



**Autumn Examinations 2015/ 2016**

**Exam Code(s)** 3BCT121; 3BA1; 4BA1  
**Exam(s)** B.Sc. in Computer Science and Information Technology  
B.A.

**Module Code(s)** CT318

**Module(s)** Human Computer Interaction

**Paper No.** 1  
**Repeat Paper**

**External Examiner(s)** Professor Liam Maguire  
**Internal Examiner(s)** Prof. Gerard Lyons  
Dr. Jim Duggan  
Ms. Karen Young

**Instructions:** Candidates should answer **Question 1** and **any two other** questions.  
All questions carry equal marks.

**Duration** 2 hours

**No. of Pages** 3

**Requirements:**

None

Release to Library: Yes

☐

No

**Q.1** You have been asked to design an interactive system (website, mobile application) to support the city's *Arts Festival*. The system should provide information on all Arts Festival events: date, location, producer, performers, reviews etc. In addition, the system must support ticket bookings and payments, as well as providing interactive demos and snippets from the performances and opportunities to get involved in the interactive digital performances or post reviews or play "games" associated with the festival.

The commissioning company has indicated that they want an initial 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)** Good design requires good designers, not expensive tools.

(i) From your study of the various theories, models, processes, and techniques of interaction design, comment on the validity of the above statement.

[ 5]

(ii) What are the implications of your analysis in (i) above for interaction design education? Propose a course outline for a one-semester course in Interaction Design based on your analysis.

[ 7]

**(b)** Effective **error messages** are critical to good user interaction design. What is the purpose of error messages? What factors are important in their design? Design an appropriate error message for a user who is unsuccessfully trying to gain access to a service they do not currently have clearance to access.

[ 4]

**(c)** Comment on the role and efficacy of User Interface *design guidelines* in supporting interactive system design.

[ 4]

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

(ii) You have been tasked with developing a new language learning environment for adult language learners. Using *Verplank's Interaction Design Framework*, what are the key elements you will need to capture and represent in your conceptual model?

[10]

**(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 *evaluation* to the success of the interactive systems designed by your company and identify suitable *evaluation approaches* to achieve this end.

[ 6]

**(c)** Distinguish between the three desktop **postures**, identifying their characteristics and what user applications they are suited to.

[ 4]

**Q. 4. (a)** The primary purpose of **design principles** is to optimise users' experience (**UE**) with the designed product and minimise users' work. Discuss the contribution of design principles to reducing users' workload (cognitive, memory, visual and physical) and whether there are situations where designers may intentionally increase user workload to increase user engagement. Support your answer with examples where appropriate.

[ 8]

**(b)** Elaborate the role of prototyping (both low and high fidelity) in improving the interaction experience of users using technology. Your answer should give consideration of **what** is prototyped and **when** during the design of an interactive experience.

[ 6]

**(c)** Which interaction style would you apply to the design of each of the following and why?

- A blood glucose Monitoring Device.
- A high-tech interactive refrigerator which will alert users when they need to purchase stock, when stock is out of date and analyse overall efficiency of energy usage.
- A mobile scheduling application for an international design consultancy.

[ 6]