basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

ENGINEERING GRAPHICS AND DESIGN

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

GRADE 12

2026

These guidelines consist of 27 pages.

TABLE OF CONTENTS

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
- SERVICES: Consumer Studies, Hospitality Studies, Tourism
- TECHNOLOGY: Engineering Graphics and Design, Civil Technology, Electrical Technology and Mechanical Technology
- TECHNICAL: Technical Mathematics and Technical Sciences

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 2026 PAT document** to every Grade 12 learner **during the week of 23 to 27 February 2026**.

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 time frames:

- 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 time frames, 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 afore-mentioned instructions, will be deemed a serious examination irregularity.**

- Except for clean A4 folio paper, 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**.
- **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 2026 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 p**reparatory examinations** in the 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 2026 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 **23 October 2026**.

NOTE:
The **norm time** for the **moderation** of a **complete Grade 12 PAT** is **45 minutes**.

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, and if required, repeated until a more constant result is obtained.

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 PAT is a **compulsory national formal assessment task** that **contributes 25% (100 of the 400 marks) towards their final NSC mark**.
  Learners that do not present a completed PAT will therefore NOT be resulted.
- This document contains the following TWO PAT scenarios:
  - PAT 1: A civil design project, with an electrical component
  - PAT 2: A mechanical design project

  You, 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**.
- **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 2026 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 during 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 2026 SUMMATIVE ASSESSMENT SHEET, on page 26 of this document, your completed and signed DECLARATION OF AUTHENTICITY, your completed 2026 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

The Department of Basic Education is in the process of implementing a compulsory Early Childhood Development (ECD) phase in primary schools. This programme aims to safeguard children's rights and support their full cognitive, emotional, social and physical development. It is intended to better prepare children, up to the age of five, for successful entry into primary school.

The School Governing Body of a primary school in your area has chosen to take early action by introducing the ECD phase at their institution. They have requested that you prepare a **proposed design solution** for a **separate new facility** that will include classrooms and all necessary amenities. This new facility will hereafter be referred to as the '**building**'.

The **building** must be a single-storey brick structure with a 25° pitched roof covered in IBR sheeting. The roof must feature a 300 mm overhang on both sides, complete with fascia boards, gutters and rainwater downpipes, as well as barge boards at each end. The roof height must allow for a covered walkway to fit beneath the overhang. In addition, two skylights must be installed above each classroom on the same side of the pitched roof as the covered walkway.

