



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

ENGINEERING GRAPHICS AND DESIGN

GUIDELINES FOR PRACTICAL ASSESSMENT TASK

2010

These guidelines consist 20 pages.

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INTRODUCTION

The seventeen National Curriculum Statement subjects which contain a practical component all include a Practical Assessment Task (PAT). These subjects are:

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

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

The Grade 12 PAT is implemented across the first three terms of the school year and should be undertaken as one extended task, which is broken down into different phases or a series of smaller activities that make up the PAT. The planning and execution of the PAT differ from subject to subject.

SECTION A is the guidelines to the teacher describing the structure and the administration of the PAT, while SECTION B contains the tasks and the assessment tools for both the learner and the teacher.

SECTION A (Teacher Guidelines)

1. The structure of the Practical Assessment Task (PAT) for EGD

A Practical Assessment Task is designed to develop a learner's ability to integrate and apply knowledge and to demonstrate acquired levels of skills, and competency.

With the inclusion of the PAT into Engineering Graphics and Design, the learner is given an opportunity to apply acquired knowledge, skills and values in a creative way through the design process as outlined in LO 2 in the National Curriculum Statement. The learner is 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 be available in a formal examination.

The various components of the Engineering Graphics and Design PAT gives the learner an opportunity to demonstrate the level of drawing skill that has been attained in all the appropriate drawing methods through the presentation of the required drawings.

Each Engineering Graphics and Design Practical Assessment Task consists of two parts:

Part A: The Design Process

Part B: Required Presentation Drawings

Three assessable components namely, the Design Process, drawing presentation and drawing method, are covered within the two parts of both PATs.

Part A of both PATs focuses on LO 2 and requires 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:

- Identify the problem and formulate a design brief with specifications and constraints
- Conduct and make use of relevant external research in an appropriate way
- Generate a number of own ideas/concepts/solutions analytically and graphically
- Selecting a final solution(s) that demonstrates a clear understanding of the design brief within the context of the specifications and constraints.
- Develop presentation drawings of the selected solution(s).
- Provide clear evidence of evaluation

Part B of both PATs focuses on LO 3 and LO 4 and requires that the learner demonstrates and provides evidence of a high level of knowledge and understanding of the concepts and content of Engineering Graphics and Design through the presentation of orthographic drawings and pictorial drawings.

Part A and Part B of both PATs also gives the learner the opportunity to demonstrate that a high level of competency and skill has been attained in all the required drawing methods. The methods include:

- Freehand drawings
- Instrument drawings, and
- Using a CAD (Computer-Aided Design/Drawing) system

Should time and the facilities permit, a model or mounted presentation of the project may also be submitted as part of the final presentation of the learner's PAT.

Two Performance Assessment Tasks (PATs) are included in this document.

- PAT 1 is a design task in the context of a civil drawing that contains electrical features.
- PAT 2 is a design task in the context of a mechanical drawing.

Each learner must, with the guidance of the teacher, select ONE of the PATs contained in this document. Should the learner choose to complete both PATs, only ONE will be considered for summative assessment and promotion purposes.

Elements that make up the PAT mark

ELEMENTS OF THE PRACTICAL ASSESSMENT TASK MARK	
ELEMENT	MARKS
The design process	25
The correctness of the presentation drawings	50
The drawing methods (freehand, instrument and CAD)	25
TOTAL	100

2. Administration of the PAT

At the beginning of the academic year, the teacher must ensure that every Grade 12 learner receives a copy of the entire SECTION B of the PAT document, including the assessment criteria (annexure A, B, C and D), the 2010 summative assessment form and the declaration of authenticity form.

The selected PAT must be completed during the first three terms. ALL the presentation requirements of the PATs should be completed **within 12 to a maximum of 16 hours**.

However, the completed PAT (part A and part B) must be submitted in time for summative assessment to be done before the commencement of provincial moderation.

To ensure that the PAT is completed within the stipulated time, it is essential that the teacher must draw up a **pace setter** for the learners at the beginning of the year. Attached to the pace setter must be target dates for the completion of the different components of the different phases of the PAT. This will help learners to assess their own progress and teachers to set-up intervention programmes should they see that the learners are falling behind with their work.

It is therefore recommended that the PAT be completed in three phases:

- **Phase 1:** Design Process (completed by the end of the **1st term**)
- **Phase 2:** Presentation Drawings (completed by the end of the **2nd term**)
- **Phase 3:** Completion of portfolio (before the commencement of moderation in the **3rd term**)

ALL the presentation requirements of the PAT must be completed at school under controlled conditions under strict guidance and supervision from the teacher who must observe the learners' progress at all times.

