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**Report on the Quality Assurance of
the August 2020 NATED Report
190/191 N2–N3 Engineering
Studies Examinations Administered
by the Department of Higher
Education and Training (DHET)**

UMALUSI



Quality Council for General and Further
Education and Training

REPORT ON THE
QUALITY ASSURANCE OF THE
AUGUST 2020 NATED REPORT 190/191
N2–N3 ENGINEERING STUDIES EXAMINATIONS
ADMINISTERED BY THE DEPARTMENT OF HIGHER
EDUCATION AND TRAINING (DHET)



Quality Council for General and Further
Education and Training

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INTRODUCTION AND BACKGROUND

The NATED Report 190/191: Engineering Studies N2 and N3 examinations are 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.

Umalusi as a Quality Council is mandated by the National Qualifications Framework (NQF) and General and Further Education and Training Quality Assurance (GENFETQA) Acts to develop and implement policy and criteria for the assessment of qualifications on the Umalusi sub-framework. The NATED Report 191/190: Engineering Studies N1-N3 is registered by South African Qualifications Authority (SAQA) as a programme on this the Umalusi sub-framework.

Umalusi as the Quality Council for General and Further Education and Training:

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

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

In 2020, the NATED Report 190/191: Engineering Studies N2 and N3 examinations were conducted in two examination cycles only as the April examinations were conducted in July/August. The delay in the staging of these examinations was caused by the global Covid-19 pandemic.

Forty question papers for the August 2020 examinations were set nationally and externally moderated by Umalusi. The DHET distributed question papers via courier services to nodal points, from where the surrounding colleges/campuses collected them. Answer scripts were to be returned to these points within 60 minutes of the stipulated end time of the examination session. The drawing subjects were written during the first week of the examination. The August 2020 examinations were written during morning sessions, starting at 9:00.

No formal appointment of marking staff was conducted by the DHET for this examination. Marking centre management staff of the national and provincial marking centres were mandated to make use of the marking personnel who had performed this function during the November 2019 examinations.

The marking of most N2 examinations followed a decentralised (provincial) marking model, while most N3 subjects followed a centralised (national) model. The N2 marking guidelines were standardised online, after which they were distributed electronically to marking centres.

As in previous examination sessions, the August 2020 NATED Report 190/191: Engineering Studies N2–N3 examinations were conducted at several schools, some correctional services centres, private colleges, public colleges, and a few centres in other countries.

As reported in the past, the implementation of the NATED Report 190/191: Engineering Studies programmes and examinations presents numerous challenges, some of which include, but are not limited to:

- Outdated syllabi;
- No practical component to ensure the development of practical skills;
- Staff lacking the capacity to provide effective tuition; and
- High percentage of candidates failing to write the examinations (high dropout rate).

The purpose of this draft report is to provide feedback on the processes followed by Umalusi during the quality assurance of the August 2020 NATED Report 190/191: Engineering Studies N2 to N3 examinations. The report reflects the findings, areas of compliance/improvement in the conduct, administration and management of these examinations, as well as areas of non-compliance and directives for compliance. The 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:

- Moderation of question papers from a sample of N2 and N3 subjects;
- Monitoring/moderation of internal assessment;
- Monitoring of the writing of examinations;
- Monitoring of the marking of examinations;
- Standardisation of marking guidelines;
- Verification of marking; and
- Standardisation.

ABBREVIATIONS AND ACRONYMS

DHET	Department of Higher Education and Training
DMCM	Deputy Marking Centre Manager: Academic
EC	Eastern Cape Province
FS	Free State Province
GENFETQA	General and Further Education and Training Quality Assurance
GP	Gauteng Province
ICASS	Internal Continuous Assessment
KZN	KwaZulu-Natal Province
LP	Limpopo Province
MP	Mpumalanga Province
NQF	National Qualifications Framework
NC	Northern Cape Province
NW	North West Province
OHS	Occupational Health and Safety
SAQA	South African Qualifications Authority
TVET	Technical and Vocational Education and Training
Umalusi	Council for Quality Assurance in General and Further Education and Training
WC	Western Cape Province

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CHAPTER 1 MODERATION OF QUESTION PAPERS

1.1 Introduction

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

The moderation of question papers is a critical part of the quality assurance of the assessment process. The external moderation process confirms that the question papers have been developed with rigour and comply with Umalusi's criteria, the curriculum and the assessment policy documents of the assessment body.

The DHET is expected to appoint examiners and internal moderators with the requisite content knowledge of the respective instructional offerings to set and internally moderate the question papers. These papers are then presented to Umalusi for external moderation. Question papers and marking guidelines are expected to be print-ready when submitted to Umalusi for external moderation. It therefore remains the fundamental responsibility of the internal moderators to ensure that question papers and marking guidelines are of an acceptable standard.

In order to uphold public confidence in the national examination system, the question papers must furthermore be seen to be:

- Fair;
- Reliable;
- Representative of an adequate sample of the curriculum;
- Representative of relevant conceptual domains; and
- Representative of relevant levels of cognitive demand.

1.2 Scope and Approach

Umalusi moderated and approved a total of 40 question papers and marking guidelines for the April 2020 NATED Report 190/191: Engineering Studies N2–N3 examinations. However, these examinations could not take place in April 2020 due to the national lockdown caused by the COVID-19 pandemic. The examinations were conducted in July/August 2020 hence they are referred to as the August 2020 examinations. The sample included drawing instructional offerings that were set internally and moderated externally on-site at the DHET offices. These were Building Drawing N3, Engineering Drawing N2 and N3, Mathematics N3 and Plating and Structural Steel Drawing N3. The moderation of these five subjects took place in three phases in a secure environment at the DHET offices. During the first phase, the examiner set the question paper and in the second phase the internal moderator was called in to moderate the question paper. Where changes had to be implemented, the examiner was called in to make the necessary changes. During the third phase, the Umalusi external moderator arrived to moderate the question paper and made recommendations. The internal moderator was called in to make any changes so that the question paper could be signed off.

An off-site moderation approach was followed for the remaining 35 instructional offerings; the question papers, marking guidelines, assessment frameworks and internal moderators' reports were forwarded electronically to external moderators.

Table 1A indicates instructional offerings moderated per level:

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

Instructional offering	Level
Aircraft Maintenance Theory	N3
Building and Civil Technology	N3
Building Drawing	N2 and N3
Building Science	N2 and N3
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	N3
Instrument Trade Theory	N3
Logic Systems	N3
Mathematics	N2 and N3
Mechanotechnology	N3
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 and Television Theory	N3
Refrigeration Trade Theory	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 criteria according to which the question papers were moderated were related to the following aspects:

- Technical aspects of the presentation of question papers and marking guidelines;
- Effectiveness of internal moderation in improving the quality of question papers;
- Adherence to the syllabus with respect to content coverage;
- Types of questions, formulation of questions and clarity of questions;
- Distribution of marks across cognitive levels;

- Consistency and appropriateness of mark allocation;
- Relevance and correctness of the marking guidelines;
- Appropriateness of language register and correct use of grammar in question papers and marking guidelines, and content that is free from bias;
- Degree of predictability of questions and innovation in question papers; and
- An overall evaluation of the question papers and their suitability to the level being assessed.

1.3 Summary of Findings

The preliminary moderation process of the 40 sampled question papers resulted in the following findings:

- Five question papers and seven marking guidelines were approved and print-ready;
- Sixteen question papers and 13 marking guidelines were approved but required minor technical changes;
- Eighteen question papers and 19 marking guidelines were conditionally approved; these required amendments such as rephrasing or replacement of questions; and
- One question paper, together with its marking guideline, was rejected and required resetting and resubmission to external the moderator.

Table 1B: Approval status of the NATED Report 190/191 Engineering Studies marking guidelines after preliminary moderation

	Question papers	Marking guidelines
Approved: Print-ready	Building Drawing N3 Diesel Trade Theory N2 and N3 Industrial Organisation and Planning N3 Motor Trade Theory N2	Building Drawing N3 Diesel Trade Theory N2 and N3 Industrial Organisation and Planning N3 Motor Trade Theory N2 and N3 Plating and Structural Steel Drawing N2
Approved: Minor technical changes	Building and Civil Technology N3 Building Science N2 Electrical Trade Theory N3 Engineering Science N3 Industrial Electronics N2 and N3 Logic Systems N3 Motor Trade Theory N3 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 and N3 Plumbing Theory N2 Supervision in Industry N3 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3	Aircraft Maintenance Theory N3 Building and Civil Technology N3 Building Science N2 Electrotechnology N3 Engineering Science N3 Industrial Electronics N2 and N3 Instrument Trade Theory N3 Plating and Structural Steel Drawing N3 Plumbing Theory N2 Radio and Television Theory N3 Supervision in Industry N3 Water Treatment Practice N3
Conditionally approved: Questions/ Answers require restructuring/ rephrasing.	Building Science N3 Engineering Drawing N3 Engineering Science N2 Industrial Orientation N3 Instrument Trade Theory N3 Mechanotechnology N3 Platers' Theory N2 Welders' Theory N2	Building Science N3 Electrical Trade Theory N2 and N3 Engineering Drawing N2 and N3 Engineering Science N2 Industrial Orientation N3 Logic Systems N3 Mathematics N2 and N3 Mechanotechnology N3 Plant Operation Theory N3 Platers' Theory N2 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Welders' Theory N2

	Question papers	Marking guidelines
Conditionally approved: Questions/ Answers require replacement.	Building Drawing N2 Radio and Television Theory N3 Refrigeration Trade Theory N3	Building Drawing N2 Plant Operation Theory N2 Refrigeration Trade Theory N3
Conditionally approved: Questions require restructuring/ rephrasing/ replacement.	Aircraft Maintenance Theory N3 Electrical Trade Theory N2 Electrotechnology N3 Mathematics N2 and N3 Plant Operation Theory N3 Engineering Drawing N2	
Rejected: Question paper to be reset and resubmitted for internal and external moderation.	Fitting and Machining Theory N2	Fitting and Machining Theory N2

The graphs below (Figure 1A and 1B) provide a summary of the findings before the external moderation of the question papers and the marking guidelines, as captured from the external moderators' reports.

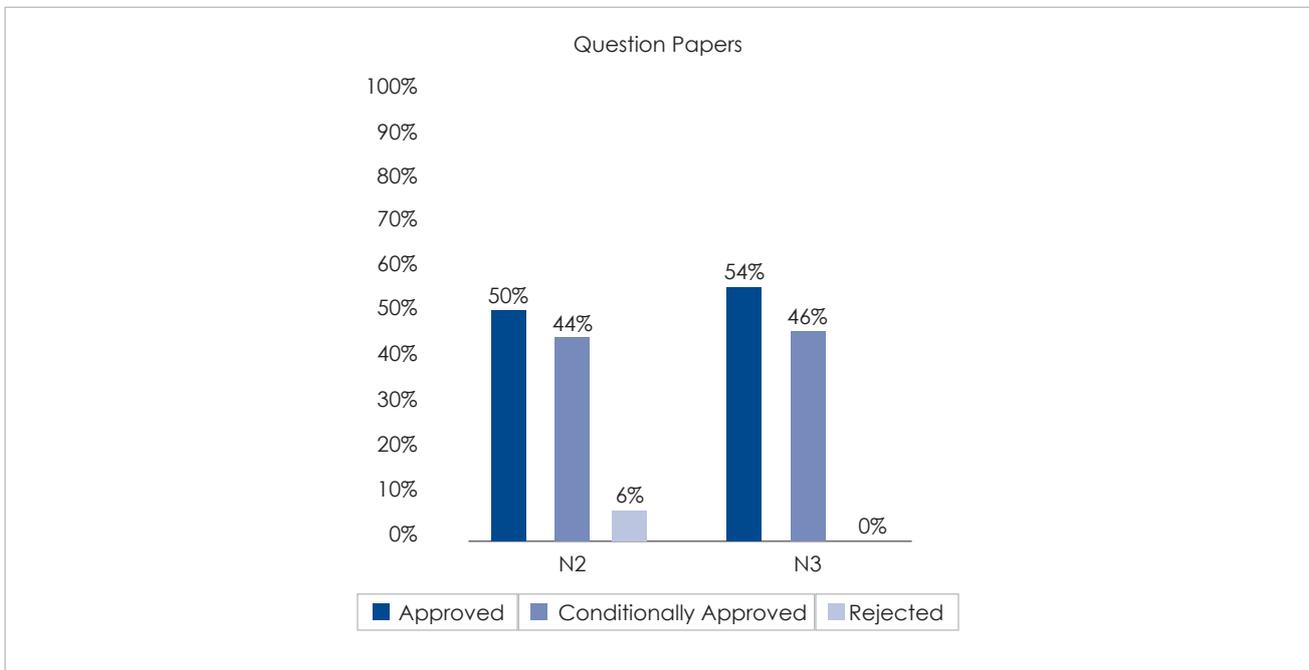


Figure 1A: Approval Status of the April 2020 NATED Report 190/191: Engineering Studies question papers after preliminary moderation

