

UMALUSI



Quality Council for General and Further
Education and Training



Two Decades of Education Guardianship
2002 – 2022

**Report on the Quality
Assurance of the
August 2022 NATED
Report 190/191 N2 – N3
Engineering Studies
Examinations**

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INTRODUCTION AND BACKGROUND

The Report 190/191: Engineering Studies N2–N3 examinations are routinely conducted, administered and managed by the Department of Higher Education and Training (DHET) on a trimester basis in April, August and November of each year. Programmes for these examinations are offered by public Technical and Vocational Education and Training (TVET) colleges, private Further Education and Training (FET) colleges, some Correctional Services Centres and a few schools, as well as some centres outside the borders of the Republic of South Africa.

As a quality council, Umalusi is mandated by the National Qualifications Framework (NQF) and General and Further Education and Training Qualifications Act (GENFETQA) to develop and implement policy and criteria for assessment of the qualifications on its sub-framework. The Report 191/190: Engineering Studies N1–N3 is registered by the South African Qualifications Authority (SAQA) as a programme on the Umalusi sub-framework.

As the Quality Council for General and Further Education and Training, Umalusi:

- a. Must perform the external moderation of assessment of the various assessment bodies and education institutions;
- b. May adjust raw marks during the standardisation process; and
- c. Must, with the agreement of the Director-General and after consultation with the relevant assessment body or education institution, approve the publication of learners' results if the Council is satisfied that the assessment body or education institution has:
 - i. conducted the assessment free from any irregularity that could jeopardise the integrity of the assessment or its outcomes;
 - ii. complied with the requirements prescribed by the Council for conducting assessments;
 - iii. applied the standards prescribed by the Council, with which a learner is required to comply to obtain a certificate; and
 - iv. complied with every other condition determined by the Council.

Umalusi is thus mandated to ensure that the NATED Report 191/190: Engineering Studies N2–N3 examinations conducted in each trimester are fair, valid and reliable. To perform this function, Umalusi is required to ensure that the quality and standard of all the assessment practices associated with these examinations are set and maintained.

In 2022, the NATED Report 190/191: Engineering Studies N2–N3 examinations were conducted in two terms only as the April examination was cancelled because the administration of the November 2021 NATED examination in January 2022 led to a shortened 2022 academic calendar.

All 55 question papers for the August 2022 examinations were nationally set and internally moderated by the DHET; Umalusi conducted an external moderation of a sample of 50 question papers. The DHET distributed the question papers via courier to nodal points. The surrounding colleges/campuses were required to collect and return answer scripts within 60 minutes of the stipulated end time of the particular examination session. Drawing subjects were written during the first week of the examination period. All the August 2022 question papers were written as morning sessions, starting at 09:00.

No formal appointments of marking staff were made for this examination by the DHET; instead, management staff of the national and provincial marking centres were mandated to make use of individuals who had marked the November 2021 examinations.

The marking model was centralised (provincial) marking for all N2 and N3 subjects. Eight marking centres, situated in seven of the nine provinces, were used for the marking process.

As in previous examinations, the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examinations were conducted at several schools, correctional services centres, private colleges, public colleges, and a few centres in other countries.

As repeatedly reported in the past, the implementation of the NATED Report 190/191 Engineering Studies programmes and examinations presents several challenges, including but not limited to:

- a. Outdated syllabi;
- b. No requirement for a practical component to develop skills;
- c. Lack of capacity for effective tuition; and
- d. High percentages of candidates who do not write the examinations (high dropout rate).

The purpose of this report is to provide feedback on the processes followed by Umalusi in its quality assurance of the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examination. The report includes findings on areas of compliance/improvement in the conduct, administration and management of these examinations, areas of non-compliance and directives for compliance and improvement. These findings are based on information obtained from Umalusi's moderation, monitoring, verification and standardisation processes, as well as from reports received from the DHET.

This report covers the following quality assurance processes implemented by Umalusi:

- a. Moderation of question papers from a sample of N2 and N3 subjects;
- b. Moderation of internal continuous assessment;
- c. Monitoring of the writing of examinations;
- d. Standardisation of marking guidelines;
- e. Verification of marking; and
- f. Monitoring of the marking of examination centres.

ABBREVIATIONS AND ACRONYMS

CEO	Chief Executive Officer
Umalusi	Council for Quality Assurance in General and Further Education and Training
DHET	Department of Higher Education and Training
DMCMA	Deputy Marking Centre Manager Academic
EA	Examination Assistant
FET	Further Education and Training
FS	Free State
GP	Gauteng Province
GFETQSF	General and Further Education and Training Qualifications Sub-framework
GENFETQA	General and Further Education and Training Quality Assurance
ICASS	Internal Continuous Assessment
IM	Internal Moderator
IRR	Irregularity
KZN	KwaZulu-Natal
LP	Limpopo Province
MP	Mpumalanga Province
NQF	National Qualifications Framework
NW	North-West Province
OHS	Occupational Health and Safety
PoE	Portfolio of Evidence (learner portfolio)
TVET	Technical and Vocational Education and Training

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CHAPTER 1

MODERATION OF

QUESTION PAPERS

1.1 Introduction

Umalusi conducts external moderation of question papers that are set nationally and moderated internally by the Department of Higher Education and Training (DHET). The purpose of this external moderation of these examination question papers and their marking guidelines is to ensure that quality and standards are maintained in all NATED Report 190/191: Engineering Studies N2–N3 examination cycles.

The moderation of question papers is a critical element in the quality assurance of assessment processes. External moderation confirms that question papers have been developed with rigour and comply with Umalusi's criteria and with the curriculum and assessment policy documents of the assessment body.

The DHET is required to appoint examiners and internal moderators with the requisite content knowledge in the specific instructional offerings to set and internally moderate question papers before they are presented to Umalusi for external moderation. Question papers and marking guidelines are expected to be print-ready when they are submitted to Umalusi. It therefore remains the specific responsibility of internal moderators to ensure that all question papers and marking guidelines are of a satisfactory standard.

To maintain public confidence in the national examination system, the question papers must furthermore be seen to be:

- a. Fair;
- b. Reliable;
- c. Representative of an adequate sample of the curriculum;
- d. Representative of relevant conceptual domains; and
- e. Representative of relevant levels of cognitive demand.

1.2 Scope and Approach

Umalusi moderated and approved a total of 50 question papers and marking guidelines for 50 instructional offerings for the August 2022 NATED Report 190/191: Engineering Studies N2–N3 examinations. Question papers were moderated off-site; question papers, marking guidelines, assessment frameworks and internal moderators' reports were forwarded electronically to external moderators. These moderators prepared assessment frameworks with which to assess the cognitive demand and weighting of syllabus topics and evaluated the question papers according to specific criteria.

Table 1A indicates the instructional offerings moderated per level:

Table 1A: Instructional offerings included in the moderated sample of question papers

Instructional offerings	Level
Aircraft Maintenance Theory	N3
Building and Civil Technology	N3
Building Drawing	N2 and N3
Bricklaying and Plastering Theory	N2
Building Science	N2 and N3
Carpentry and Roofing Theory	N2

Instructional offerings	Level
Diesel Trade Theory	N2 and N3
Electrical Trade Theory	N2 and N3
Electrotechnology	N3
Engineering Drawing	N2 and N3
Engineering Science	N2 and N3
Fitting and Machining Theory	N2
Industrial Electronics	N2 and N3
Industrial Organisation and Planning	N3
Industrial Orientation	N2 and N3
Instrument Trade Theory	N2 and N3
Logic Systems	N2 and N3
Mathematics	N2 and N3
Mechanotechnology	N3
Motor Electrical Theory	N2
Motor Trade Theory	N2 and N3
Plant Operation Theory	N2 and N3
Platers' Theory	N2
Plating and Structural Steel Drawing	N2 and N3
Plumbing Theory	N2
Radio Theory	N2 and N3
Radio and Television Theory	N2 and N3
Refrigeration Trade Theory	N2 and N3
Supervision in Industry	N3
Waste-water Treatment Practice	N3
Water and Waste-water Treatment Practice	N2
Water Treatment Practice	N3
Welders' Theory	N2

The DHET administered a total of 55 instructional offerings for the N2 and N3 August 2022 examination, 50 of which Umalusi sampled for moderation. The table below indicates the number and percentage of instructional offerings per level moderated by Umalusi.

Table 1B: Instructional offerings included in the sample of question papers

Level	Number of Instructional Offerings	Number of Instructional Offerings Moderated	Percentage of Instructional Offerings Moderated
N2	30*	25	83%
N3	25*	25	100%
Total	55*	50	91%

*according to DHET 2022 examination timetable

The question papers and marking guidelines were moderated according to ten criteria or detailed quality indicators set by Umalusi. These are outlined below:

- a. Technical aspects related to the presentation of question papers and marking guidelines;
- b. Effectiveness of internal moderation in improving the quality of question papers;
- c. Adherence to the syllabus with respect to content coverage;
- d. Types of questions, their formulation and clarity to achieve the desired response;
- e. Distribution of marks across cognitive levels;
- f. Consistency and appropriateness of mark allocation;
- g. Relevance and correctness of the marking guidelines;
- h. Appropriateness of language register, correct use of grammar in question papers and marking guidelines, and content that is free from bias;
- i. Degree of predictability and innovation in question papers; and
- j. An overall evaluation of question papers in terms of their suitability for the level assessed.

1.3 Summary of Findings

The preliminary moderation of the 50 sampled question papers resulted in the following findings:

Table 1C: Approval status of question papers and marking guidelines after preliminary moderation

August 2022 Examinations				
Report 190/191: Engineering Studies N2–N3	Number of Question Papers Moderated by Umalusi	Number of Question Papers Approved	Number of Question Papers Conditionally Approved	Number of Question Papers Rejected
N2	25	6	18	1
N3	25	8	16	1
Total	50	14	34	2

The graph below (Figure 1A) provides a summary of the findings after first moderation of the question papers and marking guidelines as indicated in external moderators' reports.

Approval status of the question papers and marking guidelines after preliminary moderation

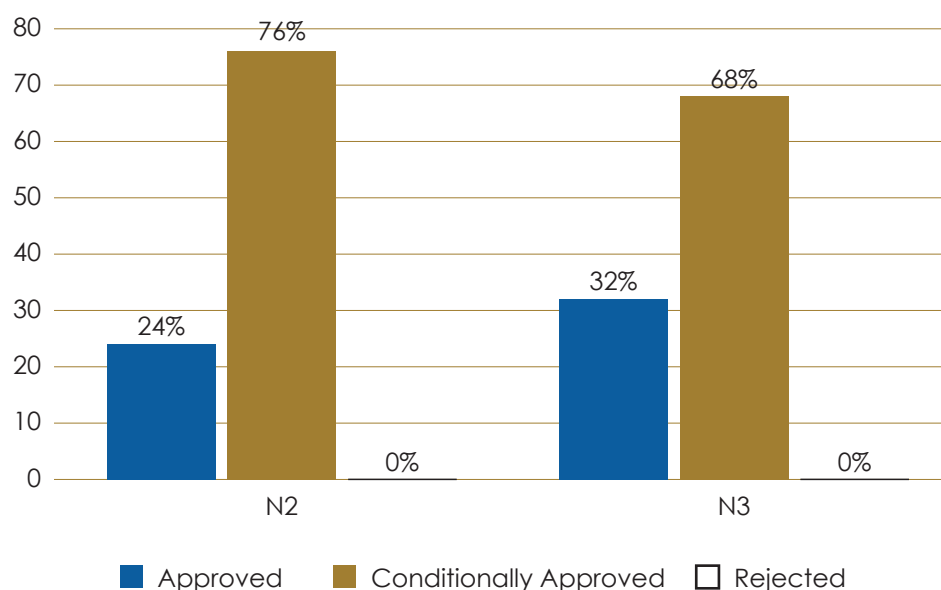


Figure 1A: Approval status of the NATED Report 190/191: Engineering Studies question papers and marking guidelines after first moderation

Table 1D provides a summary of the most significant findings of the moderation of the August 2022 examination question papers and marking guidelines. All findings are discussed in terms of the sample of 50 instructional offerings that were moderated.

