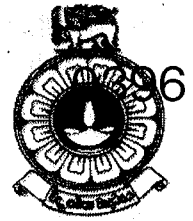


The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering



Study Programme : Bachelor of Software Engineering Honours
Name of the Examination : Final Examination
Course Code and Title : EEI4361 User Experience Engineering
Academic Year : 2024/25
Date : 18th February 2026
Time : 1330-1630h
Duration : 3 hours

General instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Four (4)** questions in **Two (2)** pages.
3. Answer **all** questions.
4. Answer for each question should commence from a **new page**.
5. This is a Closed Book Test (CBT).

All questions (Question 01–04) are based on the **following scenario** related to **Mindful UX Design for Digital Well-being**.

“Digital applications often contribute to user distraction, cognitive overload, and excessive screen time due to poor interface design and constant notifications. To address these issues, a digital system is proposed using **Mindful UX Design** principles to promote **digital well-being** by enhancing usability, reducing unnecessary interactions, and encouraging balanced and conscious technology use.”

Question 01

- a. **Define Human-Computer Interaction (HCI)** and explain how it applies to the design of a **mindful digital well-being system**. (3 marks)
- b. **Explain the importance of usability** when designing interfaces that aim to reduce user stress and cognitive overload. (3 marks)
- c. With reference to the given **scenario**, describe and justify the following three **core components of HCI**. (4 marks)
 - i.) User
 - ii.) Technology
 - iii.) Interaction
- d. **Discuss how HCI principles enhance user experience** in everyday digital well-being applications. (7 marks)
- e. **Explain the significance of User-Centred Design (UCD)** in developing a mindful UX solution, including its process and its impact on the final prototype. (8 marks)

Question 02

- a. **Define applied experimental psychology** and explain how it helps understand user behaviour related to digital fatigue and attention management. (3 marks)

- b. What are the **main goals of human factors design** when engineering UX solutions for digital well-being? (3 marks)
- c. Briefly describe the **seven stages of interaction in Norman's model** and explain their relevance to a selected feature in your **mindful UX design**. (4 marks)
- d. **Explain how Norman's Execution-Evaluation loop** can be used to identify and resolve usability issues in your prototype. (7 marks)
- e. **Discuss the role of human factors in accessibility-aware mindful UX design**, providing examples such as reduced cognitive load, visual clarity, or inclusive interaction patterns. (8 marks)

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Question 03

- a. Describe the concept of **affordance** and how **mindful affordances** support calm and intuitive interactions in your design. (3 marks)
- b. **Differentiate between mental models and interaction models**, using examples from your selected **digital well-being feature**. (3 marks)
- c. Explain how **human errors (slips and mistakes)** can occur in digital well-being applications and how **mindful UX design minimizes these errors**. (4 marks)
- d. **Discuss the role of interaction styles** (e.g., WIMP, touch-based, natural language interfaces) in meeting user expectations in **mindful systems**. (7 marks)
- e. **Explain how continuous user feedback** (heuristic evaluation, thinking aloud) contributed to improving your UX design. **Provide examples using the given scenario**. (8 marks)

Question 04

- a. **Describe the following user research methods** and explain how each was used (or could be used) to identify user needs for the **digital well-being of your mindful UX design**. (3 marks)
- | | |
|----------------------|--------------------------|
| i.) Ethnography | iii.) Contextual Inquiry |
| ii.) User Interviews | iv.) Surveys |
- b. **Explain the purpose of User and Task Analysis** in understanding end-to-end interaction for the selected **mindful feature**. (3 marks)
- c. **Explain how the following techniques refined your design** to support mindful interaction better. (4 marks)
- | | |
|-------------------------------|-----------------------------|
| i.) Prototyping and Iteration | iii.) Usability Evaluations |
| ii.) Focus Groups | iv.) Heuristics Evaluation |
- d. **Discuss the significance of the following UX artefacts** in the given scenario. (7 marks)
- | | |
|-------------------|-----------------------------|
| i.) Personas | iii.) Customer Journey Maps |
| ii.) Empathy Maps | iv.) Scenarios |
- e. **Explain why usability standards (e.g., ISO 9241)** are important when designing ethical, inclusive, and well-being-oriented digital experiences. (8 marks)

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