It is the teacher's responsibility to ensure that each learner's PAT is of an appropriate higher order Grade 12 complexity!

All the completed phases of the PAT must always be available for monitoring and moderation purposes.

3. Assessment and moderation of the PAT

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

It is therefore the duty and responsibility of the teacher to administer assessment and record the progress in instances where formal assessment is required.

3.1 Assessment

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

Both formal and informal assessment should be conducted throughout the development of the PAT. Informal assessment can be conducted by the learner, a peer, a group of learners or by the teacher. The teacher must conduct the formal assessment and recorded the results on the official summative assessment form for promotion and moderation purposes.

The completed PAT must be submitted in time for final formal assessment to be done before the commencement of provincial moderation. Once the PAT has been formally assessed, the teacher must retain the PAT for the purpose of external moderation. All the PATs must also be retained at the school for the period of time as subscribed by the Department of Education.

3.2 Moderation

Moderation of the PAT can take place at any time during the development of the PAT and all completed stages of the PAT must therefore always be available. During a moderation process, the moderator will randomly select the PAT files / portfolios that will be moderated. To assist the process of the final provincial moderation, the teacher must supply the moderator with a completed mark sheet(s) and a merit list(s).

During the moderation process, learners may be called upon to explain the functions and principles of operating a CAD system and to demonstrate drawing skills through performing capability tasks.

3.3 Declaration of authenticity

Prior to the final submission of the PAT for formative assessment, the learners and teacher must complete the Declaration of Authenticity as laid out on the final page of this document.

Only the official 2010 SUMMATIVE ASSESSMENT SHEET (page 19) and the completed DECLARATION OF AUTHENTICITY form (page 20) of this document must be included in the front of the learner's completed PAT.

SECTION B (The Learner Tasks)

PRACTICAL ASSESSMENT TASK 1

A CIVIL DESIGN PROJECT

This PAT covers LO 1, LO 2, LO 3 and LO 4

Scenario

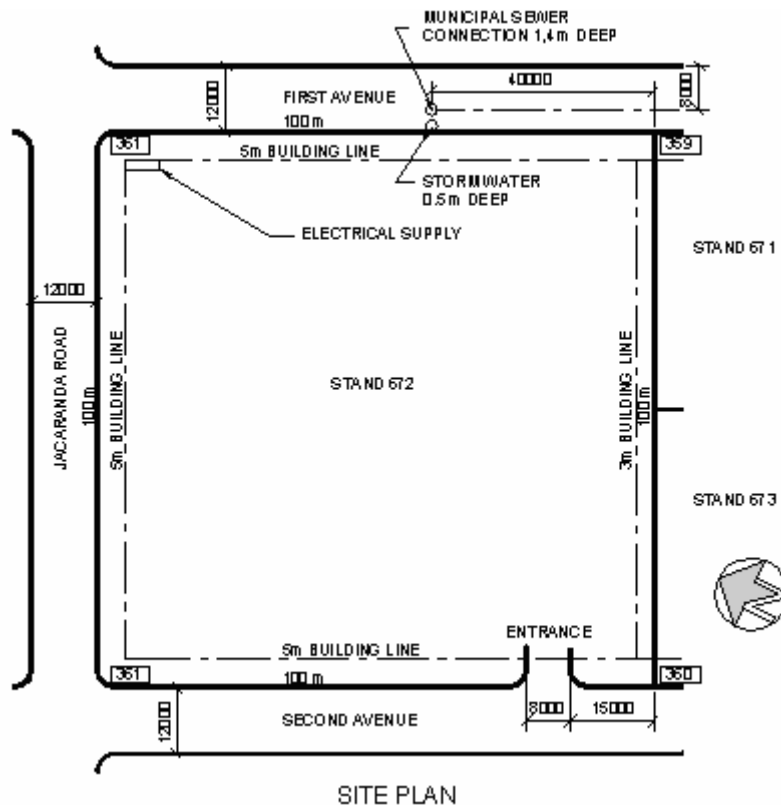
The trustees of a retirement fund, set up for the purpose of providing homes for senior citizens that could be **wheel chair bound** or that have to make use of a **walking aid**, has recently had the rezoning approved on a 100 m X 100 m piece of land that it had purchased for the purpose of developing a **retirement village**. The area in which the piece of land is situated is unfortunately prone to **cloud bursts** that could result in flooding.

An advertisement has been placed in the local newspaper for the submission of tenders for the design and development of the entire retirement village. The advertisement states that the retirement village must have **10 identical units** (houses), a **community centre** with a **lounge, kitchen, tuck shop** and an easily accessible **24 medical emergency centre**, an **access road to each house and to the community centre** and a **parking area for visitors**, all within a secure **recreational park setting**.