Table 1D: Summary of findings of the first moderation of question papers

Criteria	Challenges	Instructional offerings concerned
Technical criteria		
Submission of supporting documents to external moderator	Question paper, marking guideline, assessment grid and internal moderation report document for 8% of the question papers were not completed.	Diesel Trade Theory N2 Motor Trade Theory N2 Platers' Theory N2 Radio Theory N2
Layout of the question paper	The cover pages for 22% of the question papers did not contain all the relevant details such as logo, name of instructional offering, time allocation, number of pages and additional information, compared to 6% of the question papers in the August 2021 examination.	Aircraft Maintenance Theory N3 Building Drawing N2 Engineering Drawing N2 and N3 Mathematics N2 and N3 Motor Electrical Theory N2 Motor Trade Theory N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Refrigeration Trade Theory N3
Instructions to candidates	In 8% of the question papers, the instructions to candidates were not clearly specified as required by the DHET, or were ambiguous, which is an increase from 7% in the August 2021 examination.	Carpentry and Roofing Theory N2 Fitting and Machining Theory N2 Logic Systems N3 Plating and Structural Steel Drawing N3

Criteria	Challenges	Instructional offerings concerned
Numbering of questions	In 2% of the question papers, questions were not correctly numbered; an improvement compared to 6% of question papers in the August 2021 NATED examination.	Engineering Science N2
Header and footer	Headers and footers on each page were not consistent and did not adhere to the required format in 2% of the question papers, compared to 4% in the August 2021 examination.	Motor Electrical Theory N2
Font type and size	Fonts in all question papers were not consistent throughout the paper. This was an increase from 4% in the August 2021 examination.	All instructional offerings
Mark and time allocation	Mark allocations in 12% of the question papers were not clearly indicated, an increase from 8% in the August 2021 examination.	Building Drawing N2 Electrotechnology N3 Engineering Science N2 Fitting and Machining Theory N2 Motor Electrical Theory N2 Plating and Structural Steel Drawing N2
	Two percent of the question papers could not be completed in the allocated time.	Plating and Structural Steel Drawing N3
	In 2% of the question papers the mark allocation on the paper did not correspond with the allocation in the marking guidelines, a decrease from 10% in the August 2021 examination.	Plating and Structural Steel Drawing N3
Quality of graphics and illustrations	The quality of illustrations, graphs and tables was poor and graphs and tables were not clear, contained errors or were not print-ready in 20% of question papers, (nine out of 44 instructional offerings) compared to 17% in the August 2021 examination.	Carpentry and Roofing Theory N2 Engineering Drawing N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 and N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Refrigeration Trade Theory N3
Format requirements to the syllabus	Five percent of the question papers did not adhere to the format requirements of the syllabus, compared to 2% of question papers in the August 2021 examination.	Fitting and Machining Theory N2 Refrigeration Trade Theory N3
Internal Moderation		
Internal moderator reports	The internal moderator reports for 20% of the question papers did not match the question papers.	Building Drawing N2 Diesel Trade Theory N2 Engineering Science N3 Fitting and Machining Theory N2 Industrial Electronics N2 Industrial Orientation N2 and N3 Motor Trade Theory N3 Platers' Theory N2 Radio Theory N2

Criteria	Challenges	Instructional offerings concerned
Quality and standard of internal moderation report	The internal moderator's report for 28% of question papers was incomplete (did not include contact details of the examiner or internal moderator, the analysis grid, an evaluation of the paper in terms of specified criteria or the approval status of the question paper and marking guideline). This was 30% in the August 2021 examination.	Building Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 and N3 Mechanotechnology N3 Motor Trade Theory N2 and N3 Platers' Theory N2 Plating and Structural Steel Drawing N3 Radio Theory N2 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
	The internal moderation reports for 32% of the question papers were not up to standard, compared to 40% in the August 2021 examination.	Building Drawing N2 Carpentry and Roofing Theory N2 Diesel Trade Theory N2 Engineering Drawing N3 Engineering Science N3 Industrial Electronics N2 Logic Systems N2 and N3 Mathematics N2 Motor Trade Theory N3 Platers' Theory N2 Plating and Structural Steel Drawing N3 Radio Theory N2 Radio and Television Theory N3 Refrigeration Trade Theory N3 Waste-water Treatment Practice N3
	The internal moderation reports for 30% of the question papers were not relevant. This was an increase from 30% in the August 2021 examination.	Bricklaying and Plastering Theory N2 Building Drawing N2 Diesel Trade Theory N2 Electrotechnology N3 Engineering Drawing N3 Engineering Science N3 Fitting and Machining Theory N2 Industrial Orientation N2 and N3 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Platers' Theory N2 Radio Theory N2 Radio and Television Theory N3

Criteria	Challenges	Instructional offerings concerned
Content Coverage		
Coverage of the syllabus	In 8% of the question papers, the syllabus was not covered adequately; this was the same proportion as in the August 2021 examination.	Engineering Drawing N2 Industrial Organisation and Planning N3 Motor Trade Theory N2 and N3
	In 10% of the question papers, the questions were not set according to the (four out of 39 question papers), prescribed weightings of topics.	Engineering Drawing N2 Mathematics N2 Motor Trade Theory N2 Refrigeration Trade Theory N2
	In 7% of the question papers (three out of 44 question papers) the topics were not evenly distributed through the paper, which was an increase of 4% from the August 2021 examination.	Engineering Drawing N2 Mathematics N3 Motor Trade Theory N3
	In 9% of the question papers, (four out of 46 question papers) the questions were not representative of the latest developments in the field. This was a decrease from 11% in the August 2021 examination.	Building Drawing N2 Carpentry and Roofing Theory N2 Industrial Organisation and Planning N3 Motor Electrical Theory N2
Types and Quality of Question Papers		
Types of questions	Six percent of the question papers did not have a range of types of questions, for example multiple-choice, paragraph, data/source-based response, essay, real-life scenario and real-life problem-solving questions. This was a drop compared to 2% in the August 2021 examination.	Carpentry and Roofing Theory N2 Industrial Electronics N2 Industrial Organisation and Planning N3
	There was no correspondence between mark allocation, and level of difficulty and time allocation in 16% of the question papers, compared to 20% in the August 2021 examination.	Carpentry and Roofing Theory N2 Engineering Drawing N2 Engineering Drawing N3 Fitting and Machining Theory N2 Mathematics N3 Plating and Structural Steel Drawing N3 Waste-water Treatment Practice N3 Water Treatment Practice N3
Quality of questions	In 2% of the question papers, the questions did not reflect what was pertinent in the instructional offerings. in the August 2021 examination the proportion was 100%.	Industrial Electronics N2
	In 14% of the question papers, the questions contained vaguely defined problems, ambiguous wording, extraneous or irrelevant information, trivia or unintentional clues to the correct answers, compared to 22% in the August 2021 examination.	Industrial Electronics N2 Mathematics N3 Plant Operation Theory N3 Radio and Television Theory N2 Refrigeration Trade Theory N3 Waste-water Treatment Practice N3 Water Treatment Practice N3

Criteria	Challenges	Instructional offerings concerned
	In 8% of the question papers, the questions did not include clear instructional key words/ verbs, compared to 18% in the August 2021 examination.	Mathematics N3 Plating and Structural Steel Drawing N2 Waste-water Treatment Practice N3 Water Treatment Practice N3
	In 14% of the question papers, the questions did not contain sufficient information to elicit appropriate responses; the proportion was 18% in the August 2021 examination.	Industrial Electronics N2 Industrial Orientation N2 Mathematics N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2 Radio and Television Theory N2 Refrigeration Trade Theory N3
	In 12% of the question papers, the questions contained factual errors or misleading information, this was the same as in the August 2021 examination.	Fitting and Machining Theory N2 Mathematics N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Radio and Television Theory N2 and N3
Cognitive Skills		
Analysis grid	The analysis grid for 22% of the question papers did not show the cognitive level of each question/sub-question, compared to 24% in the August 2021 examination.	Bricklaying and Plastering Theory N2 Engineering Science N3 Industrial Orientation N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Platers' Theory N2 Plating and Structural Steel Drawing N2 and N3 Refrigeration Trade Theory N3
	In 30% of the question papers cognitive levels were not appropriately distributed according to Bloom's taxonomy or any other taxonomy that may have been used; this is an increase from 19% in the August 2021 examination.	Carpentry and Roofing Theory N2 Diesel Trade Theory N2 and N3 Engineering Drawing N2 and N3 Fitting and Machining Theory N2 Logic Systems N2 and N3 Mathematics N2 and N3 Motor Electrical Theory N2 Motor Trade Theory N2 and N3 Plating and Structural Steel Drawing N3 Refrigeration Trade Theory N3
	In 4% of the question papers, choice questions were not equivalent in level of difficulty/ standard to compulsory questions.	Fitting and Machining Theory N2 Plating and Structural Steel Drawing N3
Assessment of latest developments	Questions in 8% of question papers were not representative of the latest developments in the teaching of the knowledge field. This was a drop compared to 4% in the August 2021 examination.	Aircraft Maintenance Theory N3 Building Drawing N2 Carpentry and Roofing Theory N2 Motor Electrical Theory N2

Criteria	Challenges	Instructional offerings concerned
Marking Guidelines		
Accuracy of marking guidelines	Eight percent of the marking guidelines did not correspond to the questions in the question papers, compared to 6% percent in the August 2021 examination.	Fitting and Machining Theory N2 Mathematics N3 Plating and Structural Steel Drawing N3 Radio and Television Theory N2
	Answers in 30% of the marking guidelines were not correct, compared to 39% in the August 2021 examination.	Bricklaying and Plastering Theory N2 Building Drawing N2 Building Science N2 and N3 Engineering Drawing N2 and N3 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N3 Mathematics N3 Plating and Structural Steel Drawing N2 and N3 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
	Thirty-one percent of the marking guidelines, (13 out of 42 question papers), did not allow for alternative responses, where applicable, compared to 14% in the August 2021 examination.	Building Science N2 and N3 Engineering Science N2 Industrial Electronics N2 Industrial Orientation N3 Logic Systems N2 Mathematics N3 Motor Electrical Theory N2 Plant Operation Theory N3 Refrigeration Trade Theory N3 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
Mark allocation	The mark allocations in the marking guidelines did not correspond to the mark allocations in the question papers in 6% of question papers, a drop from 16% in the August 2021 examination.	Industrial Organisation and Planning N3 Mathematics N3 Plating and Structural Steel Drawing N2
	Eighteen percent of the marking guidelines were incomplete with regard to mark allocation and mark distribution within questions.	Electrotechnology N3 Fitting and Machining Theory N2 Industrial Electronics N2 Industrial Organisation and Planning N3 Instrument Trade Theory N2 and N3 Plating and Structural Steel Drawing N2 and N3 Refrigeration Trade Theory N3

Criteria	Challenges	Instructional offerings concerned
Prescribed macros	2% percent of the marking guidelines were not laid out according to the prescribed macros.	Plating and Structural Steel Drawing N2
Language and bias		
Grammar	In 2% of the question papers, subject terminology/data were used incorrectly, compared to 4% in the August 2021 examination.	Industrial Electronics N2
	The language register/level and complexity of vocabulary was appropriate for the level of candidates in all question papers, compared to 2% in the August 2021 examination.	All instructional offerings
	In 8% of the question papers the language contained subtleties that could have confused candidates.	Fitting and Machining Theory N2 Industrial Electronics N2 Waste-water Treatment Practice N3 Water Treatment Practice N3
	In 6% of the question papers the language used in the question paper was grammatically incorrect, compared to 16% in the August 2021 examination.	Industrial Electronics N2 and N3 Mathematics N3
	The language used in 6% of the marking guidelines was grammatically incorrect.	Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
Predictability		
Use of questions from previous examinations	Eight percent of the question papers contained questions that could easily have been spotted or predicted. This was a decrease from 14% in the August 2021 examination.	Logic Systems N3 Mathematics N3 Radio and Television Theory N2 and N3
	Ten percent of the question papers contained questions from the past three years' examinations. This was the same proportion as in the August 2021 examination.	Engineering Drawing N2 Logic Systems N2 and N3 Radio and Television Theory N2 and N3
Innovation	Twelve percent of the question papers lacked an appropriate degree of originality, compared to 14% in the November 2020 examination.	Engineering Drawing N2 Industrial Electronics N2 Logic Systems N3 Mathematics N3 Radio and Television Theory N2 and N3
Overall impression		
Standard of question papers	Ten percent of the question papers were not aligned to the current syllabus, compared to the 10% in the August 2021 examination.	Carpentry and Roofing Theory N2 Fitting and Machining Theory N2 Industrial Electronics N2 Industrial Organisation and Planning N3 Refrigeration Trade Theory N3
	The outcomes of the curriculum/syllabus were not assessed as a whole by 8% of the question papers. This was an increase from 2% in the August 2021 examination.	Engineering Drawing N2 Industrial Organisation and Planning N3 Mathematics N3 Motor Trade Theory N3

Criteria	Challenges	Instructional offerings concerned
	Twenty percent of the question papers were not of the appropriate standard, compared to 15% in the August 2021 examination.	Engineering Drawing N2 and N3 Fitting and Machining Theory N2 Industrial Electronics N2 Industrial Organisation and Planning N3 Logic Systems N3 Mathematics N3 Radio and Television Theory N2 and N3 Refrigeration Trade Theory N3
	Sixteen percent of the question papers were not equivalent to those of the previous year's examination, compared to 14% in the August 2021 examination.	Fitting and Machining Theory N2 Industrial Electronics N2 Industrial Organisation and Planning N3 Logic Systems N3 Mathematics N3 Motor Trade Theory N3 Radio and Television Theory N2 and N3
	There was no balance in the assessment of skills, knowledge, attitudes, values and reasoning in 10% of the question papers. This was an increase from 8% in the August 2021 examination.	Carpentry and Roofing Theory N2 Mathematics N3 Motor Trade Theory N2 and N3 Refrigeration Trade Theory N3

1.4 Areas of Improvement

The following area of improvement was observed during the first moderation of question papers from the instructional offerings sampled:

- The mark allocation in 94% of the question papers corresponded to the mark allocation in the marking guidelines, an improvement of 10% from the August 2021 examination.

