



“Investing in Africa’s Future”
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

NCSC 413: SOFTWARE ENGINEERING II

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2025

LECTURER: MR J. CHINZVENDE

TIME: 3 HOURS

INSTRUCTIONS

Answer questions instructed in each section

Start **each** question on a new page.

The marks allocated to **each** question are shown at the end of the section.

Answer all questions in Section A and Chose Two (2) in section B

Credit will be awarded for logical, systematic and neat presentations.

Section A [Answer all]

Question One

Expand the following terms as they are used in Software Engineering

- a. API
- b. IDE
- c. XML
- d. JSON
- e. SDLC

[10]

Question Two

Differentiate between the following terms in Software Engineering?

- a. Availability and Reliability
- b. Efficiency and Effectiveness
- c. Redundancy and dependability
- d. Software Architecture and Software Design
- e. Continuous Integration (CI) and Continuous Deployment (CD)

[10]

Question Three

What is technical debt? How can it affect software development and maintenance?[10]

Question Four

- a. Describe the different levels of software testing and state their objectives [05]
- b. Discuss the differences between black-box testing and white-box testing. Provide examples of each type and their appropriate usage scenarios. [05]

Question Five

- a. Describe the process of requirements elicitation. [04]
- b. What techniques can be used to gather requirements from stakeholders? [04]
- c. Explain the difference between functional and non-functional requirements. [02]

SECTION B [Answer any Two (2)]

Question Six

A startup is planning to develop a mobile application and is in the initial phase of the Software Development Life Cycle (SDLC).

- a. Describe the key phases of the SDLC and their importance in the software development process. **[10]**
- b. Explain how requirements gathering and analysis can influence the success of the project. **[10]**
- c. Identify two tools or techniques that can be used during the design phase and describe their benefits. **[05]**

Question Seven

A software product is nearing its release date, but the testing phase has revealed several critical bugs.

- a. Outline the steps the development team should take to prioritize and address these bugs. **[10]**
- b. Explain the role of regression testing in the context of this scenario. **[10]**
- c. Discuss how the team can ensure that similar bugs do not occur in future releases. **[05]**

Question Eight

Africa University is developing a financial application and security is a top priority due to sensitive data handling.

- a. Identify three common security threats that the application may face. **[10]**
- b. Discuss the importance of secure coding practices in mitigating these threats. **[10]**
- c. Explain how the team can incorporate security testing into the software development lifecycle. **[05]**

END OF EXAMINATION