



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

ENGINEERING GRAPHICS AND DESIGN

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

GRADE 12

2025

These guidelines consist of 27 pages.

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1. INTRODUCTION

The 18 Curriculum and Assessment Policy Statement subjects which contain a practical component all include a practical assessment task (PAT):

- **AGRICULTURE:** Agricultural Management Practices, Agricultural Technology,
- **ARTS:** Dance Studies, Design, Dramatic Arts, Music, Visual Arts
- **SCIENCES:** Computer Applications Technology, Information Technology, Technical Sciences and Technical Mathematics
- **SERVICES:** Consumer Studies, Hospitality Studies, Tourism
- **TECHNOLOGY:** Engineering Graphics and Design, Civil Technology, Electrical Technology and Mechanical Technology

A practical assessment task (PAT) is a compulsory component of the final promotion mark for all candidates offering subjects that have a practical component and counts 25% (100 marks) of the end-of-year examination mark. The PAT is implemented across the first three terms of the school year. This is broken down into different phases or a series of smaller activities that make up the PAT. The PAT allows for learners to be assessed on a regular basis during the school year and it also allows for the assessment of skills that cannot be assessed in a written format, e.g. test or examination. It is therefore important that schools ensure that all learners complete the practical assessment tasks within the stipulated period to ensure that learners are resulted at the end of the school year. The planning and execution of the PAT differs from subject to subject.

SECTION A (TEACHER GUIDELINES)

2. STRUCTURE OF THE PAT

The Engineering Graphics and Design (EGD) **PAT** is a **compulsory national formal assessment task** that contributes 33,33% towards a learner's NSC examination mark and 25% (100 of the 400 marks) towards a learner's final NSC mark. It is therefore regarded as a **third EGD NSC examination paper**.

The purpose of the PAT is to assess topics, content and concepts, which are contained in the CAPS, but not assessed in tests or examinations. These are:

- The design process
- The application of the design process
- The quality and neatness of freehand, instrument and CAD drawings

With the inclusion of the research component as part of the design process, content and concepts that are not included in the CAPS may be included in the PAT. The PAT is therefore designed to develop a learner's ability to integrate and apply knowledge that is taught and self-acquired, and to demonstrate attained levels of skills and competency.

The PAT gives the learner an opportunity to apply knowledge in a creative way through the design process. The learner is also given an opportunity to complete the PAT in an environment which is more conducive to the creative processes. This environment should therefore provide the learner with easier access to, and a wider variety of, resource material than would otherwise be available in a formal test or examination.

The PAT is divided into THREE PHASES:

- PHASE 1: The design process
- PHASE 2: Preparing working and pictorial drawings
- PHASE 3: Creating the PAT file/portfolio

The three PHASES require that the learner demonstrates a clear understanding of, and is able to apply, the design process. As part of the design process, the learner must be able to do the following:

- Analyse the given scenario and formulate a design brief, which includes a list of specifications, constraints and a management plan
- Conduct relevant and usable research
- Use the research in developing ideas/concepts/solutions, analytically and graphically, using freehand drawings
- Select a final solution that demonstrates a clear understanding of the design brief
- Present the final solution as a set of working drawings and a pictorial (3D) drawing
- Provide clear evidence of continuous self-evaluation during the development of the PAT
- Create a PAT file/portfolio

PHASE 1 and PHASE 2 of the PAT have been designed to give the learner the opportunity to demonstrate a level of competency and skill that has been attained in the following drawing methods:

- **Freehand drawings**, prepared using a pencil and grid/graph paper only
- **Instrument drawings**, prepared in pencil and using drawing instruments
- **CAD drawings**, prepared using a CAD program

TWO practical assessment tasks (PATs) are included in this document:

- PAT 1 is a task in the context of civil technology, with an electrical component
- PAT 2 is a task in the context of mechanical technology

With the guidance of the teacher, each learner must select and complete **ONE PAT only**.

Elements that make up the PAT mark for Engineering Graphics and Design

ELEMENTS OF THE MARK FOR THE PRACTICAL ASSESSMENT TASK	
The design process	25%
The correctness of the working and pictorial drawings	50%
The drawing methods (freehand, instrument and CAD)	25%
TOTAL	100%

3. INSTRUCTIONS FOR THE ADMINISTRATION OF THE PAT

The teacher must **provide a copy of** and **mediate** the **entire SECTION B** (pages 9 to 27) of **this 2025 PAT document** to every Grade 12 learner **no later than Week 7 of Term 1**.

Each phase must be completed and assessed prior to commencement of phase moderation in Terms 2 and 3, and provincial moderation in Terms 3 and 4.

The phases of the PAT must therefore be completed within the following timeframes:

- PHASE 1: Design process (completed **before** the commencement of **Term 2**)
- PHASE 2: Presentation drawings (completed **before** the commencement of **Term 3**)
- PHASE 3: Completion of ALL presentation requirements and creation of file/portfolio (completed **in Term 3 before** the commencement of the **final provincial moderation** or, **at the latest, before** the commencement of the **Preparatory Examinations**).

Although the PHASES could be completed either **cyclically** or during **block times**, as indicated in the CAPS, it is recommended that **one entire day per term** be allocated for each PHASE, e.g. as an extra paper during the May/June Examinations.

Teaching time allocated for the preparation and completion of all three PHASES of the PAT may not exceed **16 hours**. However, **additional non-teaching time may be allocated** for the **completion** of the PAT **at the school**, but the **total time** allocated for the completion of **ALL** the PHASES of the PAT should **NOT exceed 20 hours**.

To ensure that the PAT is completed within the stipulated timeframes, it is essential that the teacher prepares and communicates a management plan/pacesetter with target dates. This will help learners to monitor their own progress, and for the teacher to implement intervention programmes.

NOTE:

To **ensure the integrity** of the PAT as a '**third NSC examination paper**', the following additional instructions **must be adhered to**. **Non-compliance to any of these, and aforementioned instructions, will be deemed a serious examination irregularity**.

- Except for clean A4 and A3 drawing sheets and grid/graph paper, **NO templates, tables, pre-prepared pages/drawing sheets, redrawn examples of the site plan, etc. may be given or made available to the learners** in any form or format.
- **NO examples of possible or suggested solutions** of any component of the PAT **may be provided to, procured for, or demonstrated to the learners in any form or format**. This includes, but is not limited to, **examples developed, or demonstrations presented** by any **individual, group, department, institution, organisation or business**.
- **Explanatory examples**, such as graphical illustrations, best practices from previous years' PATs, etc., **may ONLY be presented** to the learners **during the initial mediation** of the PAT. As these examples may not be given to the learners or left for them to view indefinitely after the initial mediation, learners must be encouraged to take notes during the mediation but **may NOT take any photographs or videos**.

- It is the **responsibility** of the **teacher** to ensure that each learner's PAT is of an **appropriate Grade 12 level and complexity**.
- **ALL presentation requirements** of the selected PAT **must be strictly adhered to**.
- Except for the required research component, **ALL the presentation requirements** of the PAT **must be completed at school under the supervision of the teacher**.
- Although the sharing of knowledge and ideas between learners is permissible, **no presentation may be shared or copied as the entire PAT must be completed individually. ALL the presentations**, including the front page, index/table of contents, management plan, tables, drawing sheet preparation, etc., **must be each learner's own original work**.
- **ALL freehand drawings and instrument drawings** must be **prepared in pencil**.
- **ALL learners** must be encouraged to **work on their own**, with **minimal intervention**. **Developmental feedback and guidance** may **ONLY** be given **on presentations or a PHASE** that **has already been attempted/prepared/completed**, or when the learner requests it.
- When **learners prepare drawings in CAD**, the following **must be adhered to**:
 - The school **must provide the facilities**, including the **CAD program and computers**. The **school must hold the licenses of ALL the CAD programs used by the learners**, and **NO other programs may be used** by any of the learners.
 - **ALL CAD drawings** must be **prepared at school under the supervision of the teacher**.
 - The opportunity to be trained using a CAD program must be made **available to ALL learners**, regardless of whether they make use of it or not.
 - As the teacher remains responsible for assessing both the competence displayed in using a CAD program and the layout and correctness of the drawing presentations, **he/she must have sufficient knowledge of and skills in the CAD program used**.
 - **Electronic and hard copy evidence** of the **history** of the **stage-by-stage development** of each learner's CAD drawings **must be retained at school** for a period of time as stipulated by the Department of Basic Education (DBE).
 - During the moderation process learners may be called upon to explain the functions and principles of operating a CAD program, and to demonstrate drawing skills through performing capability tasks.
- The **DECLARATION OF AUTHENTICITY**, on page 27 of this document, must be completed and signed by the learner and teacher **just prior to the final assessment**.
- The **SUMMATIVE ASSESSMENT SHEET**, on page 26 of this document, **must be completed in full** for each learner following the final assessment of the PAT.
- The teacher must ensure that **ONLY the completed SUMMATIVE ASSESSMENT SHEET, DECLARATION OF AUTHENTICITY and relevant CHECKLIST** used by the learner **are included after the index** in each learner's completed PAT file/portfolios.