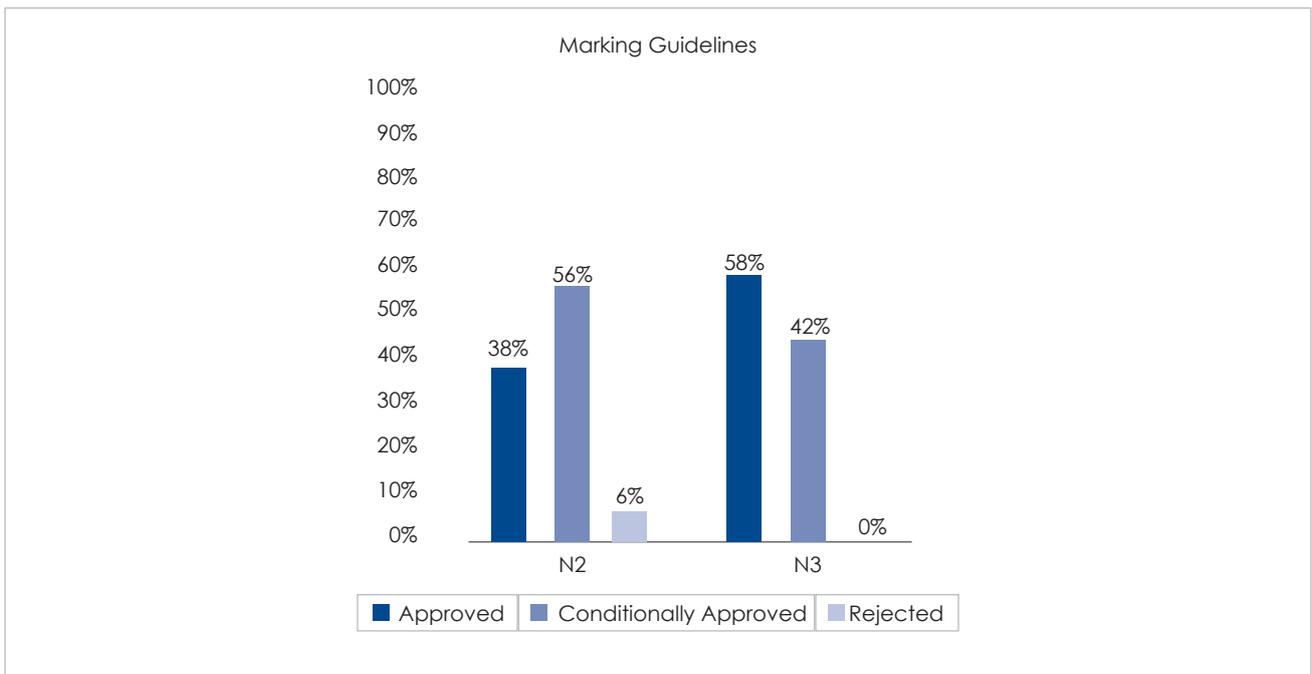


Figure 1B: Approval Status of the NATED Report 190/191: Engineering Studies marking guidelines after preliminary moderation

Table 1C provides a summary of the most significant findings of the moderation of the August 2020 examination question papers and marking guidelines. All findings are discussed in terms of the moderated sample of 40 instructional offerings.

Table 1C: Summary of findings of the initial moderation of question papers

Criterion	Challenges	Instructional offering
Technical criteria		
Question papers that met all technical requirements.	Forty-eight percent of question papers and marking guidelines met all technical requirements.	Building and Civil Technology N3 Building Drawing N3 Building Science N2 and N3 Diesel Trade Theory N2 and N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N2 Industrial Electronics N3 Industrial Orientation N3 Instrument Trade Theory N3 Mechanotechnology N3 Motor Trade Theory N2 Platers' Theory N2 Plumbing Theory N2 Radio and Television Theory N3 Waste-water Treatment Practice N3 Water Treatment Practice N3
Submission of supporting documents	The assessment grid and internal moderation report were not received.	Fitting and Machining Theory N2 Industrial Electronics N2 Refrigeration Trade Theory N3

Criterion	Challenges	Instructional offering
Layout of the question paper	The cover page of four question papers (10%) did not contain the required details such as the logo, name of instructional offering, time allocation, number of pages and additional information. This is an increase of 7% compared to 3% in the April 2019 examinations.	Aircraft Maintenance Theory N3 Industrial Organisation and Planning N3 Supervision in Industry N3 Welders' Theory N2
	The layout of five question papers (13%) was not reader-friendly, an increase of 13% compared to none in the April 2019 examinations.	Aircraft Maintenance Theory N3 Electrical Trade Theory N2 Logic Systems N3 Mathematics N2 Plating and Structural Steel Drawing N2
Numbering of pages	In two question papers (5%), some pages were incorrectly numbered, compared to 3% in the April 2019 examinations.	Building Drawing N2 Water and Waste-water Treatment Practice N2
Numbering of questions	In two question papers (5%), some questions were incorrectly numbered (the same percentage as in the April 2019 examinations).	Plant Operation Theory N2 Refrigeration Trade Theory N3
Headers and footers	In two question papers (5%), the headers and footers were not consistent and did not adhere to the required format (the same percentage as in the April 2019 examinations).	Fitting and Machining Theory N2 Plating and Structural Steel Drawing N2
Font type and size	In one question paper (3%), the fonts were not used appropriately throughout the paper (the same percentage as in the April 2019 examinations).	Mathematics N2
Mark and time allocation	The mark allocations in three question papers (8%) were not clearly indicated; this was also the case in the April 2019 examinations.	Building Drawing N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N3
	In one question paper (3%), the mark allocation on the question papers differed from the allocation in the marking guidelines; an improvement of 10% from the 13% in the April 2019 examinations.	Plating and Structural Steel Drawing N2

Criterion	Challenges	Instructional offering
Quality of graphics and illustrations	The illustrations, graphs and tables in 11 question papers (28%) were not appropriate, not clear, contained errors or were not print ready, an improvement compared to 30% in the April 2019 examinations.	Building Drawing N2 Engineering Drawing N3 Engineering Science N3 Industrial Electronics N2 Mathematics N2 and N3 Motor Trade Theory N3 Plant Operation Theory N2 and N3 Plating and Structural Steel Drawing N3 Refrigeration Trade Theory N3
Format requirements	One question paper (3%) did not adhere to the format requirements of the syllabus.	Fitting and Machining Theory N2
Internal moderation		
Incomplete moderator reports	The moderator reports for ten question papers (25%) had not been completed, a decrease compared to 28 % in the April 2019 examinations.	Building Drawing N2 and N3 Diesel Trade Theory N2 Electrical Trade Theory N2 Motor Trade Theory N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N3 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
Quality and standard of internal moderation report	The internal moderation reports for seven question papers (18%) were not of appropriate quality, a decrease of 5% compared to the 23% of the April 2019 examinations.	Building Drawing N2 and N3 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Drawing N3 Mathematics N2 and N3
	The internal moderation reports for six question papers (15%) were not of appropriate standard; an improvement of 10% compared to 25% of the April 2019 examinations.	Aircraft Maintenance Theory N3 Building Drawing N2 and N3 Electrical Trade Theory N2 Industrial Electronics N3 Mathematics N2
	Some information in the internal moderation reports did not correspond with the question paper and/or analysis grid in five question papers (13%). This is a decrease of 10% compared to 23% in the April 2019 examinations.	Building Drawing N3 Diesel Trade Theory N2 Electrical Trade Theory N2 Mathematics N2 and N3
Recommendations and implementation of recommendations	Seven question papers (18%) contained no evidence that the internal moderator's recommendations had been implemented or addressed, a decrease compared to 25% in the April 2019 examinations.	Aircraft Maintenance Theory N3 Building Drawing N2 and N3 Diesel Trade Theory N2 Mathematics N2 and N3 Plant Operation Theory N2

Criterion	Challenges	Instructional offering
Content coverage		
Coverage of the syllabus	In three question papers (8%), the syllabus was not covered adequately, a decrease compared to 10% in the April 2019 examinations.	Engineering Science N2 Fitting and Machining Theory N2 Mathematics N3
	Several questions in two question papers (5%) were beyond the scope of the syllabus. This was the same number as in the April 2019 examinations.	Fitting and Machining Theory N2 Mathematics N3
	In two question papers (5%), the topics were not spread evenly through the paper; a decrease of 3% compared to 8% in the April 2019 examinations.	Industrial Orientation N3 Mathematics N3
	Topics were not appropriately linked or integrated in four question papers (10%); same as the April 2019 examinations.	Electrical Trade Theory N2 Mathematics N2 and N3 Motor Trade Theory N3
	Seven question papers (18%) did not reflect the latest developments in the subject; this was an increase of 8% on 10% in the April 2019 examinations.	Building Drawing N2 Industrial Organisation and Planning N3 Mathematics N2 and N3 Motor Trade Theory N2 and N3 Plant Operation Theory N2
Type and quality of questions		
Types of questions	There was no correlation between mark allocation, level of difficulty or time allocation in several questions in five question papers (13%), compared to 10% in the April 2019 examinations.	Electrical Trade Theory N2 Fitting and Machining Theory N2 Mathematics N3 Plant Operation Theory N3 Refrigeration Trade Theory N3
Quality of questions	In two question papers (5%), questions were not pertinent to the content of the instructional offering; an increase of 2% compared to 3% in the April 2019 examinations.	Fitting and Machining Theory N2 Motor Trade Theory N2
	In seven question papers (18%) there were some or all of the following: vaguely defined problems; ambiguous wording; extraneous or irrelevant information; trivia and unintentional clues to the correct answers. This was also the case in the April 2019 examinations.	Electrical Trade Theory N2 Electrotechnology N3 Fitting and Machining Theory N2 Instrument Trade Theory N3 Mathematics N3 Refrigeration Trade Theory N3 Water Treatment Practice N3

Criterion	Challenges	Instructional offering
Quality of questions	Two question papers (5%) contained questions that did not contain clear instructional key words/verbs.	Aircraft Maintenance Theory N3 Electrotechnology N3
	In four question papers (10%), some questions did not contain sufficient information to elicit an appropriate response, an improvement on the 13% of the 2019 examinations.	Aircraft Maintenance Theory N3 Electrical Trade Theory N2 Industrial Electronics N2 and N3
	Three question papers (8%) contained factual errors or misleading information, compared to 10% in the April 2019 examinations.	Building Science N3 Engineering Science N2 Mechanotechnology N3
	In one question paper (3%) there were references in questions to visuals, drawings, illustrations, examples, tables, graphs that were not relevant or incorrect; this was the same proportion as in the April 2019 examinations.	Mathematics N3
Cognitive skills		
Analysis grid	In seven question papers (18%), the analysis grid did not show the cognitive level of each question/sub-question, as in the April 2019 examinations.	Electrical Trade Theory N2 Fitting and Machining Theory N2 Mathematics N2 Diesel Trade Theory N3 Mathematics N3 Mechanotechnology N3 Refrigeration Trade Theory N3
	In eight question papers (20%) distribution of marks across cognitive levels was inappropriate, an increase of 12% compared to 8% in the April 2019 examinations.	Diesel Trade Theory N2 and N3 Electrical Trade Theory N2 Fitting and Machining Theory N2 Mathematics N2 and N3 Motor Trade Theory N2 Refrigeration Trade Theory N3
	In one question paper (3%), the analysis grid did not correspond to the question paper.	Building Drawing N3
Assessment of latest developments	Five question papers (13%) did not reflect the latest developments in the knowledge field; an increase of 3% compared to 10% in the April 2019 examinations.	Industrial Organisation and Planning N3 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Radio and Television Theory N3

Criterion	Challenges	Instructional offering
Marking guidelines		
Accuracy of marking guidelines	Some of the answers in three marking guidelines (8%) did not correspond to the question papers, a decrease from 10% in the April 2019 examinations.	Building Science N3 Plumbing Theory N2 Refrigeration Trade Theory N3
	Some answers in ten marking guidelines (25%) were not accurate, an improvement compared to 35% in the April 2019 examinations.	Building Science N2 and N3 Electrical Trade Theory N2 Engineering Drawing N3 Engineering Science N2 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 and N3
Accuracy of marking guidelines	Five marking guidelines (13%) did not allow for alternative responses where applicable, a decrease of 7% from 20% in the April 2019 examinations.	Electrical Trade Theory N2 Industrial Electronics N2 Mathematics N2 Refrigeration Trade Theory N3 Water Treatment Practice N3
Layout of marking guidelines	The marking guidelines for five question papers (13%) were not set out clearly, an increase from 10% in the April 2019 examinations.	Plating and Structural Steel Drawing N2
	The marking guidelines for two question papers (5%) were of very poor quality, compared to 3% in the April 2019 examinations.	Electrotechnology N3 Mathematics N3
Mark allocation	The allocation of marks for some questions was incomplete in ten marking guidelines (25%), compared to 30% in the April 2019 examinations.	Building Drawing N2 Engineering Drawing N3 Industrial Electronics N2 Logic Systems N3 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Radio and Television Theory N3 Waste-water Treatment Practice N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
Facilitation of marking	Eleven marking guidelines (28%) would not facilitate effective marking; an increase of 8% compared to 20% in the April 2019 examinations.	Building Drawing N2 and N3 Building Science N2 and N3 Electrical Trade Theory N2 Logic Systems N3 Mathematics N2 Plating and Structural Steel Drawing N2 and N3 Radio and Television Theory N3 Water and Waste-water Treatment Practice N2

