basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

MECHANICAL TECHNOLOGY

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

2013

These guidelines consist of 22 pages.

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SECTION A (Teacher Guidelines)

1. Background

The 17 National Curriculum Statement subjects which contain a practical component all include a Practical Assessment Task (PAT), i.e. a Practical or Performance Assessment Task. These subjects are:

- AGRICULTURE: Agricultural Management Sciences, Agricultural Technology
- ARTS: Dance Studies, Design, Dramatic Arts, Music, Visual Arts
- HSS: Life Orientation
- SCIENCES: Computer Applications Technology, Information Technology
- SERVICES: Consumer Studies, Hospitality Studies, Tourism
- TECHNOLOGY: Civil Technology, Electrical Technology, Engineering Graphics and Design, **MECHANICAL TECHNOLOGY**

A PAT allows the teacher to directly and systematically observe applied competence. The PAT comprises the application/performance of the knowledge, skills and values particular to that subject and counts 25% (i.e. 100 marks) of the total promotion/certification mark out of 400 for the subject. In the two Arts subjects, Design and Visual Arts, the PAT counts 37,5% (i.e. 150 marks) of the total promotion/ certification mark out of 400 for the subject.

The PAT is implemented across the first three terms of the school year and should be undertaken as one extended task, which is broken down into different phases or a series of smaller activities that make up the PAT. The planning and execution of the PAT differs from subject to subject.

SECTION A is guidelines to teachers, **SECTION B** should be given to learners at the beginning of 2013.

Any profession requires of its members a thorough grounding in both practice and theory, and **MECHANICAL TECHNOLOGY** is no exception. It is emphasised that the goal of the Practical Assessment Task is not to produce a skilled craftsperson but a Mechanical Technology learner in the broadest sense. A nation's true wealth is in its manpower and education should aim to develop the talents of the learner so that he/she can contribute to the well-being of society by using scientific and technological resources with the greatest efficiency and by continuing to develop them.

To prepare a learner in **MECHANICAL TECHNOLOGY** for one or more of these activities his/her education should develop in him/her:

- A mindset which can selectively assimilate ideas, evidence and facts, draw logical conclusions and put them to good use, creatively and with imagination
- The capability to express ideas and information clearly verbally, in writing and by means of sketching or drawing
- A willingness and capability to accept and exercise responsibility, to make decisions and to learn through experience

Attributes such as these cannot all be achieved in a classroom. A sound knowledge of engineering science and close practical acquaintance with the processes is essential for the **MECHANICAL TECHNOLOGY** learner. It is therefore important for the learner to bridge the gap between theory and practice where he/she can obtain the skills of the subject.

Practical work (skills development) must therefore be made an interesting and challenging experience, mentally and physically, and encourage the learner to use his/her initiative, curiosity and persistence to find out things for him-/herself. Learning by watching should be kept to the minimum. Allowing some degree of responsibility during practicals is significant as a stimulus to develop self-confidence.

2. The structure of the PAT for Mechanical Technology

Practical Assessment Tasks are designed to develop and demonstrate a learner's capability to integrate a variety of skills in order to solve a problem. The PAT also uses the technological process outlined in LO2, namely to guide the learner through the steps to be followed to arrive at a solution for the problem at hand.

The PAT is based on simulations and investigations and is an integration (or a combination) of two or more areas of specialisation, i.e. motor mechanics, welding and metalwork and fitting and machining.

OPTIONS

The Practical Assessment Task for 2013 consists of THREE scenarios. Only ONE of the THREE scenarios should be selected by the LEARNER.