It is also stated in the advertisement that **at least two environmentally friendly (green) energy saving** features must be designed into each unit in order to reduce running costs.

Each submission must also include an **appropriate name** for the retirement the village.

You have been contracted by an architectural firm to develop the submission.



Basic specifications of each unit (house):

Size of each unit

- The floor area of each unit must not exceed 100 m².

NOTE:

All the features of each unit and the community centre must be designed in such a way as to accommodate persons that are wheel chair bound or make use of a walking aid.

Each unit must contain:

- An open-plan living and kitchen area. The kitchen must have a double sink, a stove, a refrigerator and a kitchen unit with a space(s) for a washing machine(s) and a tumble dryer.
- 2 bedrooms with built-in cupboards.
- 1 bathroom with a bath, shower, hand wash basin and a toilet.

Basic specifications of the community centre:

- The floor area of the community centre must not exceed 300 m²

The community centre must contain:

- 1 lounge
- 1 kitchen
- 1 tuck shop
- A 24 hour medical emergency centre

Presentation requirements for the PAT:

Create a PAT file / portfolio containing:

- A complete **cover page**
- An **index**
- The **2010 SUMMATIVE ASSESSMENT SHEET** (see Page 19)
- The completed **DECLARATION OF AUTHENTICITY** (see Page 20)

The following must be presented in the PAT file / portfolio after the DECLARATION.

1. A **design brief** with a comprehensive list of the **specifications** and **constraints**
2. **Relevant research**, showing proof of resource material, on **design features** for the **specific requirements** of the village as well as **appropriate kitchen** and **bathroom fixtures** and **designs** and on possible **environmentally friendly (green) energy saving** features.
3. Detailed **freehand drawings**, generated during the design process, of at least **THREE possible designs** for each house.
4. The process of **selecting a final solution** that demonstrates a clear understanding of the design brief within the context of the specifications and constraints.
5. The **minimum required presentation drawings** as stipulated below (Nos 8, 9 and 10).
6. Clear evidence of continuous **evaluation of all the phases** of the PAT.
7. A **list of all reference material** used (**Bibliography**).

Include the following on each page of each requirement:

- Clear **numbering** in accordance with the numbers of all the requirements of the PAT.
- The **learner's name**.
- The **date of completion** and **submission**.

Minimum required presentation drawings:

8. A **layout drawing** (working drawing) of **ONE** unit (house) only, showing a **minimum** of **FOUR** orthographic views drawn to a suitable scale. The views must include:

8.1 A **floor plan** clearly showing the positions of the windows, doors, fixtures and all the electrical components.

8.2 A detailed **sectional elevation**.

8.3 TWO elevations, showing the **front view** and a **side view**.

The following must be included on the views of the layout drawing:

- Dimensions
- Scale(s)
- Labels, notes and fixture codes
- Cutting plane(s)
- All hatching detail (colour should be used in accordance with standard drawing practice)

9. A complete detailed **site plan** drawn to a suitable scale.

The following must be shown on the site plan:

- The position of all ten units
- The position of the community centre
- The interior layout of the community centre with clear explanatory labels.
- All the access roads
- The parking facilities for visitors
- The complete layout of the recreational park
- All services, sewerage and drainage connections
- The electrical supply to each unit and the community centre

Note: The site plan may contain artistic features or it may be rendered.

10. A scale **2-point perspective** drawing of ONE unit (house) only.

Evidence of the following should be included with the perspective drawing:

- All necessary constructions
- All necessary views
- Relevant labels and notes

Note: The perspective drawing may contain artistic features or it may be rendered so that it can be used as an advertisement for the retirement village.

Optional presentation:

11. A model **may** be submitted with the PAT.

All the drawings must be presented on appropriately sized drawing sheets, correctly set-up with borders, name blocks and title strips.

Penalties will be accrued for untidy and messy work as well as for the late submission of the PAT.

NOTE: All drawing must comply with the guidelines contained in the SANS 0143 Code of Practice for Building Drawings.

Drawing methods

The PAT must provide clear evidence that a high level of competency has been attained by the learner in **all three** of the following **drawing methods**:

- **Freehand drawing:** All preliminary design drawings and diagrams produced during the design process (No. 3).
- **Instrument drawing(s):** The site plan (No. 9) and / or 2-point perspective drawing (No. 10).
- **CAD (Computer-Aided Design) drawing(s):** The layout drawing (No. 8). Either the site plan (No. 9) or the 2-point perspective drawing (No. 10) may also be drawn with CAD.