Criterion	Challenges	Instructional offering
Language and bias		
Grammar	In three of the question papers (8%) the grammar contained subtleties that might have confused candidates; this was a drop from 10% in the April 2019 examinations.	Fitting and Machining Theory N2 Industrial Electronics N3 Mathematics N3
	There were grammatical errors in two question papers (5%), a decrease of 3% from 8% in the April 2019 examinations.	Plumbing Theory N2 Mathematics N3
	In one question paper (3%), the language in the marking guidelines contained grammatical errors.	Electrical Trade Theory N2
Predictability		
Repetition of questions from previous examinations	Four question papers (10%) contained questions that could easily be predicted, as in the April 2019 examinations.	Building Science N3 Electrical Trade Theory N2 Mathematics N2 and N3
	Six question papers (15%) contained questions from examination question papers within the last three years, compared to 10% in the April 2019 examinations.	Electrical Trade Theory N2 Electrotechnology N3 Motor Trade Theory N3 Plant Operation Theory N3 Radio and Television Theory N3 Refrigeration Trade Theory N3
Innovation	Five question papers (13%) lacked adequate innovation, a decrease when compared to 15% in the April 2019 examinations.	Electrical Trade Theory N2 Mathematics N2 and N3 Motor Trade Theory N3 Plant Operation Theory N3
Overall impression		
Standard of question papers	Four question papers (10%) did not satisfy all the requirements of the syllabus, compared to 3% in the April 2019 examinations.	Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Mathematics N3
	Three question papers (8%) did not assess the outcomes of the curriculum/syllabus as a whole, as was the case in the April 2019 examinations.	Building Drawing N2 Fitting and Machining Theory N2 Mathematics N3
	Six question papers (15%) were not of the appropriate standard, a decrease compared to 20% in the April 2019 examinations.	Electrical Trade Theory N2 Fitting and Machining Theory N2 Mathematics N2 and N3 Plant Operation Theory N3 Refrigeration Trade Theory N3

Criterion	Challenges	Instructional offering
Standard of question papers	Five question papers (13%) did not compare favourably with previous years' examination question papers, an increase of 3% compared to 10% in the April 2019 examinations.	Building Drawing N2 Electrical Trade Theory N2 Fitting and Machining Theory N2 Mathematics N2 and N3
	Four question papers (10%) were not of the same standard as question papers in the previous cycle; this was an increase of 2% on 8% in the April 2019 examinations.	Industrial Organisation and Planning N3 Mathematics N2 and N3 Supervision in Industry N3
	In four question papers (10%), there was an imbalance in the assessment of skills, knowledge, attitudes, values and reasoning, as in the April 2019 examinations.	Building Drawing N2 Mathematics N2 and N3 Motor Trade Theory N3

1.4 Areas of Improvement

The question papers were originally set for the April 2020 examinations, however they were used for the August 2020 examinations. So, comparison will be made with the April 2019 examinations.

The following areas of improvement were observed during the preliminary moderation of question papers:

- There was an increase in the number of question papers that were approved immediately during preliminary moderation. Twenty-one question papers (53%) (compared to 15 (38%) in the April 2019 examinations) and 20 (50%) marking guidelines (compared to 19 (48%) in the April 2019 examinations) were either print ready or required only minor technical changes;
- An improvement of 3% from the April 2019 examinations was noted with respect to the completion of internal moderator reports, and a 7% improvement in the quality of reports. The equivalence of question papers and moderation reports also improved significantly by 10% from the April 2019 examinations. Furthermore, there was an improvement of 7% in the implementation of internal moderators' recommendations; and
- There was a significant improvement of 10% in the accuracy of marking guidelines when compared to the April 2019 examinations.

1.5 Areas of Non-compliance

Umalusi reports revealed the areas of non-compliance listed below;

- Fifty-two percent of question papers and/or marking guidelines did not meet all technical requirements;
- Some of the questions in two question papers (5%) were beyond the scope of the syllabus and in four question papers (10%) topics were not appropriately linked and integrated;
- There was no correlation between mark allocation, level of difficulty or time allocation in several questions in five question papers (13%);

- In seven question papers (18%), problems were vaguely defined, wording was ambiguous, and extraneous or irrelevant information, trivia and unintentional clues to the correct answers were present;
- In seven question papers (18%), the analysis grid did not show the cognitive level of each question/sub-question and in eight question papers (20%) there the distribution of marks across cognitive levels was inappropriate;
- Answers were not accurate in ten marking guidelines (25%);
- The marking guidelines for five question papers (13%) were not set out clearly, while the marking guidelines for two question papers (5%) were of very poor quality;
- Eleven marking guidelines (28%) would not facilitate effective marking, an increase from 20% in the April 2019 examinations;
- There were grammatical errors in two question papers (5%) and in one paper (3%), the language in the marking guidelines contained grammatical errors;
- Four question papers (10%) contained questions that could easily be spotted or predicted while six (15%) contained questions taken from past examinations papers from the last three years ;
- Four question papers (10%) did not fulfil all the requirements of the syllabus and three (8%) did not assess subject content adequately; and
- Six question papers (15%) were not of the appropriate standard and five (13%) did not compare favourably to previous years' examinations question papers.

1.6 Directives for Compliance and Improvement

Based on findings in the external moderators' reports, the following directives were issued to improve the quality of the question papers for national examinations. The DHET must ensure the following:

- Question papers presented for external moderation are accompanied by necessary supporting documents;
- Question papers and marking guidelines fulfil all technical requirements;
- Internal moderation is conducted thoroughly, with the aim of improving the quality and standard of question papers;
- The question papers must adhere to the syllabus requirements and subject content must be covered adequately;
- Marking guidelines must be error free, and the allocation of marks within questions must be clearly indicated;
- Questions must be carefully formulated to elicit the desired response;
- Examiners must refrain from using questions from past papers; and
- Syllabi must be updated to meet the current skills and knowledge required by industry.

1.7 Conclusion

The quality of the April 2020 examinations question papers, which were administered in August 2020, has improved significantly since the April 2019 examination. However, the outdated syllabi for the NATED Engineering Studies instructional offerings are restrictive and have a negative impact on the assessment practices, and remain educationally unsound. Furthermore, the knowledge and skills achieved from an obsolete syllabus do not match the skills currently required by industry. This disadvantages students' future prospects severely.

CHAPTER 2 MODERATION OF THE CONDUCT OF INTERNAL CONTINUOUS ASSESSMENT

2.1 Introduction

The moderation of internal continuous assessment (ICASS) is one of the key quality assurance processes used by Umalusi to ensure uniform application of standards and to strengthen the credibility of the qualification. In the NATED Report 190/191 Engineering Studies N2–N3 programmes, the ICASS (term mark) contributes 40% towards the final mark for each instructional offering.

Umalusi moderated learner evidence and parts of lecturers' files from a sample of instructional offerings from the NATED Report 190/191 N2 and N3 Semester 1 2020 examinations to verify the quality and standard of ICASS conducted and administered by lecturers and students.

The main objectives of external moderation of ICASS are to:

- Ascertain the appropriateness and standard of the assessment tasks;
- Ensure that all required tasks are administered and that evidence collected and documented is in line with ICASS Guidelines; and
- Ensure that the quality of the internal assessment component is upheld.

2.2 Scope and Approach

Following the State's implementation of Covid-19 regulations, the external moderators were unable to travel or visit colleges in person. As an alternative, Umalusi requested evidence from colleges in electronic format. This evidence could not include the instructional offerings or assessment files of lecturers or evidence from all students. The colleges were requested to submit approved assessment plans, a copy of the question paper and marking guideline for Test 1 and Test 2, evidence from six (6) students for both tests, and the mark sheets of all students registered for the particular instructional offering. Fifteen colleges/campuses from five provinces submitted this evidence to Umalusi in electronic format.

The table below indicates the sites and the instructional offerings selected for ICASS external moderation. Thirteen instructional offerings were moderated at six private and nine public colleges (17 were moderated in July 2019).

Table 2A: Moderation of NATED Report 190/191 internal continuous assessment

Instructional offering	College	Site/Campus	Province
1. Bricklaying and Plastering N2	Sedibeng TVET	Sebokeng	GP
2. Building and Civil Technology N3	Tshwane North TVET	Rosslyn	GP
3. Building Science N3	Tshwane South TVET	Atteridgeville	GP
4. Diesel Trade Theory N2	Sol-Tech Training	Pretoria	GP
5. Diesel Trade Theory N3	Ekurhuleni East TVET	Benoni	GP
6. Electrical Trade Theory N3	Technical SA	Pretoria	GP
7. Engineering Science N2	Advisor Progressive	Emalahleni	MP
8. Engineering Science N3	Mnambithi TVET	Ezakheni	KZN

Instructional offering	College	Site/Campus	Province
9. Fitting and Machining Theory N2	Shepperd Academy	Emalahleni	MP
10. Industrial Electronics N3	Tshwane Institute of Technology	Pretoria	GP
11. Mathematics N2	College of Cape Town	Pinelands	WC
12. Mechanotechnology N3	Flavius Mareka TVET	Sasolburg	FS
13. Plant Operation Theory N2	South West Gauteng TVET	Roodepoort West	GP
14. Plumbing Theory N2	College of Cape Town	Athlone	WC
15. Welders' Theory N2	Bagvin	Germiston	GP

2.3 Findings

The August 2020 examinations were initially scheduled to take place in April 2020, so comparison will be made with the April 2019 examinations. The section below provides the findings of the implementation of internal assessment of the Engineering Studies instructional offerings reported by the external moderators.

Table 2B: Observations from the moderation of August 2020 internal assessment

Criterion	Findings	College/Site
Internal Assessment Tasks development plan	There was a plan in place for the development of the assessment tasks at 87% of the sites, compared to 81% in April 2019.	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The tasks were developed according to the plan/schedule of assessment at 73% of the sites, compared to 63% in April 2019.	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)

Criterion	Findings	College/Site
Internal Assessment Tasks development plan	At 73% of the sites (75% in April 2019), there were systems in place to ensure that tasks were of an acceptable standard.	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
Content coverage	Previous question papers or sections from previous question papers were used as assessment tasks (tests) at 53% of sites compared to 75% in April 2019.	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn)
	Sixty percent of sites (100% in April 2019) ensured that a substantial amount of work had been covered in both tests and that the weighting and spread was appropriate.	Advisor Progressive (Emalahleni) Bagvin (Germiston) College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn)
	The weighting and spread of content of topic in both tests was appropriate at 87% of the sites (compared to 81% in April 2019).	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)

Criterion	Findings	College/Site
Content coverage	In both tests, the total number of marks allocated to the test was appropriate for the scope of the particular task at 73% of the sites.	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane North TVET (Rosslyn)
	The type of questions was not in keeping with the stipulated content at one site (7%).	College of Cape Town (Pinelands)
Cognitive demand and difficulty levels	At 87% of the sites the two tasks varied in the level of difficulty (81% in April 2019), were pitched at the right level (94% in April 2019) and assessed a variety of knowledge and skills (94% in April 2019).	Advisor Progressive (Emalahleni) College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	At all the sites, compared to 81% in April 2019, each test consisted of a combination of short, medium and extended question types.	Advisor Progressive (Emalahleni) Bagvin (Germiston) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)

Criterion	Findings	College/Site
Internal moderation of task	Eighty-seven percent (81% in April 2019) of the sites provided evidence of moderation of marking of both tests in a sample of at least 10% of the scripts.	Bagvin (Germiston) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	At 73% of sites, the sample of internally moderated tests included the full range of performance i.e. high, average and low scoring candidates.	Bagvin (Germiston) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn)
Technical aspects	Nine sites (60%) complied with all technical aspects of the tasks namely: <ul style="list-style-type: none"> • Neatly typed; Contained all relevant information such as <ul style="list-style-type: none"> • The name of the subject; • The level of subject; • Time allocation; • Content covered; • Number of test; and • Date. 	College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Sedibeng TVET (Sebokeng) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	There were instructions to candidates on both tasks at all but one site (7%).	Bagvin (Germiston)
Technical aspects	The language and terminology was appropriate and relevant in both tests at all sites (100%), compared to 94% in April 2019.	Advisor Progressive (Emalahleni) Bagvin (Germiston) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)

Criterion	Findings	College/Site
Technical aspects	The mark allocation was clearly indicated on each question in both tests at 87% of the sites, compared to 94% in April 2019.	Advisor Progressive (Emalahleni) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The mark allocation on both tests and on the marking tool corresponded at 73% of the sites.	Advisor Progressive (Emalahleni) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The numbering on the test was incorrect at 13% of the sites.	Advisor Progressive (Emalahleni) Bagvin (Germiston)
Technical aspects	The time allocation was realistic for the administration of the tests at 80% of the sites.	Advisor Progressive (Emalahleni) Bagvin (Germiston) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
Marking tools	The marking guideline tool facilitated marking/was easy to use at 60% of sites, compared to 75% in April 2019.	College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn)

Criterion	Findings	College/Site
Candidate performance	The candidates interpreted questions correctly and were able to answer all or most of the questions in the tests at 67% of sites.	Bagvin (Germiston) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
Quality of marking	Marking was consistent with the marking guidelines at 80% of the sites.	Bagvin (Germiston) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The marks allocated to both tests were a true reflection of the candidate's performance at 60% of the sites.	College of Cape Town (Athlone) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The calculation of totals and transfer of marks to mark sheet was accurate at 80% of the sites.	Bagvin (Germiston) College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The quality and standard of marking was satisfactory at 67% of the sites.	College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Sol-Tech Training (Pretoria) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)

Criterion	Findings	College/Site
Internal moderation of marking	There was evidence that the candidates' work had been moderated internally at 87% of the sites.	College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Flavius Mareka TVET (Sasolburg) Mnambithi TVET (Ezakheni) Sedibeng TVET (Sebokeng) Shepperd Academy (Emalahleni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Technicol SA (Pretoria) Tshwane Institute of Technology (Pretoria) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)
	The quality and standard of internal moderation was satisfactory at 53% of sites.	College of Cape Town (Athlone) College of Cape Town (Pinelands) Ekurhuleni East TVET (Benoni) Mnambithi TVET (Ezakheni) Sol-Tech Training (Pretoria) South West Gauteng TVET (Roodepoort West) Tshwane North TVET (Rosslyn) Tshwane South TVET (Atteridgeville)

2.4 Areas of Improvement

The following Improvements were observed:

- There was a plan in place for the development of the assessment tasks at 87% of the sites, compared to 81% in April 2019;
- The tasks were developed according to the plan/schedule of assessment at 73% of the sites, compared to 63% in April 2019;
- The weighting and spread of content of topic(s) in both tests were appropriate at 87% of the sites (81% in April 2019); and
- Eighty-seven percent (81% in April 2019) of the sites provided evidence of moderation of marking of both tests in a sample of at least 10% of the scripts.