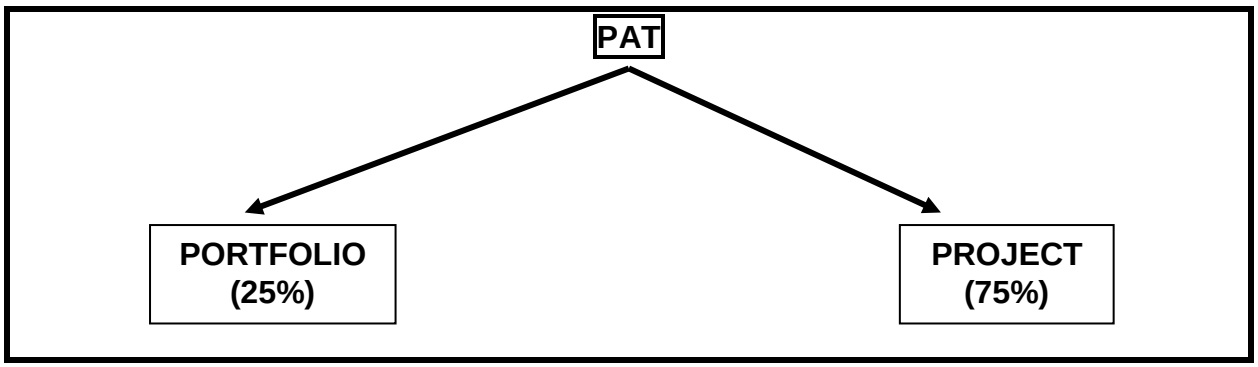

FIGURE 1: ELEMENTS OF THE PAT PROCESS

The design portfolio of the PAT should include evidence of how the development of the product or artefact was approached, that is:

- The planning process
- The knowledge and skills accumulated in the process
- The technological process followed
- The safety and environmental aspects considered
- Applicable calculations, sketches or diagrams
- The starting time and ending time of the PAT process, i.e. how long it took to complete from start to finish
- Investigations undertaken
- User manual of product/artefact
- Bill of materials
- List of tools needed
- Any other information that is relevant to the project

As part of the design process learners need to:

- Identify the problem
- Investigate by means of research how the problem is to be solved
- Design possible solutions
- Develop the preferred solution
- Evaluate the solution
- Illustrate and record ALL the manufacturing processes followed
- State the process followed in the project portfolio
- Construct the technological solution in the form of a product or artefact

In 2013, THREE OPTIONS (SCENARIOS) are provided.

3. Administration of the PAT

Teachers can attach due dates for the various stages of the PAT. In this way, learners can easily assess their progress. In instances where formal assessment takes place, it is the responsibility of the teacher to administer assessment.

The PAT should be completed in the first three terms and handed in at the end of the third term prior to the external moderation processes in the provinces. The PAT should be based on real-life situations and completed under controlled conditions. (Refer to the SAG, January 2008)

Teachers are requested to make copies of **Section B** and to distribute it to learners at the beginning of the year. Each learner must receive the assessment criteria of the PAT at the beginning of the year when the PAT is handed out to learners.

4. Assessment and moderation of the PAT

The Practical Assessment Task for Grade 12 is externally set and moderated, but internally assessed.

4.1 Assessment

Frequent developmental feedback is needed to guide and support the learner to ensure that the learner is on the right track.

Both formal and informal assessment should be conducted on the different tasks that constitute the PAT. Informal assessment can be conducted by the learner him-/herself, by a peer group, or by the teacher. Formal assessment should always be conducted by the teacher and must be recorded.

Learners need to submit the product or artefact for assessment by the end of the third term prior to the external moderation processes in the provinces. The accompanying design portfolio must also be submitted for assessment at this time.

4.2 Moderation

During moderation of the PAT, the design portfolio and the product or artefact will be presented to the moderator.

The moderator can call on the learner to explain the functions and principles of operation and may also request the learner to display the skills acquired through the capability tasks. The sequence of events according to the technological process may also be requested from the learner.

SECTION B: THE PRACTICAL ASSESSMENT TASK

The Practical Assessment Task (PAT) consists of a practical task to be completed over three terms. The PAT consists of a design portfolio and a product/artefact. Learners are expected to **choose ONE** of the **THREE SCENARIOS** to complete the PAT.

SCENARIO 1:

Many people enjoy reading. Unfortunately most of them only have time to read at night, either in bed or in a cosy chair in the lounge.

Design and make a product that can be used either at your bedside table or in your lounge to provide sufficient light so that you can read, store magazines, lock away valuables, etc. The product must have at least TWO caster wheels so that it can be moved around.

