



TECHNICAL UNIVERSITY OF MOMBASA

School of Engineering and Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATIONS FOR BACHELOR OF IN ELECTRICAL AND
ELECTRONIC ENGINEERING
TEE 4306

SOFTWARE ENGINEERING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: JULY 2025

TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass, and student ID

This paper consists of **five** Questions

Attempt QUESTION ONE (COMPULSORY) and any other TWO Questions.

Do not write on the question paper.

QUESTION ONE (COMPULSORY) (30 marks)

- (a) Explain any THREE characteristics of software. (6 marks)
- (b) Discuss any THREE applications of software. (6 marks)
- (c) Explain any FOUR factors that led to the emergence of software engineering. (6 marks)
- (d) With the aid of a diagram, discuss the waterfall model of software development (12 marks)

QUESTION TWO

- (a) State any TWO advantages and ONE disadvantage of the waterfall model of software development. (3 marks)
- (b) Explain the following concepts of procedural abstraction:
 - (i) Encapsulation
 - (ii) Modularity
 - (iii) Reusability.
 - (iv) Abstract data type. (8 marks)
- (c) With the aid of a diagram, explain the spiral model of software development. (9 marks)

QUESTION THREE

- (a) Explain the term 'Object Oriented Programming' (2 marks)
- (b) Explain the following terms in OOP and write declaration statements in C++
 - (i) Class
 - (ii) Object
 - (iii) Method (9 marks)
- (c) Explain the following concepts in OO and give ONE example for each case:
 - (i) Data abstraction
 - (ii) Polymorphism
 - (iii) Concrete data type (9 marks)

QUESTION FOUR

- (a) Explain any FOUR attributes of a software project (8 marks)
- (b) Explain any TWO legal and TWO ethical issues of project management (8 marks)
- (c) Distinguish between PDE and ODE system models (4 marks)

QUESTION FIVE

- (a) Explain the following terms:
 - (i) Multiprocessing
 - (ii) Symmetric multiprocessing
 - (iii) Asymmetric multiprocessing.
 - (iv) Master/slave microprocessor system (8 marks)
- (b) Explain any TWO demerits of multiprocessing (4 marks)
- (c) Explain the FOUR factors in good programming design practice (8 marks)