4. ASSESSMENT AND MODERATION OF THE PAT

4.1 Assessment

Assessment of the PAT must be done according to the included and relevant 2025 ASSESSMENT CRITERIA AND CHECKLIST.

As frequent developmental feedback is needed to determine and provide guidance and support to the learner, as well as to ensure that they are on the right track ('assessment for learning'), both formal and informal assessment must be conducted throughout the development of the PAT. **Informal assessment** may be conducted by either a peer or by the teacher.

The **teacher must conduct ALL formal assessment** and record the results on the official mark sheets. The marks of each learner **must also be indicated on the official SUMMATIVE ASSESSMENT SHEET** (see page 26), **which must be included in the learner's PAT file/portfolios**. Where a school has more than one Grade 12 EGD teacher, the teachers must assist one another by conducting PAT assessment as a team. This will ensure a consistent standard of assessment across all the learners.

The **final formal assessment** must be completed **before** commencement of **final provincial moderation** or, **at the latest, before** the commencement of the **preparatory examinations** in Term 3.

Once the PATs have been assessed and moderated, the teacher/school **must retain ALL** the PATs for external moderation. **ALL the PATs must also be retained at school** for a period of time as stipulated by the provincial departments of education (PEDs).

Clarification of level descriptors and the verification of marks:

- **1-mark level descriptor:**

There is **NO percentage (%)** for the 1-mark level descriptor, and it is used for **elementary/basic presentation requirements and/or drawing features**, and must be applied as follows:

 - **'0' (zero)** must be allocated for the requirement **not met**, or if the presentation thereof is **incorrect**.
 - **1 mark may only be allocated** if the requirement has been **met fully** and the presentation thereof is **correct**.
- **2-mark level descriptor:**
 - **'0' (zero)** must be allocated if the requirement **has not been included/shown**, or if the presentation of the requirement shows **less than 30%** evidence of knowledge, or when the requirement is **very poor**.
 - **1 mark may only be allocated** if the presentation of the requirement shows **at least 30% or more** evidence of knowledge, or if the requirement is **NOT complete** or **NOT completely correct, NOT compliant and/or clear**, i.e. **average**.
 - **2 marks may only be allocated** if the presentation of the requirement shows **at least 80% or more evidence of knowledge**, and the requirement is **more than 80% complete, correct/compliant and clear**, i.e. **very good**.
- **7-mark level descriptor**

Refer to the **7-mark rubric** on **page 45 of the CAPS document** for the level descriptors. This implies that a **'7' can only be allocated** if the presentation requirement(s) is **100% correct/compliant**, i.e. **outstanding** and **error-free**.
- **Verification of ALL final marks out of 10:**

Each final mark out of 10 must be verified according to the descriptors contained in the rubric on page 25 of this document. This implies that a **'10' can only be allocated** if the presentation requirement(s) is **100% correct/compliant**, i.e. **perfect** and **error-free**.
- **Rounding off of marks:**

Each mark out of 10 must be rounded off **before being captured** on the SUMMATIVE ASSESSMENT SHEET (see page 26) and the recording/mark sheet. A mark of 9,5 must, however, remain 9 as the 0,5 is an indication of a mistake. The final mark out of 25, 50 and 25 for each of the three complete sections of the PAT must also be rounded off after being calculated.

4.2 Moderation

Moderation of the PAT must be conducted using the included 2025 ASSESSMENT CRITERIA AND CHECKLISTS, and according to the same level descriptors used for assessing the PATs.

As monitoring and/or moderation of the PAT can take place **at any stage during the development of the PAT, ALL completed and unfinished presentations of ALL the PATs must always be available at the school.**

To facilitate intervention programmes and processes, the following school-based and cluster/district moderation must be done during Terms 2 and 3:

- Phase 1: Design process (beginning of Term 2 before the commencement of PHASE 2, or at the latest before the mid-year examinations)
- Phase 2: Presentation drawings (beginning of Term 3 before the commencement of PHASE 3)

NOTES on the final provincial Grade 12 PAT moderation:

- **ALL the schools in ALL the provinces must be moderated.**
- The moderation **must be conducted by officially appointed, trained and authorised provincial PAT moderators.** Peer, cluster, PLC or district moderation may therefore NOT be implemented to conduct the moderation.
- **PEDs must ensure** that the moderation **commences early enough** so that it can be **concluded before** the commencement of **DBE and/or Umalusi moderation, or at the latest** by the end of **Week 3 of Term 4.**

To assist the moderator with the moderation process, the teacher **must supply a complete set of updated mark sheets and merit lists.**

At the beginning of the moderation process, the moderator must randomly **select 10%**, with a **minimum of THREE** and a **maximum of SIX PAT files/portfolios.** The selected PATs **must be:**

- No. 1 – a high/highest mark
- No. 2 – an average/middle mark
- No. 3 – a low mark
- No. 4 – an average/middle mark
- No. 5 – a high mark
- No. 6 – a low mark

If the selected PATs do not provide a consistent result, **THREE** additional PATs, i.e. a high-, an average/middle- and a low-mark PAT, must be selected and moderated to obtain a more constant result.

If a school has **more than ONE Grade 12 EGD teacher, THREE PATs**, i.e. a high-, an average/middle- and a low-mark PAT **must be selected from each teacher.**

The concept of '**benchmarking**' should be applied when moderating the PATs. This requires that a **PAT with a highest mark**, but preferably the PAT with **the highest mark, must be moderated first** to **establish a standard** against which all the other PATs of the school can be benchmarked.

NOTE:

A **tolerance range of ONLY 5% is permissible** between the **average assessed mark** and the **average moderated mark** of the **PATs selected for moderation.** Only once moderation has been completed, **must the more than 5% difference** between the average marks of the moderated PATs be applied to the rest of the PATs.

5. CONCLUSION

On completion of the practical assessment task, learners should be able to demonstrate their understanding of the design process, their enhanced knowledge, skills, values and reasoning abilities as well as establish connections to life outside the classroom and address real-world challenges. The PAT furthermore develops learners' life skills and provides opportunities for learners to engage in their own learning.

SECTION B (LEARNER TASKS)**General information and instructions**

- The EGD PAT is a **compulsory national formal assessment task** that **contributes 33,33% towards your National Senior Certificate (NSC) examination mark and 25% (100 of the 400 marks) towards your final NSC mark.**
- This document contains the following TWO PAT scenarios:
 - PAT 1: A civil design project, with an electrical component
 - PAT 2: A mechanical design projectYou, the learner, with the guidance of your teacher, must select and complete **only ONE** of the PAT tasks contained in this document.
- ALL the presentation requirements of the selected PAT must be **strictly adhered to** and, with the exception of the research component, be **completed at school, under the supervision of your teacher.**
- Although the sharing of knowledge and ideas is permissible, none of the presentations may be shared or copied. The **entire PAT must be completed individually and ALL the presentations**, including the front page, index/table of contents, management plan, tables, drawing sheet preparation, etc. **must be your own original work.**
- The PAT must be of an **appropriate higher-order Grade 12 complexity.**
- ALL **freehand drawings** and **instrument drawings** must be **prepared in pencil.**
- The PAT must be completed in phases and within the given time frames of your teacher's pacesetter/management plan.
- The PAT will be assessed according to the relevant ASSESSMENT CRITERIA AND CHECKLISTS, which are included in this PAT document.
- The relevant 2025 ASSESSMENT CRITERIA AND CHECKLIST for the PAT (i.e. either pages 15 and 16 or 22 and 23) **must be used** to provide clear evidence of **your own continuous self-evaluation** and the meeting of the deadlines for the development of the PAT.
- Just prior to the final submission of your complete PAT, you must complete and sign the DECLARATION OF AUTHENTICITY, on page 27 of this document.
- **ONLY** the 2025 SUMMATIVE ASSESSMENT SHEET, on page 26 of this document, your completed and signed DECLARATION OF AUTHENTICITY, your completed 2025 ASSESSMENT CRITERIA and CHECKLIST with ALL your own prepared presentations **must be included, in the correct sequence, in your PAT file/portfolio.**
- You are not permitted to use any of the photographs/pictures and/or websites contained in this PAT document.
- Untidy and messy work, as well as the late submission of presentation requirements, will be penalised.

