# ***Semester I Examinations 2014/ 2015***

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| **Exam Code(s)** | 3BCT121; 3BA1; 4BA1;1MF1; 1SD1 |
| **Exam(s)** | B.Sc. in Computer Science and Information Technology<br>B.A.<br>MSc in Software Design and Development<br>Higher Diploma in Software Design and Development |
| **Module Code(s)** | CT318<br>CT865 |
| **Module(s)** | Human Computer Interaction |
| Paper No.<br>Repeat Paper | 1 |
| External Examiner(s)<br>Internal Examiner(s) | Professor Liam Maguire<br>Prof. Gerard Lyons<br>Dr. Michael Madden<br>Ms. Karen Young |
| ***Instructions:*** | Candidates should answer **Question 1** and **two other** questions.<br>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 ☐ No ☐

**Q.1** You have been asked to design an interactive kiosk system to support a bike rental scheme in Galway as part of the city's efforts to become more environmentally conscious. The system will operate similarly to those deployed in other European cities 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.

**[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)** Interaction Design is concerned with the design of digital devices to meet the *physical*, *emotional* and *intellectual* needs of the people using these devices. Analyse the contribution of the **models** and **frameworks** covered in this course to meeting this design goal throughout all stages of the Systems Development Lifecycle (SDLC).

**[12]**

**(b)** The role of human cognition has been extensively researched in order to better understand HCI success. Successful visual icon design can be understood in relation to the factors that determine **meaningfulness** for users. Elaborate on these factors and the role they play in successful icon design. Use the example of designing icons for your class project to illustrate your answer.

**[ 8]**

**Q. 3. (a)** Laseau's *Design Funnel* presents a simple model of the design process. The expanding and contracting funnels correspond to distinct design activities with their associated approaches and methods.
Using the example of an educational game being developed for second language learning in second level schools (i.e. for 12-18 year old students) compare the focus and design activities of both funnels and elaborate on the relationship between the two.

**[10]**

**(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)** The choice of **interaction style** is one of the most importance decisions in Interaction Design. What factors should be considered in making this choice? Use examples to illustrate your answer.

**[ 4]**

**Q. 4. (a)** "*Perfection is attained not when there is no longer anything to add, but when there is no longer anything to take away*" (Antoine de Saint Exupery, 1954)

Analyse the above statement in light of your study of effective **visual design**, including consideration of its application to a website of choice in your answer.

**[ 8]**

**(b)** The effective representation of information at the User Interface (UI) greatly improves the User Experience (UE) enabling effortless interaction and minimising users' work.

Discuss the role of **design principles** in supporting this process, specifically identifying those principles which contribute to good representation at the UI.

**[ 8]**

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

**[ 4]**