



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

MENG MANUFACTURING SYSTEMS/ENGINEERING & OPERATIONS MANAGEMENT

ENVIRONMENTALLY CONSCIOUS MANUFACTURING

TIE6221

STAGE 2 EXAMINATION

MARCH 2025

This examination paper consists of **2** printed pages

Time Allowed: 3 HOURS
Total Marks: 100
Examiner's Name: PROF DAVISON ZIMWARA

INSTRUCTIONS AND INFORMATION TO CANDIDATE

1. Answer any **FIVE (5)** Questions.
2. Each Question carries a total of 20 Marks.
3. Start the answer to each full question on a fresh page.
4. Ensure neatness and legibility of work.

QUESTION 1

Discuss how you would deploy pollution control techniques to protect the environment. [20].

QUESTION 2

Using a company of your choice discuss the discuss the hazardous material handling challenges faced by that company [20]

QUESTION 3

What are the notable current trends in conducting a life cycle assessment of a manufactured product? [20]

QUESTION 4

- a) Discuss the controversy of sustainable development as a global political, economic and social tool. [10]
- b) Using product of your choice explain the life cycle analysis of the product. [10]

QUESTION 5.

Compare and contrast the relationship between eco-design, green manufacturing, life cycle assessment and eco labeling. [20]

QUESTION 6.

- a) Discuss carbon foot print in relation to your understanding of the extent of pollution in a given settlement. [10].
- b) Discuss the difference between recycling and waste minimization. [10]

QUESTION 7

Discuss the current trends in environment management techniques. [20]