6. PRACTICAL ASSESSMENT TASK 1 (PAT 1)

A civil design project

SCENARIO

In a town with a relatively new and developing suburb, a need has arisen to build a **bed and breakfast facility** to make provision for the ever-growing demand by business people who need to stay over. The houses in the suburb are of a modern design, and all new houses need to fit in with the design style. You have been tasked by a client to submit a design solution for a **proposed new house** that will be **used as a bed and breakfast facility**, which will forthwith simply be referred to as the **building**, on STAND 1176.

The building must be a single-storey brick structure with a modern design, with a shape that will require a hip and valley designed roof. The building must cover an area of no more than 215 m². The roof must have 400 mm overhangs finished with fascia boards, gutters and rainwater downpipes on all sides, and the roof covering must be IBR roof sheeting. All the rooms, including the lounge, dining room, kitchen and bathrooms must have appropriately sized aluminium frame windows that will let in sufficient natural light.

As the suburb in which the building is situated is prone to flooding, a set of four standard steps must lead up to a 2 m wide uncovered veranda, which must be an extension of the concrete floor slab, running the full length of the front of the building, and with modern glass balustrades on all sides. Leading off the veranda must be a modern oversized pivoted entrance door that opens into a reception area where the guests will check in and out. Adjoining the reception area must be a 40 m² lounge where guests can sit and relax in the evenings in front of a built-in fireplace.

Included in the building must be a separate kitchen that adjoins a dining room. The kitchen must be a minimum of 18 m², with sufficient built-in cupboards and work surfaces. Space must be allocated for a fridge, a stove and a dishwasher. There must be a door from the kitchen leading to the outside and another leading from the kitchen into the dining room. The dining room must have sufficient space for four small tables, each with two chairs, and a long serving table for displaying the breakfast items in the morning. Two plastic water tanks, each of between 2 000 and 3 000 litres, must be placed against one of the side walls of the building for the harvesting of rainwater.

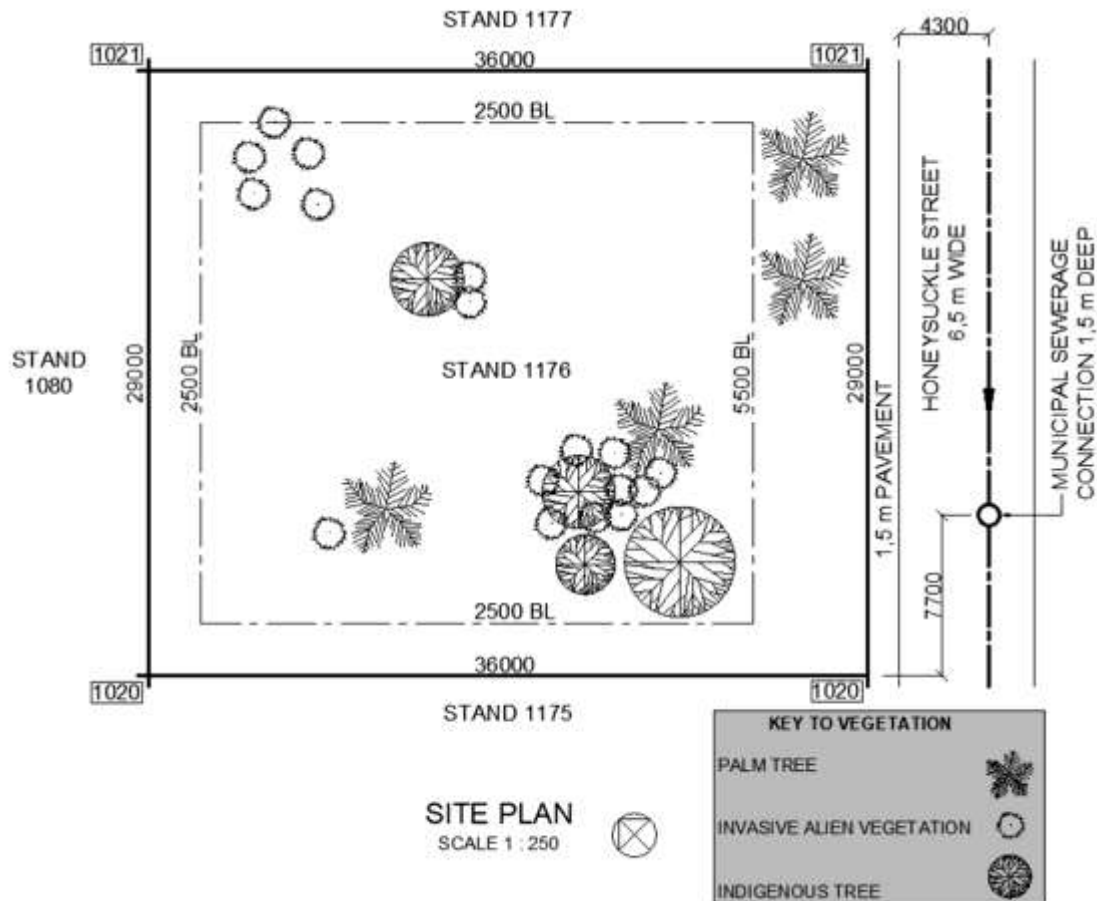
There must be three equal sized bedrooms, each with its own en suite bathroom. The maximum size for the bedrooms, including the en suite bathroom, is 38 m². In each bedroom there must be a double bed, a built-in cupboard, a small desk and a comfortable chair. All the en suite bathrooms must have a toilet, a wash-basin, a bath and a shower.

There must be sufficient electrical lighting and switched socket outlets in all the bedrooms, the kitchen, the lounge, the dining room and the reception area. There must also be sufficient electrical lighting in each bathroom and for the veranda.

Included in the design must be a motor vehicle entrance off Honeysuckle Street and driveways with paved surfaces, with one leading to a separate 5 500 x 5 500 mm double garage, situated at the back of the building. The garage is therefore not included in the 215 m², nor attached to the building. A parking area with two parking bays that make provision for visitors must be situated near the entrance to the building. The site has never been built on before and would need to be cleared of any invasive vegetation and vegetation that will not be required.

All sewage and waste-water from the building must be connected to the manhole on the municipal sewerage line on Honeysuckle Street.

The client requires the project completed and ready for business in fifteen months' time.



Given: The site plan

PHASE 1: PRESENTATION REQUIREMENTS

- Analyse the given scenario and **formulate a design brief** in two paragraphs:
 - The **first paragraph** must, in your own words, give a **brief background to the project**, as well as a **comprehensive description of what has to be designed**.
 - The **second paragraph** must, in your own words, give a clear overview of **your role in the project**, as well as a **description of the complete design process** that you are going to follow to complete this project.

From the scenario and your teacher's management plan, **include the following as part of the design brief:**

- A list of TWENTY of the given specifications for the building and the stand
 - A list of FIVE possible constraints. Note that the specifications you have listed may not be repeated or reworded as possible constraints.
 - Your own management plan that specifies target dates for the completion of each presentation requirement
- Conduct research** on the following topics:
 - FIVE examples, including construction detail, of modern oversized pivoted front doors
 - THREE examples of hip and valley roofs and THREE examples of floor plans of bedrooms with en suite bathrooms
 - THREE examples of water tanks of between 2 000 and 3 000 litres, and THREE examples of relevant modern glass balustrades

NOTE:

- The research must be relevant and should therefore be in the form of graphic material, i.e. pictures and illustrations.
 - The research material must be aesthetically presented and may NOT exceed THREE A4 pages or ONE A3 page per topic.
 - There must be clear evidence that the research has been used in your design solution.
 - Include a list of ALL references used (Bibliography), directly after the research.
3. **Prepare neat detailed freehand drawings** of the floor-plan layout of TWO possible design solutions for the proposed new **building**, including the **water tanks**. Each freehand drawing must show the correct presentation of ALL the building features, e.g. wall thicknesses, doors, all the permanent fixtures, the rooflines, as well as the primary dimensions and labels. Calculate the **total area** of the **building** and the **floor area** of ONE **bedroom with the en suite bathroom**. The **calculations** must be clearly shown in a table on the drawing sheet as part of each freehand drawing.

