



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

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

SOFTWARE ENGINEERING

END OF SEMESTER EXAMINATION

SERIES: APRIL 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 qualities of software. (6 marks)
- (b) Discuss any THREE application areas 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 software development life cycle. (12 marks)

QUESTION TWO

- (a) State any TWO models of software development. (2 marks)
- (b) Discuss any THREE levels of abstraction in software engineering and give ONE example for each case. (9 marks)
- (c) With the aid of a diagram, explain the prototype model of software development. (9 marks)

QUESTION THREE

- (a) Explain the term 'Object Oriented Programming'. (2 marks)
- (b) Distinguish between Abstract Data Type (ADT) and Concrete Data Type (CDT) and give ONE example for each case. (6 marks)
- (c) Explain the following concepts in OO and give ONE example for each case:
 - (i) Encapsulation
 - (ii) Inheritance. (9 marks)
- (d) Use a class inheritance diagram to show FOUR classes of electrical machines (6 marks)

QUESTION FOUR

- (a) For multiprocessing systems:
 - (i) Explain the concept of multiprocessing
 - (ii) Distinguish between Symmetric and Asymmetric processor systems
 - (iii) State any TWO benefits of multiprocessing (8 marks)
- (b) State the FOUR factors in a program design process (4 marks)
- (b) With the aid of a diagram, explain the working of a multiprocessing operating system that uses two CPUs and two I/O processors. (8 marks)

QUESTION FIVE

- (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 objects and methods in OOP (4 marks)