NOTE:

Schools that do not have CAD facilities must complete all the required presentation drawings as instrument drawings.

Assessment Criteria

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

1. The rubric displayed in Annexure A for assessing the **design process** and meeting **deadlines**. This mark will contribute **25 marks** to the final PAT mark.
2. The rubric displayed in Annexure B for assessing the **correctness** of the presentation drawings. This mark will contribute **50 marks** to the final PAT mark.
3. The rubric displayed in Annexure C for assessing drawing **presentation, drawing methods, quality of line work, printing and dimensioning**. This mark will contribute **25 marks** to the final PAT mark.

PRACTICAL ASSESSMENT TASK 2**A MECHANICAL DESIGN PROJECT**

This PAT covers LO 1, LO 2, LO 3 and LO 4

Scenario

You are a member of team of industrial designers that are employed by a firm that specializes in providing mechanical and industrial design services on mechanical products for the **plumbing, irrigation** and **gardening equipment** industries.

As part of the firm's developmental and entrepreneurial programmes, a project has been launched where all the designers are tasked with investigating and analysing the design features of existing mechanical product and to come up with new or improved ideas. The improvement(s) to the mechanical product can be one or more of the following:

- To improved efficiency
- To simplify its current design
- To modernise its current design
- To make it lighter without compromising its strength
- To make use of improved or 'green' materials

NOTE: At school, the project is the PAT that has to be done by you the learner!

The project (PAT) consists of five stages:

- The first involves finding a suitable mechanical product from either the **plumbing, irrigation** or **gardening equipment** industries that is an assembly or sub-assembly consisting of a **minimum** of **FOUR** different manufactured parts.
- The second stage involves the dismantling of the selected product to so that all the parts can be revealed, measured and investigated.
- The third stage involves identifying **ONE** of the **main** components or combination of components of the product that could be improved, modified or redesigned in some way. This will require the application of the Design Process starting with the formulation of a comprehensive design brief in which the design features and function of the selected product is explained. The design brief must include an explanation detailing the problem and the proposed alteration to the design. A comprehensive list of specifications and constraints must also be developed as part of the design brief. The selected product must be thoroughly investigated in terms all the **materials used** in the product as well as the **design features, function(s)** and the **purpose of each individual part** of the product. Two or three **other products** that have the **same function** as the selected product, but that **differs in terms of design**, must also be investigated. A minimum of **THREE** different possible improvements must be generated through comprehensive self explanatory freehand drawings
- The fourth stage requires producing a set of accurate presentation drawings of the selected product.
- The final stage involves producing a set of detailed drawings of the proposed improved, modification or redesign of the identified component or combination of components.

Product specifications

The product must be an assembly or sub-assembly consisting of a **minimum** of FOUR different manufactured parts.

NOTE:

Your teacher must approve the mechanical product you intend to use for the project (PAT) in order to ensure that the selected product complies with the requirements and that it is of an appropriate higher order Grade 12 complexity.

Presentation requirements for the PAT:

Create a PAT file / portfolio containing:

- A complete **cover page**
- An **index**
- The **2010 SUMMATIVE ASSESSMENT SHEET** (see Page 19)
- The completed **DECLARATION OF AUTHENTICITY** (see Page 20)

The following must be presented in the PAT file / portfolio after the DECLARATION

1. A **design brief** with a comprehensive list of the **specifications** and **constraints**
2. **Relevant research**, showing proof of resource material, in terms of the **materials used** in the product, the **design features, function(s)** and the **purpose of each individual part** of the product and of two or three **other similar products**.
3. Detailed **freehand drawings**, generated during the design process, of at least **THREE possible** improvements, modifications or redesigns.
4. The process of **selecting a final solution** that demonstrates a clear understanding of the design brief within the context of the specifications and constraints.
5. The **minimum required presentation drawings** as stipulated below (Nos 8, 9 and 10).
6. Clear evidence of continuous **evaluation of all the phases** of the PAT.
7. A **list of all reference material** used (**Bibliography**).

Include the following on each page of each requirement:

- Clear **numbering** in accordance with the numbers of all the requirements of the PAT.
- The **learner's name**.
- The **date of completion** and **submission**.

NOTE:

The selected product must be submitted in either a dismountable state or as the optional mounted presentation (presentation requirement No. 11) as part of the PAT.

Minimum required presentation drawings:

8. An **assembly drawing** (working drawing) of all the components of the selected mechanical product in its current design. The drawing must show of a **minimum of FOUR appropriate** orthographic views that are of an appropriate higher order Grade 12 complexity, drawn to a suitable scale. The views must include:

8.1 The **front view**

8.2 A **second primary (main) view** that contains relevant detail that will assist in giving a thorough description of the product and its function.