NOTE:

- **Grid/Graph paper must be used** to assist with the preparation of the freehand drawings so that ALL features and fixtures are drawn to proportion. The **grid/graph paper used must be included** in the PAT file/portfolio.
 - **ALL aspects of the freehand drawing**, including dimensions, labels, tables and possible information blocks, **must be prepared using a pencil ONLY**. The use of **any other drawing instruments**, e.g. a ruler or compass, **will be penalised**.
 - The **electrical layout** and the **waste-water disposal systems** are **NOT** required on the freehand drawings.
 - The freehand drawings may be prepared on **either A4 or A3 drawing sheets**.
 - **NO borders or title panels are required** for the freehand drawings.
 - ALL the freehand drawings must comply with the guidelines and graphical symbols contained in the *SANS 10143*.
 - The drawings must provide clear evidence that a high level of competency has been attained in the **freehand drawing method**.
4. **Select the best solution** that demonstrates an in-depth understanding of the scenario.

On a separate page, compare and evaluate the TWO freehand solutions by:

- **Creating a table** with a minimum of **SIX relevant** and **self-explanatory descriptive criteria** that will facilitate measurable comparisons
- **Creating and applying a simple, self-explanatory rating scale** to score each solution **against each criterion**
- **Justifying each score** by describing the **positive and/or negative aspects** of each solution **against each criterion**.

Complete the process by writing a comprehensive summary giving reasons for your selected freehand solution. The summary must include whether **any late changes were made to the selected freehand solution, or NOT**. If there were late changes, they must be clearly described.

PHASE 2: PRESENTATION REQUIREMENTS

5. Present the selected solution as a set of working drawings and a pictorial drawing (5.1, 5.2 and 5.3) that meet the following criteria:
- ALL the working drawings must be prepared on appropriately sized drawing sheets, set up with **correct borders**. **ONLY ONE** of the drawing sheets must be set up with a **complete SANS 10143 compliant civil title panel**.
 - The drawings must provide clear evidence that a high level of competency has been attained in the following TWO drawing methods:
 - Instrument drawing
 - CAD (computer-aided drawing/design)
- NOTE:**
- ONE entire working drawing (i.e. 5.1.1, 5.1.2 and 5.1.3 **or** 5.2) must be prepared using a pencil and drawing instruments, and the other using a CAD program.
 - The perspective drawing (5.3) may be prepared using a pencil and drawing instruments, or a CAD program.
 - Schools that do not have CAD facilities must prepare all the required working drawings and pictorial drawing (i.e. 5.1, 5.2 and 5.3) using a pencil and drawing instruments.
 - ALL aspects of all drawings must comply with the guidelines, the title panel, graphical symbols and representations contained in the *SANS 10143*.
- 5.1 Draw **detailed LAYOUT DRAWINGS** of the selected freehand solution of the **building**, including the **water tanks**, clearly showing all the required building features.

The layout drawings must show the following orthographic views:

- 5.1.1 The complete **FLOOR PLAN**, drawn to a suitable scale, **preferably** not smaller than scale 1 : 75.
- 5.1.2 **TWO ELEVATIONS**, drawn to the same scale as the floor plan. One elevation must show the **front of the building** with the balustraded veranda with steps and the pivoted front door, and the other elevation the **side of the building** that clearly shows the water tanks. It is recommended that you draw the elevations that would be required for the two-point perspective drawing.
- 5.1.3 A **DETAILED SECTION** drawn to scale 1 : 20, showing the detail of the foundation to the roof. The cutting plane must pass through the steps, veranda and the pivoted front door.
- NOTE:** Make use of a break line to limit the width of the detailed section to approximately 3½ m, so that it will show the detail of the entire veranda and steps, pivoted front door and end of the roof, including all the rainwater items, and the balustrades behind the cutting plane.

Include the following on ALL relevant views:

- ALL exterior features
- NOTE:** Window and door frames must be shown in the TWO elevations.
- The roof detail, including all rainwater items and roof lines
 - ALL permanent fixtures
 - ALL electrical fittings and the wiring layout
 - Waste-water disposal systems (sewerage)
 - The cutting plane
 - All hatching detail
 - Detailed dimensioning
 - Titles, labels and notes
 - Scales used
 - North point

5.2 Draw, to a suitable scale, a complete detailed **SITE PLAN** of STAND 1176.

Include the following:

- ALL given site details and features, including the remaining vegetation with notes indicating which vegetation was removed
- The placement of the proposed new building, water tanks and garage
- The motor vehicle entrance off Honeysuckle Street, the driveways and the parking area with the two parking bays for visitors
- ALL sewerage detail, with labels and notes included
- Dimensions, including the reference dimensions and corner heights
- Scale
- North point

5.3 Draw a detailed 'human-eye view' **TWO-POINT PERSPECTIVE DRAWING** of the complete **building and water tanks**. Orientate the perspective drawing so that it will clearly show the front of the building with the steps, veranda with balustrades and the oversized pivoted front door, and the side of the building with the water tanks. The horizon line (HL) must be $\pm 1,5$ m above the ground line.

Evidence of the following must be included:

- ALL views/drawings used to produce the perspective drawing
- ALL construction used to produce the perspective drawing

NOTE: Use a copy of the perspective drawing, which may contain artistic features, as the picture for the cover page of your PAT file/portfolio.

PHASE 3: PRESENTATION REQUIREMENTS

Create a PAT file/portfolio containing the following in the given sequence:

- A complete **cover page**, that also includes your school's name, your full name and surname, your grade and class group, your teacher's initials and surname, and a copy of your own two-point perspective drawing (5.3) for this task.
- A complete **index (table of contents)**
- The **2025 SUMMATIVE ASSESSMENT SHEET** (see page 26)
- The completed **DECLARATION OF AUTHENTICITY** (see page 27)

Include the following PHASE 1 and PHASE 2 presentation requirements in the PAT file/portfolio after the DECLARATION OF AUTHENTICITY:

1. ALL the design brief requirements
2. Evidence of ALL the resource material used for the required research
3. The TWO freehand drawings of the possible design solutions
4. ALL the evidence of the selection of the best solution
5. ALL the required working drawings (5.1 and 5.2) and the perspective drawing (5.3)
6. The 'ASSESSMENT CRITERIA AND CHECKLIST FOR THE 2025 CIVIL PAT' (see pages 15 and 16), **which must provide clear evidence of your own continuous self-evaluation** and the **meeting of the deadlines** for the development of the PAT.

NOTE: Include the following **on each page:**

- **Clear numbering** according to the numbers of the presentation requirements
- **Your name** on ALL the pages of ALL the presentation requirements

Assessment criteria and checklist for the 2025 Civil PAT

- The SUMMATIVE ASSESSMENT SHEET on page 26 of this PAT document must be used to indicate the final totals out of 10 for each assessment criterion.
- The contribution of each aspect of the PAT is as follows:
 - The design process, i.e. presentation requirements numbers 1, 2, 3, 4, 6 and 7, will contribute 25 marks out of 100.
 - The working drawings and the pictorial drawing, i.e. presentation requirement number 5, will contribute 50 marks out of 100.
 - Drawing methods, drawing skills and presentation, which should be assessed according to ANNEXURE A, will contribute 25 marks out of 100.