Specifications and constraints:

- The design must include advance turning (thread cutting, taper turning and parallel turning)
- Work to tolerances as designed (within ±0,1)
- The design must include a minimum of **ONE** milling machine operation (indexing)
- Use only materials as prescribed in the *Learning Programme Guideline for Mechanical Technology*
- The product must be stable and safe to use
- The design must be a minimum of 250 mm in height, not exceeding 1 500 mm
- The product must accommodate a minimum of one (220 V) energy-saving bulb
- The total length of the chord must not exceed 5 metres
- The completed product must have a three-pin plug and an on/off switch
- The product must be cost effective and inexpensive in relation to current market prices
- Safety measures must be adhered to during the manufacturing process

Rubrics on processes:

- Joining methods
  - Semi-permanent joining (bolts and nuts)
  - Permanent joining (welding)
- Manufacturing processes
  - Turning
  - Milling
  - Thread cutting
- Manufacturing competency (addressing the requirements)
- Fitness for purpose
- Finishing
- Quality
- Time

SCENARIO 2:

People in South Africa enjoy relaxing on their patios. It would be even more enjoyable if they had a product on which they could place their meals or drinks.

Design and make a product that can be used outdoors, at which at least two people can sit and have a meal or a drink. One should be able to fold away the product when it is not in use to create some space. Be creative with the type of surface finishing you are going to choose for your product on which to place your meal or drink, as it has to be durable and able to withstand the elements of nature.

Specifications and constraints:

- The final product must be aesthetically pleasing
- The product must be free standing, stable and rigid
- Product size: must be able to accommodate at least two seated adults
- Any decorations on the product to give it an aesthetically pleasing finish, must be made by the learner. No ready-made decorations may be used.
- The product must be cost effective and inexpensive in relation to current market related prices
- The product must be treated against corrosion
- At least two types of permanent joining methods must be used during manufacturing
- If handles form part of the product, the learner may use semi-permanent joining methods
- Safety measures must be adhered to during the manufacturing process

Rubrics on processes:

- Joining methods
  - Semi-permanent joining (bolts and nuts)
  - Permanent joining (welding)
- Manufacturing processes
  - Turning
  - Milling
  - Thread cutting
- Manufacturing competency (addressing the requirements)
- Fitness for purpose
- Finishing
- Quality
- Time

SCENARIO 3:

Many South Africans enjoy biltong (dried meat) and dried sausage ('droëwors') as a snack, especially when they are watching sports. However, the price of biltong and dried sausage has escalated so dramatically over the past few years that it has become very expensive to buy it. It could be much cheaper to make your own biltong and dried sausage.

Design and make a meat-drying product that can be used to process you own meat.

Specifications and constraints:

- The final product must be aesthetically pleasing
- The product can be free standing
- The total height of the product/artefact must not exceed 1 500 mm
- There should be at least four rails on which to hang the meat
- The drying process needs air to be circulated via an electric fan
- The product must be cost effective and inexpensive in relation to current market related prices
- The product must be made of anti-corrosive and hygienic material
- At least one side must be transparent, so that you can monitor the progress of the drying process
- The completed product must be lightweight
- Safety measures must be adhered to during the manufacturing process

Rubrics on processes:

- Joining methods
  - Semi-permanent joining (bolts and nuts)
  - Permanent joining (welding)
- Manufacturing processes
  - Turning
  - Milling
  - Thread cutting
- Manufacturing competency (addressing the requirements)
- Fitness for purpose
- Finishing
- Quality
- Time

THE TECHNOLOGICAL PROCESS

Provide evidence that you have gathered information to manufacture the product/artefact. The flow chart below may help you to complete the PAT and your PAT portfolio.

Situation/Scenario

⇩

Analyse the situation

⇩

Write a general design brief according to the problem statement

⇩

Carry out research

⇩

Work out possible solutions

⇩

Select preferred solution

⇩

Write the specifications

⇩

Write a specific design brief according to your research and design

⇩

Prepare working drawing and plan ahead

⇩

Construct an artefact

⇩

Test and evaluate the design

⇩

Prepare cost sheet for the artefact

⇩

Communicate

The specifications and constraints must be taken into consideration when planning and manufacturing. The product/artefact must be affordable. The weight of the product/artefact must also be taken into consideration. Use your knowledge of different metals to assist you to come up with the best possible solution.

Time planning:

Phase 1 (Problem statement):	One month – middle February
Phase 2 (Investigate and design):	Complete at the end of first term – March
Phase 3 (Manufacture):	Use terms two and three to make the project/artefact
Phase 4 (Evaluate):	Use last month of third term to evaluate project/artefact – September
Phase 5 (Communicate):	Use last month of third term to communicate regarding the specifications of the project/artefact – September

1. Design brief and product/artefact

The design brief should be written clearly. Design the project/artefact so that it can be stored easily. The project/artefact must be manufactured to full scale. The project/artefact must be neat and absolutely functional.