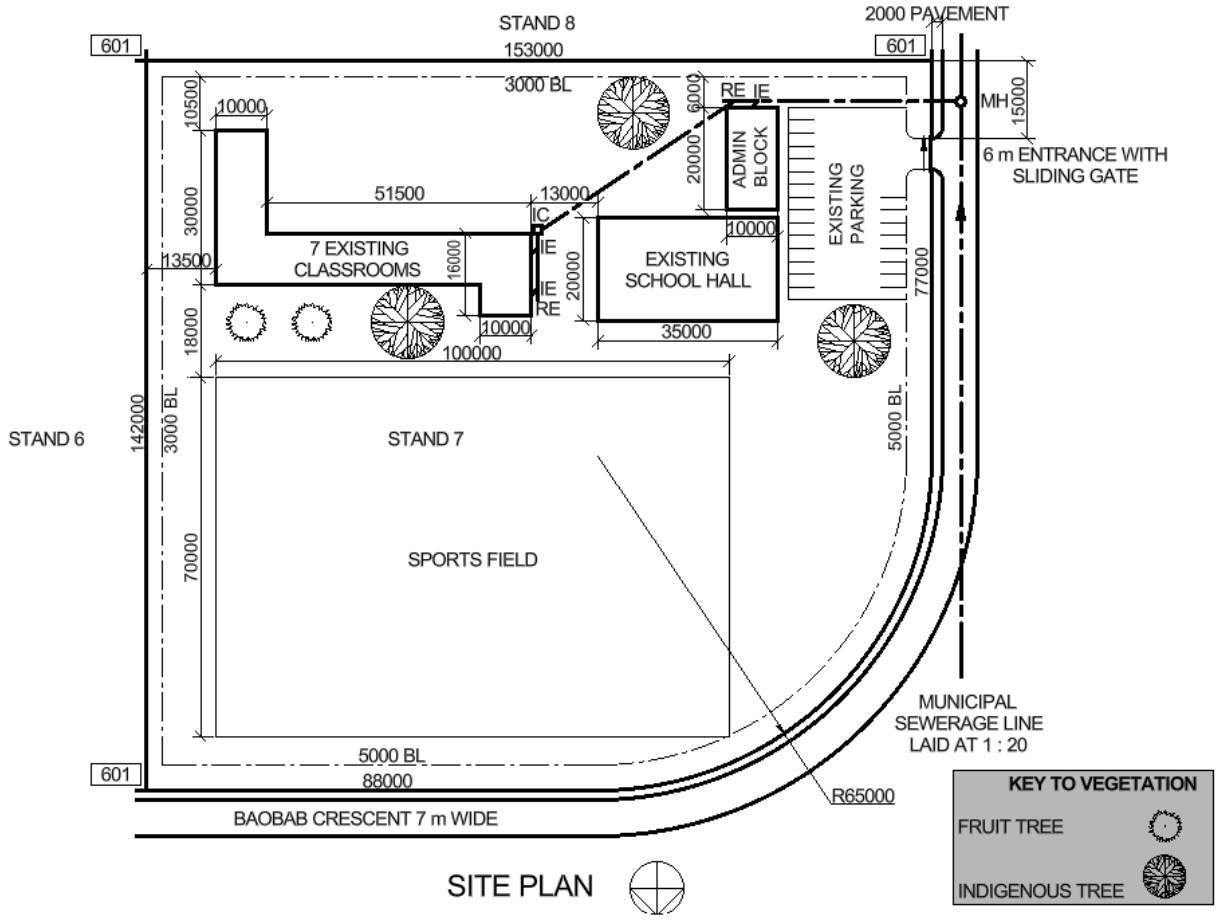
The **building** must contain TWO adjoining classrooms of identical size, each measuring between 65 m² and 70 m². The two classrooms must be separated by floor-to-ceiling room dividers that can be opened to create one space. Each classroom must include a built-in cupboard for storing toys and equipment. Large aluminium windows must be placed on one external wall of each classroom to provide ample natural light. On the opposite wall, aluminium sliding doors must open onto a 2-metre-wide covered walkway that extends along the entire length of one side of the **building**. Directly in front of this covered walkway, a large outdoor play area must be provided enclosed with a 2-metre-high security fence.

Separate boys' and girls' toilet facilities must be located at one end of the building and be accessible from the covered walkway. The boys' facility must include THREE toilets, TWO wall-mounted urinals and TWO washbasins. The girls' facility must include FOUR toilets and TWO washbasins. All toilet facility fixtures must be age-appropriate, and both toilet facilities must have adequate windows for ventilation and light.

At the opposite end of the **building**, a staffroom must be provided. This room must offer workspace and seating for FOUR staff members and may not exceed 30 m² in size. Adjacent to the staffroom, a kitchen must be included, featuring a double sink, built-in cupboards, sufficient work surfaces for food preparation, and space for a refrigerator and stove. The kitchen may not exceed 15 m². Adjoining the staffroom, a sick bay must be added, no larger than 6 m², and equipped with a washbasin. The staffroom, kitchen and sick bay must also be accessible from the covered walkway and have aluminium-framed windows that provide adequate natural lighting.

Each classroom must be fitted with FOUR sets of double fluorescent lights. TWO fluorescent light sets must be installed in each toilet facility, and ONE set must be placed in the kitchen. Wall-mounted lights must be provided along the length of the covered walkway. The staffroom and sick bay must have sufficient ceiling-mounted lighting. In addition, each classroom must contain TWO switched socket outlets, the staffroom must have THREE, the sick bay must have ONE and the kitchen must have FOUR.

All waste-water and sewage from the building must connect to the existing sewer line. The area of the entire **building**, **excluding** the covered walkway, may not exceed 260 m².



Given: Site plan of the primary school

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 **narrative describing** the **complete design process** that you are going to implement 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
   - 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

2. **Conduct research** that includes the following:
   - **FIVE** examples with dimensions that included toilets, urinals and washbasins that would be suitable for 3- to 5-year-old children.
   - **FIVE** examples, including construction detail drawings, of undercover walkway designs that are suitable for schools.
   - **THREE** examples of skylights for pitched roofs, and **THREE** floor plans examples of floor-to-ceiling room dividers, suitable for use between classrooms.