1.5 Areas of Non-compliance

Umalusi moderators' reports revealed the areas of non-compliance listed below:

- Some question papers did not comply with the technical criteria, with mark allocations not clearly indicated and illustrations, graphs and tables unclear;
- Internal moderation of some question papers was poor and the internal moderation reports were not up to standard;
- There was no correspondence between mark allocation, and level of difficulty and time allocation in 16% of the question papers, compared to 20% in the August 2021 examination;
- Some questions were poorly phrased and did not provide clear instructional key verbs; some did not contain sufficient information to elicit appropriate responses;
- The analysis grids had not been properly used in the setting of some question papers, and did not indicate the cognitive level of each question. In some question papers, questions were not appropriately distributed across cognitive levels;

- f. Questions in 8% of the question papers did not reflect the latest developments in the teaching of the knowledge field. This was an increase compared to 4% in the August 2021 examination;
- g. Some marking guidelines were not complete or accurate; and
- h. Sixteen percent of the question papers were not comparable to the previous year's examination question papers; in the August 2021 examination, the proportion was 14%.

1.6 Directives for Compliance and Improvement

Based on findings in the external moderators' reports, the following directives are issued to improve the quality of question papers and marking guidelines for the national examinations:

The DHET must ensure that:

- a. Question papers comply with all the quality indicators set out in the moderation instrument;
- b. Question papers cover the latest developments in the instructional offering and reflect new teaching techniques in the instructional offering; and
- c. All question papers compare favourably with previous examination cycles' question papers.

1.7 Conclusion

After the initial moderation, 28% of the question papers were approved and 68% were conditionally approved. Two question papers (4%) required resetting because some questions were not within the scope of the syllabus. It is of great importance that the assessment framework is compiled correctly, as this serves as a foundation on which the question paper is constructed. Examiners and internal moderators should devise creative strategies to reduce the predictability of questions.



CHAPTER 2

MODERATION OF THE CONDUCT OF INTERNAL CONTINUOUS ASSESSMENT

2.1 Introduction

Umalusi has been moderating and monitoring the internal continuous assessments (ICASS) of selected NATED Report 190/191: Engineering Studies N2–N3 instructional offerings since 2012.

The main objectives of moderating the ICASS are to:

- a. Verify that lecturers' portfolios of assessment (PoA) adhere to the ICASS guidelines;
- b. Ensure that evidence is competently collected and documented;
- c. Ascertain the appropriateness and standard of the assessment tasks;
- d. Ensure that assessments are consistently delivered across the various sites and that standards are maintained; and
- e. Ensure that the quality assurance of the internal assessment component of NATED Report 190/191: Engineering Studies N2–N3 is effectively maintained.

The purpose of this section of the report is to:

- a. Outline the scope and approach followed in the moderation of ICASS;
- b. Provide an indication of the size of the sample included in the quality assurance of the ICASS;
- c. Provide an overview of critical findings related to the quality and standard of this ICASS;
- d. Highlight areas of improvement and those requiring improvement; and
- e. Make recommendations to enhance the quality of internal assessment.

2.2 Scope and Approach

Umalusi sent external moderators and a staff member to seven of the nine provinces during the period 21 June to 1 July 2022 to moderate the ICASS conduct of N2 and N3 students and lecturers' portfolios from a sample of NATED Report 190/191 instructional offerings. The external moderators drafted reports on their findings at the sampled sites. Sixteen instructional offerings, compared to 15 in 2021 (an increase of 6%) were moderated at 14 (10 in 2021) private colleges and two (five in 2021) public colleges.

Table 2A provides information on the sampled instructional offerings, the sites and the provinces involved in the external moderation of NATED Report 190/191: Engineering Studies N2–N3 ICASS during June/July 2022.

Table 2A: Moderation of Report 190/191 ICASS

Instructional Offering	TVET/FET College	Site	Province
Bricklaying and Plastering Theory N2	Motheo TVET College	Thaba Nchu Campus	FS
Building and Civil Technology N3	CTU Training Solutions (Pty) Ltd	Potchefstroom	NW
Building Drawing N3	Gateway City College (Pty) Ltd	Durban	KZN
Building Science N2	College on Hills: Kwaggafontein	Kwaggafontein	MP
Diesel Trade Theory N2	National Skills and Technical College	Middelburg	MP
Electrotechnology N3	Brooklyn City College: Nelspruit	Nelspruit	MP
Engineering Drawing N2	Mahikeng City College FET	Mahikeng	NW
Engineering Science N2	Baal-Perazim FET College (Pty) Ltd	Polokwane	LP

Instructional Offering	TVET/FET College	Site	Province
Engineering Science N2	Vaal Skills Training Institute	Durban	KZN
Fitting and Machining Theory N2	Princeview College	Durban	KZN
Industrial Electronics N2	Technicon South Africa for Higher Education	Pretoria	GP
Instrument Trade Theory N2	ABM College Witbank	Emalahleni	MP
Mathematics N2	College of Cape Town	Athlone	WP
Mathematics N3	Bohlokoa ba Thuto (Pty)Ltd	Vanderbijlpark	GP
Plant Operation Theory N3	Brooklyn City College	Pretoria	GP
Supervision in Industry N3	Innovation Technology Campus	Emalahleni	MP

Umalusi's moderators were also requested to gather information on three additional instructional offerings. The sites were not informed prior to the visits of this additional monitoring. The purpose of this unannounced request for evidence from these instructional offerings was to prevent any 'window dressing' of tasks and accompanying documents intended to present a favourable impression.

2.3 Summary of Findings.

The section below indicates the findings of the external moderators on the implementation of internal assessment of the Engineering Studies instructional offerings. Shortcomings could hamper the effective delivery of the NATED Report 190/191 N2–N3 programmes.

Table 2B: Findings from the moderation of June/July 2022 internal assessment

Criterion	Findings	College/Site
Physical resources	The available facilities at 88% of the sites (93% in August 2021) were adequate to accommodate the number of students enrolled.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
	Textbooks/teaching material was available at the beginning of the trimester at 69% of the sites. This is a drop from 87% in August 2021.	ABM College Emalaheni Athlone Campus Bohlokoa ba Thuto Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	The students at 38% of the sites (47% in August 2021) were given practical experience in the implementation of the theory component of the subject at the site of learning.	College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Mahikeng City College Thaba Nchu Campus Vaal Skills Training Institute
	Computers and printers were available for students to use for assignments/case studies and research at 75% of the sites. This is an increase of 8% from 67% in August 2021.	ABM College Emalaheni Athlone Campus Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
Human resources	At 56% of the sites visited, colleges had a process to identify staff members' training needs. This is a 31% decrease from 87% in August 2021.	Athlone Campus Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus

Criterion	Findings	College/Site
	At 56% of the sites visited, the college had a plan for the training of staff/staff development, a drop of 24% from 80% in August 2021.	Athlone Campus Bohlokoa ba Thuto Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus
	At 38% of the sites visited, there was evidence that the training plan had been implemented, a drop from 60% in August 2021.	CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus
	At 75% of the sites visited, an increase of 2% from 73% in August 2021, educators felt there were areas where they needed further training.	ABM College Emalahleni Athlone Campus Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus
	The educators at 50% of the sites visited had experience in the workplace environment/relevant industry, an increase of 3% from 47% in August 2021.	Athlone Campus Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Mahikeng City College National Skills and Technical College Thaba Nchu Campus

Criterion	Findings	College/Site
Internal assessment policies and systems	There was an up-to-date college assessment policy at 94% of the sites visited, an improvement of 14% from 80% in August 2021.	ABM College Emalahleni Athlone Campus Bohlokoba ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	There was evidence of a structure/plan for the monitoring of assessment at the site of learning at 75% of the sites visited, a 2% increase from 73% in August 2021.	Bohlokoba ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	There was evidence of a subject monitoring report per lecturer at 63% of the sites visited, a decrease of 10% from 73% in August 2021.	Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
	There was a plan in place for the development of assessment tasks at 94% of the sites, an increase from 87% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus
	At 88% of the sites, tasks had been developed according to the plan/schedule of assessment, an increase from 80% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus
	At 75% of the sites (80% in August 2021), there were systems in place to ensure that tasks were of a satisfactory standard.	ABM College Emalahleni Baal-Perazim FET College Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus

Criterion	Findings	College/Site
	At 63% of the sites visited, the college had an irregularity register, an increase of 3% from 60% in August 2021.	Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College Technicon South Africa for Higher Education Thaba Nchu Campus
	Internal assessment irregularities had been recorded in the register at 38% of the sites visited, an increase of 11% from 27% in August 2021.	Athlone Campus Baal-Perazim FET College CTU Training Solutions Gateway City College Mahikeng City College Thaba Nchu Campus
Lecturer files	Forty-four percent (44%) of the sites visited presented lecturer files that contained all the following documents: a. Name; b. Certified copies of qualifications; c. South African Council for Educators (SACE) registration; d. Teaching/lecturing experience; and e. Workplace experience. This is a 3% drop from 47% in August 2021.	Athlone Campus Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions National Skills and Technical College Princeview College Technicon South Africa for Higher Education
	The lecturer file contained the subject syllabus at all sites visited (100%).	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
	At 94% of the sites visited, the subject file contained lesson plans. This is an increase of 1% on the findings of August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	At 94% of the sites visited, the assessment file contained the relevant documents namely: Assessment schedules; Assessment instruments and tools; Evidence of pre-assessment moderation; Evidence of post-assessment moderation; and Mark sheets for all groups. This is an increase of 14% from 80% in August 2021.	ABM College Emalahleni Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	Assessment scores had been recorded accurately on mark sheets at 94% of the sites visited, an increase of 27% from 67% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
Content coverage	Copies of previous question papers or sections of previous question papers were used as assessment tasks (tests) at 88% of sites, compared to 93% in August 2021.	ABM College Emalaheni Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	Eighty-one percent of sites (93% in August 2021) had ensured that a substantial amount of work was covered in both tests.	ABM College Emalaheni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Vaal Skills Training Institute
	The weighting and spread of the content of topic(s) in both tests was appropriate at 88% of the sites (87% in August 2021).	ABM College Emalaheni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Vaal Skills Training Institute
	Question types did not comply with the required content at two sites (13%), an increase of 6% from 7% in August 2021.	CTU Training Solutions Mahikeng City College

Criterion	Findings	College/Site
Cognitive demand and difficulty levels	The difficulty of the two tasks varied at all sites (100%). The tasks were pitched at the right level and assessed a variety of knowledge and skills. This was an improvement of 7% on 93% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
Internal moderation of task	Eighty-one percent of the sites (87% in August 2021) showed evidence of moderation of the marking of both tests in a sample of 10% of the scripts.	ABM College Emalahleni Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	At 88% of the sites, the sample of tests that was internally moderated included the full range of performance, i.e. high, average, and low scoring students, compared to 80% in August 2021.	ABM College Emalahleni Athlone Campus Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
Technical aspects	<p>Eleven sites (69%) contained all relevant information such as:</p> <p>The name of the subject;</p> <p>The level of the subject;</p> <p>Time allocation;</p> <p>Content covered;</p> <p>Number of test; and</p> <p>Date.</p> <p>This is an increase of 2% from the August 2021 findings.</p>	<p>ABM College Emalahleni</p> <p>Athlone Campus</p> <p>Baal-Perazim FET College</p> <p>Bohlokoa ba Thuto</p> <p>College on Hills: Kwaggafontein</p> <p>CTU Training Solutions</p> <p>Gateway City College</p> <p>Mahikeng City College</p> <p>National Skills and Technical College</p> <p>Technicon South Africa for Higher Education</p> <p>Vaal Skills Training Institute</p>
	<p>At all sites visited (100%), both tasks included instructions to students, an improvement of 7% from the August 2021 findings.</p>	<p>ABM College Emalahleni</p> <p>Athlone Campus</p> <p>Baal-Perazim FET College</p> <p>Bohlokoa ba Thuto</p> <p>Brooklyn City College: Nelspruit</p> <p>Brooklyn City College: Pretoria</p> <p>College on Hills: Kwaggafontein</p> <p>CTU Training Solutions</p> <p>Gateway City College</p> <p>Innovation Technology Campus</p> <p>Mahikeng City College</p> <p>National Skills and Technical College</p> <p>Princeview College</p> <p>Technicon South Africa for Higher Education</p> <p>Thaba Nchu Campus</p> <p>Vaal Skills Training Institute</p>
	<p>The language and terminology used was appropriate and relevant in both tests at all the sites (100%), as in August 2021.</p>	<p>ABM College Emalahleni</p> <p>Athlone Campus</p> <p>Baal-Perazim FET College</p> <p>Bohlokoa ba Thuto</p> <p>Brooklyn City College: Nelspruit</p> <p>Brooklyn City College: Pretoria</p> <p>College on Hills: Kwaggafontein</p> <p>CTU Training Solutions</p> <p>Gateway City College</p> <p>Innovation Technology Campus</p> <p>Mahikeng City College</p> <p>National Skills and Technical College</p> <p>Princeview College</p> <p>Technicon South Africa for Higher Education</p> <p>Thaba Nchu Campus</p> <p>Vaal Skills Training Institute</p>