2. The design portfolio (The documentation you will compile)

The portfolio must contain the following:

- Drawings of the project/artefact
- Pictures of the project/artefact
- Description of its operation
- The original design and all the changes you made to it
- A list of the tools used to build
- A parts list of the project/artefact

The design portfolio must **not be less than four pages** and **not more than eight** pages.

The following additional criteria may be considered:

The portfolio must include a marketing strategy which shows:

- A retail price at which the unit could be sold to the public (show your percentage profit margin)
- An advertisement of the product/artefact which could be published in the local community newspaper (not smaller than 15 cm x 15 cm)

Indicate who might buy a product/artefact like this (target market).

3. Completing the PAT

To complete the PAT you will have to follow a number of phases.

3.1 Phase 1 – Problem Statement (Identify/Investigate)

The scenario has been given to you. You must respond by writing a design brief.

Design Brief	Identify the problem you are being faced with. What is it that is being asked of you? Write down in your own words what the problem is: _____ _____ _____ _____ _____
Solution Statement	List not fewer than THREE possible solutions you may consider to solve the problem that you have been tasked to solve: _____ _____ _____ _____ _____

3.2 Phase 2 – The Design (Acquisition of Information and Skills)

3.2.1 Research Task

- Find information on each of the possible solutions you have listed.
- Compile a criteria list to assist you to choose the best solution. The list must contain all the requirements that must be met. In addition, you may add your own criteria if necessary.
- Using the criteria above, select the best possible solution.
- Motivate why you have decided on the solution chosen.
- Plan how long it will take you to complete the project. Set short-term and long-term goals and also set dates by when you plan to reach each goal.
- Place all your research in the Design Portfolio under the heading **Research Task.**

3.2.2 Design Portfolio

- A neatly drawn diagram of the project/artefact
- List the tools required
- Compile a components list with cost and specifications
- Choose a possible name or names for your product/artefact
- Design a logo for the product/artefact
- Compile all your design materials and place it in the design portfolio under **Capability Task**
- Prepare the production procedure and place it in the design portfolio under **Capability Task**

3.3 Phase 3 – The Make (Production and Evaluation)

On completion of your design and drawings, proceed to the production of the product/artefact. Consider the following points:

Manufacturing/Modification of the product/artefact:

- Take care that you follow the initial design you made for the product/artefact.
- Should you need to adapt your design during this phase, capture your design changes in a drawing and add that to the initial design.
- This happens a great deal in industry and is normal.
- Motivate why you changed your initial design.

Assessment Criteria

The following assessment tools must be used to assess the PAT:

- The rubric displayed in ANNEXURE A is for assessing the **design portfolio and process**. This mark will contribute **25%** to the final PAT mark.
- The rubric displayed in ANNEXURE B is for assessing the final product/artefact. The following should be assessed: **safe use of tools**; **correctness** of the **product/artefact**; **planning, surface finish and modelling of the product/artefact**. This mark will contribute **75%** to the final PAT mark.

3.4 Phase 4 – Evaluation

On completion of the project/artefact, finalise the design portfolio for assessment.

Evaluate and test the product/artefact to establish if it satisfies the design brief. At this stage you may also suggest possible improvements to the design.

3.5 Phase 5 – Communication

Use appropriate technologies, such as computers, photocopiers, stencils and audio-visual recordings to combine graphics and text to record and communicate the problem-solving process.

SUMMARY

- **The Learner Task**
- **Declaration of Authenticity by the Learner**
- **Summarising Record Sheet**
- **Research:**
  - Listed information
  - Criteria list
  - Possible solutions
  - Chosen solution
  - Planning and goal setting

- **Design and manufacturing:**
  - Enclosed design
  - Tools list
  - Components list with cost and specifications
  - Product/Artefact design
  - Name and logo of the product/artefact
  - Production procedure
  - Evidence of prototyping
  - Tabulated prototyping findings

- **Evaluation and communication**
  The product/artefact needs to remain with the design portfolio.

