UMnyango WezeMfundo Lefapha la Thuto
Department of Education Departement van Onderwys

GAUTENG DEPARTMENT OF EDUCATION

CIVIL TECHNOLOGY GUIDELINE

SCHOOL - BASED ASSESSMENT
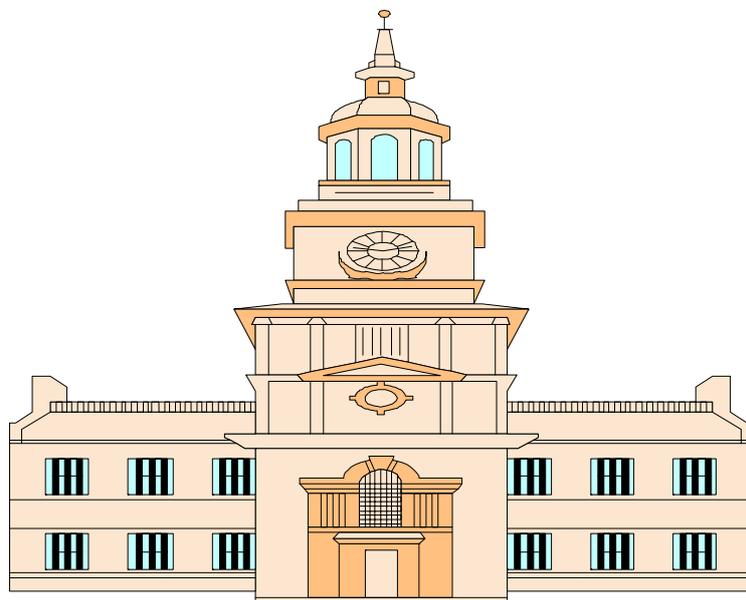
GAUTENG DEPARTMENT OF EDUCATION

SCHOOL BASED ASSESSMENT

C I V I L   T E C H N O L O G Y

CONTENTS

1.   What is a portfolio?

A portfolio is a collection of a learner's work and is determined by the Subject Assessment Guidelines (SAG).

A variety of items are organised in a certain format which will then form the learner's portfolio. It should be freely available in the classroom, so that the learners can work on it whenever they find it necessary to do so. Items, which can be included in such a portfolio, include investigation tasks, simulation tasks, small projects, tests and examinations, which are collected over a period of time and which serve a specific purpose.

Portfolios are also defined as an ongoing systematic collection of products which represent milestones in the learner's journey towards excellence. This collection includes items, which represent the whole terrain, and also shows how the learner's journey has progressed towards a specific aim.

The collection of portfolio items and from different components of the curriculum makes the portfolio an instrument for documentation and analysis, serving as a summary of the learner's progress throughout the year.

Portfolios enable the teacher to find out more about the learner as an individual, but the learners also find out more about themselves. It is a report on the learner's progress, as well as a report of that which the learner perceives to be important.

Arter and Spandel summarise the main characteristics of portfolios when they describe it as follows: "A portfolio is a purposeful collection of student work that tells the story of the student's efforts, progress or achievement in given area(s). This collection must include student participation in selection of portfolio content, the guidelines for selection, the criteria for judging merit and evidence of student self-reflection."

It is thus emphasised that a portfolio is an arrangement of the characteristics of authentic assessment. It makes continuous assessment possible and includes a rich variety of items as evidence of that which the students know and can do. The

content of portfolios can be created within realistic contents. In addition, it can also be a reflection of the process of product development. It provides an excellent opportunity to transform assessment into a learning experience. Think of the portfolio as a mechanism whereby a story is told – a story that will communicate something about the learner to the reader.

2. Purpose

The primary reasons for using portfolios as one type of authentic assessment tool include:

- assessing learner's accomplishment of learning outcomes;
- assessing the quality of learner's sustained work;
- allowing learners to turn their own special interests and abilities into a show-case;
- encouraging the development of qualities such as pride in quality workmanship, ability to self-evaluate, and ability to accomplish meaningful tasks;
- providing a collection of work learners may use in the future for college or university application and job seeking;and
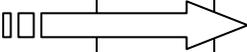- documenting improvement of learners' work.