Criterion	Findings	College/Site
	The mark allocated to each question was clearly indicated in both tests at 100% of the sites, as in August 2021.	ABM College Emalaheni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	The mark allocation on both tests corresponded to that on the marking tool at 88% of the sites, a decrease from 93% in August 2021.	ABM College Emalaheni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	The numbering on the test was incorrect at 13% of the sites.	Brooklyn City College: Nelspruit National Skills and Technical College

Criterion	Findings	College/Site
	The time allocation was realistic for the administration of the tests at 94% of the sites, compared to 100% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
Marking tools	The marking guideline tools for both tests facilitated marking and were easy to use at 100% of sites, compared to 87% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College Princeview College National Skills and Technical College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
Student performance	Students interpreted questions in the tests correctly and were able to answer all or most of them at 81% of sites, compared to 93% of sites in August 2021.	Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
Quality of marking	Marking was consistent with the marking guidelines at 81% of the sites, compared to 80% of sites visited in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
	The mark allocated was a true reflection of students' performance in both tests at 75% of the sites, compared to 80% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Princeview College Technicon South Africa for Higher Education Vaal Skills Training Institute
	The calculation of marks and their transfer to mark sheets was accurate at 100% of the sites, an improvement on 93% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute

Criterion	Findings	College/Site
	The quality and standard of marking was satisfactory at 81% of the sites, a slight drop from 87% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit College on Hills: Kwaggafontein CTU Training Solutions Gateway City College Innovation Technology Campus National Skills and Technical College Princeview College Technicon South Africa for Higher Education Thaba Nchu Campus Vaal Skills Training Institute
Internal moderation of marking	At 81% of the sites, there was evidence that students' work had been moderated internally, a decrease from 87% of sites in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Bohlokoa ba Thuto Brooklyn City College: Nelspruit Brooklyn City College: Pretoria CTU Training Solutions Gateway City College Mahikeng City College National Skills and Technical College Princeview College Technicon South Africa for Higher Education Vaal Skills Training Institute
	The quality and standard of internal moderation was satisfactory at 44% of sites, a decrease from 67% in August 2021.	ABM College Emalahleni Athlone Campus Baal-Perazim FET College Brooklyn City College: Nelspruit CTU Training Solutions Gateway City College Technicon South Africa for Higher Education

2.3.1 Compliance check of additional instructional offerings

As indicated earlier, the external moderators were requested to do a compliance check on documents pertaining to other instructional offerings at the sites visited. The external moderators found that at 50% of the sites, compared to 33% in August 2021, the number of students registered with the DHET for these instructional offerings corresponded to the number of students registered at the college.

Table 2C provides information on the enrolments for these additionally sampled instructional offerings at sites involved in the spot-check moderation of NATED Report 190/191: Engineering Studies N2–N3 ICASS during June/July 2022.

Table 2C: Additional instructional offerings moderated, including DHET enrolment numbers

No.	College/Campus	Mathematics N2	Engineering Science N2	Industrial Electronics N2	Building Science N3	Electrical Trade Theory N2	Mechanotechnology N3	Diesel Trade Theory N2
1.	ABM College Witbank	211 (217)	212 (214)	95	-	-	-	-
2.	Athlone Campus	-	50 (41)	-	35 (32)	-	27 (25)	-
3.	Baal-Perazim FET College	39	-	24	-	17	-	-
4.	Bohlokoa ba Thuto	-	154 - N3 (138)	33 - N3 (34)	-	-	47	-
5.	Brooklyn City College: Pretoria	43	39	21	-	-	-	-
6.	Brooklyn City College: Nelspruit	97 (100)	78 (80)	39	-	-	-	-
7.	College on Hills: Kwaggafontein	21	10 - N3	4	-	-	-	-
8.	CTU Training Solutions	27 - N3 (6)	-	-	12	-	7	-
9.	Gateway City College	286 (302)	116 (134)	75	-	-	-	-
10.	Innovation Technology	150	151	53	-	-	-	-
11.	Mahikeng City College	18	19	-	-	12	-	-
12.	National Skills and Technical College	257 (138)	234 (118)	87 (50)	-	-	-	-
13.	Princeview College	49	47	18	-	-	-	-
14.	Technicon South Africa for Higher Education	33	36	-	-	-	-	15
15.	Thaba Nchu Campus	39	14	20	-	-	-	-
16.	Vaal Skills Training Institute	96 (41)	-	52 (28)	-	57 (37)	-	-

The numbers in brackets indicate the enrolments at the college/campus as per the mark sheet(s).

The sites were requested to provide evidence of the marked tests and mark sheets for the additional instructional offerings. Sites' compliance with ICASS requirements as stated in the 2022 DHET ICASS Instructions is indicated in Table 2D.

Table 2D: Evidence of one or both tests accompanied by the marksheet

TVET/FET College	Campus/Site	Instructional offerings	Test 1	Test 2	Correct conversion
ABM	Emalahleni	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Baal-Perazim	Seshego	Electrical Trade Theory N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Bohlokoa ba Thuto	Vanderbijlpark	Engineering Science N3	✓	✓	✓
		Industrial Electronics N3	✓	✓	✓
		Mechanotechnology N3	✓	X	✓
Brooklyn City	Nelspruit	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Brooklyn City	Pretoria	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
College on Hills	Kwaggafontein	Engineering science N3	X	X	X
		Industrial Electronics N2	X	X	X
		Mathematics N2	X	X	X
College of Cape Town	Athlone	Building Science N3	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
CTU Training Solutions	Potchefstroom	Building Science N3	✓	✓	✓
		Mathematics N2	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
Gateway City College	Durban	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Innovation Technology	Emalahleni	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Mahikeng City College	Mahikeng	Electrical Trade Theory N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Motheo TVET	Thaba Nchu Campus	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
National Skills and Technical College	Middelburg	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓

TVET/FET College	Campus/Site	Instructional offerings	Test 1	Test 2	Correct conversion
Princeview College	Durban	Engineering Science N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Technicon SA for Higher Education	Bronkhorstspuit	Diesel Trade Theory N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mathematics N2	✓	✓	✓
Vaal Skills Training Institute	Durban	Electrical Trade Theory N2	✓	✓	✓
		Industrial Electronics N2	✓	✓	✓
		Mathematics N2	✓	✓	✓

At one site, the sampled instructional offerings were not compliant in terms of marked tests and mark sheets. The site that had difficulties complying with the ICASS requirements as stated in the 2022 DHET ICASS Instructions is listed in Table 2E.

Table 2E: The site that experienced challenges in terms of ICASS compliance

Evidence of additional Instructional Offerings	College	Instructional Offering
No evidence of tests or mark sheets	College on Hills: Kwaggafontein	Engineering Science N3
		Industrial Electronics N2
		Mathematics N2

2.4 Areas of Improvement

The following improvements were observed:

- At 75% of the sites there were computers and printers for use by students to complete assignments and case studies and to do research. This is an 8% increase from 67% in August 2021;
- There was an up-to-date college assessment policy at 94% of the sites visited, an improvement of 14% from 80% in August 2021;
- There was a plan in place for the development of assessment tasks at 94% of the sites, an improvement from 87% in August 2021. Tasks were developed according to the plan/schedule of assessment at 88% of the sites, an increase of 8% from 80% in August 2021;
- At 63% of the sites visited, colleges had an irregularity register, an improvement of 3% from 60% in August 2021. Internal assessment irregularities were recorded in this register at 38% of the sites visited, an increase of 11% from 27% in August 2021;
- The assessment files contained all the relevant documents at 93% of the sites visited. This is an increase of 13% from 80% in August 2021;
- Assessment scores were recorded accurately on mark sheets at 94% of the sites visited, an increase of 27% from 67% in August 2021;
- At all the sites visited (100%), there were instructions to students on both tasks, an improvement of 7% from the August 2021 findings;

- h. At all sites (100%), the marking guideline tools for the tests were easy to use and facilitated marking, compared to 87% in August 2021; and
- i. The calculation and transfer of marks to mark sheets was accurate at 100% of the sites, an improvement from 93% of sites visited in August 2021.

2.5 Areas of Non-compliance

Several concerns were raised, including:

- a. Textbooks/teaching material was available when the classes commenced at the beginning of the trimester at 69% of the sites, a drop from 87% in August 2021;
- b. Students at 38% (47% in August 2021) of the sites were given practical experience in the implementation of the theory component;
- c. The college had a process in place to identify staff members' training needs at 56% of the sites visited. This is a decrease of 31% from 87% in August 2021. At 56% of the sites visited, the college had a plan for staff training/staff development, a drop of 24% from 80% in August 2021. There was evidence that the training plan had been implemented at 38% of the sites visited, a drop from 60% in August 2021;
- d. At 75% of the sites (80% in August 2021), there were systems in place to ensure that tasks were of a satisfactory standard;
- e. Eighty-one percent of sites (93% in August 2021) ensured that a substantial amount of work was covered in both tests;
- f. Eighty-one percent of the sites (87% in August 2021) provided evidence of moderation of the marking of both tests;
- g. The mark allocation on the test corresponded to that on the marking tool for both tests at 88% of the sites, a decrease from the 93% in August 2021;
- h. The time allocation was realistic for the administration of the tests at 94% of the sites, compared to all sites (100%) in August 2021;
- i. The students interpreted questions in the tests correctly and were able to answer all or most of them at 81% of sites, compared to 93% of the sites in August 2021;
- j. The marks allocated were a true reflection of students' performance in both tests at 75% of the sites, compared to 80% of the sites visited in August 2021;
- k. At 81% of the sites, there was evidence that students' work had been moderated internally, a decrease from 87% in August 2021; and
- l. The quality and standard of internal moderation was satisfactory at 44% of sites, a decrease from 67% in August 2021.

2.6 Directives for Compliance and Improvement

The DHET must address the following directives for compliance and improvement to ensure effective teaching, learning and assessment of the Engineering Studies' instructional offerings at colleges by ensuring that:

- a. Lecturers' training needs are addressed at college level;
- b. There are systems in place to ensure that tasks of a high standard are designed, and that internal moderation is thorough; and
- c. Marking of tasks is consistent with the marking guidelines.

2.7 Conclusion

The NATED Report 190/191: Engineering Studies N2–N3 programme remains a popular choice among students at private further education and training (FET) colleges. Besides the knowledge of the theory of subjects gained, the practical application of the theoretical components prepares students for the industry. Internal assessment serves to prepare students for the final examination at the end of the trimester. These ICASS are therefore designed to contribute to the holistic preparation of the student for the workplace and or further studies.



CHAPTER 3

MONITORING OF THE WRITING OF EXAMINATIONS

3.1 Introduction

Umalusi monitors the writing of examinations with the purpose of determining whether the Department of Higher Education and Training (DHET) conducts, administers and manages the examinations in accordance with approved guidelines and policies. This is done to ensure the credibility of examinations for Technical and Vocational Education and Training (TVET) qualifications and programmes registered on the General and Further Education and Training Sub-framework (GFETQSF).

This chapter reports on the findings from the monitoring of a sample of 37 examination centres. It acknowledges areas of improvement, areas of non-compliance and provides directives for improvement and compliance.

3.2 Scope and Approach

A sample of 37 examination centres were monitored for the writing of the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examinations. These were selected from all nine provinces. Umalusi monitors and staff collected data from these sites using verification, observation and interview methods. Reports were based on the data collected at these examination centres.

The details of monitored examination centres are provided in Table 3A.