2.5 Areas of Non-compliance

A number of non-compliance issues were raised, including:

- Sixty percent of the sites (100% in April 2019) ensured that a substantial portion of the syllabus was covered in both tests;
- The mark allocation for each question was clearly indicated in both tests at 87% of the sites, compared to 94% in April 2019; and
- The quality and standard of internal moderation was satisfactory at 53% of sites.

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:

- Assessment tasks and tests must cover the required portion of the syllabus according to the guidelines;

- The mark allocation for each question must be indicated on the tests; and
- The quality and standard of internal moderation of ICASS must be raised to a satisfactory level.

2.7 Conclusion

The NATED Report 190/191 training programmes remain popular choices amongst students. They gain theoretical knowledge but do not have opportunities for practical or industry exposure in these programmes. The internal assessment serves as preparation for the final examination at the end of the trimester. The continuous internal assessments should therefore contribute to the holistic development of candidates to prepare them for the workplace or further studies.

CHAPTER 3 MONITORING OF THE WRITING OF EXAMINATIONS

3.1 Introduction

Umalusi monitored the writing of the NATED Report 190/191: Engineering Studies N2–N3 examinations conducted by the Department of Higher Education (DHET), which commenced on 2 July 2020. The purpose was to verify compliance and adherence to the policy for the conduct, administration and management of the examinations by the DHET. This chapter reports on the findings of the monitoring of the sample of 27 examination centres. It also acknowledges areas of improvement, areas of non-compliance, makes note of an irregularity at one centre and suggests directives for improvement and compliance.

3.2 Scope and Approach

A sample of 27 examination centres was monitored, comprising a selection of campuses and colleges from nine provinces. The reports were collated from data collected through verifications, observations and interviews held at monitored centres. The details of the examination centres that were monitored are provided in Table 3A.

Table 3A: Examination centres monitored during examination session

No.	Name and Type of College	Site/Campus	Province	Instructional offering	Date	Candidates registered/ written
1.	Academy of Business and Computer Studies Private	Johannesburg	Gauteng	Mathematics N3	09/7/2020	182/48
2.	Bolton Private	Bloemfontein	Free State	Industrial Organisation and Planning N3	07/7/2020	26/07
3.	Central Johannesburg Public	Ellis Park	Gauteng	Engineering Drawing N2	09/7/2020	105/77
4.	Coastal Public	Appelsbosch	KwaZulu-Natal	Mathematics N2	14/7/2020	118/102
5.	College of Cape Town Public	Athlone	Western Cape	Engineering Drawing N3	13/7/2020	31/22
6.	Delcom Training Institute Private	Johannesburg	Gauteng	Engineering Science N3	06/7/2020	56/8
7.	Eastcape Midlands Public	Charles Goodyear	Eastern Cape	Mathematics N2	14/7/2020	131/47

No.	Name and Type of College	Site/Campus	Province	Instructional offering	Date	Candidates registered/ written
8.	Ekurhuleni West Public	Kempton	Gauteng	Engineering Science N3	06/7/2020	190/127
9.	Gauteng College of Engineering and Technology Private	Johannesburg	Gauteng	Supervision in Industry N3	14/7/2020	19/03
10.	Immaculate College of Commerce and Engineering Private	Johannesburg	Gauteng	Mathematics N3	09/7/2020	41/18
11.	Jengrac Private	Welkom	Free State	Engineering Science N2	13/7/2020	26/02
12.	King Sabata Dalindyebo Public	Mthatha	Eastern Cape	Electrical Trade Theory N2	15/7/2020	134/113
13.	Maluti Public	Itemoheleng	Free State	Electrical Trade Theory N2	15/7/2020	63/35
14.	Matjhabeng Private	Welkom	Free State	Mathematics N2	14/7/2020	42/30
15.	Mgungundlovu Public	Plessislaer	KwaZulu-Natal	Mathematics N2	14/7/2020	195/78
16.	National Skills and Technical College Private	Middelburg	Mpumalanga	Engineering Science N2	13/7/2020	173/104
17.	Northern Cape Urban Public	Moremogolo	Northern Cape	Electrical Trade Theory N2	15/7/2020	61/48
18.	Northlink Public	Belhar	Western Cape	Engineering Science N3	06/7/2020	145/116
19.	Northlink Public	Wingfield	Western Cape	Mathematics N2	14/7/2020	207/156
20.	Pretoria Technical Private	Secunda	Mpumalanga	Mathematics N2	14/7/2020	108/74
21.	Qualitas Career Academy Private	Newcastle	KwaZulu-Natal	Industrial Electronics N2 and N3	07/7/2020	14/07
22.	Sayidi Public	Enyenyazi	KwaZulu- Natal	Engineering Science N3	06/7/2020	100/84
23.	Thekwini City Private	Durban	KwaZulu-Natal	Engineering Science N2	13/7/2020	127/79
24.	Tswelopele Correctional Centre	Kimberley	Northern Cape	Mathematics N2	14/7/2020	39/24

No.	Name and Type of College	Site/Campus	Province	Instructional offering	Date	Candidates registered/ written
25.	Vaal Skills Training Institute Private	Durban	KwaZulu-Natal	Mathematics N2	14/7/2020	53/30
26.	Vhembe Public	Tshisimani	Limpopo	Mathematics N2	14/7/2020	250/202
27.	Vuselela Public	Potchefstroom	North West	Electrical Trade Theory N2	15/7/2020	59/16

3.3 Summary of Findings

Findings of the monitoring are provided according to the criteria adopted by Umalusi, as prescribed in the monitoring of the writing of examinations instrument. Table 3B below indicates the general findings from the 27 monitored centres; 26 centres were monitored by Umalusi monitors and one by a staff member.

Table 3B: Findings at sites monitored

Criteria	Findings/Challenges	Centres/Sites
Preparation for the examinations	It was found that 22 examination centres (81%) complied fully with the criteria for the preparation of examinations: <ul style="list-style-type: none"> • All candidates were registered; • There was adequate space and appropriate furniture available; • The strong rooms were verified and found to be compliant; and • Question papers were either collected from a nodal point or delivered to the centre by Skynet couriers. 	Academy of Business and Computer Studies Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Enyenyenzi Campus Gauteng College of Engineering and Technology Itemoheleng Campus Jengrac College Kempton Campus Matjhabeng College Mthatha Campus National Skills and Technical College Plessislaer Campus Potchefstroom Campus Pretoria Technical College Qualitas Career Academy Thekwini City College Tshisimani Campus Tswelopele Correctional Centre Vaal Skills Training Institute Wingfield Campus
	Five examination centres (19%) did not comply with the regulations for preparation of examinations: <ul style="list-style-type: none"> • No State of Readiness report in the examination file; and 	Charles Goodyear Campus Immaculate College of Commerce and Engineering Moremogolo Campus

Criteria	Findings/Challenges	Centres/Sites
Preparation for the examinations	<ul style="list-style-type: none"> No stock control register available. 	Delcom Training Institute Ellis Park Campus Moremogolo Campus
Invigilators and their training	Twenty-one examination centres (78%) complied fully with the rules for appointment and training of chief invigilators and invigilators: <ul style="list-style-type: none"> Monitors verified the chief invigilators' appointment letters; The training and dates with supporting evidence of the training of chief invigilators were checked; and The invigilators' appointment letters and training were also verified. 	Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Enyenyenzi Campus Delcom Training Institute Ellis Park Campus Gauteng College of Engineering and Technology Itemoheleng Campus Jengrac College Kempton Campus Matjhabeng College Moremogolo Campus Mthatha Campus National Skills and Technical College Plessislaer Campus Potchefstroom Campus Qualitas Career Academy Tshisimani Campus Tswelopele Correctional Centre Wingfield Campus
	Six examination centres (22%) experienced the following challenge: <ul style="list-style-type: none"> No record of training of chief invigilator by the assessment body. 	Academy of Business and Computer Studies Charles Goodyear Campus Immaculate College of Commerce and Engineering Pretoria Technical College Thekwini City College Vaal Skills Training Institute
Preparations for the writing of examinations	Twenty examination centres (74%) complied fully with the preparation for the writing of examinations: <ul style="list-style-type: none"> All admission letters and students' identification cards were checked at the door; Invigilators remained attentive at all times; Seating plans were available; All cell phones were switched off; and All examination files were verified and found to be correct. 	Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Charles Goodyear Campus Delcom Training Institute Ellis Park Campus Enyenyenzi Campus Gauteng College of Engineering and Technology Itemoheleng Campus Jengrac College Mthatha Campus National Skills and Technical College Potchefstroom Campus Qualitas Career Academy Thekwini City College Tshisimani Campus Tswelopele Correctional Centre Vaal Skills Training Institute Wingfield Campus

Criteria	Findings/Challenges	Centres/Sites
Preparations for the writing of examinations	Nine examination centres (26%) did not comply fully with the preparation for the writing of examinations: <ul style="list-style-type: none"> • No relief timetable; 	Kempton Campus Matjhabeng Private College Moremogolo Campus Plessislaer Campus Pretoria Technical College
	<ul style="list-style-type: none"> • No invigilation timetable available; and 	Matjhabeng Private College Moremogolo Campus
	<ul style="list-style-type: none"> • No seating plan available. 	Academy of Business and Computer Studies Immaculate College of Commerce and Engineering
Time management	Twenty-one examination centres (78%) demonstrated good time management: <ul style="list-style-type: none"> • All invigilators arrived punctually at the examination venue; • All candidates signed the attendance register; • The question papers were distributed on time; • The ten minutes' reading time was granted; and • The examination started and ended on time. 	Academy of Business and Computer Studies Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Charles Goodyear Campus Ellis Park Campus Gauteng College of Engineering and Technology Itemoheleng Campus Jengrac College Kempton Campus Matjhabeng College Moremogolo Campus Mthatha Campus National Skills and Technical College Potchefstroom Campus. Pretoria Technical College Qualitas Career Academy Thekwini City College Tshisimani Campus Tswelopele Correctional Centre
	Time management was poor at seven examination centres (22%): <ul style="list-style-type: none"> • Invigilator(s) did not check the question paper for technical accuracy with the candidates; and 	Delcom Training Institute Enyenyazi Campus Immaculate College of Commerce and Engineering Plessislaer Campus Vaal Skills Training Institute Wingfield Campus
	<ul style="list-style-type: none"> • The examination started four minutes late. 	Delcom Training Institute

Criteria	Findings/Challenges	Centres/Sites
Activities during writing	<p>This part of the examination process was conducted well and 23 examination centres (85%) were fully compliant:</p> <ul style="list-style-type: none"> • No candidate was allowed a comfort break without an escort; • There were no unauthorised personnel in the examination room; and • Invigilators remained attentive and focused throughout the examination session. 	<p>Academy of Business and Computer Studies Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Charles Goodyear Campus Enyenyenzi Campus Gauteng College of Engineering and Technology Itemoheleng Campus Jengrac College Kempton Campus Matjhabeng College Moremogolo Campus Mthatha Campus National Skills and Technical College Potchefstroom Campus Pretoria Technical College Qualitas Career Academy Thekwini City College Tshisimani Campus Tswelopele Correctional Centre Vaal Skills Training Institute Wingfield Campus</p>
	<p>Four examination centres (15%) did not comply with this part of the examination process:</p> <ul style="list-style-type: none"> • Candidate left the venue temporarily without an escort; and 	<p>Ellis Park Campus Immaculate College of Commerce and Engineering Plessislaer Campus</p>
	<ul style="list-style-type: none"> • Irregularity declared and reported. 	<p>Delcom Training Institute</p>
Packaging and transport of scripts after writing session	<p>The packaging and transmission of scripts after writing was managed very well at 23 examination centres (85%) and these centres were fully compliant:</p> <ul style="list-style-type: none"> • The answer scripts were collected in order of the mark sheets; • Total scripts corresponded to the number of candidates who wrote the examination; • The scripts were sealed in the official satchels provided by the assessment body; and • Scripts were either taken by the chief invigilator to the respective nodal point or placed in the strong room to be collected by the courier company. 	<p>Academy of Business and Computer Studies Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Enyenyenzi Campus Gauteng College of Engineering and Technology Immaculate College of Commerce and Engineering Itemoheleng Campus Kempton Campus Matjhabeng College Moremogolo Campus Mthatha Campus National Skills and Technical College Plessislaer Campus Potchefstroom Campus Pretoria Technical College Qualitas Career Academy Thekwini City College Tshisimani Campus Tswelopele Correctional Centre Vaal Skills Training Institute Wingfield Campus</p>