ASSESSMENT CRITERIA AND CHECKLIST FOR THE 2025 CIVIL PAT										
1-mark level descriptive	0	Requirement not met or presented incorrectly						Checked	Maximum mark	Comments
	1	Requirement has been met and/or presented correctly								
2-mark level descriptive	0	Requirement not met, or less than 30% evidence of knowledge shown (very poor)						Checked	Maximum mark	Comments
	1	Requirement included and at least 30%+ evidence of knowledge shown (avg.)								
	2	Presentation shows at least 80% or more evidence of knowledge (very good)								
1. Design Brief										
1.1	1 st	paragraph: background and comprehensive description of what is to be designed							2	
1.2	2 nd	paragraph: your role and description of the design process you are going to follow							2	
1.3	A list of TWENTY given specifications from the scenario							2		
1.4	A list of FIVE possible constraints from the scenario							2		
1.5	A management plan with target dates for ALL the presentation requirements							2		
							TOTAL	10		
2. Research (This should be restricted to a maximum of THREE A4 pages or ONE A3 page per topic.)										
Relevant and usable research on:	2.1	5 examples and construction detail of modern oversized pivoted front doors							2	
	2.2	3 examples of hip & valley roofs (1) + 3 examples of bedrooms with en suite bathrooms (1)							2	
	2.3	3 examples of water tanks (1) + 3 examples of modern glass balustrades (1)							2	
	Clear evidence that the research was used in design solutions							2		
	A list of ALL references used (Bibliography)							2		
							TOTAL	10		
3. Freehand drawings of TWO possible design solutions							Final mark for each solution			
Assess each freehand solution as follows:	Building with ALL rooms/areas included, and hip & valley rooflines						2	Solution 1	10	
	The steps, veranda, oversized pivoted front door & water tanks						2			
	Correct presentation of building features (walls, doors, etc.)						2			
	ALL fixtures included (WC, WB, etc.)						2			
	Correct presentation of all fixtures according to SANS 10143						2	Solution 2	10	
	Relative size and proportion of ALL features						2			
	Primary labels (1) + primary dimensions (1)						2			
	2 x calculations shown and within the specifications (2 + 2 = 4)						4			
	Design, functionality and effective space utilisation						2			
	Subtotal = 20 ÷ 2 = TOTAL						20			
4. Selecting the best freehand solution (This must be a separate presentation.)										
A suitable table created for the selection process							2			
A minimum of SIX relevant and descriptive criteria that will facilitate measurable comparisons							2			
A simple rating scale created and used to score each solution against each criterion							2			
Each score justified by describing the positive or negative aspects against each criterion							2			
Comprehensive summary with reasons for selected solution (incl. possible late changes, or NOT)							2			
							TOTAL	10		
5. Layout drawings and a pictorial drawing of selected solution										
Drawing sheet preparation										
Appropriately sized drawing sheets							1			
Borders on all the drawing sheets of ALL the working drawings							2			
Complete SANS 10143 compliant CIVIL TITLE PANEL on ONE working drawing's drawing sheet							7			
NOTE: Use the 7-mark simplified rubric on page 45 of the CAPS.							TOTAL	10		
5.1 Detailed layout drawings of the proposed new building										
5.1.1	FLOOR PLAN showing:									
Correlation with selected freehand solution and the selection process summary							1			
ALL external and internal walls, steps and veranda							2			
Hip and valley roof design rooflines							1			
The oversized pivoted front door and ALL other doors, and ALL windows							2			
ALL permanent fixtures							2			
ALL electrical fittings and the wiring layout							2			
Waste-water disposal systems (sewerage)							2			
Title, labels and notes							2			
Detailed dimensioning							2			
Hatching detail (1) + cutting plane (1)						(1 + 1 = 2)	2			
Suitable scale used and correctly indicated (1) + North point (1)						(1 + 1 = 2)	2			
							Subtotal = 20 ÷ 2 = TOTAL	10		

ASSESSMENT CRITERIA AND CHECKLIST FOR THE 2025 CIVIL PAT				
5.1.2	TWO ELEVATIONS showing:			
	Prescribed views, one with front entrance, and one of a side with the water tanks		1	
	External walls, steps and veranda		2	
	Water tanks and modern glass balustrades		2	
	Detail, incl. frames of oversized pivoted front door, and all other doors and windows		2	
	Hip and valley roof detail, including all rainwater items		2	
	Elevations drawn to the same scale as the floor plan		1	
			TOTAL	10
5.1.3	DETAILED SECTION showing:			
	The section is drawn according to the indicated cutting plane		1	
	Foundation, slab and wall detail, including the correct hatching thereof		2	
	Oversized pivoted front door detail		2	
	Steps and veranda detail, including the glass balustrades		2	
	Roof detail, including all rainwater items, and the correct hatching of the wood		2	
	Titles, labels and notes		2	
	Detailed dimensioning		2	
	Scale 1 : 20 used and correctly indicated (1) + break lines (1)		2	
(1 = 1; 2 = 1; 3 = 2; 4 = 3; 5 = 3; 6 = 4; 7 = 5; 8 = 5; 9 = 6; 10 = 7; 11 = 7; 12 = 8; 13 = 9; 14 = 9; 15 = 10)			Subtotal = 15 ÷ 1,5 = TOTAL	10
5.2	Detailed SITE PLAN showing:			
Site plan correctly drawn, with ALL given site features and detail		2		
The proposed new building and garage, entrance, driveway and parking bays		2		
ALL sewerage detail and connections with labels		2		
Dimensions, including new building's reference dimensions		2		
Suitable scale used and correctly indicated (1) + North point (1)		2		
			TOTAL	10
5.3	TWO-POINT PERSPECTIVE DRAWING of the correctly orientated building			
Evidence of the views and construction used to prepare the drawing		1		
Correct orientation of building (1) + HL ±1,5 m above the ground (1)	(1 + 1 = 2)	2		
Detail and correctness of the perspective drawing		7		
NOTE: Use the 7-mark simplified rubric on page 45 of the CAPS.			TOTAL	10
6.	Continuous self-evaluation and the meeting of deadlines			
2025 civil checklist completed as evidence of continuous self-evaluation	(mark out of 10 ÷ 2)	5		
The meeting of ALL the submission deadlines	(mark out of 10 ÷ 2)	5		
NOTE: Use the 10-mark simplified rubric on page 25 of this PAT document.			TOTAL	10
7.	Presentation of the complete PAT file/portfolio			
Complete cover page with a copy of the perspective drawing		1		
Complete index (table of content)		1		
Completed summative assessment sheet and declaration		1		
Correct sequencing of ALL presentation requirements		1		
Name and numbering on ALL the pages of ALL the presentation requirements		1		
General impression of file/portfolio, e.g. binding, appearance, etc.	(mark out of 10 ÷ 2)	5		
NOTE: Use the 10-mark simplified rubric on page 25 of this PAT document.			TOTAL	10
Assessment of drawing methods, drawing skills and presentation				
(a)	Freehand drawings			
Freehand drawing methods and skills	(See ANNEXURE A on page 24)	10		
NOTE: • No evidence of grid/graph paper used = max. 7 marks, even if drawn excellently				
• Not drawn in freehand = 0 marks, & some evidence of instruments used = max. 5 marks				
Neatness (2) + correct line types used (2) + line consistency (2) + printing (2) + dimensioning (2)	(Also see ANNEXURE A on page 24)	10		
(b)	Instrument drawings			
Use of drawing instruments, drawing methods and skills	(See ANNEXURE A on page 24)	10		
Neatness (2) + correct line types used (2) + line consistency (2) + printing (2) + dimensioning (2)	(Also see ANNEXURE A on page 24)	10		
(c)	CAD drawings			
Competence displayed in using a CAD program	(See ANNEXURE A on page 24)	10		
Layout and correctness of the drawing presentations	(See ANNEXURE A on page 24)	10		

7. PRACTICAL ASSESSMENT TASK 2 (PAT 2)

A mechanical design project

SCENARIO

You are employed as a draughtsperson at a design firm that specialises in providing design solutions to clients with a wide range of products. One of the clients, who owns a company that specialises in the bottling of domestic liquid detergents, has requested design solutions to improve **plastic trigger sprays** that can be screwed onto the threaded neck of a bottle.



[Courtesy of cyclo.co.za]



[Courtesy of bottleshop.swiss]

You have been commissioned by the design firm with investigating and analysing the design features of **existing plastic trigger sprays**, and to then come up with a design solution that is an improvement(s), which could be, but is not limited to, one or more of the following:

- Improved efficiency
- A strengthened design
- A modified design

Your investigation, analysis and solution require the following stages:

- The **FIRST stage** involves **finding a suitable plastic trigger spray**, consisting of **a trigger, an adjustable nozzle, a spring or spring mechanism, a housing (body), a dip tube and a screw-on attachment** that can be screwed onto the threaded neck of a bottle.

The **plastic trigger spray** that you have selected will simply be referred to as the **trigger spray** from now on.

NOTE: You are NOT required to purchase a **trigger spray**. It should therefore be one that is readily available to you, and no longer used.

- The **SECOND stage** involves the **complete disassembling** of the **trigger spray** so that ALL the individual parts can be investigated, measured and photographed.
- The **THIRD stage** requires the **identification of ONE of the complex main parts**, or a **combination of parts** of the **trigger spray**, which could be improved, strengthened or modified in some way. This will necessitate the application of the design process, as stipulated below in the presentation requirements.