NOTE:

- Before you start conducting the research, first familiarise yourself with the requirements of the various drawings, so that your research will be able to assist you in completing the drawings.
- The research must therefore be relevant and in the form of graphic material, i.e. pictures and illustrations.
- The research material must be aesthetically presented and may NOT exceed THREE A4 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 all the features and the walkway. 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**, excluding the walkway, and the **total floor area** of **one of the classrooms.** 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 **any late changes that may have been 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 **complete building and covered walkway**, 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** 1 **:** 50, but 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**, **the covered walkway and sliding doors of the classrooms**, and the other view must show the **side of the building with the toilet facilities**.

5.1.3 A **DETAILED SECTION**, drawn to scale 1 **:** 20, showing ALL the detail from the foundation to the roof at one of the toilet facilities. The cutting plane(s) must pass through the undercover walkway and the wall or door (with or without a door, and then pass in front of either a washbasin, a toilet or a urinal that would be suitable for 3- to 5-year-old children.

NOTE: By using break lines, the detailed section can be split into TWO parts, ONE showing the complete covered walkway, door or wall and end of the roof, and the other showing the washbasin, the toilet or the urinal and the section of the roof above it.

Include the following on ALL relevant views:

- ALL exterior features, including doors and windows.
  NOTE: ALL window and door frames must be shown in the TWO elevations.
- The roof detail, including all rainwater items, the skylights and roof lines
- ALL permanent fixtures
- ALL electrical fittings and the wiring layout
- Waste-water disposal systems (sewerage) on the **floor plan**, **elevations** and for the toilet or washbasin on the **detailed section**
- The cutting plane(s)
- All hatching detail
- Detailed dimensioning
- Titles, labels, notes
- Scales used
- North point

5.2 Draw, to a suitable scale, a complete detailed **SITE PLAN** of STAND 7.
Include the following:
- ALL given site details and features, including ALL existing buildings
- The placement of the complete proposed new building and play area with the security fence
- ALL sewerage detail, with labels and notes included
- Dimensions, including the reference dimensions and corner heights
- Scale
- North point

5.3 Draw a **detailed 'birds-eye view' TWO-POINT PERSPECTIVE DRAWING** of the **complete building** and **covered walkway**. Orientate the perspective drawing so that it clearly shows the front of the building with the full length of the covered walkway, skylights, sliding doors and the side of the building with the toilet facilities. The horizon line (HL) must be ± 1 m above the roof cap.

Evidence of the following must be included:
- All views/drawings used to produce the perspective drawing
- The construction method 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 **PAT cover page** that includes the name of the subject, 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 **2026 SUMMATIVE ASSESSMENT SHEET** *(see page 26)*
- The completed **DECLARATION OF AUTHENTICITY** *(see page 27)*

NOTE: Flip files or plastic filing sleeves may NOT be used for the PAT file/portfolio.

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 2026 CIVIL PAT *(see pages 15 and 16)*, **which must provide clear evidence of your own continuous self-evaluation** and the **meeting of deadlines** during 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 2026 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 2026 CIVIL PAT

			Checked	Maximum mark	Comments
1-mark level Descriptive	0	Requirements not met or presented incorrectly			
	1	Requirements has 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	1st paragraph: background and comprehensive description of what is to be designed			2	
	1.2	2nd paragraph: your role and description of the design process you are going to follow			2	
	1.3	A list of TWENTY given specifications in the scenario			2	
	1.4	A list of FIVE possible constraints in the scenario			2	
	1.5	A management plan with possible target dates for ALL the presentation requirements			2	
		TOTAL			**10**	
2.	**Research** (This should be restricted to a **maximum** of THREE A4 or ONE A3 page per topic.)					
	Relevant and **usable** research on:	2.1 **5** dimensioned examples of toilets, urinals and washbasins for 3- to 5-year olds			2	
		2.2 **5** examples, including construction detail drawings, of undercover walkways			2	
		2.3 **3** examples of skylights for pitched roofs (1), and **3** floor plan examples of floor-to-ceiling room dividers that can open(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 and areas	2			**Solution 1**		**10**	
		Covered walkway and rooflines	2						
		Correct presentation of all building features (walls, windows, doors)	2						
		ALL fixtures included (toilet, urinals, washbasins, etc.)	2						
		Correct presentation of all fixtures according to *SANS 10143*	2						
		The relative size and proportion of ALL features to each other	2			**Solution 2**		**10**	
		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 (including possible late changes)			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 pre-school and playground incl. the undercover walkways**				
	5.1.1 **FLOOR PLAN** showing:				
	Correlation with selected freehand solution			1	
	ALL external and internal walls			2	
	Covered walkway and rooflines			2	
	ALL doors and 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) (2 + 2 = 4)			4	
	Hatching detail (1) + Cutting planes (1) (1 + 1 = 2)			2	
	Suitable scale selected and correctly indicated			1	
		Subtotal = 20 ÷ 2 = TOTAL		**10**	