MECHANICAL TECHNOLOGY

PRACTICAL ASSESSMENT TASKS

2013

ASSESSMENT TOOLS

ANNEXURE A: RUBRIC FOR ASSESSMENT OF DESIGN PORTFOLIO

CRITERIA	7	6	5	4	3	2	1	MARK
	80–100%	70–79%	60–69%	50–59%	40–49%	30–39%	0–29%	
10	8–10	7–8	6–7	5–6	4–5	3–4	1–3	
20	16–20	14–16	12–14	10–12	8–10	6–8	1–6	
30	24–30	21–24	18–21	15–18	12–15	9–12	1–9	
40	32–40	28–32	24–28	20–24	16–20	12–16	1–12	
Presentation	Exceeded the required information, extremely neat: Name Register class Year 20… Appropriate cover illustration Appropriate title Index All sections Page numbers	Required information extremely neat: Name Register class Year 20… Appropriate cover illustration Appropriate title Index All sections Page numbers	Adequate information from list below, neatly presented: Name Register class, Year 20. Appropriate cover illustration Appropriate title Index All sections Page numbers	Necessary information from list below, neatly presented: Name Register class Year 20… Appropriate cover illustration Appropriate title Index All sections Page numbers	Limited information from list below, neatly presented: Name Register class Year 20… Appropriate cover illustration Appropriate title Index All sections Page numbers	Lack of essential information, not very neatly presented	Only name and register class untidily presented	20
Development of a design brief	The design brief is extremely well formulated and defines the need or opportunity. It lists detailed specifications and constraints.	The design brief is very well constructed and defines the need or opportunity. It lists detailed specifications and constraints.	The design brief is well constructed and defines the need or opportunity. It lists detailed specifications and constraints.	The design brief defines the need or opportunity and provides a list of specifications and constraints.	The design brief defines the needs or opportunity and provides limited specifications.	The simple design brief makes little reference to the need or problem.	The design brief is vague and lists no specifications or constraints.	20
Investigation and analyses information	Shows evidence of a variety of strategies *(6) of investigation used to obtain all relevant information to assist in developing innovative design ideas.	Uses a wide range*(5) of appropriate information sources to develop innovative design options.	Uses of a range of information sources*(4) which shows understanding for the problem or need.	Uses adequate sources *(3) to collect relevant information to assist with design ideas.	Uses relevant research *(2) to address the problem or need identified in the design brief.	Uses less than adequate sources* (1) and collects less than adequate information.	Collects very little relevant information *(0).	20

CRITERIA	7	6	5	4	3	2	1	MARK
	80–100%	**70–79%**	**60–69%**	**50–59%**	**40–49%**	**30–39%**	**0–29%**	
10	8–10	7–8	6–7	5–6	4–5	3–4	1–3	
20	16–20	14–16	12–14	10–12	8–10	6–8	1–6	
30	24–30	21–24	18–21	15–18	12–15	9–12	1–9	
40	32–40	28–32	24–28	20–24	16–20	12–16	1–12	
Generation of design ideas	Generates an excellent variety of alternative and innovative ideas with different approaches to address the problem or need. Justifies the preferred option with clear links to the design brief.	Shows evidence of a wide range of communication methods used to develop original and creative design options. Substantiates well the choice of final design.	Shows evidence of a range of communication methods used to develop original and creative design options including modelling design ideas. Explains well reasoned choice of final design.	Uses a good variety of alternatives exploring different approaches. Well reasoned choice of final design.	Considers alternatives but lacks in originality and flair. Indicates final design choice.	Offers some alternatives but tends to be a collection of existing products with limited reasoning of choice. Shows limited links with research done.	Shows little or no exploration of alternatives.	20
Communication of ideas	Develops a very interesting solution and communicates it exceptionally well using appropriate techniques and methods. Uses modelling ideas to test and explore design thinking.	Develops a very interesting solution and communicated it very well using appropriate techniques and methods.	Develops an interesting solution and effectively communicates it effectively using appropriate techniques.	Reasons well for choice of solution. Uses good overall communication techniques.	The solution lacks creativity with limited communication techniques used.	The solution lacks creativity with inappropriate communication techniques used.	The solution lacks detail, making interpretation difficult. Scant attention is given to communication techniques.	10
Evaluation of product or artefact	Comprehensively evaluates the product against the design brief taking account of the user and cost-effectiveness. Evaluates procedures, techniques and processes and indicates possible improvements. Evaluates the appropriateness of the materials used.	Evaluates the product against the design brief taking account of the user and cost-effectiveness. Evaluates procedures, techniques and processes and indicates possible improvements. Evaluates the appropriateness of the materials used.	Evaluates the product against the design brief. Presents suggestions to improve on function. Evaluates the appropriateness of the materials used with limited suggestions for improvement.	Evaluates the product against the design brief. Evaluates the appropriateness of the materials used.	Superficially evaluates the product against the design brief. Makes recommendations to improve its functionality.	Very superficially evaluates with limited recommenda-tions.	Shows little or no evidence of an evaluation of the project.	10