Criteria	Findings/Challenges	Centres/Sites
Packaging and transport of scripts after writing session	The packaging and transport of scripts after writing was not managed well at five examination centres (15%): <ul style="list-style-type: none"> • Scripts were counted and packed in the staffroom which was not a secured area; • Staff members entered the staffroom during the packaging of scripts; and 	Delcom Training Institute
	<ul style="list-style-type: none"> • No situational report was completed by the chief invigilator. 	Charles Goodyear Campus Delcom Training Institute Ellis Park Campus Jengrac College
Monitoring by the Assessment Body	There was no evidence of monitoring by the assessment body at 19 examination centres (70%) at the time of Umalusi's visits.	Academy of Business and Computer Studies Appelsbosch Campus Athlone Campus Belhar Campus Bolton College Delcom Training Institute Enyenyenzi Campus Gauteng College of Engineering and Technology Immaculate College of Commerce and Engineering Kempton Campus Matjhabeng College Moremogolo Campus National Skills and Technical College Potchefstroom Campus Pretoria Technical College Qualitas Career Academy Thekwini City College Tswelopele Correctional Centre Vaal Skills Training Institute
	Monitoring by the assessment body was evident in eight examination centres (30%): <ul style="list-style-type: none"> • Evidence and dates of monitoring was verified. 	Charles Goodyear Ellis Park Campus Itemoheleng Campus Jengrac College Mthatha Campus Plessislaer Campus Tshisimani Campus Wingfield Campus
Incidents during conduct of examinations	Most monitored examination centres did not report any incidents during the writing of the examinations. Only one examination centre reported an irregularity as a candidate had been caught copying from his cellphone.	Delcom Training Institute

Criteria	Findings/Challenges	Centres/Sites
Covid-19 compliance	<p>Twenty-four examination centres (89%) complied fully with Covid-19 regulations:</p> <ul style="list-style-type: none"> • Examination centre has a Covid-19 committee; • Screening and temperature checks of staff, candidates and visitors took place at the entrance to the examination centre; • Sanitisers were provided at all entrances to the college and examination rooms; and • Candidates and invigilators wore masks or protective clothes. 	<p>Appelsbosch Campus Athlone Campus Belhar Campus Charles Goodyear Campus Delcom Training Institute Ellis Park Campus Enyenyenzi Campus Gauteng College of Engineering and Technology Immaculate College of Commerce and Engineering Itemoheleng Campus Jengrac College Kempton Campus Matjhabeng College Mthatha Campus National Skills and Technical College Plessislaer Campus Potchefstroom Campus Pretoria Technical College Qualitas Career Academy Thekwini City College Tshisimani Campus Tswelopele Correctional Centre Vaal Skills Training Institute Wingfield Campus</p>
	<p>Three examination centres (11%) did not comply fully with the Covid-19 regulations:</p> <ul style="list-style-type: none"> • The temperature of persons entering the venue was not recorded; • A register of persons entering the venue was not available; 	<p>Academy of Business and Computer Studies</p>
	<ul style="list-style-type: none"> • Sanitisers were provided only at the entrance to the college and not at the examination venues; and 	<p>Bolton College</p>
	<ul style="list-style-type: none"> • There was no sanitiser in the examination venue and several candidates did not bring their own sanitisers. 	<p>Moremogolo Campus</p>

3.4 Areas of improvement

All stakeholders made a positive effort to improve the standard of the conduct, administration and management of examinations. The following areas of improvement were observed:

- The examination centres were well prepared and organized;

- The candidates writing the examinations were all registered;
- Tasks during the writing of the examinations were conducted efficiently at most examination centres; and
- The majority of the examination centres did not report any incidents during the monitoring of the conduct of examinations.

3.5 Areas of Non-compliance

The following areas of non-compliance were observed:

- Some examination centres conducted examinations without invigilation or relief timetables;
- Centres with no evidence of a State of Readiness report in the examination file were noted;
- At six examination centres, there was no evidence that the chief invigilator had been trained;
- Invigilator(s) did not check the technical accuracy of question papers with candidates;
- No situational report was completed by the chief invigilators; and
- Three examination centres did not comply fully with Covid-19 regulations.

3.6 Directives for Compliance and Improvement

DHET must ensure that:

- Examination centres have invigilation and relief timetables to conduct, administer and manage the national examinations efficiently;
- Examination centres have State of Readiness reports;
- Chief invigilators are appointed in writing and trained before each examination cycle;
- Invigilators are trained to check and confirm the technical accuracy of question papers with candidates;
- Chief invigilators complete the daily situational reports; and
- Examination centres comply with the Covid-19 regulations where applicable.

3.7 Conclusion

Despite the challenges encountered by some examination centres, the conduct, administration and management of the August 2020 Report 190/191: Engineering Studies N2–N3 examinations was of a satisfactory standard at the monitored venues. Problems were not widespread and did not compromise the integrity or credibility of the examinations. All stakeholders contributed to the upholding of the credibility of the examination process.

CHAPTER 4 STANDARDISATION OF MARKING GUIDELINES

4.1 Introduction

The standardisation of marking guidelines provides a platform for markers, examiners, internal moderators and Umalusi external moderators to discuss responses to questions. Consensus is reached before the final marking guidelines are approved.

The purpose of standardising the marking guidelines is to ensure that personnel involved in the marking process have a common understanding and interpretation of the marking guidelines. Furthermore, this process is intended 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 is upheld and reports on:

- Preparedness of markers, chief markers and internal moderators for the marking guideline discussions; and
- Rigour of marking guideline discussions.

Umalusi moderators attend the marking guideline discussions to report on the standard and quality of the marking guidelines and the preparedness of the marking personnel.

As a result of Covid-19 restrictions, the standardisation of marking guidelines meetings were held on the Microsoft Teams virtual platform. These meetings were chaired by the examiner or the internal moderator. All appointed officials were expected to participate in the marking guideline discussions. In the case of large enrolment numbers, only the chief markers and internal moderators from each marking centre were invited to join the meetings.

4.2 Scope and Approach

Sixteen Umalusi external moderators joined the virtual marking guideline discussion meetings for a sample of the N3 and N2 instructional offerings, six and ten respectively (as listed below).

Table 4A and 4B list the centres whose meetings Umalusi moderators attended, the instructional offerings concerned and the dates of the meetings.

Table 4A: N2 marking guideline discussions attended by external moderators

No.	Instructional offering	Date
1.	Building Drawing N2	10 July 2020
2.	Carpentry and Roof Work N2	17 July 2020
3.	Engineering Drawing N2	13 July 2020
4.	Engineering Science N2	15 July 2020
5.	Fitting and Machining Theory N2	20 July 2020
6.	Industrial Electronics N2	9 July 2020
7.	Logic Systems N2	22 July 2020
8.	Mathematics N2	15 July 2020

No.	Instructional offering	Date
9.	Platers' Theory N2	21 July 2020
10.	Plating and Structural Steel Drawing N2	13 July 2020

Table 4B: N3 marking guideline discussions attended by external moderators

No.	Instructional offering	Date
1.	Electrotechnology N3	7 July 2020
2.	Engineering Science N3	8 July 2020
3.	Instrument Trade Theory N3	7 July 2020
4.	Mathematics N3	13 July 2020
5.	Mechanotechnology N3	9 July 2020
6.	Plating and Structural Steel Drawing N3	15 July 2020

The external moderators used an Umalusi instrument for the standardisation of N2 and N3 marking guidelines. This instrument enabled them to report their findings based on the following criteria:

- Attendance by internal moderators and chief markers;
- Verification of question papers;
- Preparations for the standardisation of marking guidelines;
- Standardisation of marking guidelines process;
- Training provided at the standardisation of marking guideline meetings; and
- Approval of the final marking guidelines.

Umalusi moderators joined the standardisation of marking guideline meetings to monitor the proceedings, provide guidance where necessary and make final decisions.

4.3 Summary of Findings

The findings of the marking guideline discussion meetings are summarised below.

a) Attendance

The panel for the marking guideline discussions for each paper consisted of an examiner or internal moderator (setting), who chaired the meetings. Attendance by the following subject staff was low or intermittent: Engineering Drawing N2, Fitting and Machining Theory N2 and Mathematics N3. The DHET had no strategy by which to ensure that all the required individuals attended the entire discussion session.

b) Prepared marking guidelines

Appointed officials were required to email their own prepared marking guidelines to a departmental email address. The DHET official failed to check who had submitted their guidelines.

c) Submission of final marking guidelines

The chairperson of each meetings made additions and changes to the marking guidelines during the discussions. On completion of the editing, the adjusted marking guidelines were submitted to the DHET to be stamped as the official marking guidelines. These were then circulated to all marking centres.

d) Sample marking

No sample marking was done during the virtual marking guideline discussions. Instead, a sample was marked on the first day of marking each paper at all the marking centres.

e) Usefulness of the virtual marking guideline discussion

It was useful to have marking officials from all marking centres at the same meeting. The discussions were more robust than in previous years and all queries from marking centres could be clarified and finalised at this meeting.

In addition, such a meeting may have allowed a better understanding of the marking guidelines and may have reduced inconsistencies in marking across marking centres.

f) Status of marking guidelines and amendments

Most marking guidelines were up to standard; except the following:

- In the question paper for Logic Systems N2, two questions were incorrectly expressed. These questions were deleted from the marking guideline, and seven marks deducted. Scripts were marked out of a total of 93.

Further additions to marking guidelines were made. The purpose was to clarify and provide alternative answers or methods, as well as to include more possible answers. These amendments were intended to promote consistency in marking and accommodate as wide a range of correct responses as possible.

Table 4C presents the findings of the standardisation of marking guidelines as reported by the Umalusi's external moderators.

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

Evaluation criteria	Findings	Sampled instructional offerings
Appointment of marking staff	The chief markers, internal moderators and markers were appointed in good time and received their appointment letters in advance.	All instructional offerings
Contingency plans to address absenteeism among marking personnel	Markers appointed for one subject declined the offer to mark because of Covid-19. The marking centre manager allowed the remaining markers to mark more than 300 scripts, exceeding the stipulated number of scripts per marker.	Mathematics N3
Recruitment process	Marking personnel were recruited via DHET circulars sent to campus managers, who communicated the content to all academic staff. The DHET appoints marking staff who will mark all three cycles of examinations. Markers were informed of their appointments by email and SMS, and others received appointment letters from their colleges.	All instructional offerings

Evaluation criteria	Findings	Sampled instructional offerings
Umalusi's changes to question papers and marking guidelines during moderation process	The changes recommended by the Umalusi moderators were implemented in all the question papers.	All instructional offerings
Adjustments to the marking guidelines before marking guideline discussion	The chief marker and/or internal moderator did not make adjustments to the marking guidelines for any of the instructional offerings before the marking guideline discussions.	All instructional offerings
Adjustments to the marking guidelines during the marking guideline discussions	Adjustments were made during the marking guideline discussions for 75% of the instructional offerings. This is an improvement compared to 100% during the April 2019 examinations.	Building Drawing N2 Carpentry and Roof Work N2 Electrotechnology N3 Engineering Science N2 and N3 Fitting and Machining Theory N2 Industrial Electronics N2 Instrument Trade Theory N3 Logic Systems N2 Mathematics N2 Plating and Structural Steel Drawing N2 and N3
Justification for changes to the marking guidelines	Changes made to the marking guidelines for all the instructional offerings were justified. These changes included clarifications and additional alternative responses to questions. This was also the case in the April 2019 examinations.	All instructional offerings
Effect of changes to the marking guidelines on cognitive level of the answers/responses	Changes made to marking guidelines of the sampled instructional offerings (100%) had no effect on the cognitive level of the answers/responses to the questions.	All instructional offerings
Measures to address inconsistencies in marking and calculation errors during marking	Chief markers and internal moderators moderated and checked for consistency in the marking. The examination assistants checked all the calculations.	All instructional offerings
Signing off marking guidelines	Marking guidelines for all sampled instructional offerings (100%) were endorsed by the Umalusi moderators.	All instructional offerings

Evaluation criteria	Findings	Sampled instructional offerings
Comments and recommendations from Umalusi moderators	<ul style="list-style-type: none"> • In future, chairpersons of the meetings should be trained in the use of Microsoft teams; • The DHET must enforce the submission of prepared marking guidelines by all participants; these must be made available to Umalusi moderators; • A register/list of participants should be sent to the chairperson of the meeting, and roll call should be taken to confirm attendance; • Proceedings of the meetings must be recorded; and • The use of online platform should be integrated in the marking guideline discussions after the Covid-19 Pandemic has ended. 	

4.4 Areas of Improvement

The following areas of compliance were observed in the marking guideline discussions:

- The changes suggested by Umalusi moderators during the external moderation of question papers and marking guidelines were implemented in all cases; and
- All changes made to the marking guidelines were justified.

4.5 Areas of Non-compliance

Based on the findings in the external moderators' reports, the following areas of non-compliance were noted:

- Given the exceptional circumstances caused by Covid-19, sample marking was not done. This was unfortunate as candidates' responses contribute to commentary and annotation of the marking guidelines; and
- Attendance was erratic in the Engineering Drawing N2, Fitting and Machining Theory N2 and Mathematics N3.

