



<u>FACULTY</u>	: Education
<u>DEPARTMENT</u>	: Science and Technology Education
<u>CAMPUS</u>	: APK
<u>MODULE</u>	: EGD20B3 ENGINEERING GRAPHICS AND DESIGN 3B
<u>SEMESTER</u>	: Second
<u>EXAM</u>	: November 2019

ASSESSOR(S) : DR CF VAN AS

MODERATOR : MR V CANDIOTES (UP)

DURATION : Submission **MARKS** : 230

NUMBER OF PAGES: 13 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.
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**FACULTY OF EDUCATION
FAKULTEIT OPVOEDKUNDE**



B Ed (SENIOR PHASE AND FET)

**ENGINEERING GRAPHICS AND
TECHNOLOGY EDUCATION 3B**

EGD20B3

November 2019

Name:	Student number:
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Design portfolio

Project brief:

You are an industrial designer working for a company that specializes in upmarket office goods. You are commissioned to design a pen stand for a desk. The pen stand should not be in the form of an ordinary holder, but an interesting and creative stand with different angles and holes to accommodate at least one pen and one pencil. You have a choice between aluminum and Perspex as the material from which the stand will be made.

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 intend to solve the problem you need specific information before you can start working on possible ideas that could solve this problem.

- The first thing you have to decide is what type of material you are going to use. Investigate the properties of aluminum and Perspex. This will inform you on how aluminum and Perspex can be shaped and how parts can be joined together. You have to report your findings. (20)
- Indicate the material you have chosen and motivate why you chose the specific material. (2)
- To determine the size of the stand and the diameter of the holes for the pen and pencil you should investigate and measure existing examples of pens and pencils and report your findings by making notes and freehand sketches showing the necessary measurements. (18)

Freehand sketches



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

(20)

Advantages**Disadvantages**

1.	
2.	
3.	
4.	(4)

Idea No. 2:

Freehand sketches

(20)

Advantages**Disadvantages**

1.	
2.	
3.	
4.	(4)

Idea No. 3:

Freehand sketches

(20)

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

Working drawing: Third-angle orthographic projection

Working drawing: Isometric view

(20)

Cutting list:

Use your working drawing(s) and prepare a cutting list that can be used for the manufacturing of the stand. You may use the following template:

ITEM NO.	DESCRIPTION	MATERIAL	SIZE	QUANTITY
1				
2				
Etc.				

(10)

Evaluation:

Evaluate your design against the following criteria:

Physical properties:

Construction:

Function:

Aesthetics;

Value:

(10)

Write a few sentences on your experience of this project.

TOTAL: 230

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

___ / ___ / 2019
DATE (DD/MM/YYYY)

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