	5.1.2	**TWO ELEVATIONS** that show the **administration block** and **classrooms**, incl. the undercover walkway			
		Prescribed views: one showing the front of the building + one showing the side with toilets		1	
		External walls and undercover walkway		2	
		Detail of ALL doors and windows, including frames		2	
		Roof detail, including skylights and all rainwater items		2	
		Waste-water disposal (sewerage)		2	
		Elevations drawn to the same scale as the floor plan		1	
		TOTAL		**10**	
	5.1.3	**DETAILED SECTION**			
		The section is according to the indicated cutting plane on the floor plan		1	
		Foundation, slab and wall detail, including the correct *SANS* hatching		2	
		Roof detail, including all rainwater items and correct *SANS* hatching		2	
		Covered walkway detail		2	
		Age-appropriate toilet, washbasin or urinal, including sewerage		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**			
		Site plan correctly drawn, including ALL given site features and detail		2	
		The proposed new building and covered walkway, play area, and security fence		2	
		ALL sewerage detail, with labels and notes		2	
		Dimensions, including new building reference dimensions		2	
		Suitable scale used and correctly indicated (1) + North point (1)		2	
		TOTAL		**10**	
5.3		**TWO-POINT PERSPECTIVE DRAWING** showing building and the undercover walkways			
		Evidence of the views and construction used to prepare the drawing		1	
		Correct orientation of building (1) + HL ± 1 m above the roof cap (1) (1 + 1 = 2)		2	
		Detail and correctness of the complete 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**			
		Checklist completed as evidence of continuous self-evaluation (mark out of **10 ÷ 2)**		5	
		Meeting 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 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, and 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 presentation drawings *(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 within a wide range of products. A client that owns a company which manufactures recreational equipment, has requested design solutions for **front-wheel hub and axle assemblies** for **bicycles** or **motorcycles**.

[Courtesy of aecam.co.za]

You have been commissioned by the design firm with investigating and analysing the design features of **existing front-wheel hub and axle assemblies** of a **bicycle** or a **motorcycle**, and to develop a design solution that is an improvement, which could be, but is not limited to, one or more of the following:

- An **improved design** of a part or combination of parts
- A **design strengthening** a part or combination of parts
- A **modified** design

Your investigation, analysis and solution require the following stages:

- The **FIRST stage** involves **finding a suitable front-wheel hub and axle assembly** for a bicycle or a motorcycle. The **assembly must** consist of a **minimum of FOUR parts**.
  The **front-wheel hub and axle assembly** that you have selected hereafter will simply be referred to as the **hub assembly**.
  NOTE: You are NOT required to purchase a **hub assembly**. **The chosen hub assembly** should be one that is readily available to you, easy to dismantle and therefore does not have to be in a serviceable condition.

- The **SECOND stage** involves the complete **dismantling** of the **hub assembly** so that ALL the **individual parts** can be investigated, measured and photographed.

- The **THIRD stage** requires the **identification of ONE of the parts**, or **combination of parts** of the **hub assembly**, which could **be improved, strengthened and/or modified** in some way. This will necessitate the application of the design process, as stipulated below in the presentation requirements.
  NOTE: The identified part or combination of parts must be of a Grade 12 level of complexity to be accepted.

