



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
<b>Course Code and Title</b>	<b>: EEI4267 – Requirement Engineering</b>
Academic Year	: 2024/25
Date	: 12 <sup>th</sup> August 2025
Time	: 1330-1630hrs
Duration	: <b>3 hours</b>

### General Instructions

1. Read all the instructions carefully before answering the questions.
2. This question paper consists of **Three (3)** questions in **Three (3)** pages.
3. Answer All questions.
4. Answer to each question should commence on a **new page**.
5. This is a Closed Book Test (**CBT**).
6. Answers should be in clear handwriting. Do not use a red colour pen.

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(Essay Questions) Answer all questions referring to the case below.

**Case:** Sunshine Gym is introducing a digital system to streamline membership registration, class bookings, trainer allocations, and payment processing for its branches. Members have complained about long registration queues, confusion in class schedules, and a lack of real-time updates on trainer availability. Management wants a web-based solution where members can register, book classes, view schedules, make payments, and get notifications on changes or promotions. Staff and trainers must be able to update class details, mark attendance, and communicate with members. Administrators should generate reports. Some features, like analytics and priority bookings, will be exclusive to VIP members.

### Question 1 [50 marks]

- A. Identify four distinct stakeholders involved in the proposed system. (4 Marks)

- B. Explain the following with reference to the Sunshine Gym case, providing one requirement for each as a user story. (9 Marks)
- i. User Requirements
  - ii. System Requirements
  - iii. Business Requirements.
- C. Based on the case provided, identify the following and provide requirements for each as a user story: (9 Marks)
- i. Three functional requirements.
  - ii. Three non-functional requirements.
  - iii. Three domain requirements unique to this scenario.
- D. Identify and explain in detail two requirement elicitation techniques you would apply to the Sunshine Gym Management System case. For each, discuss its process and advantages. (10 Marks)
- E. Identify and explain a requirement analysis technique you apply to the Sunshine Gym Management System case. Discuss its process and advantages. (6 Marks)
- F. Develop a persona and a product vision board for the Sunshine Gym Management System after identifying the required features. (12 Marks)

## Question 2 [30 marks]

- A. Explain the distinction between requirement verification and requirement validation. Illustrate your answer by describing one technique used for each process, relevant to the Sunshine Gym Management System. (6 marks)
- B. Briefly explain how requirements management differs in the Waterfall and Agile models, using relevant examples. (9 marks)
- C. Based on the Sunshine Gym Management System case, develop a complete use case diagram that represents all the main functionalities required by the system, including: membership registration, class booking, trainer allocation, payment processing, real-time notifications, staff and trainer access, communication, VIP features (such as analytics and priority booking), and report generation for administrators. State any relevant assumptions you make. Clearly identify and label all actors and their relationships to the use cases. Ensure your diagram captures all key interactions and features outlined in the scenario. (15 Marks)

### Question 3 [20 marks]

Imagine the Sunshine Gym Management system is being developed for a country with multiple languages and diverse accessibility needs.

- A. Describe the additional requirements (both functional and non-functional) you must consider. (8 marks)
- B. Explain how you would adapt your requirements elicitation process to ensure these needs are accurately captured by all stakeholders. (6 marks)
- C. Reflect on how poor requirements elicitation or validation in this context could impact the system's success. (6 marks)

*-End of the Paper-*