4.6 Directives for Compliance and Improvement

The DHET must ensure that:

- Marking personnel submit their own prepared marking guidelines and these must be made available to Umalusi moderators;
- Sample marking should be done during the standardisation of marking guideline meetings; and
- A register/list of participants must be sent to the person conducting the meeting and roll call should be taken to confirm attendance.

4.7 Conclusion

The DHET is commended on its improvements and preparations made for the conduct of the marking guideline discussion meetings. Although these discussions took place on virtual platforms during the August 2020 examinations, as a result of the Covid-19 pandemic, they were fruitful and significant contributions were made to the standardisation of the marking guidelines. These promoted consistent and fair marking.

CHAPTER 5 MONITORING OF THE MARKING CENTRES

5.1 Introduction

In fulfilment of its quality assurance of assessment mandate, Umalusi monitored eight marking centres for the August 2020 NATED Report 190/191: Engineering Studies N2–N3 examinations. The purpose of this was to establish whether the required systems and processes were in place to ensure the integrity and credibility of the marking processes.

The Department of Higher Education and Training (DHET) provided Umalusi with the following:

- Registration data indicating the number of candidates enrolled for various instructional offerings;
- The location of marking centres, including physical addresses;
- The instructional offerings to be marked at each of the marking centres; and
- The dates for marking.

5.2 Scope and Approach

The marking of the August 2020 NATED Report 190/191: Engineering Studies N2–N3 was conducted at eight marking centres across seven provinces. Umalusi sent monitors and staff members to monitor marking centres used by the DHET. Data used to compile this report were gathered from on-site monitoring of marking centres, interviews and observations by Umalusi monitors and staff, using an instrument designed for this purpose.

Table 5A: Marking centres monitored by Umalusi monitors

	Centre	Province	Level	Date
1	Mpondozankomo Campus	Mpumalanga	N2 and N3	06 August 2020
2	Thornton Campus	Western Cape	N2 and N3	06 August 2020
3	Hillside View Campus	Free State	N2 and N3	06 August 2020
4	Struandale/Iqhayiya Campus	Eastern Cape	N2 and N3	06 August 2020

Table 5B: Marking centres monitored by Umalusi staff members

	Centre	Province	Level	Date
1	Northdale Campus	KwaZulu-Natal	N2 and N3	07 August 2020
2	Pretoria West Campus	Gauteng	N2 and N3	06 August 2020
3	Seshego Campus	Limpopo	N2 and N3	05 August 2020
4	Centurion Campus	Gauteng	N2 and N3	06 August 2020

5.3 Summary of Findings

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

5.3.1 Preparation and Planning for Marking

All marking centres had a marking centre management plan. Marking personnel arrived at all marking centres according to this plan and marking commenced on 31 July 2020 as scheduled. As the chief markers and markers at Northdale, Hillside View and Pretoria West marking centres, subsequently withdrew, adjustments were made and replacement chief markers and markers were selected from the DHET's reserve list. Comprehensive lists of all chief markers, internal moderators, markers and examination assistants were available at all centres.

The training of marking personnel was conducted according to the management plans at most of the marking centres visited, except for one centre (Mpondozankomo) where there was no evidence that markers had been trained. The centre claimed that virtual training of the markers had been conducted because of Covid-19 regulations.

The receipt of marking guidelines was delayed at Pretoria West marking centre. This was resolved within two days, however, and the remainder of the marking centres received the marking guidelines on time.

5.3.2 Marking Centre Resources

All marking centres were equipped with excellent resources. The necessary furniture was available at all centres. All the centres had communication facilities such as wi-fi, fax, and telephones. No accommodation was provided for marking personnel at any of the marking centres.

Marking at all centres commenced between 07:00 and 08:00 and ended between 17:00 and 20:00 daily. Reporting times at the marking centres had to be staggered to avoid large groups of marking personnel arriving at the same time. All marking centres complied with the Occupational Health and Safety (OHS) requirements and Covid-19 regulations.

5.3.3 Security Measures

Security was ensured by controlled access at gates and entrances to the marking centres. Car boots were searched at the gates to all marking centres. Only persons wearing official badges were permitted to enter the marking centres. In most cases, visitors to centres were issued with visitors' cards and escorted to the marking centre managers.

At Pretoria West marking centre, no list of authorised personnel was kept at the gate.

Scripts from the nodal points were transported to marking centres by courier services. Once delivered to the marking centres, the number of scripts was verified against the attendance register and all mark sheets were scanned. The same procedure was followed when scripts were returned.

It was the responsibility of examination assistants to move scripts in and out of the marking venues, under direct supervision of the Deputy Marking Centre Manager: Academic (DMCM).

5.3.4 Management of Irregularities

Marking centre management teams were trained to identify and manage irregularities during the DHET training sessions. It was incumbent upon the marking centre manager to discuss 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 the marking guideline discussions.

Most marking centres had constituted irregularity committees, except for Hillside View marking centre. At this centre irregularities were dealt with by the marking centre manager.

The process of identifying and dealing with irregularities was standardised across all centres. Once a marker identified an irregularity, he/she discussed it immediately with the chief marker. After the implicated script(s) had been internally moderated, the chief marker evaluated the validity of the irregularity. If evidence of a wrongdoing was convincing, the matter would be escalated to the marking centre manager and the irregularity committee. The irregularity committee then forwarded a report together with all the evidence to the DHET. The original script(s) and a copy of the mark sheet would be sent together with this report, while a copy of the script(s) would be replaced in the batch. The irregularity would be recorded in the irregularity register.

5.3.5 Monitoring by the DHET

Seven of the eight marking centres visited by Umalusi monitors and staff were also monitored by the assessment body. DHET officials verified the state of readiness of all these marking centres except Struandale/Iqhayiya. This centre had not been monitored by the DHET official by the time of Umalusi's visit.

5.3.6 Quality Assurance and Reports

Scripts were checked by examination assistants at all marking centres visited by Umalusi monitors and staff. These individuals made sure that marks had been totalled correctly, and accurately transferred to the front pages of scripts and then to mark sheets.

The system for capturing of marks at the marking centres was quality assured by the use of a double-entry system, where one person captured and another verified the entered mark.

Markers play a huge role in augmenting the information used by the chief marker in compiling a qualitative marking report. These reports by chief markers were quality assured by the deputy marking centre manager: academic before they were sent to the DHET.

5.3.7 Covid-19 Compliance

All monitored marking centres complied fully with the Covid-19 regulations. All marking centres had constituted Covid-19 committees. Screening and recording of temperature readings of all staff, marking personnel and visitors took place at all entrances to marking centres. Sanitisers were provided at all entrances to marking centres and marking venues. Staff and marking personnel wore masks or protective clothing at all times. Sites and marking venues were clearly marked in compliance with social distancing protocols. The marking venues were cleaned/fumigated each day.

5.4 Areas of Improvement

The Umalusi monitors and staff noted the following areas of improvement:

- The marking venues were satisfactory as far as their infrastructure, communication facilities, security and space were concerned;
- Standard irregularity management procedures existed to deal with any irregularities;
- All mark sheets were scanned upon receipt for security and control purposes;
- Security measures were in place;
- The flow of scripts was strictly monitored; and
- Monitoring of marking centres by the DHET officials was much improved.

5.5 Areas of Non-compliance

No critical cases of non-compliance were identified at any of the marking centres visited by the Umalusi monitors and staff, barring one marking centre that had no irregularity committee. There was also a delay in providing this centre with marking guidelines.

5.6 Directives for Compliance and Improvement

DHET must ensure that:

- All marking centres form an irregularity committee as standard practice;
- All marking centres have a list of authorised personnel at the gate to the marking centre; and
- Marking guidelines are sent to marking centres on time.

5.7 Conclusion

Marking centres were well organised and duties were fulfilled according to the marking management plan. Marking personnel behaved in a professional manner. The monitoring visits confirmed that marking was conducted in such a manner that the credibility and integrity of the August 2020 examinations for NATED Report 190/191: Engineering Studies N2–N3 was not compromised.

CHAPTER 6 VERIFICATION OF MARKING

6.1 Introduction

Umalusi, the Quality Council in the General and Further Education and Training, assures the quality of the conduct of the marking process to ensure and to report on the consistency and accuracy of marking. It also ensures that both the marking and internal moderation are executed according to agreed and established practices and standards. It is through this process of moderation that the standard and quality of marking is verified.

This chapter aims to investigate and report on:

- The reliability and viability of the systems, processes and procedures that were planned and implemented at the marking centres;
- The quality and standard of marking and internal moderation;
- The performance of candidates;
- Areas of compliance and non-compliance; and
- Directives for compliance.

Umalusi quality assured the marking processes for August 2020 NATED Report 190/191: Engineering Studies N2–N3 examinations, by verifying the marking of a selected sample of instructional offerings. This verification of marking evaluated the adherence of marking to the approved standardised marking guidelines.

6.2 Scope and Approach

Umalusi purposively sampled 32 instructional offerings from eight marking centres for the monitoring and verification process. This sample consisted of 18 N2 and 14 N3 instructional offerings. **Table 6A** illustrates the distribution of instructional offerings across marking centres:

Table 6A: Distribution of instruction offerings across marking centres

No.	Marking centre	On-site	Off-site
1.	Pretoria West	18	1
2.	Hillside	1	0
3.	Ighayiya	0	1
4.	Seshego	0	1
5.	Centurion	2	1
6.	Thornton	5	0
7.	Mpondozankomo	1	0
8.	Northdale	0	1
Total		27	5

Umalusi used 24 moderators in the verification process. Unfortunately, five Umalusi moderators were affected by the Covid-19 pandemic and could not participate in any on-site verification of marking.

Umalusi thus adopted an off-site approach to verification of marking for these moderators. The affected marking centres assisted in selecting, scanning and couriering 20 marked scripts and 5 sample marked scripts from a number of examination centres, provinces and ranges of performance by candidates to these moderators. Internally moderated scripts were also included in the selection.

Table 6B illustrates the N2 instructional offerings from which the sample was drawn. This table reflects the dates of verification and the marking centres at which verification was conducted. Where moderation was not on-site, this is indicated:

Table 6B: N2 sample for instructional offerings for verification of marking

No.	Instructional offering	Date	Marking centre
1.	Bricklaying and Plastering Theory N2	04/08/2020	Pretoria West
2.	Building Science N2	04/08/2020	Pretoria West
3.	Carpentry and Roof Work N2	04-05/08/2020	Off-site moderation Hillside View
4.	Diesel Trade Theory N2	04/08/2020	Pretoria West
5.	Electrical Trade Theory N2	06/08/2020	Pretoria West
6.	Engineering Drawing N2	04-05/08/2020	Off-site moderation Iqhayiya
7.	Engineering Science N2	04/08/2020	Pretoria West
8.	Fitting and Machining Theory N2	05/08/2020	Off-site moderation Seshego
9.	Industrial Electronics N2	02/08/2020	Pretoria West
10.	Logic Systems N2	04/08/2020	Centurion
11.	Mathematics N2	05/08/2020	Thornton
12.	Motor Trade Theory N2	04-05/08/2020	Thornton
13.	Plant Operation Theory N2	04/08/2020	Pretoria West
14.	Platers' Theory N2	03/08/2020	Thornton
15.	Plating and Structural Steel Drawing N2	03/08/2020	Pretoria West
16.	Plumbing Theory N2	04/08/2020	Thornton
17.	Water and Waste-water Treatment Practice N2	03/08/2020	Pretoria West
18.	Welders' Theory N2	04/08/2020	Thornton

Table 6C illustrates the N3 instructional offerings from which the sample was drawn. This table also reflects the dates of verification and the marking centres at which verification was conducted. Where moderation was not on-site, this is indicated:

Table 6C: N3 sample of instructional offerings for verification of marking

No.	Instructional offering	Date	Marking Centre
1.	Building and Civil Technology N3	05/08/2020	Pretoria West
2.	Building Science N3	05/08/2020	Pretoria West
3.	Electrical Trade Theory N3	05/08/2020	Pretoria West
4.	Electrotechnology N3	05/08/2020	Mpondozankomo
5.	Engineering Science N3	04-05/08/2020	Off-site moderation Northdale
6.	Industrial Electronics N3	05/08/2020	Pretoria West
7.	Logic Systems N3	05/08/2020	Centurion

No.	Instructional offering	Date	Marking Centre
8.	Mathematics N3	04/08/2020	Pretoria West
9.	Mechanotechnology N3	05/08/2020	Pretoria West
10.	Plant Operation Theory N3	04/08/2020	Off-site moderation Pretoria West
11.	Plating and Structural Steel Drawing N3	05/08/2020	Pretoria West
12.	Supervision in Industry N3	04-05/08/2020	Off-site moderation Centurion
13.	Waste Water Treatment Practice N3	05/08/2020	Pretoria West
14.	Water Treatment Practice N3	05/08/2020	Pretoria West

At the time of compiling the initial report for standardisation, four of the five off-site verification reports had not yet been delivered by the courier company. This was a result of Covid-19 restrictions; the dispatch of parcels was delayed for a few days. Therefore, the sample consisted of 16 N2 and 12 N3 instructional offerings, a total of 28. Subsequently, all outstanding reports were delivered. The sample then comprised 18 N2 and 14 N3 instructional offerings, a total of 32. These figures are reflected in the final report for publication. During the August 2019 verification of marking only 16 instructional offerings were sampled, half as many as the August 2020 sample.

