



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE IN BUSINESS

**INFORMATION SYSTEMS AND THE DEGREE IN INFORMATION AND
COMMUNICATION TECHNOLOGY**

2nd YEAR 1st SEMESTER 2024/2025 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ICB 3210

COURSE TITLE: SOFTWARE ENGINEERING

EXAM VENUE: LAB 12 STREAM: BIS, ICT

DATE: 25/4/2025 EXAM SESSION: 15.00-17.00

TIME: 2 HOURS

INSTRUCTIONS

Answer question ONE and any other TWO questions

Question 1 (30 Marks)

Answer all parts of this question. Each sub-question carries equal marks.

- (a) Explain the difference between Software Engineering and Computer Science.
 - (b) Describe the main phases of the Software Development Life Cycle (SDLC).
 - (c) Compare and contrast the Waterfall Model and Agile Methodologies.
 - (d) What are Functional and Non-Functional Requirements? Provide examples of each.
 - (e) Explain the purpose and significance of Use Case Diagrams in Requirements Engineering.
 - (f) Define Software Design Patterns and describe three commonly used patterns.
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Question 2 (20 Marks)

- (a) Explain the key differences between Scrum and Kanban in Agile development. (10 marks)
 - (b) Describe the role of Version Control Systems like Git in modern software development. (10 marks)
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Question 3 (20 Marks)

- (a) Define Test-Driven Development (TDD) and explain its advantages in software development. (10 marks)
 - (b) Discuss the importance of Continuous Integration/Continuous Deployment (CI/CD) in software engineering. (10 marks)
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Question 4 (20 Marks)

- (a) List and explain the four types of Software Maintenance. (10 marks)
 - (b) Discuss three software project estimation techniques used in software project management. (10 marks)
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Question 5 (20 Marks)

- (a) Explain the impact of Artificial Intelligence (AI) on Software Engineering. (10 marks)
- (b) Describe the role of Microservices in modern software architectures. (10 marks)