8.3 Any **TWO other secondary views** that contain relevant detail that will assist in giving a thorough description of the product and its function.

NOTE: At least ONE of the views must be sectioned!

The following must be included on the views of the assembly drawing:

- Dimensions
- Scale(s)
- Labels and notes
- Cutting plane(s)
- All hatching detail

9. A **detailed drawing** (working drawing), with a comprehensive list of explanatory labels and notes, that will clearly show the proposed improvement(s), modification(s) or redesign of the identified main component or combination of components of the product.

The drawing must show of a **minimum of THREE appropriate** orthographic views, drawn to a suitable scale.

NOTE:

- **One of the views must be the front view.**
- **At least ONE of the views must be sectioned.**

The following must be included on the views of the detailed drawing:

- Dimensions
- Scale(s)
- Labels and notes
- Cutting plane(s)
- All hatching detail

10. A detailed **isometric** drawing of either ONE of the **main** components or of a combination of components of the product that is of an appropriate higher order Grade 12 complexity.

The following must be included on the isometric drawing:

- All necessary constructions
- Relevant labels and notes

Note: The isometric drawing may contain artistic features or it may be rendered.

All the drawings must be presented on appropriately sized drawing sheets, correctly set-up with borders, name blocks and title strips.

Penalties will be accrued for untidy and messy work as well as for the late submission of the PAT.

NOTE: All drawing must comply with the guidelines contained in the SANS 0143 Code of Practice for Building Drawings.

Optional presentation:

- 11 A **mounted presentation (model)** of the selected product. The presentation must be either sectioned in such a way that it will clearly reveal the inside and working of the product, or it must be of all the separate dismantled parts of the product arranged in such a way that its assembly would be self explanatory.

The following must be included on the mounted presentation:

- Comprehensive explanatory labels and notes

Drawing methods

The PAT must provide clear evidence that a high level of competency has been attained by the learner in **all three** of the following **drawing methods**:

- **Freehand drawing:** All preliminary design drawings and diagrams produced during the design process (No. 3).
- **Instrument drawing(s):** The detailed drawing (No. 9) and/or isometric drawing (No. 10).
- **CAD (Computer-Aided Design) drawing(s):** The assembly drawing (8). Either the detailed drawing (No. 9) or the isometric drawing (No. 10) may also be drawn with CAD.

NOTE:

Schools that do not have CAD facilities must complete all the required presentation drawings as instrument drawings.

Assessment Criteria

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

4. The rubric displayed in Annexure A for assessing the **design process** and meeting **deadlines**. This mark will contribute **25 marks** to the final PAT mark.
5. The rubric displayed in Annexure B for assessing the **correctness** of the presentation drawings. This mark will contribute **50 marks** to the final PAT mark.
6. The rubric displayed in Annexure C for assessing drawing **presentation, drawing methods, quality of line work, printing and dimensioning**. This mark will contribute **25 marks** to the final PAT mark.

ANNEXURE A

A RUBRIC FOR ASSESSING THE DESIGN PROCESS

CRITERIA	LEVELS OF PERFORMANCE						
	7 100%-80%	6 79%-70%	5 69%- 60%	4 59%- 50%	3 49%- 40%	2 39%- 30%	1 29%-0%
1. A design brief demonstrating a clear understanding of the scenario with a list of the specifications and constraints .	The design brief with a comprehensive list of the specifications and the constraints demonstrating an in-depth and comprehensive understanding of the scenario	The design brief with a complete or incomplete list of the specifications and the constraints demonstrating a satisfactory understanding of the scenario	The design brief with the possibility of an incomplete list of the specifications and / or the constraints demonstrating an elementary understanding of the scenario	A design brief with either a very vague or no list of specifications and or constraints demonstrating little or no understanding of the scenario			
2. Evidence of relevant 'external' research .	Shows evidence of in-depth and thorough relevant 'external' research that is used within the final solution	Shows evidence of satisfactory relevant 'external' research of which some is used within the final solution	Shows evidence of limited research of which little to non is used within the final solution	Shows very little evidence of any research or research that is inappropriate			
3. A record of possible solutions. (Freehand drawings)	A wide range of possible solutions , which are clearly, logically and comprehensively presented	A satisfactory number of possible solutions , which are clearly recorded	A limited number of possible solutions , which are recorded	Shows little to no possible solutions			
4. Selecting a final solution that demonstrates a clear understanding of the design brief . (correctness / functionality / practicality of design)	A thorough selection process and a final solution that demonstrates a clear in-depth and comprehensive understanding of the design brief .	A substantial selection process and a final solution that demonstrates a satisfactory understanding of the design brief .	An incomplete or no selection process and a final solution that demonstrates a limited understanding of the design brief .	No selection process and a final solution that demonstrates little to no understanding of the design brief .			
6. Clear evidence of continuous evaluation and the meeting of deadlines of all the phases of the PAT	Clear evidence of continuous comprehensive evaluation of all the phases of the PAT and all the phases were handed in on the due dates .	Evidence of satisfactory evaluation of most of the phases of the PAT and most of the phases were handed in and by extension date	Evidence of limited evaluation of some of the phases of the PAT and few deadlines were met. Extension dates were missed but most stages were handed in .	Little or no evidence of any evaluation is shown and none of the deadlines were met.			
7. The presentation of the complete PAT portfolio with the inclusion of a bibliography	All the required presentations of the PAT are complete and neatly presented in a logical and orderly sequence in the PAT file / portfolio that also contains a comprehensive bibliography	Most of the required presentations of the PAT are complete and neatly presented in a orderly sequence in the PAT file / portfolio that also contains a satisfactory bibliography	Some of the required presentations of the PAT are complete and presented in a in the PAT file / portfolio that contains a limited bibliography	Very few of the required presentations are complete and poorly presented in a in the PAT file / portfolio that contains a little to no bibliography			