3. Assessment in Grade 12

In Grade 12, assessment consists of two components: a Programme of Assessment which makes up 25% of the total mark for Civil Technology (CASS) and external assessment which makes up the remaining 75% (PAT and EXAMINATION). The Programme of Assessment for Civil Technology comprises six tasks which are internally assessed. The external assessment component comprises two components: a Practical Assessment Task and one written theory paper.

Together the Programme of Assessment and the external assessment component make up the annual assessment plan for Grade 12.

The following diagram shows the annual assessment plan for Civil Technology:

Annual assessment plan for Civil Technology, Grade 12

Assessment Tasks		Term One	Term Two	Term Three	Term Four	% of final promotion mark	
Tests		1		1		5	PORTFOLIO (25%)
Examinations (mid-year and trial)			1	1		10	
Practical tasks: Investigation/ Simulations/ Small projects		1	1			10	
External Assessment	Written Theory Paper				1	50	
	Performance Assessment Task (PAT)	⟶		1		25	

4.   Content for portfolios

The content for portfolios for Civil Technology is guided by the programme of assessment as stipulated in the Subject Assessment Guidelines (SAG).

The portfolio comprises:

• Two tests (first and third term);

• Two written examinations (midyear and trial); and

• Two practical tasks (one per term in terms 1 and 2).

5.   Programme of Assessment in Grade 12

5.1   Tests

Two of the assessment tasks should be tests written under controlled conditions at a specified time. A **test should last at least 60 minutes and count a minimum of 50 marks.** Tests should include the theory of the technological process, principles and concepts and the application thereof in the production of civil product(s)/ artefact(s).

5.2 **Practical Tasks**

The practical tasks should be carefully designed tasks, which give learners opportunities to research and explore the subject in exciting and varied ways. These tasks should be based on practical activities such as simulations, investigations and small projects and should focus on more than one area of specialisation, i.e. woodwork, bricklaying and construction or an integration of two to three of these areas.

5.2.1 **Investigation tasks**

- **What is an investigation task?**
  - ✓ Investigation: a search or examination in order to discover facts.
  - ✓ Research: systematic investigation to establish facts or principles or to collect information on a subject.
  - ✓ Experiment: test or investigation.
  - ✓ Testing and verifying construction principles/concepts.

- **Examples of investigation tasks.**
  - ✓ The OHS Act and personal safety.
  - ✓ Reinforcement
  - ✓ The impact of forces on different structures.

  - ✓ Practical testing and observation of materials that can be used in construction work:
    - ➢ The grading of aggregates
    - ➢ Slump test
    - ➢ Cube test

  - ✓ Experiments:
    - ➢ Bulking of sand
    - ➢ Compare the densities of concrete and wood.

5.2.2 Simulation tasks

- **What is a simulation task?**
  - ✓ From Latin *simulare* – to copy
  - ✓ Simulation is the replication of a real situation without being in it.
  - ✓ Model: representation, usually on smaller scale, of a device, structure, etc.

- **Examples of simulation tasks.**
  - ✓ Model of a kitchen layout with modular cabinet units.
  - ✓ Model beams, columns, floor slabs or staircases showing formwork, reinforcement and concrete.
  - ✓ Model of a roof construction showing a solar heating system.

5.3 Examinations

The mid-year and trial examinations for Grade 12 should consist of one paper of 6 questions and will count 200 marks. The suggested duration of the paper is 3 hours. All the questions are compulsory. The questions should be set in such a way that they cover the knowledge and skills of Learning Outcome 3, the investigative Assessment standard of Learning Outcome 2 and the values and attitudes of Learning Outcome 1 of the Civil Technology Subject Statement.

The trial examination needs to be closely related to the final examination in terms of time allocation, layout of the paper and subject requirements.

See the Subject Assessment Guidelines for an outline of the Grade 12 examination paper.

