



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

Bachelor of Engineering Honours Degree Industrial and Manufacturing Engineering

COMPUTER APPLICATIONS AND PROGRAMMING CONCEPTS

EIE 1209

Second Semester Main Examination Paper

November 2024

This examination paper consists of 2 pages

Time Allowed: 3 hours
Total Marks: 100
Special Requirements: Nil
Examiner's Name: Mr C.T. Mutare

INSTRUCTIONS AND INFORMATION TO THE CANDIDATE

1. The question paper contains six (6) questions.
2. Answer any four (4) questions.
3. Each question carries 25 marks.

1. Design a visual program for a scientific calculator. [25 marks]

2. Write a visual program to accept a student's coursework mark and examination mark. The program should calculate the overall mark based on the coursework mark contributing 30% and the examination mark contributing 70% towards the overall mark. The program should then display the overall mark and the grade. The grading system is as follows: 0-49%: Fail, 50-59%: Pass, 60-64%: Pass with Credit, 65-74%: Pass with Merit, 75-100%: Pass with Distinction. [25 marks]

3. a) Explain using examples, the following types of programming errors:
 - i) syntax error [5 marks]
 - ii) semantic error [5 marks]
 - iii) logic error [5 marks]
 - iv) runtime error [5 marks]b) Identify any five (5) features of the Visual Basic programming language. [5 marks]
[Total 25 marks]

4. Discuss the issue of software piracy and suggest solutions. [25 marks]

5. a) Describe the three basic programming constructs. [15 marks]
b) Identify whether each of the following is a valid control name:
 - i) my variable [1 mark]
 - ii) myVariable [1 mark]
 - iii) variable_name [1 mark]
 - iv) 1variable [1 mark]
 - v) variable# [1 mark]
 - vi) ThisVariable2024 [1 mark]
 - vii) Private [1 mark]
 - viii) regular [1 mark]
 - ix) myvar [1 mark]
 - x) _variable [1 mark][Total 25 marks]

6. a) Explain a pseudocode and a flowchart using examples. [10 marks]
b) Distinguish between a compiler and an interpreter. [10 marks]
c) Describe events and event driven programming. [5 marks]