Table 3A: Examination centres monitored by Umalusi monitors and staff

No.	Name of College and Type	Site/Campus	Province	Subject	Date Visited
1.	Afri-IT Business College (Private)	Witbank	Mpumalanga	Engineering Science N3	30/06/2022
2.	African Institute of Technology (Private)	Pretoria	Gauteng	Engineering Science N2	01/07/2022
3.	Bristol Training College (Private)	Pretoria	Gauteng	Mathematics N3	01/07/2022
4.	Cresta Vaal College (Private)	Vereeniging	Gauteng	Mathematics N3	01/07/2022
5.	False Bay TVET College (Public)	Khayelitsha	Western Cape	Mathematics N2	28/06/2022
6.	False Bay TVET College (Public)	Westlake	Western Cape	Building Science N2	01/07/2022
7.	Gateway City College (Private)	Durban	KwaZulu-Natal	Mathematics N2	28/06/2022
8.	Global Tech College (Private)	Rustenburg	North-West	Diesel Trade Theory N2	04/07/2022
9.	Good News Skills Academy (Private)	Sebokeng	Gauteng	Mathematics N3	01/07/2022
10.	Innovation Technology Campus (Private)	Witbank	Mpumalanga	Mathematics N3	01/07/2022
11.	Jengrach Technical College (Private)	Welkom	Free State	Engineering Science N3	30/06/2022

No.	Name of College and Type	Site/Campus	Province	Subject	Date Visited
12.	MJR Training Institute (Private)	Westonaria	Gauteng	Mathematics N3	01/07/2022
13.	Motheo TVET College (Public)	Hillside View	Free State	Engineering Science N3	30/06/2022
14.	Motheo TVET College (Public)	Thaba Nchu	Free State	Electro-technology N3	13/07/2022
15.	National Skills and Technical College (Private)	Middelburg	Mpumalanga	Mechanotechnology N3	05/07/2022
16.	Nkangala TVET College (Public)	Waterval-Boven	Mpumalanga	Electrical Trade Theory N3	05/07/2022
17.	Northlink TVET College (Public)	Belhar	Western Cape	Engineering Science N3	30/06/2022
18.	Oaklands Institute of Technology (Private)	Pretoria	Gauteng	Engineering Science N3	30/06/2022
19.	Overcomers Training College (Private)	Pretoria	Gauteng	Engineering Science N3	30/06/2022
20.	Platinum College (Private)	Rustenburg	North-West	Fitting and Machining Theory N2	04/07/2022
21.	Polokwane Technology Institute (Private)	Polokwane	Limpopo	Building Science N2	01/07/2022
22.	Port Elizabeth TVET College (Public)	Iqhayiya	Eastern Cape	Industrial Electronics N3	29/06/2022
23.	Princeview College (Private)	Durban	KwaZulu-Natal	Engineering Science N2	01/07/2022
24.	PTA Technical College (Private)	Secunda	Mpumalanga	Engineering Science N3	30/06/2022
25.	Rock of Springs SA College (Private)	Rustenburg	North-West	Instrument Trade Theory N3	05/07/2022
26.	Roseville Technical College (Private)	Rustenburg	North-West	Fitting and Machining N2	04/07/2022
27.	Saint Ignatious (Private)	Witbank	Mpumalanga	Mathematics N3	01/07/2022
28.	Saint Ignatious (Private)	Polokwane	Limpopo	Mathematics N2	28/06/2022
29.	Shalom Technical College (Private)	Johannesburg	Gauteng	Mathematics N3	01/07/2022

No.	Name of College and Type	Site/Campus	Province	Subject	Date Visited
30.	Springfield FET College (Private)	Rustenburg	North-West	Engineering Science N2	01/07/2022
31.	Standerton Correctional Service	Standerton	Mpumalanga	Industrial Electronics N2	27/06/2022
32.	The Great Oasis College (Private)	Mothibistad	Northern Cape	Industrial Electronics N2	27/06/2022
33.	Thekwini City College (Private)	KwaDukuza	KwaZulu-Natal	Mathematics N2	28/06/2022
34.	Thekwini City College (Private)	Polokwane	Limpopo	Mathematics N2	28/06/2022
35.	Vaal Skills Training Institute (Private)	Durban	KwaZulu-Natal	Industrial Electronics N3	29/06/2022
36.	Varsity Institute of Science and Technology (Private)	Johannesburg	Gauteng	Engineering Science N3	30/06/2022
37.	Whitestone College (Private)	Bloemfontein	Free State	Mathematics N2	28/06/2022

3.3 Summary of Findings

The findings of the monitoring of the writing of examinations are indicated below, by criteria, as per Umalusi's Monitoring of the Writing of Examinations Instrument.

Table 3B lists the findings by Umalusi monitors and staff at monitored examination centres.

Table 3B: Detailed findings from monitored examination centres

Criteria	Findings	Examination Centres
Preparations for the examination	It was evident that the DHET had verified the state of readiness for examinations at 29 of monitored examination centres (78%), an increase of 10% compared to 68% in the August 2021 examinations. Eight examination centres (22%) had not been verified by DHET.	Bristol Training College Innovation Technology Campus Platinum College Saint Ignatious (Witbank) Shalom Technical College Thekwini City College (Polokwane) Varsity Institute of Science and Technology Waterval-Boven Campus
	There was an official timetable for the current examinations at 34 examination centres (92%); a decrease of 3% from 95% in the August 2021 examinations. There was no official timetable for the current examinations at three examination centres (8%).	Innovation Technology Campus Platinum College Saint Ignatious (Witbank)

Criteria	Findings	Examination Centres
	<p>Thirty-five examination centres (95%) had enough examination rooms to accommodate all the registered candidates</p> <p>Two examination rooms to accommodate all the registered candidates:</p> <p>a. Afri-IT Business College – there were 135 registered students on the marksheet, but the venue could accommodate only 53 candidates.</p> <p>b. Bristol Training College – there were 190 registered students on the marksheet, but the venue could accommodate only 69 candidates</p>	<p>Afri-IT Business College</p> <p>Bristol Training College</p>
	At 37 examination centres (100%), all candidates were registered to write the examination; this was also the case in the August 2021 examinations.	All examination centres monitored.
	<p>At 32 examination centres (86%), examination rooms had adequate space to accommodate all candidates seated 1 metre apart.</p> <p>At five examination centres (14%), examination rooms did not have adequate space and candidates were not seated 1 metre apart.</p>	<p>Afri-IT Business College</p> <p>Bristol Training College</p> <p>Innovation Technology Campus Roseville</p> <p>Saint Ignatious (Witbank)</p>
	There was proper lighting in the examination rooms at 37 examination centres (100%), an increase of 5% from 95% in the August 2021 examinations.	All examination centres monitored.
	All 37 examination centres (100%) had adequate water and sanitation, as in the August 2021 examinations.	All examination centres monitored.
	<p>Thirty-six examination centres (97%) had a safe/strong room where examination material was kept under lock and key; this was a drop of 3% from 100% in the August 2021 examinations.</p> <p>One examination centre (3%) had a safe/strong room where examination material was kept but this was not locked.</p>	Roseville
	The environment was conducive to the writing of examinations at 37 examination centres (100%); an increase of 5% from 95% in the August 2021 examinations.	All examination centres monitored.
	<p>Chief invigilators at 36 examination centres (97%) collected or received question papers from the nodal point.</p> <p>The chief invigilator at one examination centre (3%) did not receive question papers (Mechanotechnology N3) from the nodal point.</p>	National Skills and Technical College

Criteria	Findings	Examination Centres
	Officials at 37 examination centres (100%) were in possession of dispatch documents, as was the case in the August 2021 examinations.	All examination centres monitored
	An updated stock control register was kept at 35 examination centres (95%); an increase of 4% from 91% in the August 2021 examinations. The stock control register was not updated at two examination centres (5%).	African Institute of Technology Thaba Nchu Campus
	The chief invigilators verified that the correct question papers for 36 (97%) examination centres had been delivered or collected; an increase of 2% from 95% in the August 2021 examinations. The question paper for Mechanotechnology N3 was received via email at one examination centre (3%) and was verified on the sent email.	National Skills and Technical College
Invigilators and their training	Campus managers were appointed as chief invigilators at 32 examination centres (86%), as in the August 2021 examinations. There was no evidence that the campus managers had been appointed as chief invigilators at five examination centres (14%).	Belhar Campus Innovation Technology Campus Princeview College PTA Technical College Varsity Institute of Science and Technology
	Chief invigilators at 31 examination centres (84%) had received training from the assessment body, a rise of 7% from 77% in the August 2021 examinations. There was no evidence at six examination centres (16%) that the chief invigilators had been trained by the assessment body.	African Institute of Technology Bristol Training College Innovation Technology Campus Iqhayiya Campus Platinum College Saint Ignatious (Witbank)
	Invigilators had been appointed in writing at 36 examination centres (95%), as in the August 2021 examinations.	
	At one (5%) examination centre, there was no evidence of the appointment of invigilators.	Jengrach Technical College
	Invigilators at 33 examination centres (89%) had received training for the current examination, an increase of 3% compared to 86% in the August 2021 examinations. At four examination centres (11%), there was no evidence that invigilators had been trained.	Bristol Training College Platinum College Saint Ignatious (Witbank) Thekwini City College (KwaDukuza)

Criteria	Findings	Examination Centres
Preparations for writing and examination rooms/ venues	At 35 examination centres (95%), candidates were seated 30 minutes before the examination commenced; an increase of 9% compared to 86% in the August 2021 examinations. At two examination centres (5%), candidates were not seated 30 minutes before the commencement of the examination.	Bristol Training College Overcomers Training College
	At thirty-six examination centres (97%), candidates' admission letters/identity documents were verified before they were allowed into the examination venue, a decrease of 3% from 100% in the August 2021 examinations. At one examination centre (3%), candidates' admission letters/identity documents were not verified before they were allowed into the examination venue.	Saint Ignatius (Witbank)
	There was an appropriate number of invigilators at thirty-six examination centres monitored (97%), a decrease of 3% from 100% in the August 2021 examinations. At one examination centre monitored (3%) there were not enough invigilators in the examination room.	Belhar Campus
	There was an invigilation timetable at 34 examination centres (92%), a decrease of 8% from 100% in the August 2021 examinations. At three examination centres (8%), there was no invigilation timetable.	Bristol Training College Rock of Springs SA College Thekwini City College (KwaDukuza)
	Thirty-one examination centres (84%) had relief timetables; an increase of 2% when compared to 82% in the August 2021 examinations. There was no relief timetable at six examination centres (16%).	Afri-IT Business College Bristol Training College Iqhayiya Campus Rock of Springs SA College Thekwini City College (KwaDukuza) Varsity Institute of Science and Technology
	An attendance register was signed by invigilators at 28 examination centres (76%), a decrease of 15% from 91% in the August 2021 examinations. At nine examination centres (24%), attendance registers had not been signed by the invigilators.	African Institute of Technology Belhar Campus MJR Training Institute Platinum College PTA Technical College Rock of Springs SA College Shalom Technical College Thekwini City College (KwaDukuza) Varsity Institute of Science and Technology

Criteria	Findings	Examination Centres
	<p>Candidates at 33 examination centres (89%) were seated according to a seating plan. This was an increase of 12% from 77% in the August 2021 examinations.</p> <p>Four examination centres (11%) did not have a seating plan and candidates were seated randomly.</p>	<p>Bristol Training College National Skills and Technical College Overcomers Training College Whitestone College</p>
	<p>A clock or other device displaying the time was clearly visible in the examination venues at 37 (100%) examination centres. This was also the case in the August 2021 examinations.</p>	<p>All examination centres monitored.</p>
	<p>An notice board was visible at 36 examination centres (97%), an increase of 6% from 91% in the August 2021 examinations.</p> <p>At one examination centre (3%), the board was visible but it contained no information.</p>	<p>PTA Technical College</p>
	<p>The examination venue/s at all monitored examination centres/sites were free of any material/writing/drawings that could aid candidates writing the examinations. This was also the case in the August 2021 examinations.</p>	<p>All monitored examination centres.</p>
	<p>Invigilators at 35 examination centres (95%) ensured that candidates were not in possession of cell phones or any material/equipment that was not required for the examination. This was a decrease of 5% from 100% in the August 2021 examinations.</p> <p>At two examination centres (5%), invigilators did not ensure that candidates were not in possession of cell phones or any material/equipment not required for the examination.</p>	<p>Bristol Training College Platinum College</p>
	<p>At 33 examination centres (89%), calculators were checked for compliance, where applicable.</p> <p>At four examination centres (11%), calculators were not checked for compliance.</p>	<p>Bristol Training College Innovation Technology Campus Overcomers Training College Saint Ignatious (Witbank)</p>
	<p>The examination file at 36 examination centres (97%) was complete.</p> <p>The examination file at one examination centre (5%) was incomplete.</p>	<p>Bristol Training College</p>

Criteria	Findings	Examination Centres
Time management	Invigilators arrived on time at 34 examination centres (92%), a drop of 3% from 95% in the August 2021 examinations. Invigilators did not arrive on time at three examination centres (8%).	Bristol Training College (08:40) Jengrach Technical College (08:42) Saint Ignatious (Witbank) (08:30)
	An attendance register was signed by candidates at 37 examination centres (100%), as in the August 2021 examinations.	All examination centres monitored.
	Candidates were issued with the official answer book at 37 examination centres (100%), as in the August 2021 examinations.	All examination centres monitored.
	The invigilators at 34 examination centres (92%) verified that the information on the cover page of the answer books was correct; this was a decrease of 3% from 95% in the August 2021 examinations. Invigilators at three examination centres (4%) did not verify the information on the cover page of the answer books.	National Skills and Technical College Saint Ignatious (Witbank) Varsity Institute of Science and Technology
	The question papers were opened in the presence of candidates at 36 examination centres (97%), a drop of 3% 100% in the August 2021 examinations. The question papers (Mechanotechnology N3) were not opened in the presence of the candidates at one examination centre (3%) because they had been emailed to the chief invigilator.	National Skills and Technical College
	Question papers were distributed to candidates on time at 30 examination centres (81%), a drop of 10% from 91% in the August 2021 examinations. Question papers were not distributed to candidates on time at seven examination centres (19%).	Bristol Training College (09:10) MJR Training Institute (08:57) National Skills and Technical College (09:45) Oaklands Institute of Technology (08:54) Platinum College (08:52) Shalom Technical College (08:56) Varsity Institute of Science and Technology (09:05)
	Question papers were checked for technical accuracy at 31 examination centres (84%); a drop of 11% from 95% in the August 2021 examinations. Invigilators at six examination centres (16%) did not check question papers for technical accuracy.	qhayiya Campus National Skills and Technical College Shalom Technical College Thekwini City College (KwaDukuza) Vaal Skills Training Institute Varsity Institute of Science and Technology
	Candidates were given the required reading time at 26 examination centres (70%); a drop of 7% from 77% in the August 2021 examinations.	

