UNIVERSITY OF JOHANNESBURG

FACULTY	: Education
DEPARTMENT	: Science and Technology Education
CAMPUS	: APK
MODULE	: ENGINEERING GRAPHICS AND DESIGN 3B (EGD20B3)
SEMESTER	: Second
EXAM	: November 2020

ASSESSOR(S)	: DR CF VAN AS		
MODERATOR	: MR V CANDIOTES (UP)		
DURATION	: Submission	**MARKS**	: 220

NUMBER OF PAGES: 14 PAGES

INSTRUCTIONS:

1. You are allowed to complete this project on your own time at home.
2. Your design portfolio should be handed in strictly on the date and time indicated on your examination time table.
3. Read the project brief carefully and complete all the stages of the design process in the spaces provided.
4. All research evidence should be included as an addendum.
5. Complete the declaration of authenticity as laid out on the final page of this document.

FACULTY OF EDUCATION
FAKULTEIT OPVOEDKUNDE

UNIVERSITY OF JOHANNESBURG

B Ed (SENIOR PHASE AND FET)

ENGINEERING GRAPHICS AND TECHNOLOGY EDUCATION 3B

EGD20B3

November 2020

Name:	Student number:

Design portfolio

Project brief:

You are a designer for a cell phone accessories company. You are commissioned to design a Perspex stand for a specific cell phone which will be used to display the phone on the shelves of the company's shops. Use your own cell phone as reference to design the stand.

Problem statement: State in your own words what the problem or need is that has to be solved.

_____

_____

_____

(2)

Design brief: Formulate a short but comprehensive sentence (not more than two lines) about how you intend to solve the problem.

_____

_____

_____

(2)

Investigation: Now that you know how you want to solve the problem there are specific information you need before you can start working on possible ideas of devices that could solve this problem.

- The first thing you have to know is the properties of the material you are going to use. Investigate how this material can be shaped and how parts can be joined together. (20)

- To determine the size of the stand you should know the size of the cell phone. Take out your cell phone, measure it and use the space provided on the next page to draw to scale 1:1 in **first-angle orthographic projection** the following:

  - A front view; (5)
  - A top view; (5)
  - A left view; (5)
  - Show all necessary dimensions; and (6)
  - Print neatly the title (name of your phone), the scale and projection symbol. (4)

First-angle orthographic projection

Proposal: State in your own words what exactly it is that you intend to design.

(3)

Time plan: Complete the time plan below to give a rough indication of how you would utilise the allocated time to complete the stages by inserting dots in the appropriate boxes:

Stages	**30 minute sessions**					
	1	**2**	**3**	**4**	**5**	**6**
1. Problem statement	COMPLETED					
2. Design brief						
3. Investigation						
4. Proposal						
5. Initial idea generation						
6. Research						
7. Development						
8. Planning						
9. Make/Manufacture	NOT REQUIRED					
10. Evaluation of design						

(6)

Specification: Make a list of the specifications of requirements of the product.

(6)

Initial ideas:

Use the following three pages to:

- Generate at least three ideas of devices that could possibly solve this problem. Make use of labeled, **freehand sketches** to communicate these ideas.
- Analyse each of these ideas by listing their advantages and disadvantages.

Idea No. 1:

Freehand sketches

Sketches (12)

Labeling and notes (8)

Advantages	Disadvantages
1.	
2.	
3.	
4.	(4)

Idea No. 2:

Freehand sketches

Sketches (12)

Labeling and notes (8)

Advantages	Disadvantages
1.	
2.	
3.	
4.	(4)

Idea No. 3:

Freehand sketches

Sketches (12)

Labeling and notes (8)

Advantages	Disadvantages
1.	
2.	
3.	
4.	(4)

Discuss and motivate the selection of your most suitable idea.

(4)

List a few problematic aspects with regard to the chosen idea that must first be resolved before you can develop it any further.

(5)

Research and Development: Find the information that you need to resolve these problematic aspects so that you may develop your chosen idea (final idea) into a workable solution.

(10)

Planning:

Working drawing:

Develop the idea you chose further into a working drawing, complete with the necessary detail and dimensions needed to build the prototype. By using drawing instruments draw the following to a suitable scale:

- An orthographic projection of the stand in the **third angle**. Add the title, dimensions, scale and projection symbol.
- An isometric view of the stand.

Working drawing: Third-angle orthographic projection

(40)

Working drawing: Isometric view

(20)

Evaluation:

Evaluate your design against the following criteria:

Physical properties:

Construction:

Function:

Aesthetics;

Value:

(10)

TOTAL: 220

DECLARATION OF AUTHENTICITY

NAME OF STUDENT: …….....
(SURNAME AND INITIALS)

STUDENT NUMBER: ……..……

I hereby declare that all the contents of the Design portfolio submitted by myself for assessment is my own original work and has not been plagiarised or copied from someone else.

_____
SIGNATURE OF CANDIDATE

___ / ___ / 2020
DATE (DD/MM/YYYY)

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