Table 6D and **Table 6E** illustrate respectively the number of instructional offerings, provinces and examination centres for N2 and N3 included in the sample:

Table 6D: Verification of marking N2: instructional offerings, number of verified provinces and 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 Theory N2	4	1	-	-	-	-	1	-	6	1	-
Building Science N2	2	-	-	-	-	-	-	-	19	1	-
Carpentry and Roof Work N2	4	-	-	1	-	1	1	-	1	-	-
Diesel Trade Theory N2	2	-	-	-	-	-	-	-	9	11	-
Electrical Trade Theory N2	3	-	-	-	-	-	-	-	4	3	1
Engineering Drawing N2	1	-	-	-	6	-	-	-	-	-	-
Engineering Science N2	2	-	-	-	-	-	-	-	6	2	-
Fitting and Machining Theory N2	1	-	-	-	-	-	-	29	-	-	-
Industrial Electronics N2	1	-	-	-	-	18	-	-	-	-	-
Logic Systems N2	4	-	-	-	1	3	1	2	-	-	-
Mathematics N2	1	11	-	-	-	-	-	-	-	-	-
Motor Trade Theory N2	1	6	-	-	-	-	-	-	-	-	-
Plant Operation Theory N2	8	1	-	2	1	3	2	3	3	1	-
Platers' Theory N2	1	4	-	-	-	-	-	-	-	-	-

* centre outside SA

Instructional offering	Number of Provinces	Western Cape	Northern Cape	Free State	Eastern Cape	KwaZulu-Natal	Mpumalanga	Limpopo	Gauteng	North West	Province 10*
Plating and Structural Steel Drawing N2	4	-	1	4	-	-	-	-	4	5	-
Plumbing Theory N2	1	-	-	-	-	11	-	-	-	-	-
Water and Waste-water Treatment Practice N2	6	-	-	2	1	1	1	1	1	-	-
Welders' Theory N2	1	4	-	-	-	-	-	-	-	-	-

* centre outside SA

Table 6E: Verification of marking N3: instructional offerings, number of verified 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 and Civil Technology N3	8	2	-	2	2	1	1	5	3	4	-
Building Science N3	8	-	-	2	3	2	2	2	4	1	1
Electrical Trade Theory N3	8	2	1	1	-	3	2	4	1	1	-
Electrotechnology N3	1	-	-	-	-	-	15	-	-	-	-
Engineering Science N3	-	-	-	-	-	17	-	-	-	-	-
Industrial Electronics N3	3	-	-	-	-	-	-	-	3	2	1
Logic Systems N3	5	-	1	-	1	2	-	2	4	-	-
Mathematics N3	1	-	-	-	-	-	-	-	8	-	-
Mechanotechnology N3	8	-	2	2	2	3	2	2	2	1	-
Plating and Structural Steel Drawing N3	5	2	-	1	-	1	-	-	2	3	-
Supervision in Industry N3	8	1	1	1	1	-	1	1	1	1	-
Waste Water Treatment Practice N3	5	-	-	-	1	1	2	1	2	-	-
Water Treatment Practice N3	8	-	-	1	2	3	3	3	4	2	1

* centre outside SA

6.3 Summary of Findings

This section presents the most important results, and discusses and interprets the findings of the data collected through the verification of marking for the August 2020 N2 and N3 examinations. The April 2020 examinations were cancelled because of the Covid 19 pandemic. They were administered in August 2020. Therefore, findings are compared to the April 2019 examinations.

Table 6F and **Table 6G** summarise the findings of the verification of marking of the 28 N2 and N3 instructional offerings respectively:

Table 6F: Findings of the Verification of marking of N2 instructional offerings

Criteria	Findings	Instructional offerings
Marking guideline discussions	In four instructional offerings (22%) changes were made to the marking guidelines at the marking centre during the marking guideline discussion meetings (a decrease of 20% from April 2019 examinations).	Bricklaying and Plastering Theory N2 Carpentry and Roof Work N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2
	No changes were made to the marking guidelines for 14 instructional offerings (78%) during the marking guideline discussion meetings.	Building Science N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Platers' Theory N2 Water and Waste-water Treatment Practice N2 Welders' Theory N2 Engineering Drawing N2 Plumbing Theory N2
	Changes made to the marking guidelines did not lower the standard of the question papers in any of the affected instructional offerings.	All instructional offerings.
	Changes made to the marking guidelines were procedurally correct and promptly finalised between marking centres for all instructional offerings (100%).	All instructional offerings.
Marking	In eight instructional offerings (44%) the full complement of scripts had not yet been received by the time of moderation.	Bricklaying and Plastering Theory N2 Building Science N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2

Criteria	Findings	Instructional offerings
Training of markers	Verifiable training of markers was conducted for 14 instructional offerings (82%) (a decrease of 18% from April 2019 examinations).	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2 Plumbing Theory N2
	No training was conducted for three instructional offerings (18%) as only one marker was appointed.	Motor Trade Theory N2 Platers' Theory N2 Welders' Theory N2
	Training for instructional offering could not be verified because of a lack of evidence during off-site moderation.	Engineering Drawing N2
Sample marking	In 14 instructional offerings (78%), sample marking was conducted and this was in keeping with the following quality indicators: <ul style="list-style-type: none"> • Each marker received scripts to mark after the marking guideline discussion; • All markers marked a copy of the same script to determine consistency in marking; • Thereafter, each marker received a sample of scripts from a range of centres to mark to determine whether it was necessary to add other possible answers; and • Markers adhered to the marking guideline during the sample marking. 	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2 Plumbing Theory N2

Criteria	Findings	Instructional offerings
Sample marking	Sample marking was rated as good for 13 instructional offerings (93%).	Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2 Plumbing Theory N2
	Sample marking was rated as adequate for one instructional offering (7%).	Bricklaying and Plastering Theory N2
	Internal moderation of sample marking was rated as good for 11 instructional offerings (84%).	Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2 Plumbing Theory N2
	Internal moderation of sample marking was rated as poor for 1 instructional offering (8%).	Mathematics N2
	There was no evidence of internal moderation of sample marking for 1 instructional offering. (8%)	Fitting and Machining Theory N2
Adherence to marking guideline	Adherence to marking guidelines was considered good in 16 instructional offerings (89%) (an increase of 19% from April 2019 examinations).	Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Platers' Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2 Welders' Theory N2 Plumbing Theory N2

Criteria	Findings	Instructional offerings
Adherence to marking guideline	Adherence to marking guidelines for two instructional offerings (11%) was rated as adequate (a decrease of 6% from the April 2019 examination).	Bricklaying and Plastering Theory N2 Engineering Drawing N2
Standard of marking	The standard of marking was rated as good in 17 instructional offerings (94%) (an increase of 19% from the April 2019 examination).	Bricklaying and Plastering N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Plater's Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-Water Treatment Practice N2 Welder's Theory N2
Marking administration	The prescribed procedure for allocation of marks per question was followed by 17 instructional offerings (94%) (a decrease of 6%, from the April 2019 examination).	Bricklaying and Plastering N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Plater's Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-Water Treatment Practice N2 Welder's Theory N2
	Marks were clearly indicated per question in all of instructional offerings (100%).	All instructional offerings

Criteria	Findings	Instructional offerings
Marking administration	Mistakes were clearly indicated in 15 instructional offerings (83%) (a drop of 17% from the April 2019 examination).	Bricklaying and Plastering N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Plater's Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-Water Treatment Practice N2 Welder's Theory N2
	Marks were transferred correctly in all instructional offerings (100%) (an increase of 8% from the April 2019 examination).	All instructional offerings
	Mark sheets were completed correctly in 17 instructional offerings (94%) (a decrease of 1% from the April 2019 examination).	Bricklaying and Plastering N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Drawing N2 Engineering Science N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Plater's Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-Water Treatment Practice N2 Welders' Theory N2
	Mark sheets for one instructional offering (6%) were not completed correctly.	Fitting and Machining Theory N2

Criteria	Findings	Instructional offerings
Marking administration	Notes were kept by markers throughout the marking process for 12 instructional offerings (75%) (a drop of 25% from the April 2019 examination) in order to assist with report writing.	Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Motor Trade Theory N2 Plant Operation Theory N2 Platers' Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2 Welders' Theory N2
	Markers for four instructional offerings (25%) did not keep notes during the marking process.	Bricklaying and Plastering Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2
	Marking for two instructional offerings could not be verified as there was no evidence of off-site moderation	Engineering Drawing N2 Plumbing Theory N2
Control	Markers of all instructional offerings (100%) included their code/name in red ink on the cover page of each script (an increase of 8% from the April 2019 examination).	All instructional offerings
	Ten moderators (77%) indicated their names clearly in green, (a decrease of 13% from the April 2019 examination).	Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Water and Waste-water Treatment Practice N2
	The ink colour used by five internal moderators could not be verified because evidence was photocopied during off-site moderation.	Bricklaying and Plastering Theory N2 Building Science N2 Engineering Drawing N2 Logic Systems N2 Plumbing Theory N2
	Three instructional offerings (17%) in the sample were not moderated internally.	Motor Trade Theory N2 Platers' Theory N2 Welders' Theory N2

Criteria	Findings	Instructional offerings
Internal moderation	There was evidence of moderation of scripts throughout the marking process for 15 instructional offerings (83%) (the same proportion as in the April 2019 examination).	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Drawing N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-water Treatment Practice N2
	Three instructional offerings (17%) were not internally moderated because of there were very few scripts and no internal moderator had been appointed by the DHET.	Motor Trade Theory N2 Platers' Theory N2 Welders' Theory N2
	In 15 of the moderated instructional offerings (100%), moderators randomly selected high, medium and low performing candidates' scripts for internal moderation.	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Drawing N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-water Treatment Practice N2
	Internal moderation was conducted at all examinations centres for nine instructional offerings (60%), (a drop of 30% from the April 2019 examination).	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2

Criteria	Findings	Instructional offerings
Internal moderation	A whole-script moderation approach was adopted for all (100%) internally moderated instructional offerings.	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Drawing N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-water Treatment Practice N2
	The standard of internal moderation of nine instructional offerings (60%) was rated as good.	Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Industrial Electronics N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-water Treatment Practice N2
	The standard of internal moderation of six instructional offerings (40%) was rated as adequate.	Bricklaying and Plastering Theory N2 Electrical Trade Theory N2 Engineering Drawing N2 Logic Systems N2 Mathematics N2 Plant Operation Theory N2
Response to examination question paper	Candidates' performance in 12 instructional offerings (67%) was in line with the predictions, decrease drop from 75% in the April 2019 examinations.	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Engineering Science N2 Fitting and Machining Theory N2 Mathematics N2 Motor Trade Theory N2 Platers' Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Welders' Theory N2
	Candidates' performance in six instructional offerings (33%), was not in line with predictions.	Electrical Trade Theory N2 Engineering Drawing N2 Industrial Electronics N2 Logic Systems N2 Plant Operation Theory N2 Water and Waste-water Treatment Practice N2

Criteria	Findings	Instructional offerings
Response to examination question paper	Candidates for 14 instructional offerings (72%) found the paper fair (a decrease of 11% from the April 2019 examinations).	Bricklaying and Plastering Theory N2 Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Engineering Drawing N2 Engineering Drawing N2 Fitting and Machining Theory N2 Industrial Electronics N2 Mathematics N2 Motor Trade Theory N2 Platers' Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Welders' Theory N2
	Candidates experienced the papers for four instructional offerings (28%) as difficult.	Electrical Trade Theory N2 Logic Systems N2 Plant Operation Theory N2 Water and Waste-water Treatment Practice N2
Prevention and handling of irregularities	Irregularities were reported in six of the sampled instructional offerings (33%).	Bricklaying and Plastering Theory N2 Electrical Trade Theory N2 Fitting and Machining Theory N2 Plant Operation Theory N2 Plating and Structural Steel Drawing N2 Welders' Theory N2
Reports	Reports had been completed by only two of the 18 instructional offerings (11%) at the time of verification. These two reports were qualitative in nature.	Building Science N2 Plating and Structural Steel Drawing N2
General fairness of marking	Making was declared fair for 16 of the verified instructional offerings (89%).	Building Science N2 Carpentry and Roof Work N2 Diesel Trade Theory N2 Electrical Trade Theory N2 Engineering Drawing N2 Fitting and Machining Theory N2 Industrial Electronics N2 Logic Systems N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 Platers' Theory N2 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Water and Waste-water Treatment Practice N2 Welders' Theory N2
	Marking for two verified instructional offerings (11%) was deemed inconsistent and unfair.	Bricklaying and Plastering Theory N2 Engineering Drawing N2

Table 6G: Findings of the Verification of marking of N3 instructional offerings

Criteria	Findings	Instructional offerings
Marking guideline discussions	In the case of 13 instructional offerings (93%), changes were made to the marking guidelines during the marking guideline discussion meetings at the marking centre (an increase of 51% from April 2019 examinations).	Building and Civil Technology N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Industrial Electronics N3 Logic Systems N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Supervision in Industry N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
Marking guideline discussions	No changes were made to the marking guidelines of one instructional offering (7%) during the marking guideline discussion meetings at the marking centre (a decrease of 43% from April 2019 examinations).	Building Science N3
	Changes made to the marking guidelines did not lower the standard of the question papers for any of the affected instructional offerings (100%).	All instructional offerings verified
	Changes made to the marking guidelines for all the instructional offerings were procedurally correct and finalised promptly by marking centres.	All instructional offerings
Marking	The full complement of scripts for seven verified instructional offerings (58%) had not been received at the time of moderation.	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Logic Systems N3 Mathematics N3 Mechanotechnology N3
	The full complement of scripts for two instructional offerings could not be verified, as there was no evidence at the time of off-site moderation.	Industrial Electronics N3 Supervision in Industry N3
Training for marking	Training for marking was conducted for all instructional offerings (100%), as in the April 2019 examinations.	All instructional offerings

