

Programme Codes: DT211C, DT228  
Module Code: CMPU 2008  
CRNs: 22507, 22398

## **TECHNOLOGICAL UNIVERSITY DUBLIN** **CITY CAMPUS**

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**DT211C – BSc. (Honours) in Computer Science  
(Infrastructure)**  
**DT228 – BSc. (Honours) in Computer Science**

### **Year 2**

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**SEMESTER 2 EXAMINATIONS 2021/22**

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#### **Human Computer Interaction**

Internal Examiners

Dr. Emma Murphy and Dr. Art Sloan

Dr. Paul Doyle

External Examiners

Ms. Sanita Tifentale

Dr. Charles Markham

#### ***Instructions***

**Answer Question (1) and any two other Questions**

**Question (1) Carries 40 Marks**

**Questions (2), (3), and (4) Carry 30 Marks Each**

**1.**

**NOTE: This question is compulsory**

- (a) Human Computer Interaction (HCI) is a highly interdisciplinary subject. Name *five* core disciplines or fields of study that contribute to HCI. (5 marks)
- (b) What is Human Centred Design? (3 marks)
- (c) Outline *four* benefits to involving end users in the design and development of technology. (8 marks)
- (d) Describe each of the following methods to conduct user research for the design or re-design of digital user interfaces and outline *two* advantages and *two* disadvantages for each method.
- Interviews
  - Surveys
  - Observations
- (15 marks)
- (e) What are *Personas*? What are their benefits and limitations in the design of digital interfaces? (9 marks)

**2. (a)** Distinguish between *low-fidelity prototyping* and *high-fidelity prototyping* in user interface design.

(6 marks)

**(b)** Outline the advantages and disadvantages to using High Fidelity and Low Fidelity prototypes to evaluate designs with end users.

(8 marks)

**(c)** Explain how the principle of *affordance* can be used to enhance the design of an interface. (4 marks)

**(d)** Describe the five Gestalt Laws of perceptual organisation and explain why they are important in screen design.

(12 marks)

**3. (a)** What is the difference between accessibility and usability?

(5 marks)

**(b)** Explain *two* of the following WCAG guidelines with an example of why it is important for an end user:

- Guideline 1.1 Text Alternatives
- Guideline 2.1 Keyboard Accessible
- Guideline 3.1: Readable

(10 marks)

**(c)** The Principles of Universal Design define seven principles that can be used to guide the design process of computer systems. Explain five of the seven Universal Design principles with real world examples of how they might be applied to the design of an application interface. (You can use examples from different designs in technology, product design or built environment.)

(15 marks)

**4. (a)** What is heuristic evaluation?

(4 marks)

**(b)** Identify and explain *five* of Nielsen's Usability Heuristics for User Interface Design.

(10 marks)

**(c)** Identify *three* advantages and *three* disadvantages of running expert usability evaluations.

(6 marks)

**(d)** Define the Think Aloud method for user testing.

(4 marks)

**(e)** What are the advantages and disadvantages of using Think Aloud during a user evaluation?

(6 marks)