Requirements and specifications for the trigger spray:

- Each learner **must have his/her own trigger spray** for the PAT.
- The **trigger spray must be submitted** as part of your PAT presentation.
- The **trigger spray must at the least** consist of a **trigger, an adjustable nozzle, a spring or spring mechanism, a housing (body), a dip tube and a screw-on attachment** that can be screwed onto the threaded neck of a bottle.
- Your teacher **must approve** the **trigger spray** that you have selected. This is to ensure that it meets the requirements and that a PAT of an appropriate higher-order Grade 12 complexity can be produced.

PHASE 1: PRESENTATION REQUIREMENTS

1. Analyse the given scenario and **formulate a design brief** in two paragraphs:
 - The **first paragraph** must, in your own words, give a **brief background to the project**, as well as a **comprehensive description of what has to be designed**.
 - The **second paragraph** must, in your own words, give a **clear overview of your role in the project**, as well as a **description** of the **complete design process** that you are going to implement to complete this project.

From the given scenario and your teacher's management plan, **include the following as part of the design brief:**

- Your own list of ALL the **specifications** of the **trigger spray**
 - Your own list of at least **THREE constraints** of the **trigger spray**
 - Your own **management plan**, which specifies **target dates** for the completion of each presentation requirement
2. **Conduct research** on:
 - The **material used** for each individual part of the **trigger spray**
 - The **specific design features** and/or **function/purpose** of each individual part of the **trigger spray**
 - The design and the components of at least **ONE other trigger spray that is similar to the trigger spray that you have selected**.

NOTE:

- The research must be relevant and should therefore be in the form of graphic material, i.e. pictures and illustrations.
 - Evidence of ALL the required research material must be included in the PAT file/portfolio.
 - The research material must be aesthetically presented and may NOT exceed **THREE A4 pages** or **ONE A3 page** per topic.
 - The first two research requirements will primarily be **hands-on investigative research**, which must be presented using a comprehensive set of detailed photographs taken during the second stage. Include labels and/or notes indicating the material and the function (purpose) of each individual component.
 - The evidence of the **ONE other similar trigger spray** may be in the form of a comprehensive set of pictures, illustrations and/or photographs, together with explanatory labels and notes.
 - There must be clear evidence that the research was used in your design solution.
 - Include a list of ALL references used (Bibliography), directly after the research.
3. **Prepare neat detailed freehand drawings** of **TWO** possible design solutions of the proposed improvement, strengthening and/or modification of **ONLY** the **complex main part**, or **combination of parts** of the **trigger spray**, as identified during the third stage.

Each set of freehand drawings must **consist of relevant orthographic views** and an **isometric drawing(s)**. ALL the freehand drawings must show the correct presentation of ALL the features of the **identified complex main part, or combination of parts**, and include dimensions, labels and explanatory notes. Include a short explanation of the possible improvement, strengthening and/or modification.

NOTE:

- **Grid/Graph paper must be used** to assist in preparing the freehand drawings so that ALL features are drawn to proportion. **The grid/graph paper used must be included** in the PAT file/portfolio **as evidence**.
- **ALL aspects of the freehand drawing**, including dimensions, labels, tables and possible information blocks **must be prepared using a pencil ONLY**. The use of any other drawing instruments, e.g. a ruler or compass, will be penalised.
- The drawings may be prepared **on either A4 or A3 drawings sheets**.
- **NO borders or title blocks are required** for the freehand drawings.
- ALL the freehand drawings must comply with the guidelines and conventional representations contained in the *SANS 10111*.
- These drawings must provide clear evidence that a high level of competency has been attained in the **freehand drawing method**.

4. **Select the best solution** that demonstrates an in-depth understanding of the scenario.

On a separate page, compare and evaluate the TWO freehand solutions by:

- **Creating a table** with a minimum of **FOUR relevant and self-explanatory descriptive criteria** that will facilitate measurable comparisons
- **Creating and applying a simple, self-explanatory rating scale** to score each solution **against each criterion**
- **Justifying each score** by describing the **positive and/or negative aspects** of each solution **against each criterion**.

Complete the process by writing a comprehensive summary giving reasons for your selected freehand solution. The summary must include whether **any late changes were made to the selected freehand solution, or NOT**. If there were late changes, they must be clearly described.

PHASE 2: PRESENTATION REQUIREMENTS

5. Present the **trigger spray** that you selected during the first stage, and the selected improvement, strengthening and/or modification thereof as a set of working drawings and a pictorial drawing (5.1, 5.2 and 5.3) that meet the following criteria:

- ALL the working drawings must be prepared on appropriately sized drawing sheets, set up with correct borders. **ONLY the first drawing sheet** (i.e. for 5.1) must be set up with a **complete mechanical title block**, as presented in the **Engineering Graphics and Design NSC Paper 2 analytical questions**.
- The drawings must provide clear evidence that a high level of competency has been attained in the following TWO drawing methods:
 - Instrument drawing
 - CAD (computer-aided drawing/design)

NOTE if using CAD:

- ONE entire working drawing (i.e. 5.1 or 5.2) must be prepared using a pencil and drawing instruments, and the other using a CAD program.
- The isometric drawing (5.3) may be prepared using either a pencil and drawing instruments or a CAD program.

- Schools that do not have CAD facilities must prepare all the required working drawings and pictorial drawing (i.e. 5.1, 5.2 and 5.3) using a pencil and drawing instruments.
 - ALL aspects of all drawings must comply with the guidelines and conventional representations contained in the *SANS 10111*.
- 5.1 Draw, to a suitable scale and in third-angle orthographic projection, an **ASSEMBLED DRAWING** of the **trigger spray**, clearly showing **ALL the parts before** any improvements, strengthening and/or modifications have been affected.
NOTE: Draw only a short piece of the **dip tube** so that the **trigger spray** can be drawn to a **larger scale**.

The assembly drawing must show the following FOUR views:

5.1.1 The **FRONT VIEW**

5.1.2 A **second PRIMARY VIEW**

5.1.3 Any other **TWO SECONDARY VIEWS**

NOTE: **TWO** of the views must be sectioned or contain types of sections.

Include the following:

- Title, labels and notes
- Scale
- Detailed dimensions
- Cutting plane(s)
- ALL hatching detail
- Relevant hidden detail that would provide clarity
- Projection symbol

- 5.2 Draw, to a suitable scale and in third-angle orthographic projection, a **DETAILED DRAWING** of **ONLY** the **identified complex main part**, or a **combination of parts** of the **trigger spray**, clearly showing the **selected improvement, strengthening and/or modification** thereof.

The detailed drawing must show the following THREE views:

5.2.1 The **FRONT VIEW**

5.2.2 Any **TWO** other **VIEWS**

NOTE: **ONE** of the views must be sectioned or contain a type of section.

Include the following:

- Title, as well as comprehensive explanatory labels and notes
- Scale
- Relevant tolerance(s) and/or machining symbol(s) and/or welding symbol(s)
- Detailed dimensioning
- Cutting plane(s)
- ALL hatching detail
- Relevant hidden detail that would provide clarity
- Projection symbol

- 5.3 Draw, to a suitable scale, a **detailed ISOMETRIC DRAWING** of the **trigger spray**, or of the improved, strengthened and/or modified **complex main part**, or **combination of parts**, that is of an **appropriate Grade 12 level of complexity**.

NOTE:

- Evidence of ALL auxiliary views and construction used to produce the drawing must be clearly shown.
- Use a copy of the isometric drawing, which may contain artistic features, as the picture for the cover page of your PAT file/portfolio.

PHASE 3: PRESENTATION REQUIREMENTS

Create a PAT file/portfolio containing the following in the given sequence:

- A complete **cover page**, that also includes your school's name, your full name and surname, your grade and class group, your teacher's initials and surname and a copy of your own isometric drawing (5.3) for this task.
- A complete **index (table of contents)**
- The **2025 SUMMATIVE ASSESSMENT SHEET** (see page 26)
- The completed **DECLARATION OF AUTHENTICITY** (see page 27)

Include the following PHASE 1 and PHASE 2 presentation requirements in the PAT file/portfolio after the DECLARATION OF AUTHENTICITY:

1. ALL the design brief requirements
2. Evidence of ALL the resource material used for the required research
3. The TWO freehand drawings of the possible design solutions
4. ALL the evidence of the selection of the best solution
5. ALL the required working drawings (5.1 and 5.2) and the isometric drawing (5.3)
6. The ASSESSMENT CRITERIA AND CHECKLIST FOR THE 2025 MECHANICAL PAT (see pages 22 and 23), **which must provide clear evidence of your own continuous self-evaluation** and the **meeting of the deadlines** for the development of the PAT.