Requirements and specifications for the **hub assembly**:

- Each learner **must have his/her own hub assembly** for the PAT.
- The **hub assembly must be submitted as part of your PAT presentation**.
- The **hub assembly** must consist of a **minimum of FOUR separate parts**.
- Your teacher **must approve your choice of hub assembly**. This is to ensure that it meets the requirements in order for 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 **narrative describing** 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 for the hub assembly**
   - Your own list of at least THREE **constraints for the hub assembly**
   - 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 **hub assembly**
   - The **specific design features** and/or **function/purpose** of each individual part of the **hub assembly**
   - The design and components of at least ONE **other hub assembly that is similar to the hub assembly 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 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 of each individual component.
   - The evidence of the ONE **other similar hub assembly** 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 **selected main part**, or a **combination of parts** of the **hub assembly**, 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 **hub assembly** 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 **any late changes that may have been made to the selected freehand solution.** If there were late changes, they must be clearly described.

PHASE 2: PRESENTATION REQUIREMENTS

5. Present **the hub assembly** 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 and parts list, as presented in the NSC EGD 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:
     - 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 **complete hub assembly**, clearly showing **ALL the parts before** any improvements, strengthening and/or modifications have been affected.

NOTE: In the assembly drawing, the **convention for interrupted views** can be used to shorten the length of the **hub assembly**, so that a larger scale can be used.

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 part**, or **combination of parts** of the **hub assembly**, **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
- Relevant welding and/or machining symbols (if required)
- Relevant tolerances (if required)
- Scale
- 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 **hub assembly, OR** of the improved, strengthened and/or modified **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 **PAT cover page** that includes the name of the subject, 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 **2026 SUMMATIVE ASSESSMENT SHEET** *(see page 26)*
- The completed **DECLARATION OF AUTHENTICITY**

NOTE: Flip files or plastic filing sleeves **may NOT** be used for the PAT file/portfolio.

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 2026 Mechanical PAT *(see pages 22 and 23)*, which must **provide clear evidence of your own continuous self-evaluation** and the **meeting of the deadlines** during 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 2026 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 2026 MECHANICAL PAT

			Checked	Maximum mark	Comments
1-mark level descriptive	0	Requirements not met or presented incorrectly			
	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	1st paragraph: background and comprehensive description of what has to be designed		2	
	1.2	2nd 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 **hub assembly**		2	
	1.4	A list of at least THREE constraints of the **hub assembly**		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 or ONE A3 page per research topic.)				
	Relevant and **usable** research on:	2.1 Materials used for each component of the **hub assembly**		2	
		2.2 Design features/function/purpose of each component of the **hub assembly**		2	
		2.3 The components of another similar **hub assembly**		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 presentation of ALL the parts and features	1				
		Relative proportion of ALL parts and features to each other	2				
		Labels and explanatory notes	2			**Solution 2**	**10**
		Dimensioning	2				
		Description of improvement/modification/re-design	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.)			
	An appropriate 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 or negative aspects against each criterion		2	
	Comprehensive summary with reasons for selected solution (including possible late changes)		2	
	TOTAL		**10**	
5.	**Working drawings and a pictorial drawing of your selected hub assembly 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 NSC EGD 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	A**SSEMBLY DRAWING** of your **selected hub assembly, before any changes**			
	5.1.1 **FRONT VIEW** before any changes			
	ALL the parts included and drawn correctly according to the actual hub assembly		2	
	All hatching detail or, if not sectioned, ALL external features		2	
	ALL fasteners 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 2026 MECHANICAL PAT					
	5.1.2	**Second PRIMARY VIEW** before any changes			
		ALL the components included and drawn correctly according to the actual **hub assembly**		2	
		All hatching detail or, if not sectioned, external features		2	
		Dimensions on ALL views		2	
		ALL centre lines included on ALL views		2	
		ALL **FOUR** views prepared correctly in third-angle orthographic projection		2	
		TOTAL		**10**	
	5.1.3	**TWO** further **SECONDARY VIEWS** before any changes			
		Appropriate secondary views selected		2	
		ALL the components included and drawn correctly according to the actual **hub assembly**		2	
		All hatching detail or, if not sectioned, 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 the component(s),** clearly **showing** the selected **improvement/modification/redesign**				
	Appropriate view selected as the FRONT VIEW and is drawn correctly			2	
	TWO other relevant VIEWS selected and drawn correctly			2	
	Improvement/strengthening/modification correlates with selected freehand solution			2	
	Title, as well as comprehensive explanatory labels and notes			2	
	Detailed dimensions			2	
	ONE view sectioned, or contain types of sections, and prepared correctly			2	
	Cutting plane(s)			1	
	ALL hatching detail			2	
	Relevant welding symbols and/or machining symbols and/or tolerances			2	
	Projection symbol			1	
	Suitable scale selected and indicated correctly			1	
	Drawing is in third-angle orthographic projection			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**				
	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 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