ANNEXURE B: RUBRIC FOR ASSESSMENT OF FINAL PRODUCT/ARTEFACT

CRITERIA	7	6	5	4	3	2	1	MARK
	80–100%	**70–79%**	**60–69%**	**50–59%**	**40–49%**	**30–39%**	**0–29%**	
10	8–10	7–8	6–7	5–6	4–5	3–4	1–3	
20	16–20	14–16	12–14	10–12	8–10	6–8	1–6	
30	24–30	21–24	18–21	15–18	12–15	9–12	1–9	
40	32–40	28–32	24–28	20–24	16–20	12–16	1–12	
FITNESS FOR PURPOSE	This product has an outstanding level of functionality. It shows a very high level of innovation that is appropriate to the design brief.	The product demonstrates a high level of functionality. It shows a high level of innovation that is appropriate to the design brief.	The product fulfils adequately the purpose for which it was designed. It shows some innovation that is appropriate to the design brief.	The product fulfils satisfactorily the purpose for which it was designed. It shows limited innovation for the identified need/problem.	The product fulfils its functional requirements. No evidence of innovation in the solution to the identified need/problem.	The product barely fulfils functional requirements but lacks any refinement/innovation.	The project is incomplete and does not fulfil the identified need/ problem.	20
MANU-FACTURING COMPETENCY	Demonstration of an outstanding level of skill/competence in the correct and safe use of a wide range of materials, tools, equipment and machines under educator supervision.	Demonstrates a very high level of skill/competence in the correct and safe use of a wide range of materials, tools, equipment and machines under educator supervision.	Demonstrates a high level of skill/competence in the correct and safe use of a range of materials, tools, equipment and machines under educator supervision.	Demonstrates a satisfactory level of skill/competence in the correct and safe use of appropriate materials, tools, equipment and machines under educator supervision.	Demonstrates an acceptable level of skill/competence in the correct and safe use of appropriate materials, tools, equipment and machines under educator supervision.	Demonstrates some regard for accuracy and safety in the use of materials, tools, equipment and machines under educator supervision.	Demonstrates a lack of skill/ competence in the use of appropriate materials, tools, equipment and machines under educator supervision. Pays little attention to safety.	40

CRITERIA	7	6	5	4	3	2	1	MARK
	80–100%	**70–79%**	**60–69%**	**50–59%**	**40–49%**	**30–39%**	**0–29%**	
10	8–10	7–8	6–7	5–6	4–5	3–4	1–3	
20	16–20	14–16	12–14	10–12	8–10	6–8	1–6	
30	24–30	21–24	18–21	15–18	12–15	9–12	1–9	
40	32–40	28–32	24–28	20–24	16–20	12–16	1–12	
PLANNING	Demonstrates continual review of the making process. Shows outstanding capability to adapt and modify the design when difficulties arise. Adopts procedures to minimise waste, manages time outstandingly well.	Reviews design during the making process, demonstrates resourcefulness and adaptability in making modifications to ensure a high quality product. Excellent waste and time management.	Shows capability to adapt and modify the design when difficulties arise. Adequate planning to minimise waste, manages time well.	Apply knowledge of materials and processes to overcome problems in making when these arise. Demonstrates a good sense of material and time management.	Shows evidence of adopting alternative ways of proceeding when difficulty is experienced. Seeks assistance from educator to proceed. Demonstrates some sense of material and time management.	Shows little evidence of alternative ways of proceeding when difficulty is experienced. Does not seek assistance from educator and to proceeds regardless of time and material management.	No attempt made to overcome making problems. No proper planning evident resulting in any regard for time and material management.	20
SURFACE FINISHING	An outstanding degree of skill in the surface finishing is demonstrated. The surface finish is of an exceptional quality.	A very high degree of skill in the surface finishing is demonstrated. The surface finish is blemish free.	A high degree of skill in the surface finishing is demonstrated.	A satisfactory level of skill in the surface finish is demonstrated but with some blemishes evident.	A low level of skill in the surface finishing is demonstrated. Blemishes are evident.	A very low level of skill in the surface finishing is demonstrated.	No surface finish evident.	10
MODELLING THE PRODUCT	Exceptionally modelled to illustrate realistically function for which it was developed	Specialist modelling techniques used to demonstrate realistically the function for which it was developed.	Product is effectively modelled to illustrate the function for which it was developed.	Product is adequately modelled to illustrate the function for which it was developed.	Product is modelled to illustrate the function for which it was developed.	Product barely illustrates the function for which it was developed.	No clarity as to how the product is to function.	10

