



UNIVERSITY OF NAMIBIA EXAMINATIONS

FACULTY	FACULTY OF EDUCATION & HUMAN SCIENCES		
DEPARTMENT	INTERMEDIATE AND VOCATIONAL EDUCATION		
SUBJECT	DESIGN AND TECHNOLOGY		
SUBJECT CODE	MDU3681		
DATE	JUNE 2026		
DURATION	3 HOURS	MARKS	100

SECOND OPPORTUNITY EXAMINATION

Examiner: Mr. T.S.N. Gabriel

Moderator: Dr. H.C. Brunette

This question paper consists of 3 pages, including the front page.

Instructions:

- ✓ Work in an orderly manner and present your work as neat as possible.
- ✓ While most of the marks will be awarded for content, candidates must bear in mind the importance of presentation, i.e. insight, accuracy and critical thinking.
- ✓ Each student will be provided with a drawing board, setsquares, ruler and a compass. Use the provided drawing instruments to complete drawings where applicable.
- ✓ A separate A3 drawing paper will be provided, attach to your answer script.
- ✓ Number the questions correctly and clearly.
- ✓ Answer all questions.

1. Question 1

- 1.1. Explain why wearing loose clothing or jewelry is strictly prohibited in a design and technology laboratory. (4)
- 1.2. State **four (4) safety rules** to follow when working with portable power tools. (4)
- 1.3. Define the acronym **PPE** and determine the appropriate equipment required for protection against **two (2) distinct workshop hazards**: high-velocity flying debris and corrosive chemical splashes. Justify your selections based on their protective mechanisms. (6)
- 1.4. Explain why workshop safety is classified as a collective responsibility. Discuss how the interconnected actions of students, instructors, and management create a safer environment compared to relying solely on individual caution. (6)

[20]

2. Question 2

- 2.1. Define **Anthropometrics** and discuss how it differs from Ergonomics in the design process. (5)
- 2.2. Identify **five (5) environmental factors** in a workshop that can contribute to **Body Fatigue**. (5)
- 2.3. Evaluate the importance of **Grip** and **Texture** when designing hand tools to ensure user safety. (5)
- 2.4. Discuss how the Work Triangle or the layout of equipment in a workshop impacts ergonomic efficiency. Provide two practical examples of how a poor layout can lead to increased physical strain or safety risks for a student. (5)

[20]

3. Question 3

- 3.1. Discuss the fundamental difference between a **Design Element** and a **Design Principle**. (4)
- 3.2. Define **Shape** as an element of design and explain the difference between shapes and forms. (4)
- 3.3. Product aesthetics can affect consumer choice. State **six (6) factors** that influence the aesthetics of a design. (6)
- 3.4. Define **Symmetrical Balance** and contrast it with **asymmetrical** arrangements. Provide a prominent real-world example of symmetry and justify why this specific balance was chosen by the designer to fulfill the object's intended purpose. (6)

[20]

4. Question 4

- 4.1.** Draw a flow chart of the **design process**, ensuring all major steps from Brief to Evaluation are included. (4)
- 4.2.** Identify the specific step in the design process used to test and evaluate the final product. (2)
- 4.3.** For each of the tools listed below, state **two safety precautions** for their safe use:
- (a) Soldering Iron (2)
 - (b) Angle Grinder (2)
 - (c) Hack Saw (2)
- 4.4.** State four safety precautions to observe when handling a soldering iron in the workshop. (4)
- 4.5.** State **two safety precautions** to bear in mind when making adjustments to electrical equipment. (4)
- [20]**

5. Question 5

Scenario: our school library requires a **mobile book display rack** that can be easily moved between classrooms while keeping books secure and organized.

- 5.1.** List four (4) functional requirements for this display rack. (4)
- 5.2.** List **four (4) specifications** that you would include in your design regarding the **aesthetics** of the design to make it appealing to primary school learners. (4)
- 5.3.** Using your **A3 drawing paper**, present **two (2) distinct design ideas**. Use sketches and annotations to show: The overall structure and movement mechanism and the materials used for the frame and shelves. (8)
- 5.4.** Evaluate your preferred design idea against your functional requirements and suggest one improvement for long-term durability. (4)
- [20]**

TOTAL: 20 + 20 + 20 + 20 + 20 = 100