6.   Learner's portfolio

The learners' portfolio should be well planned, organised and presented in a neat manner, for example, a file. It should include the following:

- a contents page;
- a continuous moderation report;
- a declaration by the learner;
- a summary of marks; and
- the assessment tasks.

7.   Teacher's portfolio

It is required from the Department of Education that a teacher's portfolio should accompany the learners' portfolios. This portfolio should include the following:

- a contents page;
- the formal Programme of Assessment;
- the requirements of each of the assessment tasks (e.g. practical tasks, tests and examination papers);
- the tools used for assessment for each task (e.g. memorandums, checklists, rubrics); and
- record sheets for each class (working mark sheets).

8.   Evaluating portfolios

Periodic evaluation of portfolios should be conducted at a time predetermined by the teacher and his learners. Logical times for evaluation would be at the conclusion of a project, the end of a programme or unit, term or academic year.

The teacher must make sure that every assessment task is marked and captured. Marks on the teacher's record sheets must correspond with the marks in the learners' portfolios.

Moderation of the assessment tasks should take place at three levels during the year.

LEVEL	MODERATION REQUIREMENTS
School	The Programme of Assessment should be submitted to the subject head and School Management Team before the start of the academic year for moderation purposes. Each task which is to be used as part of the Programme of Assessment should be submitted to the subject head for moderation before learners attempt the task. Teacher portfolios and evidence of learner performance should be moderated twice a year by the head of the subject or her/his delegate.
Cluster/ district/ region	Teacher portfolios and a sample of evidence of learner performance must be moderated twice during the first three terms.
Provincial/ national	Teacher portfolios and a sample of evidence of learner performance must be moderated once a year.

PORTFOLIO ASSIGNMENTS FOR CIVIL TECHNOLOGY

GRADE 12

Learners must do TWO assignments for the portfolio. **Section A is compulsory**

SECTION A

SAFETY

Safety precautions on a building.

Safety precautions at scaffoldings.

Safety precautions which must be in place when working in loose soil or digging trenches

Safety clothing and safety colours

Safety precautions when working with a radial arm and circular saw

PORTEFEULJE TAKE VIR SIVIELE TEGNOLOGIE

GRAAD 12

Leerders moet TWEE opdragte vir die portefeulje doen. **Afdeling A is verpligtend.**

AFDELING A

VEILIGHEID

Veiligheidsmaatreëls op 'n bouterrein

Veiligheidsmaatreëls by steiers

Veiligheidsmaatreëls wat in plek moet wees wanneer in los grond of wanneer slote gegrawe word

Veiligheidsklere en veiligheidskleure

Veiligheidsmaatreëls by die gebruik van die bobaansaag en rolsaag

SECTION B

A choice of any ONE from the under-mentioned:

QUESTION 1

1.1 Briefly explain the operation of a solar heating system.

1.2 Name at least FIVE requirements to ensure the effective operation of the system.

1.3 Show by means of sketches the layout and water flow when the system is in operation with a geyser inter linked in the system, and without a geyser.

1.4 You are contracted by a firm "Hot pools" to design a system to increase the temperature of the water of a swimming pool by 5 degrees.

Design this system and build a working model to be used during the presentation of the estimated cost.

AFDELING B

'n Keuse van EEN van die onderstaande.

VRAAG 1

1.1 Verduidelik kortliks die werking van 'n sonverhitting stelsel.

1.2 Noem ten minste VYF vereistes om die effektiewe werking van die stelsel te verseker.

1.3 Toon deur middle van sketse, die uitleg en die water vloei, wanneer die stelsel in werking is waar dit tussenverbind is met 'n elektriese geiser asook waardaar geen elektriese geiser is nie.

1.4 Jy word deur 'n maatskappy " Hot pools" genader om 'n stelsel te omtwerp om die temperatuur van 'n swembad met ten minste 5 grade te verhoog.

Ontwerp hierdie stelsel en bou ook 'n werkende model wat gebruik kan word vir 'n voorlegging waar 'n beraamde koste verlang word.