<table>
<tr><th colspan="3" rowspan="2">MARK ALLOCATION</th><th colspan="11">LEVELS OF PERFORMANCE</th></tr>
<tr><th>10
100%</th><th>9
99%–90%</th><th>8
89%–80%</th><th>7
79%–70%</th><th>6
69%–60%</th><th>5
59%–50%</th><th>4
49%–40%</th><th>3
39%–30%</th><th>2
29%–20%</th><th>1
19%–1%</th><th>0
0%</th></tr>
<tr><td rowspan="4">Freehand drawing</td><td>METHODS AND SKILLS</td><td>The drawings display correct freehand drawing methods and skills. as well as the method used to ensure good proportion and size</td><td colspan="11">NOTE:
• No evidence of grid/graph paper used = max. <u>7 marks</u>, even if excellent drawing methods and skills are displayed!
• Not drawn in freehand, i.e., completely drawn with instruments, = <u>0 marks</u>
• If instruments were used for, or to assist with some aspect = max. <u>5 marks</u>, even if excellent drawing methods and skills are displayed.</td></tr>
<tr><td colspan="3"></td><td colspan="2">The drawings display excellent drawing methods and skills and the method used to ensure outstanding proportion and size.</td><td colspan="2">The drawings display satisfactory drawing methods and skills and the method used to ensure satisfactory proportion and size.</td><td colspan="3">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.</td><td colspan="2">The drawings display very poor drawing methods and skills and no method was used to ensure correct proportion.</td></tr>
<tr><td colspan="2" rowspan="2">Final drawing presentation is neat, and the line types used, line constancy/quality, printing and dimensioning is correct.</td><td colspan="11">Neatness (2) + correct line types used (2) + line quality/consistency (2) + compliant printing/writing (2) + compliant dimensioning (2)</td></tr>
<tr><td colspan="2">Additional descriptors/guidelines:
The drawings are very neat and all line work/line quality, printing and dimensioning are outstanding and consistent.</td><td colspan="2">The drawings are neat and line work/line quality, printing and dimensioning are generally good and mostly consistent.</td><td colspan="3">The drawings are untidy with inconsistent line work/line quality, printing and dimensioning.</td><td colspan="2">The line work/line quality, printing and dimensioning are unacceptable.</td></tr>
<tr><td rowspan="4">Instrument drawing</td><td>METHODS AND SKILLS</td><td>The drawings display the correct use of drawing instruments, drawing methods and skills.</td><td colspan="2">The drawings display the correct use of drawing instruments and an outstanding application of drawing methods and skills.</td><td colspan="2">The drawings display the correct use of drawing instruments and a satisfactory and mostly correct application of drawing methods and skills.</td><td colspan="3">The drawings display poor use of drawing instruments and a poor and incorrect application of drawing methods and skills.</td><td colspan="2">The drawings display an incorrect use of drawing instruments with incorrect applications of drawing methods and skills.</td></tr>
<tr><td colspan="2" rowspan="2">Final drawing presentation is neat, and the line types used, line constancy/quality, printing and dimensioning is correct.</td><td colspan="11">Neatness (2) + correct line types used (2) + line quality/consistency (2) + compliant printing/writing (2) + compliant dimensioning (2)</td></tr>
<tr><td colspan="2">Additional descriptors/guidelines:
The drawings are very neat and all line work/line quality, printing and dimensioning are outstanding and consistent.</td><td colspan="2">The drawings are neat and the line work/line quality, printing and dimensioning are generally good and mostly consistent.</td><td colspan="3">The drawings are untidy, and the line work/line quality, printing and dimensioning are inconsistent.</td><td colspan="2">The line work/line quality, printing and dimensioning are unacceptable.</td></tr>
<tr><td rowspan="2">CAD drawing</td><td>METHODS AND SKILLS</td><td>The level of competence displayed in using a CAD program</td><td colspan="2">Displays a high level of skills, knowledge and ability in using a CAD program</td><td colspan="2">Displays a satisfactory level of skills, knowledge and ability in using a CAD program</td><td colspan="3">Displays a poor level of skills, knowledge and ability in using a CAD program</td><td colspan="2">Shows little to no skills, knowledge or ability in using a CAD program</td></tr>
<tr><td colspan="2">Layout of the final drawing is correct and the line work, printing and dimensioning are compliant and consistent</td><td colspan="2">The layout of the drawings is correct and the line work, printing and dimensioning are compliant and consistent.</td><td colspan="2">The layout of the drawings is acceptable and the line work, printing and dimensioning are mostly compliant and consistent.</td><td colspan="3">The layout of the drawings is very poor and the line work, printing and dimensioning are not compliant and inconsistent.</td><td colspan="2">The layout, line work, printing and dimensioning are unacceptable.</td></tr>
</table>