NOTE:

Include the following **on each page**:

- **Clear numbering** according to the numbers of the presentation requirements
- **Your name** on ALL the pages of ALL the presentation requirements

Assessment criteria and checklist for the 2025 MECHANICAL PAT

- The SUMMATIVE ASSESSMENT SHEET on page 26 of this PAT document must be used to indicate the final totals out of 10 for each assessment criterion.
- The contribution of each aspect of the PAT is as follows:
 - The design process, i.e., presentation requirements numbers 1, 2, 3, 4, 6 and 7, will contribute 25 marks out of 100.
 - The working drawings and the pictorial drawing, i.e. presentation requirement number 5, will contribute 50 marks out of 100.
 - Drawing methods, drawing skills and presentation, which should be assessed according to ANNEXURE A, will contribute 25 marks out of 100.

ASSESSMENT CRITERIA AND CHECKLIST FOR THE 2025 MECHANICAL PAT								
1-mark level descriptive	0	Requirements not met or presented incorrectly				Checked	Maximum mark	Comments
	1	Requirements have been met and/or presented correctly						
2-mark level descriptive	0	Requirements not met, or less than 30% evidence of knowledge shown (very poor)						
	1	Requirements included and at least 30% evidence of knowledge shown (avg.)						
	2	Presentation shows at least 80% or more evidence of knowledge (very good)						
1.	Design Brief							
	1.1	1 st paragraph: background and comprehensive description of what has to be designed					2	
	1.2	2 nd paragraph: your role and description of complete design process you are going to follow					2	
	1.3	A list of ALL the specifications of the trigger spray					2	
	1.4	A list of at least THREE constraints of the trigger spray					2	
	1.5	A management plan with target dates for ALL the presentation requirements					2	
						TOTAL	10	
2.	Research (This should be restricted to a maximum of THREE A4 pages or ONE A3 page per topic.)							
Relevant and usable research on:	2.1	Materials used for each part of the trigger spray					2	
	2.2	Design features/function/purpose of each part of the trigger spray					2	
	2.3	Another similar trigger spray , and all the parts thereof					2	
Clear evidence that the research was used in your design solutions							2	
A list of ALL references (Bibliography)							2	
						TOTAL	10	
3.	Freehand drawings of TWO possible design solutions					Final mark for each solution		
Assess each freehand solution as follows:	Third-angle orthographic views of the identified part(s)	2			Solution 1		10	
		Isometric drawing of the identified part(s)	2					
		Correct SANS 10111 compliant presentation of ALL the features	1					
		Relative size and proportion of ALL features	2					
	Labels and explanatory notes	2			Solution 2		10	
		Dimensioning	2					
		Description of improvement/strengthening/modification	2					
		Functionality of improvement/strengthening/modification	2					
Subtotal = 15 ÷ 1,5 = TOTAL 10								
1 = 1; 2 = 1; 3 = 2; 4 = 3; 5 = 3; 6 = 4; 7 = 5; 8 = 5; 9 = 6; 10 = 7; 11 = 7; 12 = 8; 13 = 9; 14 = 9; 15 = 10								
4.	Selecting the best freehand solution (This must be a separate presentation.)							
A suitable table created for the selection process							2	
A minimum of FOUR relevant and descriptive criteria that will facilitate measurable comparisons							2	
A simple rating scale created and used to score each solution against each criterion							2	
Each score justified by describing the positive and/or negative aspects against each criterion							2	
Comprehensive summary with reasons for selected solution (incl. possible late changes, or NOT)							2	
						TOTAL	10	
5.	Working drawings and a pictorial drawing of your selected trigger spray and/or selected change(s)							
Drawing sheet preparation								
Appropriately sized drawing sheets							1	
Borders on all drawing sheets of all the working drawings							2	
Complete EGD NSC P2 Q1 compliant MECHANICAL TITLE BLOCK on the drawing sheet of 5.1							7	
NOTE: Use the 7-mark simplified rubric on page 45 of the CAPS.						TOTAL	10	
5.1	ASSEMBLY DRAWING of your selected trigger spray, before any changes							
5.1.1	FRONT VIEW before any changes							
	ALL the parts included and drawn correctly according to the actual trigger spray					2		
	All hatching detail or, if not sectioned, ALL external features					2		
	ALL possible fasteners and/or joining features drawn correctly in ALL views					2		
	Labels and notes on ALL views					2		
	Projection symbol					1		
	Suitable scale selected and indicated correctly					1		
						TOTAL	10	

ASSESSMENT CRITERIA AND CHECKLIST FOR THE 2025 MECHANICAL PAT			
5.1.2	Second PRIMARY VIEW before any changes		
	ALL the components included and drawn correctly according to the actual trigger spray		2
	ALL hatching detail or, if not sectioned, ALL external features		2
	Dimensions on ALL views		2
	ALL centre lines included on ALL views		2
	ALL FOUR views correctly set out in third-angle orthographic projection		2
		TOTAL	10
5.1.3	TWO other SECONDARY VIEWS before any changes		
	Appropriate secondary views selected		2
	ALL the components included and drawn correctly according to the actual trigger spray		2
	ALL hatching detail or, if not sectioned, ALL external features		2
	TWO views sectioned or contain types of sections		2
	Correct cutting planes for the TWO sectional views and/or types of sections		2
		TOTAL	10
5.2	DETAILED DRAWING of identified part(s) , clearly showing selected improvement/strengthening/modification		
	Drawing is correctly presented in third-angle orthographic projection		1
	Improvement/Strengthening/Modification correlates with selected freehand solution		2
	Appropriate view selected as the FRONT VIEW and drawn correctly		2
	TWO other relevant VIEWS selected and drawn correctly		2
	ONE view sectioned, or contain types of sections, and drawn correctly		2
	Cutting plane(s)		1
	ALL hatching detail		2
	Relevant tolerance(s) and/or machining symbol(s) and/or welding symbol(s)		2
	Title, as well as comprehensive explanatory labels and notes added		2
	Detailed dimensions		2
	Suitable scale selected and indicated correctly		1
	Projection symbol		1
		Subtotal = 20 ÷ 2 = TOTAL	10
5.3	Detailed ISOMETRIC DRAWING		
	Suitable scale selected		1
	Evidence of ALL auxiliary views and construction used for the drawing		2
	Detail and correctness of the isometric drawing		7
	NOTE: Use the 7-mark simplified rubric on page 45 of the CAPS.		
		TOTAL	10
6.	Continuous self-evaluation and the meeting of deadlines		
	2025 mechanical checklist completed as evidence of continuous self-evaluation (mark out of 10 ÷ 2)		5
	The meeting of ALL the submission deadlines (mark out of 10 ÷ 2)		5
	NOTE: Use the 10-mark simplified rubric on page 25 of this PAT document.		
		TOTAL	10
7.	Presentation of the complete PAT file/portfolio		
	Complete cover page with a copy of the isometric drawing		1
	Complete index (table of content)		1
	Completed summative assessment sheet and declaration		1
	Correct sequencing of ALL presentation requirements		1
	Name and numbering on ALL the pages of ALL the presentation requirements		1
	General impression of file/portfolio, e.g. binding, appearance, etc. (mark out of 10 ÷ 2)		5
	NOTE: Use the 10-mark simplified rubric on page 25 of this PAT document.		
		TOTAL	10
Assessment of drawing methods, drawing skills and presentation			
(a)	Freehand drawings		
	Freehand drawing methods and skills (See ANNEXURE A on page 24) NOTE: • No evidence of grid/graph paper used = max. 7 marks, even if drawn excellently • Not drawn in freehand = 0 marks, & some evidence of instruments used = max. 5 marks		10
	Neatness (2) + correct line types used (2) + line consistency (2) + printing (2) + dimensioning (2) (Also see ANNEXURE A on page 24)		10
(b)	Instrument drawings		
	Use of drawing instruments, drawing methods and skills (See ANNEXURE A on page 24)		10
	Neatness (2) + correct line types used (2) + line consistency (2) + printing (2) + dimensioning (2) (Also see ANNEXURE A on page 24)		10
(c)	CAD drawings		
	Competence displayed in using a CAD program (See ANNEXURE A on page 24)		10
	Layout and correctness of the drawing presentation (See ANNEXURE A on page 24)		10