ANNEXURE B

RUBRIC FOR ASSESSING CORRECTNESS OF THE PRESENTATION DRAWING

LEVELS OF PERFORMANCE																	
CRITERIA	7		6		5		4		3		2		1				
	More than minimum requirements				Meets minimum requirements				Less than minimum requirements				Little or nothing presented				
	100%-80%		79%-70%		69%- 60%		59%– 50%		49%- 40%		39%- 30%		29%-0%				
All drawing sheets are appropriately set-up with a border and a relevant name block/ title block		All drawing sheets are appropriately set-up with more than the minimum requirements .				Most of the drawing sheets are appropriately set-up with the minimum requirements .				Only some of the drawing sheets are set-up with less than minimum requirements .				Little or no page set-up is evident.			
8	PAT 1: Assess each view's ' design ' and correctness of the presentation , according to the specifications and constraint, the stipulated requirements and 'EGD' drawing principals. PAT 2: Assess each view's accurate reflection of the product and the correctness of the presentation , according to the stipulated requirements and 'EGD' drawing principals.																
	8.1	View 1 PAT 1: Plan PAT 2: Front view		The view meets more than the minimum requirements and is error free .				The view meets the minimum requirements but contains some errors .				The view contains less than the minimum requirements and contains many errors .				Little or no evidence of the required view	
	8.2	View 2 PAT 1: Section PAT 2: 2 nd main view		The view meets more than the minimum requirements and is error free .				The view meets the minimum requirements but contains some errors .				The view contains less than the minimum requirements and contains many errors .				Little or no evidence of the required view	
	8.3	View 3 PAT 1: 2 elevation PAT 2: 2 second. views		The views meet more than the minimum requirements and are error free .				The views meet the minimum requirements but contain some errors .				The views contain less than the minimum requirements and contain many errors .				Little or no evidence of the required view	
	PAT 1 and PAT 2: Assess each view's ' design ' and correctness of the presentation , according to the specifications and constraint, the stipulated requirements and 'EGD' drawing principals.																
	9	PAT 1: Site plan PAT 2: Detailed drawing		The site plan/detailed drawing meets more than minimum requirements and is error free .				The site plan/detailed drawing meets the minimum requirements but contains some errors .				The site plan/detailed drawing contains less than the minimum requirements and contains many errors .				Little or no evidence of required views	
				ALL the views meet more than the minimum requirements and are error free .				ALL the views meet the minimum requirements but contain some errors .				The views contain less than the minimum requirements and contain many errors				Little or no evidence of the required views	
Pictorial drawing	The correct drawing method and orientation PAT 1: 2-point perspective PAT 2: Isometric		Thorough knowledge of the correct pictorial drawing method and correct orientation of drawing is shown.				Satisfactory knowledge of the correct pictorial drawing method and correct orientation of drawing is shown.				Some knowledge of the correct pictorial drawing method is shown but could be incorrectly orientated				Little or no evidence of required drawing		
	The correctness and presentation of the pictorial drawing (Answer)		The answer meets more than the requirements and reflects the correct size and proportion of all the features and is error free and presented is outstanding .				The answer meets the requirements and reflects the correct size and proportion of most of the features but contains some errors and presented is satisfactory .				The answer reflects poor or incorrect size and proportion of many of the features and contains many errors and the presentation is poor .				Little or no evidence of required drawing		
OPTIONAL		A learner may submit a model or mounted presentation for extra marks															
PAT 1: Model PAT 2: A mounted presentation of the mechanism		The model / mounted presentation meets more than the minimum requirements and the presentation is outstanding				The model / mounted presentation meets the minimum requirements and the presentation is satisfactory				The model / mounted presentation meets less than the minimum requirements and the presentation is poor				Unacceptable presentation			

