; 3BA1; 4BA1;1MF1; 1SD1  
**Exam(s)** B.Sc. in Computer Science and 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

External Examiner(s) Professor Liam Maguire  
Internal Examiner(s) Prof. Gerard Lyons  
Dr. Michael Madden  
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

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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.

[6]

(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)** *Anthropomorphism has no place in interactive software design.* Comment on this statement supporting your answer with relevant examples.

[ 7]

(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 medical 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.

[ 8]

(c) In designing an interactive application there are many guidelines available to help the designer. Discuss the type and role of guidelines in producing good interactive web-based systems.

[ 5]

**Q. 3. (a)** (i) Distinguish between a *conceptual* model and a *physical* model in design.

[ 4]

(ii) You have been tasked with developing a mobile shopping app (application). Outline the progression from Conceptual to Physical Design in this context, clearly identifying the inputs and outputs for each design phase.

[ 6]

**(b)** Write a one-page memo to your colleagues in your software design company, proposing the adoption of *co-operative evaluation* techniques during design to improve the success of the interactive systems designed by your company.

[ 5]

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

[ 5]

**Q. 4. (a)** Effective interaction design is ultimately about the correct assignment of responsibilities to the parties participating in the interaction, i.e. the human and the computer. From your study of the various theories, models, processes, and techniques of interaction design, comment on the validity of the above statement, illustrating your response with appropriate examples as necessary.

[10]

**(b)** In designing an interactive application discuss the role of *world* and *head* vectors in enabling effective progression from novice to expert use, illustrating your response with appropriate examples.

[ 5]

**(c)** Using appropriate examples, explain Norman's *gulf of execution* and *gulf of evaluation* as they relate to successful interaction design.

[ 5]