8. ANNEXURE A: ASSESSMENT RUBRIC

ASSESSING DRAWING METHODS, DRAWING SKILLS AND PRESENTATION

LEVELS OF PERFORMANCE													
MARK ALLOCATION			10	9	8	7	6	5	4	3	2	1	0
			100%	99%–90%	89%–80%	79%–70%	69%–60%	59%–50%	49%–40%	39%–30%	29%–20%	19%–1%	0%
Freehand drawing	METHODS AND SKILLS	The drawings display correct freehand drawing methods and skills , as well as the method used to ensure good proportion and size	NOTE: • No evidence of grid/graph paper used = max. 7 marks, even if excellent drawing methods and skills are displayed! • Not drawn in freehand, i.e., completely drawn with instruments, = 0 marks • If instruments were used for, or to assist with, some aspect = max. 5 marks, even if excellent drawing methods and skills are displayed.					The drawings display poor drawing methods and skills and there is little to no evidence of the method used which resulted in poor proportion and size .			The drawings display very poor drawing methods and skills and no method was used to ensure correct proportion .		
			The drawings display excellent drawing methods and skills and the method used to ensure outstanding proportion and size .		The drawings display satisfactory drawing methods and skills and the method used to ensure satisfactory proportion and size .								
	Final drawing presentation is neat , and the line types used, line constancy/quality, printing and dimensioning is correct .		Neatness (2) + correct line types used (2) + line quality/consistency (2) + compliant printing/writing (2) + compliant dimensioning (2) <i>Additional descriptors/guidelines:</i>										
Instrument drawing	METHODS AND SKILLS	The drawings display the correct use of drawing instruments, drawing methods and skills .	The drawings display the correct use of drawing instruments and an outstanding application of drawing methods and skills .		The drawings display the correct use of drawing instruments and a satisfactory and mostly correct application of drawing methods and skills .			The drawings display poor use of drawing instruments and a poor and incorrect application of drawing methods and skills .			The drawings display an incorrect use of drawing instruments with incorrect applications of drawing methods and skills .		
			The drawings are very neat and all line work/line quality, printing and dimensioning are outstanding and consistent .		The drawings are neat and the line work/line quality, printing and dimensioning are generally good and mostly consistent .			The drawings are untidy with inconsistent line work/line quality, printing and dimensioning .			The line work/line quality, printing and dimensioning are unacceptable .		
	Final drawing presentation is neat , and the line types used, line constancy/quality, printing and dimensioning is correct .		Neatness (2) + correct line types used (2) + line quality/consistency (2) + compliant printing/writing (2) + compliant dimensioning (2) <i>Additional descriptors/guidelines:</i>										
CAD drawing	METHODS AND SKILLS	The level of competence displayed in using a CAD program	Displays a high level of skills, knowledge and ability in using a CAD program			Displays a satisfactory level of skills, knowledge and ability in using a CAD program			Displays a poor level of skills, knowledge and ability in using a CAD program			Shows little to no skills, knowledge or ability in using a CAD program	
			The layout of the final drawing is correct and the line work, printing and dimensioning are compliant and consistent		The layout of the drawings is correct and the line work, printing and dimensioning are compliant and consistent .			The layout of the drawings is acceptable and the line work, printing and dimensioning are mostly compliant and consistent .			The layout of the drawings is very poor and the line work, printing and dimensioning are not compliant and inconsistent .		

9. SIMPLIFIED RUBRIC FOR ALLOCATION AND VERIFICATION OF MARKS

NOTE:

- The final mark out of 10 of each assessment criterion, i.e. the overall level of achievement according to the presentation requirement, **must be verified according to this rubric.**
- This rubric must also be used to allocate marks for all aspects of the assessment criteria which require a mark out of 10.

VERIFICATION AND MARK ALLOCATION			
DESCRIPTION FOR MARK	GENERAL INDICATOR	±%	MARK
ALL/MORE than ALL the REQUIREMENTS are met. - PERFECT -	Error-free	100%	10
ALL (ALMOST ALL) the REQUIREMENTS are met. - OUTSTANDING -	Very few errors	90% +	9
ALMOST ALL (MOST OF) the REQUIREMENTS are met. - VERY GOOD -	Few errors	80% +	8
The REQUIREMENTS are met SUBSTANTIALLY . - GOOD -	Some errors	70% +	7
The REQUIREMENTS are met ADEQUATELY . - SATISFACTORY -		60% +	6
The REQUIREMENTS are met MODERATELY . - ACCEPTABLE -	Many errors	50% +	5
ONLY SOME of the REQUIREMENTS are met. - UNACCEPTABLE -		40% +	4
VERY FEW of the REQUIREMENTS are met. - NOT ACHIEVED -	Mostly wrong	30% + Only a few correct features	3
The REQUIREMENTS are NOT met. - VERY POOR -	Completely wrong	29% and LESS	2
		Something done incorrectly/ poorly	1
NOT DONE	No work handed in!	Nothing to mark!	0

10. PAT 2025: SUMMATIVE ASSESSMENT SHEET

**PAT 2025
SUMMATIVE ASSESSMENT SHEET**

NAME OF SCHOOL: DISTRICT:
 NAME OF LEARNER: (NAME AND SURNAME)
 NAME OF TEACHER: (NAME AND SURNAME)
 NAME OF MODERATOR: (NAME AND SURNAME) DATE:

PART A: Design Process		PART B: Working and pictorial drawings		Drawing competency and skill	
CRITERIA		CRITERIA		CRITERIA	
MARK		MARK		MARK	
1	A design brief demonstrating a clear understanding of the scenario and the specifications, constraints and a management plan	All drawing sheets are appropriately set up with a border and an appropriate title block/panel.		Freehand drawing: ANNEXURE A METHOD	The drawings display correct freehand drawing methods and skills and the method used to ensure proportion and size.
2	Evidence of relevant and usable research with the inclusion of a bibliography	Orthographic drawings Assess each view's accuracy and correctness according to the selected solution/device, the stipulated requirements and drawing principals	5.1.1 View 1 PAT 1: Plan PAT 2: Front view		The final drawing presentation is neat and there is consistency of line work/line quality, printing and dimensioning.
3	TWO detailed freehand drawings of possible solutions 1st Solution 2nd Solution		5.1.2 View 2 PAT 1: Elevations (x2) PAT 2: 2nd main view		
			5.1.3 View 3 PAT 1: Detailed section PAT 2: Secondary views (x2)		
4	Selecting the best solution which demonstrates a clear understanding of the design brief		5.2 PAT 1: Site plan PAT 2: Detailed drawing	Instrument drawing: ANNEXURE A METHOD	The drawings display the correct use of drawing instruments, drawing methods and skills.
6	Clear evidence of self-evaluation and the meeting of deadlines for all the requirements	5.3 Pictorial Drawing The correct drawing method and presentation of the pictorial drawing. PAT 1: Perspective PAT 2: Isometric	ANNEXURE A METHOD	The final drawing presentation is neat and there is consistency of line work/line quality, printing and dimensioning.	
				The level of competence is displayed in using a CAD program.	
7	The presentation of the complete PAT portfolio			NO CAD drawings	/ 40
				With CAD drawings	/ 60
SUBTOTAL / 70		SUBTOTAL / 60		CALCULATION without CAD x 0,63	
CALCULATION x 0,36		CALCULATION x 0,84		CALCULATION with CAD x 0,42	
Teacher's TOTAL		Teacher's TOTAL		Teacher's TOTAL	
TOTAL: A / 25		TOTAL: B / 50		TOTAL: C / 25	
Moderated TOTAL		Moderated TOTAL		Moderated TOTAL	
TOTAL: A / 25		TOTAL: B / 50		TOTAL: C / 25	
TEACHER'S TOTAL: A + B + C = / 100		TEACHER: Initial		MODERATOR: Initial	
MODERATED TOTAL: A + B + C = / 100					

11. DECLARATION OF AUTHENTICITY

DECLARATION OF AUTHENTICITY

To be submitted with each learner's practical assessment task portfolio

NAME OF THE SCHOOL:

NAME OF LEARNER:
(SURNAME AND INITIALS)

I hereby declare that all the contents of the practical assessment task (PAT) submitted by myself for assessment is my own original work and has not been plagiarised, copied from someone else or previously submitted for assessment.

SIGNATURE OF LEARNER

____/____/2025
DATE (DD/MM/YYYY)

NAME OF TEACHER:
(SURNAME AND INITIALS)

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

SIGNATURE OF TEACHER

____/____/2025
DATE (DD/MM/YYYY)