ANNEXURE C

RUBRIC FOR ASSESSING DRAWING METHOD, SKILLS AND PRESENTATION

LEVELS OF PERFORMANCE								
CRITERIA		7	6	5	4	3	2	1
		100%-80%	79%-70%	69%- 60%	59%- 50%	49%- 40%	39%- 30%	29%-0%
Freehand drawings	All the features are presented correctly and the drawings display good proportion and size .	The features show outstanding proportion and size.	The features show satisfactory proportion and size.	The features show poor proportion and size.	The features show very little or no proportion.			
	Final drawing presentation is neat and there is consistency of line work / line quality and printing	Drawings are very neat and all line work/ line quality is outstanding and consistent	Drawings are neat and line quality/ line quality is generally good and mostly consistent	Drawings are untidy with inconsistent line quality/line quality	Line work is unacceptable			
Instrument drawings	The drawings display the correct use of drawing instruments, drawing methods and techniques	The drawings display the correct use of drawing instruments and an outstanding application of drawing methods and techniques	The drawings display the correct use of drawing instruments and a satisfactory and mostly correct application of drawing methods and techniques	The drawings display the correct use of drawing instruments and a poor and often incorrect application of drawing methods and techniques	The drawings display an incorrect use of drawing instruments with incorrect applications of drawing methods and techniques			
	Final drawing presentation is neat and there is consistency of line work / line quality and printing	Drawings are very neat and all line work/ line quality, printing and dimensioning is outstanding and consistent	Drawings are very neat and the line work/ line quality, printing and dimensioning is generally good and mostly consistent	Drawings are untidy and the line work/ line quality, printing and dimensioning is inconsistent	The line work/ line quality, printing and dimensioning is unacceptable			
CAD drawing	(ANNEXURE D) A 'RUBRIC FOR ASSESSING CAD DRAWING SKILLS, KNOWLEDGE AND ABILITY'							
	The level of competence displayed in using a CAD system	Displays a high level of skills, knowledge and ability in using a CAD system		Displays a satisfactory level of skills, knowledge and ability in using a CAD system		Displays a poor level of skills, knowledge and ability in using a CAD system		Shows little to no skills, knowledge or ability in using a CAD system
	The layout and correctness of the final drawing presentation .	100%-80%	79%-70%	69%- 60%	59%- 50%	49%- 40%	39%- 30%	29%-0%

ANNEXURE D**A RUBRIC FOR ASSESSING CAD DRAWING SKILLS, KNOWLEDGE AND ABILITY**

CRITERIA	LEVELS OF PERFORMANCE						
	7 100%-80%	6 79%-70%	5 69%- 60%	4 59%- 50%	3 49%- 40%	2 39%- 30%	1 29%-0%
Set up a drawing interface	Is able to set-up a drawing interface without any assistance displaying a high level of skills, knowledge and ability	Is able to set-up a drawing interface with a little assistance displaying a satisfactory level of skills, knowledge and ability	Is able to set-up a drawing interface with some assistance displaying a lack of skills, knowledge and ability	Shows little to no understanding of setting up a drawing interface			
Set up a 2D /3D drawing environment	Is able to set up a 2D/3D drawing environment without any assistance displaying a high level of skills, knowledge and ability	Is able to set up a 2D/3D drawing environment with a little assistance displaying a satisfactory level of skills, knowledge and ability	Is able to set up a 2D/3D drawing environment with some assistance displaying a lack of skills, knowledge and ability	Shows little to no understanding of setting up a 2D /3D drawing environment			
Set up layers with properties assigned to each layer	Is able to set up layers and assign properties to each layer without any assistance displaying a high level of skills, knowledge and ability	Is able to set up layers and assign properties to each layer with a little assistance displaying a satisfactory level of skills, knowledge and ability	Is able to set up layers and assign properties to each layer with some assistance displaying a lack of skills, knowledge and ability	Shows little to no ability to set-up layers and assign properties to each layer			
Set up a drawing sheet with a border and a title block	Is able to set-up a drawing sheet with a border and a title block without any assistance displaying a high level of skills, knowledge and ability	Is able to set-up a drawing sheet with a border and a title block with some assistance displaying a satisfactory level of skills, knowledge and ability	Is able to set-up a drawing sheet with a border and a title block with some assistance displaying a lack of skills, knowledge and ability	Shows little to no ability to set-up a drawing sheet with a border and a title block			
Show evidence of the correct use of the drawing tools	Thorough and detailed evidence is shown of using the drawing tools correctly	Satisfactory evidence is shown of using the drawing tools correctly.	Limited evidence is shown of using the drawing tools correctly	Little to no evidence is shown of using the drawing tools correctly			
Show ability to save and retrieve work	Is able to save and retrieve work without any assistance displaying a high level of skills, knowledge and ability	Is able to save and retrieve work with a little assistance displaying a satisfactory level of skills, knowledge and ability	Is able to save and retrieve work with some assistance displaying a lack of skills, knowledge and ability	Shows little to no ability to save/retrieve work			
Show ability to plot a drawing.	Is able to plot a drawing without any assistance displaying a high level of skills, knowledge and ability	Is able to plot a drawing with a little assistance displaying a satisfactory level of skills, knowledge and ability	Is able to plot a drawing with some assistance displaying a lack of skills, knowledge and ability	Shows little to no ability to plot work.			
The layout and correctness of the final drawing presentation	100%-80%	79%-70%	69%- 60%	59%- 50%	49%- 40%	39%- 30%	29%-0%