QUESTION 2

2.1 Use a scale of 1:10 and draw a vertical section through a vacuum tank.

2.2 Describe how this system is emptied when necessary.

2.3 Name THREE examples where a vacuum tank can be used.

2.4 Use a scale of 1:10 and draw a vertical section through a septic tank coupled to a French drain.

2.5 Describe How this system operates as well as the purpose of it.

2.6 The floor of a basement level of a building is 2700 mm below the ground level And 100mm thick. The height between the basement floor and the 100mm Concrete floor of the ground floor of the building is 3000mm. The exterior wall of The building is one and a half-brick thick and plastered on the inside, with Vertical damp proofing half-brick thickness from the exterior wall.

Use a scale of 1:20 and draw a vertical section through the exterior wall of the
Building and part of the two concrete floors to show the necessary damp
Proofing which is needed to ensure no moisture entering the basement.

VRAAG 2

2.1 Gebruik 'n skaal van 1:10 en teken 'n vertikale snit deur 'n vakuum tenk.

2.2 Beskryf hoe hierdie stelsel geledig word wanneer nodig.

2.3 Noem DRIE voorbeelde waar 'n vacuum tenk gebruik word.

2.4 Gebruik 'n skaal van 1:10 en teken 'n vertikale snit deur 'n septiese tenk
Gekoppel aan 'n stapel riool

2.5 Beskryf die werking en doel van hierdie stelsel.

2.6 Die kelderverdieping van 'n gebou se vloer is 2700mm onder die grondhoogte
En 100mm dik. Die totale hoogte tussen die kelderverdieping vloer en die 100mm
Betonvloer van die gebou is 3000mm. Die buitemuur van die gebou is
Anderhalfsteendikte en gepleister aan die binnekant, met vertikale vogweerlae
'n Halfsteendikte van die buitekant van die muur.

Teken volgens 'n skaal van 1:20, 'n vertikale snit deur die buitemuur van die
Gebou en 'n gedeelte van die twee betonvloere om die nodige vogweerlae
Te toon om te verseker dat geen vog die kelderverdieping binnedring nie.

The School – Based Assessment Guideline for Civil Technology was created by the following individuals:

François van As - Compiler / Writer / Facilitator for Civil Technology

Support team

Louis J Grobler - Manager for Civil Technology in Gauteng

Johan van Staden - Facilitator for Civil Technology in districts

André Fourie - Facilitator for Civil Technology in districts

Modiba Phosa - Facilitator for Civil Technology in districts

SCHOOL / SKOOL: _____

CIVIL TECHNOLOGY
SIVIELE TEGNOLOGIE

PORTFOLIO / PORTEFEULJE

NAME / NAAM: _____

GRADE / GRAAD: _____

SCHOOL / SKOOL: _____

CIVIL TECHNOLOGY
SIVIELE TEGNOLOGIE
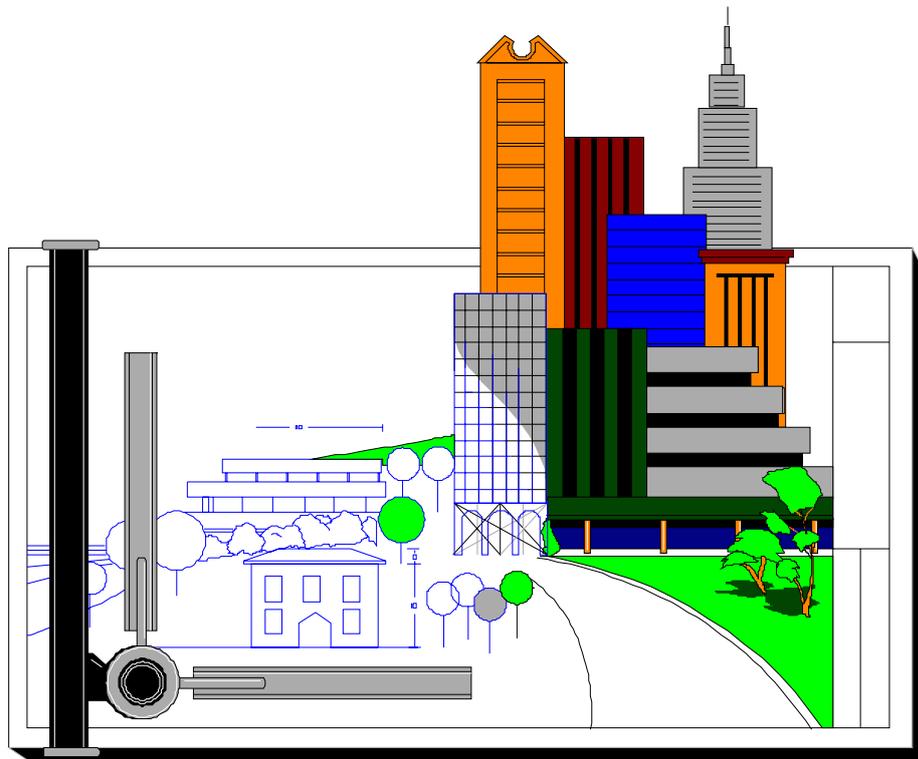
PORTFOLIO / PORTEFEULJE

NAME / NAAM: _____

GRADE / GRAAD: _____

INDEX / INHOUDSOPGAWE

CIVIL TECHNOLOGY / SIVIELE TEGNOLOGIE

Portfolio / Portefeulje

Continuous moderation report / Deurlopende modereringsverslag

School moderation / Skoolmoderering:

Date / Datum	Signature / Handtekening	Comments / Opmerkings

Cluster moderation / Groepsmoderering:

Date / Datum	Signature / Handtekening	Comments / Opmerkings

CIVIL TECHNOLOGY

DECLARATION BY LEARNER

SCHOOL: _____

NAME OF LEARNER: _____
(Surname and First name)

EDUCATOR'S NAME: _____

I hereby declare that all pieces contained in this portfolio, are my own, original work and that if I have made use of any source, I have acknowledged this.

I agree that if it is determined by the competent authorities that I have engaged in any fraudulent activities whatsoever in connection with my Continuous Assessment mark, then I shall forfeit completely the marks gained for this assessment.

_____   _____
CANDIDATE'S SIGNATURE   **DATE**

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

_____
   EDUCATOR'S SIGNATURE

_____
   DATE

SCHOOL STAMP

SIVIELE TEGNOLOGIE

VERKLARING DEUR LEERDER

SKOOL: _____

NAAM VAN LEERDER: _____
(Van en voorname)

NAAM VAN OPVOEDER: _____

Hiermee verklaar ek dat alle werkstukke soos ingesluit in my portefeulje my eie oorspronklike werk is en indien ek van enige bron gebruik gemaak het, ek daaraan erkenning verleen het.

Ek stem toe dat indien die bevoegde gesagsdraers sou vasstel dat ek betrokke is in enige oneerlike bedrywighede van watter aard ookal betreffende my deurlopende assesseringspunt, ek al die punte vir hierdie assessering sal verbeur.

_____   _____

HANDTEKENING VAN LEERDER   **DATUM**

Hiermee verklaar ek, sover my kennis strek, dat bogenoemde verklaring deur die leerder waar is en dat die werk vervat in die portefeulje sy / haar eie werk is.

_____
HANDTEKENING VAN OPVOEDER

_____
DATUM

SKOOLSTEMPEL

CIVIL TECHNOLOGY / SIVIELE TEGNOLOGIE

PORTFOLIO / PORTEFEULJE

Assessment Tasks / Assesseringstake:

Tests / Toetse

1	Term one / Eerste kwartaal		100		
2	Term three / Derde kwartaal		100		

	Total / Totaal		200		5

Practical tasks / Praktiese opdragte

1	Term one / Eerste kwartaal		100		5
2	Term two / Tweede kwartaal		100		5

Examinations / Eksamens

1	Midyear Examination / Halfjaareksamen		200		5
2	Preparatory Examination / Voorbereidende Eksamen		200		5

Av / Gem		25

**PRACTICAL TASK /
PRAKTIESE OPDRAG**

1

| PRACTICAL TASK / PRAKTIESE OPDRAG | 2 |
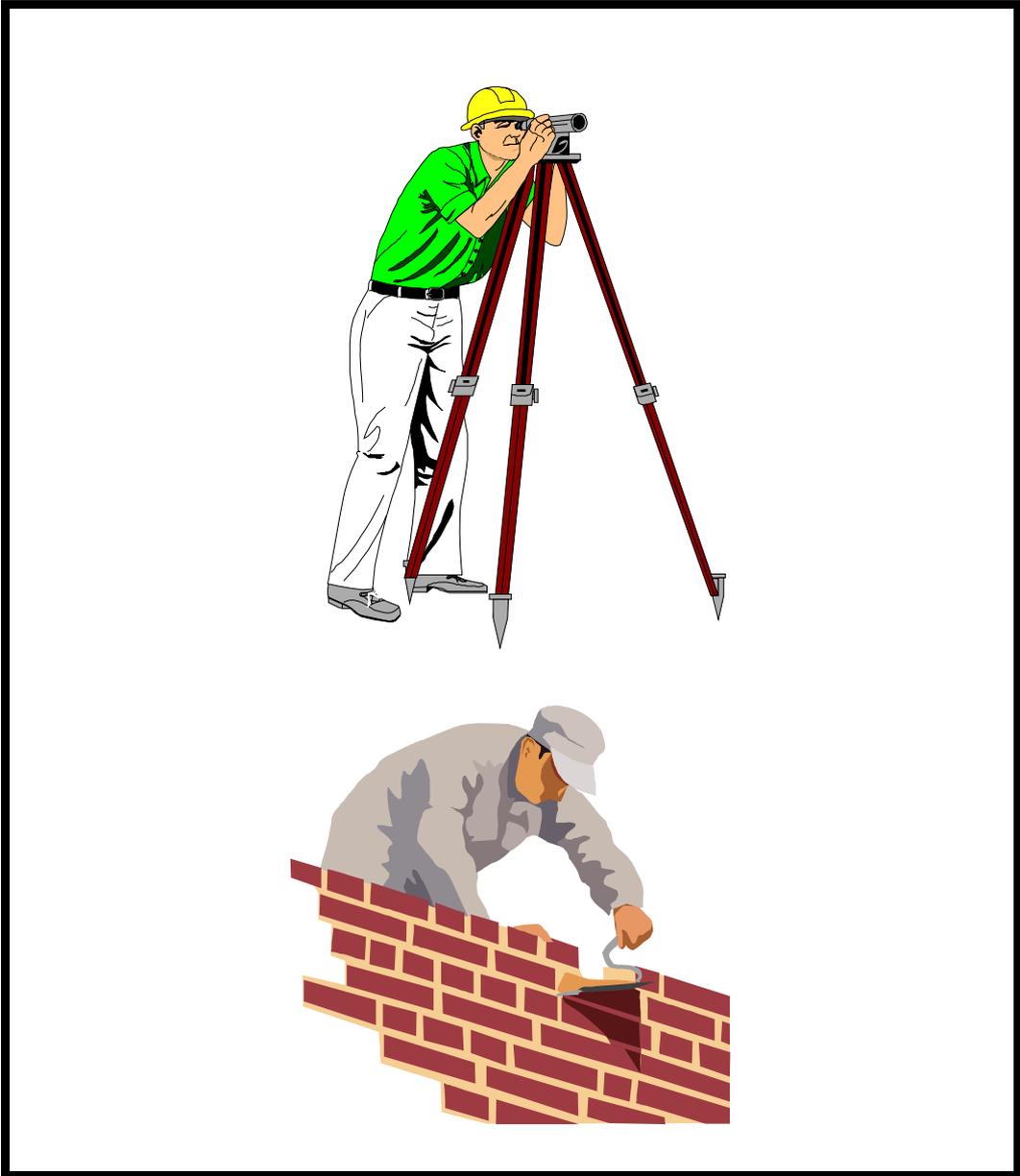
TOETSE / TESTS

EXAMINATIONS / EKSAMENS