Criteria	Findings	Examination Centres
Activities during writing	Candidates were not given the required reading time at eleven examination centres (30%).	Afri-IT Business College (4 minutes) Jengrach Technical College (7 minutes) MJR Training Institute (2 minutes) National Skills and Technical College (0 minutes) Oaklands Institute of Technology (3 minutes) Overcomers Training College (7 minutes) Platinum College (5 Minutes) Shalom Technical College (2 minutes) Varsity Institute of Science and Technology (0 minutes) Westlake Campus (17 minutes) Whitstone College (7 minutes)
	Examination rules were read out to candidates at 37 examination centres (100%), as was the case in the August 2021 examinations.	All examination centres monitored.
	The examination started at the time indicated on the timetable at 34 examination centres (92%), an increase of 1% from 91% in the August 2021 examinations. The examination did not start at the time indicated on the timetable at three examination centres (8%).	Bristol Training College (09:10) National Skills and Technical College (09:45) Varsity Institute of Science and Technology (09:10)
	Candidates who arrived within the stipulated time limit were admitted at 35 examination centres (95%). Candidates who arrived after the stipulated time limit were admitted at two examination centres (5%).	Innovation Technology Campus (09:10) Saint Ignatious (Witbank) (09:05)
	Answer books were stamped at 34 examination centres (92%), an increase of 6% from 86% in the August 2021 examinations. Answer books were not stamped before the start of the examination at three examination centres (8%).	Bristol Training College Rock of Springs SA College Roseville
	The examination ended at the stipulated time at 37 examination centres (100%), as in the August 2021 examinations.	All examination centres monitored.
	Invigilators were not asked to clarify any aspect of the question paper at any of the 37 examination centres (100%), as in the August 2021 examinations.	All examination centres monitored.

Criteria	Findings	Examination Centres
	No candidates left the examination room temporarily without an escort 32 examination centres (86%). This was a drop of 14% from 100% in the August 2021 examinations. At five examination centres (14%), candidates left the examination room temporarily without an escort.	Bristol Training College Innovation Technology Campus National Skills and Technical College Overcomers Training College Saint Ignatious (Witbank)
	There were no unauthorised personnel in any of the examination rooms at any of the examination centres during the examination session. This was also the case in the August 2021 examinations.	All examination centres monitored.
	Officials at 35 examination centres (95%) did not allow any candidates to leave the examination venue during the last 15 minutes of the session, a drop of 5% from 100% in the August 2021 examinations. At two examination centres (5%), candidates were allowed to leave the examination venue during the last 15 minutes of the session.	Bristol Training College Good News Skills Academy
	No irregularities were reported during the examination session at 36 examination centres (97%). One irregularity (emailed question paper for Mechanotechnology N3) was reported during the examination session at one examination centre (3%).	National Skills and Technical College
	Invigilators at 35 examination centres (95%) were vigilant and patrolled the room during the examination session, an increase of 4% from 91% in the August 2021 examinations. Invigilators at two examination centres (5%) did not patrol the venue during the examination session: a. Innovation Technology Campus – invigilators were occupied with other administrative duties and at times candidates were left without an invigilator. b. Jengrach Technical College – the invigilator remained seated and used her cell phone from time to time.	Innovation Technology Campus Jengrach Technical College
	No official errata were found at any of the examination centres.	All examination centres monitored.
Packaging and transport of answer scripts	Scripts were counted and packed in a secured area at all 37 examination centres (100%).	All examination centres monitored.
	Absentee forms were inserted into the batches at all 37 examination centres (100%).	All examination centres monitored.
	Only authorised personnel were present during the packing of scripts at all 37 examination centres (100%).	All examination centres monitored.

Criteria	Findings	Examination Centres
	The scripts were packaged in the sequence on the mark sheet at 37 examination centres (100%).	All examination centres monitored.
	The number of scripts corresponded to the number on the wrapper at 37 examination centres (100%), an increase of 5% from 95% in the August 2021 examinations.	All examination centres monitored.
	Scripts were sealed in the satchel provided at all 37 examination centres (100%), as was the case in the August 2021 examinations.	All examination centres monitored.
	The scripts were sealed in the presence of the monitor at all 37 examination centres (100%), as in the August 2021 examinations.	All examination centres monitored.
	The chief invigilators at 33 examination centres (89%) completed a daily situational report, an increase of 3% from 86% in the August 2021 examinations. At four examination centres (11%), there was no evidence that the chief invigilator had completed a daily situational report.	Bristol Training College Jengrach Technical College Saint Ignatious (Witbank) Whitestone College
	Scripts from all 37 examination centres (100%) were transported to a nodal point by authorised personnel.	All examination centres monitored.
Monitoring by the DHET	There was evidence of monitoring by the assessment body at 30 examination centres (100%) (81%), an increase of 26% from 55% in the August 2021 examinations. At seven examination centres (19%), there was no evidence that the assessment body had monitored the examination centres during Umalusi's visit/s.	African Institute of Technology Iqhayiya Campus PTA Technical College Shalom Technical College Standerton Correctional Services Varsity Institute of Science and Technology Whitestone College

3.3.1 Irregularities and incidents identified by Umalusi monitors and staff

The Umalusi monitors and staff noted the following irregularities and incidents at examination centres:

- a. Belhar Campus:
 - i. The attendance register was available but not all staff had signed this before and after their invigilation sessions; and
 - ii. The prescribed ratio of 1:30 was adhered to in all examination venues, bar the one used for the the Engineering Science N3 examination.
- b. Innovation Technology Campus:
 - i. Invigilators were occupied with administrative duties and at times candidates were left without an Invigilator.
- c. Jengrach Technical College:

The invigilator remained seated and was at times using her cell phone.
- d. National Skills and Technical College:

- i. The question paper (Mechanotechnology N3) was received by email at 09:30; and
 - ii. Candidates began writing the examination late (09:45) but they all completed it by 12:00.
- e. Platinum College:
- i. The invigilator's cell phone rang throughout the writing of the Fitting and Machining Theory N2 examination.

3.4 Areas of Improvement

The following areas of improvement were observed:

- a. The DHET verified the state of readiness at 29 monitored examination centres (78%), an increase of 10% from 68% in the August 2021 examinations;
- b. The environment was conducive to the writing of examinations at 37 examination centres (100%), an increase of 5% from 95% in the August 2021 examinations;
- c. Chief invigilators at 31 examination centres (84%) had received training from the assessment body, an increase of 7% from 77% in the August 2021 examinations;
- d. At 35 examination centres (95%), candidates were seated 30 minutes before the examination commenced, an improvement of 9% when compared to 86% in the August 2021 examinations;
- e. At 33 examination centres (89%), candidates were seated according to a seating plan, an improvement of 12% when compared to 77% in the August 2021 examinations;
- f. A notice board was visible at 36 examination centres (97%), an increase of 6% from 91% in the August 2021 examinations; and
- g. There was evidence of monitoring by the assessment body at 30 examination centres (81%), an increase of 26% when compared to 55% in the August 2021 examinations.

3.5 Areas of Non-compliance

The following areas of non-compliance were observed:

- a. With regard to the preparation of examination rooms/venues, it was found that:
 - a. Examination rooms did not have enough space to seat candidates 1m apart from each other; Some examination centres did not have seating plans and candidates were seated randomly;
- b. In terms of the invigilation of examinations :
 - i. There was no evidence at some examination centres that the campus manager had been appointed as chief invigilator;
 - ii. There was no evidence at some examination centres that the chief invigilators and invigilators had been trained;
 - iii. Invigilators did not arrive on time;
 - iv. Attendance registers were not signed by invigilators;
 - v. Candidates left the examination room temporarily without an escort;
 - vi. Question papers were not distributed to candidates on time;
 - vii. Candidates were not given the required reading time;
 - viii. The examination was not started at the time indicated on the timetable; and
 - ix. There was no relief invigilation timetable.

3.6 Directives for Compliance and Improvement

The DHET is required to ensure that:

- a. Examination centres comply with the policy pertaining to the conduct, administration and management of the examinations; and
- b. Examination centres improve invigilation processes by making sure that:
 - i. Attendance registers are signed;
 - ii. Invigilators arrive at the venues on time;
 - iii. Question papers are distributed on time;
 - iv. Candidates are given the stipulated reading time;
 - v. Examinations start as per the time indicated on the timetable;
 - vi. Candidates are escorted when leaving the examination room during the examination;
 - vii. Candidates who arrive after the official starting time of the examination are not allowed into the room/venue; and
 - viii. Examination centres display seating plans, invigilation and relief timetables at all times.

3.7 Conclusion

The conduct, administration and management of the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examinations were satisfactory and most of the monitored examination centres complied with all regulations. Although infringements were observed at some examination centres, these did not compromise the overall integrity and credibility of the examinations.



CHAPTER 4

STANDARDISATION

OF MARKING

GUIDELINES

4.1 Introduction

The standardisation of marking guidelines provides a platform for the Department of Higher Education and Training's (DHET) markers, examiners, internal moderators and Umalusi's external moderators to discuss responses to questions and to reach consensus before the final marking guidelines are approved by Umalusi.

The purpose of standardising the marking guidelines is to ensure that the personnel involved in the marking process share a common understanding and interpretation of the marking guidelines. Furthermore, this process aims to ensure that all possible alternative responses are included in the final marking guidelines before they are implemented. Umalusi participates in the finalisation of the marking guidelines to ensure that fairness prevails, and it reports on the:

- a. Preparedness of markers, chief markers and internal moderators for the marking guideline discussions;
- b. Thoroughness of marking guideline discussions; and
- c. Standard and quality of the marking guidelines.

The standardisation of marking guidelines was conducted on an online platform. These meetings were chaired by the respective examiners or internal moderators responsible for the setting of the question papers. All chief markers, internal moderators and markers who had been appointed were required to take part in the marking guideline discussions. However, in the case of instructional offerings with large enrolments, only the chief markers and internal moderators from each marking centre were required to join the marking guideline discussion meetings.

4.2 Scope and Approach

Eight external moderators appointed by Umalusi attended the marking guideline discussion meetings for the eight instructional offerings listed in Tables 4A and 4B below.

Umalusi moderators used the instrument for the Standardisation of Marking Guidelines to record their findings. The instrument for NATED Report 190/191 Engineering Science N2–N3 required Umalusi moderators to report their findings according to the following criteria:

- a. Attendance at meetings by internal moderators, chief markers and markers;
- b. Punctuality of attendees;
- c. Duration of discussions;
- d. Appointment of marking staff;
- e. Chairperson of the meeting;
- f. Standardisation of the marking guideline process;
- g. Participation of role players;
- h. Adjustments and their justification;
- i. Umalusi's role;
- j. Debates during the meeting; and
- k. Approval of the final marking guidelines.

Umalusi's moderators attended the standardisation of marking guideline meetings to monitor the proceedings, to provide guidance where necessary, endorse final decisions and finally to approve the final marking guidelines for use during the marking processes.

Tables 4A and 4B provide lists of the N2 and N3 standardisation of marking guideline meetings attended by Umalusi, and the dates.

Table 4A: N2 marking guideline discussion meetings

No.	Subject	Date
1.	Engineering Drawing N2	15 July 2022
2.	Fitting and Turning Theory N2	6 July 2022
3.	Platers' Theory N2	13 July 2022
4.	Plating and Structural Steel Drawing N2	14 July 2022

Table 4B: N3 marking guideline discussion meetings

No.	Subject	Date
1.	Electrotechnology N3	15 July 2022
2.	Engineering Science N3	4 July 2022
3.	Motor Trade Theory N3	8 July 2022
4.	Plant Operation Theory N3	8 July 2022

4.3 Summary of Findings

Umalusi moderators reported that participants were well prepared and this allowed for rigorous discussions and finalisation of the marking guidelines. Consensus was reached by participants on all changes made to the marking guidelines. Table 4C presents the findings of the standardisation of marking guidelines process as reported by Umalusi's moderators.