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** Something done incorrectly/ poorly	**2**
			1
NOT DONE!	**No work handed in!**	**Nothing to mark!**	**0**

10. PAT 2026: SUMMATIVE ASSESSMENT SHEET

PAT 2026
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

	CRITERIA		MARK
1	A **design brief** demonstrating a clear understanding of the scenario and the specifications, constraints and a management plan		
2	Evidence of **relevant** and **usable research** with the inclusion of a bibliography		
3	**TWO** detailed **freehand drawings** of possible solutions	**1st Solution**	
		2nd Solution	
4	**Selecting** the **best solution** which demonstrates a clear **understanding** of the **design brief**		
6	Clear evidence of self-**evaluation** and the meeting of **deadlines** of **all** the **requirements**		
7	The **presentation** of the **complete PAT portfolio**		

SUBTOTAL	/ 70
CALCULATION	*x 0,36*
Teacher's TOTAL	
TOTAL: A	**/ 25**
Moderated TOTAL	
TOTAL: A	**/ 25**

PART B: Working and pictorial drawings

	CRITERIA			MARK
	All drawing sheets are appropriately set up with a **border** and an **appropriate title block/panel**.			
Orthographic drawings	**Assess** each view's **accuracy** and **correctness** according to the **selected solution/device**, the **stipulated requirements** and EGD **drawing principles**	**5.1.1**	**View 1** PAT 1: **Plan** PAT 2: **Front view**	
		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)**	
		5.2	PAT 1: **Site plan** PAT 2: **Detailed drawing**	
Pictorial Drawing		**5.3**	The correct **drawing method** and **presentation** of the pictorial drawing. **PAT 1**: Perspective **PAT 2**: Isometric	

SUBTOTAL	**/** 60
CALCULATION	*x 0,84*
Teacher's TOTAL	
TOTAL: B	**/ 50**
Moderated TOTAL	
TOTAL: B	**/ 50**

Drawing competency and skill

		CRITERIA	MARK
Freehand drawing: ANNEXURE A	**METHOD**	The drawings display **correct freehand drawing methods and skills** and the **method used** to ensure **proportion** and **size**.	
		The final drawing **presentation** is **neat** and there is consistency of **line work/line quality, printing** and **dimensioning**.	
Instrument drawing: ANNEXURE A	**METHOD**	The drawings display the **correct use of drawing instruments, drawing methods** and **skills**.	
		The final drawing **presentation** is **neat** and there is consistency of **line work/line quality, printing** and **dimensioning**.	
CAD drawing: ANNEXURE A	**METHOD**	The **level** of **competence** is displayed in **using** a **CAD program**.	
		The **layout** of the final drawing is **correct** and the **line work, printing and dimensioning** is **compliant** and **consistent**.	

NO CAD drawings	/ 40
With CAD drawings	/ 60
CALCULATION **without** CAD	*x 0,63*
CALCULATION **with** CAD	*x 0,42*
Teacher's TOTAL	
TOTAL: C	**/ 25**
Moderated TOTAL	
TOTAL: C	**/ 25**

TEACHER'S TOTAL:	A + B + C =	**/ 100**
MODERATED TOTAL:	A + B + C =	**/ 100**

TEACHER: Initial	**MODERATOR: Initial**

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.

_____ ___/___/2026
SIGNATURE OF LEARNER **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.

_____ ___/___/2026
SIGNATURE OF TEACHER **DATE** (DD/MM/YYYY)

SCHOOL STAMP