ANNEXURE C

DECLARATION OF AUTHENTICITY

NAME OF THE SCHOOL: ……

NAME OF LEARNER: ……...

(FULL NAME(S) AND SURNAME)

EXAMINATION NUMBER: ……

NAME OF TEACHER: ……

SCHOOL STAMP

I hereby declare that the project submitted for assessment is my own, original work and has not been previously submitted for moderation.

_____ _____

SIGNATURE OF CANDIDATE **DATE**

As far as I know, the above declaration by the candidate is true and I accept that the work offered is his or her own.

_____ _____

SIGNATURE OF TEACHER **DATE**

ANNEXURE D: MARK SHEET – PORTFOLIO

GRAAD/GRADE: **JAAR/YEAR:**	**SKOOL/SCHOOL:**
DATUM BEGIN/DATE STARTED:	**DATUM VOLTOOI/DATE COMPLETED:**
VAK/SUBJECT: MECHANICAL TECHNOLOGY/ MEGANIESE TEGNOLOGIE	**ONDERWYSER/EDUCATOR:**
	GETAL LEERDERS/NUMBER OF LEARNERS:

		NAME VAN LEERDERS/NAMES OF LEARNERS														
FASETTE/FACETS	PUNTE/ MARKS															
PORTFOLIO PORTEFEULJE		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Presentation	20															
Design brief	20															
Investigation	20															
Design ideas	20															
Evaluation of product	10															
Communication	10															
TYD/TIME																
TOTAAL/TOTAL	100															
÷ 4	25															

HANDTEKENING VAN ONDERWYSER/SIGNATURE OF EDUCATOR:	
HANDTEKENING VAN DEPT. HOOF/SIGNATURE OF HEAD OF DEPARTMENT:	
HANDTEKENING VAN HOOF/SIGNATURE OF PRINCIPAL:	
HANDTEKENING VAN VAKADVISEUR/SIGNATURE OF SUBJECT ADVISOR:	

ANNEXURE E: MARK SHEET – PRODUCT

GRAAD/GRADE: **JAAR/YEAR:**	**SKOOL/SCHOOL:**
DATUM BEGIN/DATE STARTED:	**DATUM VOLTOOI/DATE COMPLETED:**
VAK/SUBJECT: MECHANICAL TECHNOLOGY / MEGANIESE TEGNOLOGIE	**ONDERWYSER/EDUCATOR:**
	GETAL LEERDERS/NUMBER OF LEARNERS:

		NAME VAN LEERDERS/NAMES OF LEARNERS														
FASETTE/FACETS	PUNTE/ MARKS															
PRODUCT/ PRODUK		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Fitness for purpose	20															
Manufacturing competency	40															
Planning	20															
Surface finishing	10															
Modelling of the product	10															
TYD/TIME																
TOTAAL/TOTAL	100															
÷ 4 x 3	75															

HANDTEKENING VAN ONDERWYSER/SIGNATURE OF EDUCATOR:	
HANDTEKENING VAN DEPT. HOOF/SIGNATURE OF HEAD OF DEPARTMENT:	
HANDTEKENING VAN HOOF/SIGNATURE OF PRINCIPAL:	
HANDTEKENING VAN VAKADVISEUR/SIGNATURE OF SUBJECT ADVISOR:	