Table 4C: Findings from the standardisation of marking guidelines of NATED N2 and N3 instructional offerings

Evaluation criteria	Findings and challenges	Sampled instructional offerings
Attendance by marking staff	Markers and internal moderators for one of the instructional offerings did not attend the online meeting. The standardisation of the marking guideline was attended by the chief marker and the examiner only.	Motor Trade Theory N3
	Only the chief marker and internal moderator standardised the marking guideline for one instructional offering.	Plant Operation Theory N3
	The DHET instructed all participants to add their names and designations to the chat box once they had logged in; some participants in 25% of the meetings did not respond to this request. Umalusi thus found it difficult to identify all participants.	Engineering Science N3 Fitting and Machining Theory N2
Appointment of marking staff	The chief markers, internal moderators, and markers for all instructional offerings (100%) were appointed on 20 June 2022. Markers were informed of their appointments by email and short message service (SMS). Others received appointment letters from their respective colleges.	All instructional offerings

Evaluation criteria	Findings and challenges	Sampled instructional offerings
Chairperson of meeting	The chief markers/internal moderators of 50% of the instructional offerings chaired the meetings.	Engineering Science N3 Plating and Structural Steel Drawing N2 Electrotechnology N3 Plant Operation Theory N3
	The examiner chaired the meeting for 25% of the instructional offerings.	Platers' Theory N2 Motor Trade Theory N3
	The internal moderator of the setting of the question paper chaired the meeting for 25% of the instructional offerings.	Engineering Drawing N2 Fitting and Machining Theory N2
Attendance and punctuality of participants	The meeting for one instructional offering started late as the chairperson had difficulty logging into the meeting.	Plant Operation Theory N3
Umalusi's changes to question paper and marking guideline during moderation process	The changes recommended by Umalusi moderators were implemented in all the question papers and marking guidelines (100%).	
Adjustments to marking guidelines during discussions	Adjustments were made during the marking guideline discussions to 88% of the instructional offerings, compared to 75% in the August 2021 examinations.	Electrotechnology N3 Engineering Drawing N2 Engineering Science N3 Fitting and Machining Theory N2 Motor Trade Theory N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2
Justification for changes to marking guidelines	Umalusi regarded all changes to marking guidelines (88%) as justified. These amendments would enhance the marking process and promote the fairness and consistency of marking.	Electrotechnology N3 Engineering Drawing N2 Engineering Science N3 Fitting and Machining Theory N2 Motor Trade Theory N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2
Effect of changes to marking guidelines on cognitive level of responses	The changes made to the marking guidelines for the sampled instructional offerings (88%) had no effect on the cognitive level of the responses.	Electrotechnology N3 Engineering Drawing N2 Engineering Science N3 Fitting and Machining Theory N2 Motor Trade Theory N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2

Evaluation criteria	Findings and challenges	Sampled instructional offerings
Signing off the marking guidelines	Marking guidelines for all sampled instructional offerings (100%) were endorsed by all Umalusi moderators. Owing to the nature of online meetings, the sign-off procedure entailed a verbal agreement rather than a physical signature of approval.	
Comments and recommendations from Umalusi moderators	The panel for Motor Trade Theory N3 recommended a concession request for Question 8.3; it was established that the information provided prevented the question from being answered. It must be obligatory for all appointed markers to attend the marking guideline discussions.	

4.4 Areas of Improvement

The following areas of improvement were noted:

- All marking officials were appointed before the commencement of the standardisation of marking guidelines; and
- After the marking guideline discussions, all guidelines were signed off. The external moderators agreed to the changes made during the standardisation meeting.

4.5 Areas of Non-compliance

The following areas of non-compliance were noted:

- Not all participants in meetings for two instructional offerings registered their names in the chat box, with the result that the external moderators found it difficult to identify all participants (Fitting and Machining Theory N2 and Engineering Science N3);
- The examiners/internal moderators who set the papers for 50% of the sampled instructional offerings did not attend the standardisation of marking guideline meetings; and
- Some appointed marking personnel did not attend the standardisation of marking guideline meetings.

4.6 Directives for Compliance and Improvement

To improve the quality and standard of the marking guideline discussion meetings, the DHET must ensure that:

- All appointed marking personnel attend the standardisation of marking guideline meetings.
- Examiners and internal moderators of the question papers are part of the marking guideline discussions so that they can provide clarity on input from markers to improve future question papers.

4.7 Conclusion

The standardisation of marking guideline discussions for the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examinations were successfully completed. However, the DHET must have systems in place to ensure attendance by all participants appointed to mark the examination scripts.



CHAPTER 5

VERIFICATION OF

MARKING

5.1 Introduction

Umalusi quality assures the conduct of the marking process to confirm the consistency and accuracy of marking, and to establish whether both marking and internal moderation are executed according to agreed and established standards and practices. It is through this quality assurance process that the standard and quality of marking is verified.

This chapter reports on:

- The reliability and viability of the systems, processes and procedures that were planned and implemented during the marking of the August 2022 NATED Report 190/191 Engineering Studies N2–3 examinations;
- The quality and standard of marking and internal moderation;
- The performance of candidates;
- Identification of areas of compliance and non-compliance; and
- Directives for compliance.

Umalusi quality assured the marking processes for the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examinations, by verifying the marking of a sample of instructional offerings. This verification of marking evaluated the adherence of marking to the approved standardised marking guidelines.

5.2 Scope and Approach

Umalusi sampled 12 instructional offerings from three marking centres for on-site monitoring and verification. This sample consisted of six N2 and six N3 instructional offerings. **Table 5A** lists the distribution of instructional offerings across marking centres:

Table 5A Distribution of instructional offerings across marking centres

No.	Marking Centre	Number of Instructional offerings
1.	Centurion	2
2.	Iqhayiya	2
3.	Pretoria West	8
TOTAL		12

Umalusi deployed nine external moderators to verify the standard and quality of marking as part of the verification process.

Table 5B lists the six sampled N2 instructional offerings, the dates of verification and the marking centres at which on-site verification was conducted:

Table 5B: N2 instructional offerings sampled

No.	Instructional Offering	Date	Marking Centre
1.	Bricklaying and Plastering N2	20 August 2022	Pretoria West
2.	Diesel Trade Theory N2	19 August 2022	Pretoria West
3.	Engineering Science N2	19 August 2022	Pretoria West
4.	Industrial Electronics N2	19 August 2022	Iqhayiya
5.	Logic Systems N2	21 August 2022	Centurion
6.	Plumbing Theory N2	21 August 2022	Pretoria West

Table 5C lists the six sampled N3 instructional offerings, the dates of verification and the marking centres at which on-site verification was conducted:

Table 5C: N3 instructional offerings sampled

No.	Instructional Offering	Date	Marking Centre
1.	Building Science N3	19 August 2022	Pretoria West
2.	Building Drawing N3	20 August 2022	Pretoria West
3.	Mathematics N3	18 August 2022	Pretoria West
4.	Mechanotechnology N3	19 August 2022	Pretoria West
5.	Motor Trade Theory N3	20 August 2022	Iqhayiya
6.	Radio and Television Theory N3	20 August 2022	Centurion

During the August 2021 examination, Umalusi sampled 12 instructional offerings for the verification of the marking process. The sample for the August 2022 examination was the same size. Although this is a small statistical sample it is within the norm when compared to the sampling of instructional offerings in previous verification of marking processes.

Table 5D and Table 5E indicate the number of instructional offerings, provinces and examination centres for N2 and N3 respectively:

Table 5D: Verification of marking N2: Instructional offerings, number of provinces and number of examination centres per province

Instructional Offering	Number of Provinces	Western Cape	Northern Cape	Free State	Eastern Cape	KwaZulu-Natal	Mpumalanga	Limpopo	Gauteng	North West	Province 10*
Bricklaying and Plastering N2	6	0	1	3	0	0	2	0	8	4	2
Diesel Trade Theory N2	5	4	4	0	0	3	0	0	7	2	0
Engineering Science N2	3	0	0	0	0	0	0	0	8	9	3
Industrial Electronics N2	1	0	0	0	20	0	0	0	0	0	0
Logic Systems N2	4	0	1	0	0	13	1	0	5	0	0
Plumbing Theory N2	3	0	0	0	0	4	0	3	8	0	0

Province 10* represents examination centres from outside the borders of South Africa

Table 5E: Verification of marking N3: Instructional offerings, number of provinces and number of examination centres per province

Instructional Offering	Number of Provinces	Western Cape	Northern Cape	Free State	Eastern Cape	KwaZulu-Natal	Mpumalanga	Limpopo	Gauteng	North West	Province 10*
Building Drawing N3	7	0	0	3	2	3	4	0	3	2	2
Building Science N3	8	0	2	2	2	3	0	3	4	2	2
Mathematics N3	3	0	0	0	0	0	0	0	8	7	5
Mechanotechnology N3	4	0	0	0	2	0	0	9	5	4	0

Instructional Offering	Number of Provinces	Western Cape	Northern Cape	Free State	Eastern Cape	KwaZulu-Natal	Mpumalanga	Limpopo	Gauteng	North West	Province 10*
Motor Trade Theory N3	4	0	0	0	4	4	0	0	11	1	0
Radio and Television Theory N3	2	0	0	0	0	0	0	1	19	0	0

Province 10* represents examination centres from outside the borders of South Africa

Each external moderator purposively sampled and verified a maximum of 20 marked scripts across high, low and average performing candidates. The sample of marked scripts included scripts from provinces and examination centres that were available at the particular marking centre.

5.3 Summary of Findings

This section presents the most important results and discusses, interprets and compares the findings of the verification of marking for the August 2022 N2–N3 examination to those of the August 2021 N2–N3 examination.

Table 5F summarises the findings of the verification of marking of the 12 N2–N3 instructional offerings:

Table 5F: Findings of the verification of marking of N2–N3 instructional offerings

Criteria	Findings	Instructional Offerings
Delivery of scripts	The full complement of scripts for four of the instructional offerings sampled (33%) had been received at the time of moderation. This represents a decline of 26% from the August 2021 examination.	Building Drawing N3 Industrial Electronics N2 Motor Trade Theory N3 Plumbing Theory N2
Training for marking	Training for markers was conducted for ten of the sampled instructional offerings (83%), a decline of 9% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2
Sample marking	After training for marking by 11 of the instructional offerings (92%), each marker marked a copy of the same script to determine consistency in marking. This was also the case in the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2

Criteria	Findings	Instructional Offerings
	Thereafter, markers for all (100%) instructional offerings received a sample of scripts to mark from a range of centres, an increase of 25% from August 2021 examination	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
	During sample marking, markers for 11 of the sampled instructional offerings (92%) adhered to the marking guidelines. This represented an improvement of 9% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
Marking: Adherence to the marking guideline	Adherence to marking guidelines was considered good in ten instructional offerings (83%), a decline of 1% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
Standard of marking	The standard of marking was rated as good for ten instructional offerings (83%). This was a decline of 1% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3

Criteria	Findings	Instructional Offerings
Administration: Recording of marks	The prescribed procedure for the recording of marks on the front page of the script was followed by all instructional offerings (100%), as in the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
Administration: Mark indication per question	Marks were clearly indicated per question in all scripts from the sampled instructional offerings (100%), as in the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
Administration: Indication of errors	Mistakes identified by moderators and/or examination assistants were clearly indicated in nine of the sampled instructional offerings (75%). This was a decline of 17% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2
Administration: Transfer of marks to cover page	Marks were transferred accurately to the cover page in all of the sampled instructional offerings (100%). This was an improvement of 8% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3

Criteria	Findings	Instructional Offerings
Administration: Correct completion of mark sheets	<p>Mark sheets were completed correctly for 12 of the instructional offerings (100%), as in the August 2021 examination:</p> <ol style="list-style-type: none"> No correction fluid was used; All marks were indicated as three digits; No blank spaces; "IRR" was indicated to the left of candidate number; Initial and surname of examination assistant was included; and Signature of chief marker was included. 	<p>Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3</p>
Administration: Note keeping	<p>Notes were kept by markers throughout the marking process for all instructional offerings (100%). This was a significant improvement of 25% from the August 2021 examination.</p>	<p>Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3</p>
Control: Marker identification	<p>Markers for all instructional offerings sampled (100%) indicated their code/name in red ink on the cover page of the script, an increase of 33% from the August 2021 examination.</p>	<p>Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3</p>

Criteria	Findings	Instructional Offerings
Control: Chief marker identification	The chief markers for ten of the instructional offerings (83%) wrote their names clearly on the moderated scripts, a decline of 1% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2
Control: Examination assistant identification	The examination assistants for 11 instructional offerings sampled (92%) wrote their initials/signatures clearly on checked scripts. This represents an improvement of 42% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2
Internal moderation	Moderation of scripts throughout the marking process was evident in all instructional offerings (100%), as in the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3

Criteria	Findings	Instructional Offerings
Internal moderation: Sampling of scripts	The moderators of 11 instructional offerings moderated (92%) randomly sampled scripts from high, average and low performing candidates for internal moderation, as in the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
	The moderator for one instructional offering did not sample high, average and low performing candidates' scripts randomly.	Building Science N3
Internal moderation approach	A whole script moderation approach was adopted for all internally moderated instructional offerings (100%). This was an improvement of 8%.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
Standard of internal moderation	The standard of internal moderation in nine of the instructional offerings (75%) was rated as good, a drop of 17% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2
	The standard of internal moderation of two of the instructional offerings (17%) was rated as average.	Mathematics N3 Radio and Television Theory N3
	The standard of internal moderation of one of the instructional offerings (8%) was rated as poor.	Logic Systems N2
Candidates' responses	Candidates for four instructional offerings (33%) found the papers difficult.	Building Science N3 Logic Systems N2 Motor Trade Theory N3 Radio and Television Theory N3

Criteria	Findings	Instructional Offerings
Unfair questions	Nine instructional offerings (75%) did not include any unfair questions.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Mathematics N3 Mechanotechnology N3 Plumbing Theory N2 Radio and Television Theory N3
	Unfair questions were found in three instructional offerings (25%).	Industrial Electronics N2 Logic Systems N2 Motor Trade Theory N3
Prevention and management of irregularities	Irregularities were reported in five of the sampled instructional offerings (42%), a drop of 25% from the number reported in the August 2021 examination.	Bricklaying and Plastering N2 Diesel Trade Theory N2 Engineering Science N2 Mathematics N3 Mechanotechnology N3
General standard of marking	Marking was declared to be consistent and fair in 11 instructional offerings verified (92%), a decline of 8% from the August 2021 examination.	Bricklaying and Plastering N2 Building Drawing N3 Building Science N3 Diesel Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Mathematics N3 Mechanotechnology N3 Motor Trade Theory N3 Plumbing Theory N2 Radio and Television Theory N3
	Marking was judged as unfair in one subject (8%).	Logic Systems N2

5.4 Areas of Improvement

The findings of the August 2022 verification of marking revealed the following areas of improvement from the August 2021 N2–N3 examination:

- Markers for all instructional offerings received a sample of scripts to mark from a range of centres, an improvement of 25% from the August 2021 examination;
- Marks were transferred correctly to the cover page in all the sampled instructional offerings (100%). This was an improvement of 8% from the August 2021 examination;
- Notes to assist in the writing of qualitative reports were kept by markers throughout the marking process of all N2–N3 instructional offerings (100%), a significant improvement of 25% from the August 2021 examination;
- Examination assistants for instructional offerings sampled (92%) wrote their initials/signatures clearly on the scripts they checked. This represents an improvement of 42%; and

- e. Irregularities were reported in five of the sampled instructional offerings (42%), a drop of 25% from the August 2021 examination.