**PRACTICAL ASSESSMENT TASK 2010
SUMMATIVE ASSESSMENT SHEET**

SCHOOL:

NAME OF LEARNER:
(SURNAME AND INITIALS)

EXAMINATION NUMBER:

PART A: Design Process		PART B: Presentation Drawings		Drawing competency and skill							
CRITERIA		CRITERIA		CRITERIA							
MARK		MARK		MARK							
ANNEXURE A	1	A design brief with a comprehensive list of the specifications and constraints demonstrating a clear understanding of the scenario	All drawing sheets are appropriately set-up with a border and a relevant name block/ title block		Freehand drawings ANNEXURE C	METHOD	All the features are presented correctly and the drawings display good proportion and size .				
	2	Evidence of relevant 'external' research	Orthographic drawing ANNEXURE B	Assess the following: PAT 1: The design and correctness PAT 2: The accuracy and correctness		8.1	View 1 PAT 1: Plan PAT 2: Front view				
	3	A record of at least THREE possible solutions (Freehand drawings)			8.2	View 2 PAT 1: Section PAT 2: 2nd main view					
	4	Selecting a final solution that demonstrates a clear understanding of the design brief			8.3	View 3 PAT 1: 2 elevation PAT 2: 2 secondary views					
	6	Clear evidence of continuous evaluation and the meeting of deadlines of all the phases of the PAT	Pictorial drawing ANNEXURE B	10	The correct drawing method and orientation PAT 1: 2-p perspective PAT 2: Isometric	+		Instrument drawings ANNEXURE C	METHOD	The drawings display the correct use of drawing instruments, drawing methods and techniques	
	7	The presentation of the complete PAT portfolio with the inclusion of a bibliography			The correctness and presentation of the pictorial drawing	+ - 2			METHOD	Final drawing presentation is neat and there is consistency of line work / line quality and printing	
	Criteria Total		Criteria Total		TOTAL without 'CAD'		TOTAL with 'CAD'				
CALCULATION		CALCULATION		CALCULATION without 'CAD'		CALCULATION with 'CAD'					
Teacher's TOTAL		Teacher's TOTAL		Teacher's TOTAL		Teacher's TOTAL					
TOTAL: A / 25		TOTAL: B / 50		TOTAL: C / 25		TOTAL: C / 25					
Moderated TOTAL		Moderated TOTAL		Moderated TOTAL		Moderated TOTAL					
TOTAL: A / 25		TOTAL: B / 50		TOTAL: C / 25		TOTAL: C / 25					
TEACHER'S TOTAL:		A + B + C =		/ 100		ASSESSOR: Initial		MODERATOR: Initial			
MODERATED TOTAL:		A + B + C =		/ 100							

DECLARATION OF AUTHENTICITY

To be submitted with each learner's Practical Assessment Task portfolio

NAME OF THE SCHOOL:

NAME OF LEARNER:
(SURNAME AND INITIALS)

EXAMINATION NUMBER:

I hereby declare that all the contents of the Practical Assessment Task 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 CANDIDATE

DATE ____ / ____ / 2010
(DD / MM / YY)

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 offered is his/her own work.

SIGNATURE OF TEACHER

DATE ____ / ____ / 2010
(DD / MM / YY)

