



**Tshwane University  
of Technology**

*We empower people*

### **INSTRUCTIONS TO CANDIDATES**

1. All exam rules stated by the Tshwane University of Technology apply.
2. **Ensure a single final version of your source code is handed in as requested.**
3. If needed, state all necessary assumptions clearly in code commentary.

**MARKS:** 100%

**PAGES:** 15 (incl. cover)

**EXAMINER:**

Mr A.J. Smith

Prof J.A. Jordaan

**MODERATOR:**

Mr D Engelbrecht

**TIME:**

90 Minutes

(30 minutes extra time)

**FACULTY OF  
ENGINEERING AND  
THE BUILT ENVIRONMENT**

**DEPARTMENT OF  
ELECTRICAL ENGINEERING**

**ES216BB  
ENGINEERING SOFTWARE DESIGN B**

**EVALUATION 1**

**SEPTEMBER 2024**

## EVALUATION INSTRUCTIONS

1. **Plagiarism:** Submit only original work. We will use similarity software to verify the authenticity of all submissions.
2. **Permitted Tools:** You are allowed to use only **CodeBlocks**, and **Google Chrome** to access the evaluation, view the evaluation PDF and upload submission for this evaluation. Access to emails, other online resources, and memory sticks is strictly prohibited. Please be aware that computer activity will be remotely monitored. Breaches of TUT's official examination and module rules will result in a minimum penalty of zero for this evaluation, with the potential for further disciplinary action.
3. **File Submission:** Your source code file must be named according to this format: “<student number>.h” (e.g. **21011022.h**). Do not add any other text (name, surname, etc.) to the file name (ONLY YOUR STUDENT NUMBER).
4. **Uploading Instructions:** Submit your “.cpp” file via the designated upload link. While multiple uploads are allowed, only the most recent submission will be retained on the system. If you make an error in your initial upload, simply re-upload your file, and the previous version will be overridden. Download your submission to confirm that the correct file has been uploaded.
5. **Evaluation Scope:** This assessment encompasses basic content from ES216AB and specifically ES216BB content defined in **Unit1 to Unit3**
6. **Programming Language:** Construct your program in **C++** and adhere to structured programming principles.
7. **Editing and Requirements:** Your program must meet all specified requirements. Refer to the attached appendices for additional details.
8. **Evaluation Requirements:**
  - a. Remember to save your work on the PC “D: Drive” and save regularly throughout the evaluation.
  - b. Do not modify the given code in the “.cpp” file except for implementing the requested functions as required.
  - c. Use the exact function names and parameters as used in the in the “.cpp” file function prototypes and main function.
  - d. Complete the C++ functions below the main function in each comment block as shown.