5.5 Areas of Non-compliance

The findings of the verification of marking revealed the following instances of non-compliance that could affect marking processes in the future:

- a. Thirty-three percent of N2–N3 scripts had not been received for marking at the time of verification of marking, a decline of 26% from the August 2021 examination;
- b. Mistakes identified by the moderator and/or examination assistant were not clearly indicated in 25% of the sampled instructional offerings; and
- c. The proportion of internal moderation that was rated as good declined by 17%.

5.6 Directives for Compliance and Improvement

To improve the standard and quality of marking, the DHET is requested to:

- a. Revise current marking processes to ensure that all scripts are received in good time by marking centres ;
- b. Improve training in administrative duties for moderators and examination assistants to avoid administrative omissions; and
- c. Improve training to ensure that all moderators maintain high standards of moderation.

5.7 Conclusion

The marking and moderation of scripts for the August 2022 NATED Report 190/191: Engineering Studies N2–N3 examination was found to be generally consistent and accurate. The administration and control of marking was of a satisfactory standard. Marking was declared to be consistent and fair in 11 of the verified instructional offerings (92%). It could therefore be concluded that adherence to the approved standardised marking guidelines for the August 2022 examination was to a large extent consistent and reliable.



CHAPTER 6

MONITORING

OF MARKING

CENTRES

6.1 Introduction

Umalusi monitored marking centres for the August 2022 examinations of NATED Report 190/191 Engineering Studies N2–N3 to comply with the quality assurance of assessment mandate. The purpose of this monitoring was to establish whether the Department of Higher Education and Training (DHET) had implemented the required systems and processes to ensure the integrity and credibility of the marking processes.

The DHET provided Umalusi with the following:

- a. Registration data indicating the number of candidates enrolled for particular instructional offerings;
- b. Instructional offerings to be marked at specific marking centres;
- c. The location of marking centres, including physical addresses; and
- d. The dates of the marking of the NATED Report 190/191 Engineering Studies N2–N3 August 2022 examination scripts.

This chapter reports on the findings of the monitoring of eight DHET marking centres. It acknowledges areas of improvement, highlights areas of non-compliance and provides directives for improvement and compliance.

6.2 Scope and Approach

The marking of the August 2022 examinations for NATED Report 190/191 Engineering Studies N2–N3 was conducted at eight marking centres established by the DHET across seven provinces. Umalusi sent monitors and staff members to monitor all these marking centres.

Data used to compile this report were gathered from on-site monitoring of the marking centres, from interviews and from observations conducted by Umalusi staff and monitors, using an instrument designed for this purpose. The names and details of the monitored marking centres are provided in Table 6A.

Table 6A: Marking centres monitored by Umalusi staff and monitors

No.	Centre	Province	Programme	Date
1.	Northdale Campus	KwaZulu-Natal	N2–N3	18 July 2022
2.	Seshego Campus	Limpopo	N2–N3	19 July 2022
3.	Pretoria West Campus	Gauteng	N2–N3	20 July 2022
4.	Thornton Campus	Western Cape	N2–N3	21 July 2022
5.	Struandale Campus	Eastern Cape	N2–N3	21 July 2022
6.	Mpondozankomo Campus	Mpumalanga	N2–N3	21 July 2022
7.	Centurion Campus	Gauteng	N2–N3	22 July 2022
8.	Hillside View Campus	Free State	N2–N3	23 July 2022

6.3 Summary of Findings

The findings in Table 6B below are presented according to the criteria used for the monitoring of marking centres, as prescribed by Umalusi.

Table 6B: Findings of monitoring of marking centres by Umalusi staff and monitors

Criteria	Findings
Preparation and planning for marking	All marking centres had a marking management plan in place.
	Marking centre management teams arrived at seven marking centres according to the management plans. At Pretoria West, the marking centre manager and deputy marking centre manager: academic were on an official college trip to India and were not present on the first day. However, two other deputy marking centre managers, one for administration and one for finance, were available on the first day.
	Marking personnel arrived at seven marking centres according to the management plans. At Seshego, 12 of the 75 markers did not report for duty according to the plan for staggered marking on 9 July 2022 and 16 July 2022.
	Marking was staggered over the weekends as follows: a. Scripts for instructional offerings for which marking guidelines were standardised between 29 June 2022 and 06 July 2022, were marked from 09 July 2022; b. Scripts for instructional offerings for which marking guidelines were standardised between 07 and 14 July 2022, were marked from 16 July 2022; and c. Scripts for instructional offerings for which marking guidelines were standardised between 15 and 16 July 2022, were marked from 17 July 2022.
	Block marking commenced at marking centres on 16 July 2022, as scheduled by the DHET.
	There was a list of all appointed marking personnel at all marking centres.
	The assessment body provided all marking centres with marking guidelines in good time.
	Marking personnel were trained according to the management plans at seven marking centres. At Seshego, 63 of the 75 markers had been trained, and an attendance register was provided as evidence. According to the marking centre manager, the remaining 12 markers had been trained but there was no paper trail or evidence to support this.
	Marking at all marking centres commenced between 07:00 and 08:00 and ended between 17:00 and 20:00 daily.
	Marking centre resources
There was sufficient space to accommodate the number of instructional offerings being marked at all marking centres.	
The control rooms at all marking centres had adequate space to deal with all marked scripts.	
All marking centres had telecommunication equipment.	
All marking centres complied with the minimum Occupational Health and Safety (OHS) requirements and regulations, e.g. water and sanitation, electricity, fire extinguishers, etc. However, at Hillside View marking centre, the OHS certificate of compliance had expired and the centre was in the process of renewing it.	
The furniture was suitable for marking at all marking centres.	

Criteria	Findings
Security measures	Security personnel at all monitored marking centres had a list or register of marking personnel. Marking personnel wore identification tags. Security was ensured by controlled access at the entrance to most marking centres. Vehicle boot searches were conducted at the entrance to most marking centres.
	a. At Pretoria West marking centre, visitors were not given name tags. b. At Northdale marking centre there were no security personnel at the entrance to the marking centre. c. Not all vehicles were checked upon entry and exit at Thornton marking centre.
	At most marking centres, unauthorised persons were required to provide proof of identity; if they could not do so, they were refused entry or escorted to the marking centre manager or his/her deputy or relevant department by security personnel. At Thornton marking centre, the marking centre manager observed the presence of an unauthorised person during the marking process. This person was identified as a head of department at the college hosting the marking centre, but she had not been appointed as a marking official.
	At all marking centres, the chief marker of each subject controlled and signed for the scripts from the control room. The chief marker and examination assistants were then escorted by security personnel to the marking venues.
	All marking centres made use of courier services (Madibana SA World Wide Cargo Logistics) to transport scripts to and from the marking centres.
Management of irregularities	The marking centre manager discussed processes and procedures regarding irregularities with chief markers and internal moderators during their training sessions. The chief markers and internal moderators in turn discussed these procedures with markers during their meetings before the commencement of marking.
	There were irregularity committees at all the marking centres monitored.
	These committees comprised the marking centre manager, deputy marking centre manager: academic, and chief marker and or internal moderator of the subject concerned. The process of identifying and dealing with irregularities was standard across all marking centres. Once a marker had identified an irregularity, he/she immediately discussed it with the chief marker. After the implicated script(s) had been internally moderated, the chief marker assessed the validity of the irregularity. If evidence was substantive and convincing, the matter was escalated to the marking centre manager and the irregularity committee. The irregularity committee then forwarded a report to the DHET. The original script(s) and a copy of the mark sheet was included with the report, and a copy of the script(s) was inserted into the batch. The irregularity was recorded in the irregularity register.
Monitoring by the assessment body	There was evidence of monitoring by the assessment body at most marking centres. The following marking centres had not been monitored by the assessment body at the time of Umalusi's visit: a. Hillside View b. Struandale.

Criteria	Findings
	<p>The monitors from the assessment body left a report on their findings at the following marking centres:</p> <ol style="list-style-type: none"> Northdale – the bags belonging to markers were not searched. Pretoria West – there was a shortage of markers and examination assistants; the DHET appointed more personnel to assist in these duties. Seshego – there was no tuckshop on site. <p>The monitors from the assessment body did not leave a report at the following marking centres:</p> <ol style="list-style-type: none"> Centurion Mpondozankomo Thornton.
Quality assurance procedures and capturing of marks	<p>Scripts were checked by examination assistants at all marking centres visited by Umalusi staff and monitors, to ensure that marks had been correctly calculated, accurately transferred to the front pages, and to the mark sheets.</p> <p>The system of capturing marks at the marking centres was quality assured using a double-entry system, where one official entered the marks and another verified them.</p> <p>The coordinator rechecked/verified the captured marks after the capturers themselves had rechecked each other's work.</p> <p>At Seshego marking centre, four data capturers were appointed to capture and verify marks on the live data capturing platform. These data capturers were permanent employees of Seshego TVET College and were available only after college hours. This put pressure on the mark capturing process.</p> <p>A separate room equipped with computers was used for the capturing of marks at all marking centres.</p>
Marking concessions	<p>The DHET requested four marking concessions for the August 2022 NATED Report 190/191 Engineering Studies N2–N3 examinations.</p> <p>All marking centres monitored, complied with the decisions of the marking concessions as issued by Umalusi.</p>
Reports	<p>Markers at all marking centres made notes to assist in the writing of the qualitative reports.</p> <p>The chief markers at all marking centres completed a qualitative report after the marking process.</p> <p>The internal moderators at all marking centres completed qualitative reports.</p> <p>There was a system in place at all marking centres to control the receipt of qualitative reports.</p> <p>The deputy marking centre manager: administration quality assured all the submitted reports at all marking centres.</p>

6.4 Areas of Improvement

Umalusi staff and monitors noted the following:

- All marking personnel who were involved in the marking process reported on time;
- Marking concessions were implemented where applicable by all marking centres; and
- Irregularity committees were duly constituted at all marking centres.

6.5 Areas of Non-compliance

Umalusi staff and monitors noted the following areas of non-compliance:

- a. Seshego:
 - i. There was no evidence that 12 markers had undergone training; and
 - ii. Marks were not captured immediately mark sheets were available because the data capturers were permanent employees of Seshego TVET College and were available only after college hours.
- b. Pretoria West:
 - i. Visitors were not issued with name tags.
- c. Northdale:
 - i. There were no security personnel at the entrance to the marking centre throughout the marking process.
- d. Thornton:
 - i. All vehicles were not checked upon entry and exit; and
 - ii. The head of department of the college, despite not being appointed as a marker, was present at the centre without authorisation. This constituted an irregularity.

6.6 Directives for Compliance and Improvement

The DHET must ensure that:

- a. All marking personnel are trained in the marking process and that evidence of this is kept for verification;
- b. Data capturers are available and employed on a full-time basis during the marking process;
- c. Visitors are issued with name tags;
- d. Security personnel are on duty at the entrances to all marking centres;
- e. All vehicles entering and leaving marking centres are checked; and
- f. Security measures are stringent to avoid entry of unauthorised person/s to the marking centres.

6.7 Conclusion

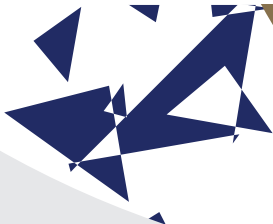
All the marking centres monitored were satisfactorily prepared for the marking process and they were found to be capable of dealing with irregularities efficiently and diligently. The marking centres had effective and efficient quality assurance processes and reporting was good. Therefore, it can be concluded that marking was conducted in a manner that did not compromise the credibility or integrity of the August 2022 examinations for NATED Report 190/191 Engineering Studies N2–N3.

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