

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



Study Programme : Bachelor of Science Honours in Engineering
Bachelor of Software Engineering Honours
Name of the Examination : Final Examination
Course Code and Title : EEX5280 / EEI5280 Creative Design
Academic Year : 2022 - 2023
Date : 9 February 2024
Time : 14:00 -17:00 hrs
Duration : 3 hours

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General Instructions

1. Read all instructions carefully before answering the questions.
 2. Answers should be written in answer book provided. Answer for each question should commence from a new page.
 3. This question paper consists of **Four (4)** questions in **Four(03)** pages including this cover page.
 4. Answer all questions.
 5. This is a Closed Book Test (**CBT**).
 6. Answers should be in clear handwriting.
 7. Do not use red colour pen.
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Solving the Public Transport Problem in Sri Lanka

In Sri Lanka, there are many problems associated with the Public Transport System. The public transport network is extensive and services are inexpensive. Unfortunately, the services are low quality and unsafe. Street buses are infrequent, therefore overcrowded, and uncomfortable. Those in private operation are said to be driven at unsafe speeds only to spend inordinate amount of time at stops. Suburban rail services are also infrequent and overcrowded. Those who need to transfer between bus lines face many problems as there is no fare integration nor timetable coordination. Better-quality services are available, but the price differential is quite high. The net impact is to create strong pressure to abandon public transport in favor of motorcycles and other individual modes, which in turn contributes to traffic problems.

[Adopted from: Sri Lanka, Toward an Urban Transport Strategy for Colombo, A Technical Note, World Bank, January 2001]

Even though this report has been published two decades ago, the situation has not improved much. A Non-Governmental Organisation (NGO), TravelSafe, has decided to take some action to solve the problems of public transport in Sri Lanka, starting with highly populated urban areas such as Colombo. An expert has suggested that TravelSafe follow the "Design Thinking Process" to find a solution to this problem.

You have been requested to assist TravelSafe in designing a solution to this problem using the "Design Thinking Process".

Question 1

(a) The Management of TravelSafe has no idea of what "Design Thinking" is. They have requested your opinion on what design thinking is and whether they should follow this method to solve the transport problem in Sri Lanka. Write a brief memo to the management of TravelSafe explaining what Design Thinking is and whether you recommend them to use this process to solve the transport problem in Sri Lanka. Your answer should include:

i. What Design Thinking is.

(05 Marks)

ii. Brief description of the major steps of design thinking and the importance of each step in solving a problem.

(10 Marks)

iii. Compare the steps in Design Thinking with any traditional problem-solving approach that you are familiar with highlighting how Design Thinking approach improves the problem solving process.

(10 Marks)

Question 2

Use the Case Study on 'Solving the Transport Problem in Sri Lanka' to answer the following questions.

- (a) Apply the "5 Why" method to identify the actual problem that TravelSafe need to solve?
(10 Marks)
- (b) Identify the major stakeholders of the solution to the problem identified in Question 2 part (a) and the role of each stakeholder.
(05 Marks)
- (c) Prepare an action plan that includes specific activities that TravelSafe should undertake to ensure that a user-centric solution is designed and identify different tools required for this task.
(10 Marks)

Question 3

- (a) Identify 3 major problems associated with the public transport system in Sri Lanka that has been mentioned in the case study and describe 3 possible solutions for each identified problem.
(5 x 3 = 15 Marks)
- (b) Select one solution for implementation for each of the situations. Justify your selection.
(2 x 3 = 06 Marks)
- (c) Describe two more issues related to Public Transportation in Sri Lanka that the authors of the report have failed to identify.
(2 x 2 = 04 Marks)

Question 4

- (a) Explain how TravelSafe can validate that the solutions identified in Question 3(b) are viable?
(06 Marks)
- (b) List 2 challenges that TravelSafe might face in implementing each of the solutions identified in Question 3 (b)?
(3 x 3 = 09 Marks)
- (c) What are the ethical, legal, societal and environmental considerations that should be taken into account when designing and implementing a solution for the problem of public transport in Sri Lanka.
(10 Marks)

----- END OF THE PAPER -----

