NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
DEPARTMENT OF COMPUTER SCIENCE

BACHELOR OF SCIENCE HONOURS IN COMPUTER SCIENCE

SOFTWARE PROJECT MANAGEMENT
SCS 2211

Examination Paper
March 2025

This examination paper consists of four (4) pages

Time Allowed:	3 hours
Total Marks:	100
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INSTRUCTIONS

1. Answer any four (4) questions.
2. Each question carries 25 marks.

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
TOTAL FOR FOUR QUESTIONS	**100**

QUESTION ONE

a) Define project scope and explain why it is critical to the success of a software project. [5]

b) A client has requested a mobile app for online food delivery. Create a detailed scope statement for this project, including objectives, deliverables, and constraints. [10]

c) Develop a work breakdown structure (WBS) for the development of the food delivery app project. [10]

QUESTION TWO

a) Explain the purpose of risk management in software projects and describe the steps involved in the risk management process. [5]

b) Identify **five** potential risks in developing an e-learning platform. For each risk identified, propose a mitigation strategy and explain how it would reduce the impact or likelihood of the risk. [10]

c) A software project has the following tasks, durations, and dependencies:

- Task A: 3 days (no dependencies)
- Task B: 5 days (depends on Task A)
- Task C: 2 days (depends on Task A)
- Task D: 4 days (depends on Task B and C)
- Task E: 3 days (depends on Task D)

Required:

Draw a network diagram and calculate the critical path for this project. [10]

QUESTION THREE

a) i. Discuss how resource overallocation can impact a project. [5]

ii. Suggest two strategies to resolve it. [4]

b) Compare and contrast Gantt charts and Critical Path Method (CPM) as project scheduling tools. [6]

c) A software project is experiencing delays in delivery. Use the Ishikawa technique to identify potential causes under the following categories: People, Process, Tools, and Environment. Provide at least two causes for each category. [10]

QUESTION FOUR

a) Explain the difference between bottom-up and top-down cost estimation techniques. Provide an example of when each technique would be appropriate. [5]

b) Using the bottom-up approach, estimate the cost of developing a small e-commerce website. Assume the following:

- 2 developers at $50/hour for 200 hours each,
- 1 designer at $40/hour for 100 hours,
- Hosting and domain costs of $500,
- Contingency budget of 10%. [10]

c) You have just completed a project to develop an e-commerce website. Create a project closure report that includes the following:

- Project summary
- Lessons learnt
- Recommendations for future projects

You can make assumptions in your answer. [10]

QUESTION FIVE

a) Describe the key principles of Agile project management and elaborate how they differ from traditional waterfall methodologies. [7]

b) You are managing an Agile team developing a fitness tracking app. Create a product backlog for the first sprint, including at least 4 user stories with acceptance criteria. [8]

c) A software testing team has identified the following defects and their frequencies:

- User Interface Issues: 45
- Performance Issues: 30
- Security Vulnerabilities: 15
- Integration Errors: 10

Create a Pareto graph to represent this data and analyse which defects should be prioritised for resolution. [10]

END OF QUESTION PAPER