Criteria	Findings	Instructional offerings
Sample marking	Sample marking for 13 instructional offerings (100%) was conducted and complied with the following quality indicators: <ul style="list-style-type: none"> • each marker received scripts to mark after the marking guideline discussion; • thereafter, each marker received a sample of scripts from a range of centres to determine whether it was necessary to add other possible answers; and • markers adhered to the marking guideline during the sample marking. 	13 Instructional Offerings
	<ul style="list-style-type: none"> • In one instructional offering (8%) that had evidence of sample marking, markers did not mark a copy of a same script to determine consistency in marking. Markers were instead given live scripts. 	Plating and Structural Steel Drawing N3
	Sample marking for one instructional offering could not be verified because of a lack of evidence at the time of off-site verification of marking.	Supervision in Industry N3
	Sample marking was rated as good for 10 instructional offerings (77%).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Engineering Science N3 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Sample marking was rated as average for two instructional offering. (15%).	Electrotechnology N3 Industrial Electronics N3
	Sample marking for one instructional offering (8%) was rated as poor.	Mathematics N3

Criteria	Findings	Instructional offerings
Sample marking	Internal moderation of sample marking was rated as good for 11 instructional offerings (92%).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Internal moderation of sample marking was rated as adequate for one instructional offering (8%).	Mathematics N3
	Internal moderation of sample marking for two instructional offerings were not verified because of a lack of evidence at the time of off-site moderation.	Industrial Electronics N3 Supervision in Industry N3
Adherence to the marking guideline	Adherence to marking guidelines was rated as good in ten instructional offerings (71%) (as in the April 2019 examinations).	Building and Civil Technology N3 Building Science N3 Engineering Science N3 Industrial Electronics N3 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Adherence to marking guidelines was considered adequate in three instructional offerings (21%) (as in the April 2019 examinations).	Electrical Trade Theory N3 Electrotechnology N3 Supervision in Industry N3
	Adherence to marking guidelines was considered poor in one instructional offering (8%) (as in the April 2019 examinations).	Mathematics N3

Criteria	Findings	Instructional offerings
Standard of Marking	The standard of marking was rated as good in 11 instructional offerings (79%) (an increase of 4% from the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Industrial Electronics N3 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	The standard of marking was rated adequate in two instructional offerings (14%).	Plating and Structural Steel Drawing N3 Supervision in Industry N3
	The standard of marking of one of the instructional offerings (7%) was rated as poor.	Mathematics N3
Marking administration	The prescribed procedure for allocating marks per question and indicating marks per question was followed by all instructional offerings (100%), (as in the April 2019 examination).	All instructional offerings
	Marks were clearly indicated per question in all instructional offerings (100%), (as in the April 2019 examination).	All instructional offerings
	Mistakes were clearly indicated in 13 instructional offerings (93%) (a decrease of 3% compared to the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Logic Systems N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Supervision in Industry N3 Waste Water Treatment Practice N3 Water Treatment Practice N3

Criteria	Findings	Instructional offerings
Marking administration	Marks were transferred correctly for 12 instructional offerings (92%) (as in the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Industrial Electronics N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Marks were transferred incorrectly in one instructional offering (8%).	Logic Systems N3
	The transfer of marks could not be verified for one instructional offering owing to a lack of evidence at the time of off-site moderation.	Supervision in Industry N3
	Mark sheets were completed correctly for 13 instructional offerings (100%) (as in the April 2019 examination).	All instructional offerings
	In 11 instructional offerings (92%) notes were kept by markers throughout the marking process to assist with report writing, (as in the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Markers for one instructional offering (8%) did not keep notes during the marking process.	Logic Systems N3
	Markers' note keeping could not be verified for two instructional offerings that were moderated off-site.	Industrial Electronics N3 Supervision in Industry N3

Criteria	Findings	Instructional offerings
Control	In 12 instructional offerings (100%) markers wrote their code/name in red ink on the cover page of each script (as in the April 2019 examinations).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Logic Systems N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Markers' codes/names in red ink on the cover page of the script could not be verified for two instructional offerings that were moderated off-site.	Industrial Electronics N3 Supervision in Industry N3
	Eleven internal moderators (92%) indicated their names clearly in green ink (an increase of 2% from the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	One internal moderator (8%) failed to indicate his/her name in green ink.	Logic Systems N3
	The colour of ink used by two internal moderators could not be verified as the documentation was photocopied during off-site moderation.	Industrial Electronics N3 Supervision in Industry N3
Internal moderation	There was evidence of moderation of scripts throughout the marking process for all instructional offerings (100%), an increase of 17% from the April 2019 examination.	All instructional offerings

Criteria	Findings	Instructional offerings
Internal moderation	In all moderated instructional offerings (100%), moderators made a random selection of high, medium and low performing candidates' scripts for internal moderation.	All instructional offerings
	Internal moderation was conducted across all examinations centres for 12 instructional offerings (86%), (a decrease of 4% from the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrotechnology N3 Engineering Science N3 Industrial Electronics N3 Logic Systems N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Internal moderation was not conducted across all examinations centres for two instructional offerings (14%).	Electrical Trade Theory N3 Supervision in Industry N3
	A whole script moderation approach was adopted for all instructional offerings (100%).	All instructional offerings
	The standard of internal moderation in 13 instructional offerings (93%) was rated as good (an increase of 3% from the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3 Industrial Electronics N3 Supervision in Industry N3
	The standard of internal moderation in one instructional offering (7%) was rated as poor.	Mathematics N3

Criteria	Findings	Instructional offerings
Response to examination question paper	In 12 (86%) instructional offerings, the candidates' performance was in line with predictions (an increase of 11% from the April 2019 examination).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Logic Systems N3 Mathematics N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Supervision in Industry N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Candidates' performance in two instructional offerings (14, was not in keeping with predictions (a decrease of 17% from the April 2019 examination).	Industrial Electronics N3 Mechanotechnology N3
	Candidates for 12 instructional offerings (86%) found the paper to be fair (an increase of 3% from the April 2019 examinations).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Logic Systems N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Supervision in Industry N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Candidates for two instructional offerings (14%) experienced the paper as difficult.	Industrial Electronics N3 Mathematics N3
Prevention and handling of irregularities	Irregularities were reported in seven of the instructional offerings sampled (50%) (a decrease of 17% from the April 2019 examination).	Building and Civil Technology N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Mathematics N3 Mechanotechnology N3 Supervision in Industry N3
Reports	Reports were completed by only five instructional offerings (42%) at the time of verification. The five reports were qualitative in nature.	Building and Civil Technology N3 Electrical Trade Theory N3 Electrotechnology N3 Mathematics N3 Mechanotechnology N3

Criteria	Findings	Instructional offerings
General fairness of marking	Marking was deemed fair in 13 instructional offerings (93%).	Building and Civil Technology N3 Building Science N3 Electrical Trade Theory N3 Electrotechnology N3 Engineering Science N3 Industrial Electronics N3 Logic Systems N3 Mathematics N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N3 Waste Water Treatment Practice N3 Water Treatment Practice N3
	Marking was deemed to be unfair in one of the verified instructional offerings (7%).	Supervision in Industry N3

6.4 Areas of Improvement

The results of the verification of marking revealed the following areas of improvement:

- Changes made to marking guidelines for all N2 and N3 instructional offerings, did not lower the standard of the question papers;
- Changes made to the marking guidelines were procedurally correct and finalised promptly by marking centres in all affected instructional offerings;
- Effective sample marking was conducted in 78% of N2 instructional offerings and in 100% of N3 instructional offerings;
- Adherence to the marking guidelines was considered good in 89% of the N2 instructional offerings and in 71% of the N3 instructional offerings, an improvement of 14% for N2 instructional offerings;
- The standard of marking was rated as good in 94% of the N2 instructional offerings;
- Marks were clearly indicated per question in all N2 and N3 instructional offerings;
- Mistakes were clearly indicated in 83% of the N2 instructional offerings and in 93% of the N3 instructional offerings;
- Marks were transferred correctly in all N2 instructional offerings and in 92% of the N3 instructional offerings;
- Candidates' performance was in line with predictions in 86% of N3 instructional offerings; and
- Marking was declared to be fair in 89% of N2 instructional offerings and in 93% of N3 instructional offerings.

6.5 Areas of Non-compliance

The results of the verification of marking revealed the following examples of non-compliance that might hinder the marking process:

- Changes were made to the marking guidelines at the marking centre during the marking guideline discussion meetings in 22% of N2 instructional offerings and 93% of N3 instructional offerings;
- The full complement of scripts in 44% of N2 instructional offerings and in 58% of N3 instructional offerings had not been received by the date of moderation;

- Internal moderators were not appointed for three sampled N2 instructional offerings; and
- Irregularities were reported in 33% of N2 and 50% of N3 sampled instructional offerings.

6.6 Directives for Compliance and Improvement

In order to improve the standard and quality of marking, the DHET must:

- Establish processes to conduct sample marking during the virtual standardisation of marking guidelines. This would reduce the number of changes to marking guidelines and allow marking teams to spend more time on training during marking guideline discussions;
- Establish processes to ensure that all scripts are received in good time by marking centres;
- Appoint internal moderators for subjects with low enrolments. For example, one internal moderator could be appointed to moderate Platers' Theory N2 and Welders' Theory N2 (both from the same programme); and
- Adopt more stringent measures during invigilation to curb irregularities occurring in the writing of examinations.

6.7 Conclusion

The marking of scripts for August 2020 NATED Report 190/191: Engineering Studies N2–N3 examinations was largely accurate and consistent. The administration and control of marking was of a high standard. Findings reflect that marking was fair in 91% of instructional offerings. The DHET must strive to achieve 100% fairness in marking.

CHAPTER 7 STANDARDISATION

7.1 Introduction

Standardisation is a process that is informed by evidence presented in the form of qualitative and quantitative reports. Its primary aim is to achieve an optimum degree of uniformity in a given context by considering possible sources of variability other than candidates' ability and knowledge. In general, variability may be a result of the standard of question papers, the quality of marking or other related factors. It is for this reason that examination results are standardised in order to control their variability from one examination session to the next.

Section 17A (4) of the GENFETQA Act of 2001 as amended in 2008 states that the Council may adjust raw marks during the standardisation process. In broad terms, standardisation involves the verification of subject structures, mark capturing and the computer system used by an assessment body. It includes the development and verification of norms, and the production and verification of standardisation booklets in preparation for standardisation meetings. During standardisation, qualitative input from external moderators, internal moderators, monitoring reports and the principles of standardisation are used to inform decisions. The process is concluded by the approval of mark adjustments per instructional offering, statistical moderation and the resulting process.

7.2 Scope and Approach

The novel Covid-19 pandemic and the subsequent restrictions on gatherings and imposed social distancing forced Umalusi to convene a virtual standardisation meeting for the August 2020 NATED Report 190/1 Engineering Studies N2–N3. The Department of Higher Education and Training (DHET) presented 55 instructional offerings for standardisation. In its turn, Umalusi verified the historical averages, the standardisation datasets and electronic booklets before standardisation, the adjustments, statistical moderation and the resulting datasets.

7.2.1 Calculation of the historical averages

Historical averages are calculated using the previous six examination sessions. Once this has been done, the DHET follows policy requirements and submits historical averages or norms to Umalusi for verification. Where a distribution contains outliers, the historical average is calculated excluding data from the outlying examination session. Finally, Umalusi takes into account historical averages during the standardisation process.

7.2.2 Capturing of marks

Umalusi did not monitor the capturing of marks for the August 2020 Examination.

7.2.3 Verification of datasets and standardisation booklets

The DHET submitted standardisation datasets and electronic booklets according to the Umalusi management plan. The datasets were verified and approved.

7.2.4 Pre-standardisation and standardisation

The pre-standardisation and standardisation meetings for the August 2020 NATED Report 190/191 Engineering Studies N2–N3 examinations were held on 24 August 2020. Umalusi was guided by several factors in reaching its standardisation decisions, including qualitative and quantitative information. Qualitative input included reports from Umalusi's external moderators and monitors on the conduct, administration and management of examinations, as well as reports received from the DHET. As far as quantitative information was concerned, Umalusi considered historical averages and pairs analysis, together with standardisation principles.

7.2.5 Post-standardisation

Once the standardisation meetings had been concluded, the DHET submitted the final adjustments and candidates' resulting files for verification and final approval.

7.3 Summary of Findings

7.3.1 Calculation of historical averages

As explained in the paragraphs above, the historical averages for August NATED Report 190/191 Engineering Studies N2–N3 examinations were calculated using the previous six examination sessions. In order to do this, the DHET was required to submit the historical averages for verification in accordance with Umalusi's management plan. Where outliers were found, the principle of exclusion was applied and as a result, the norm was calculated using five examination sessions. Table 14A indicates instructional offerings with outliers.

Table 7A: Instructional offerings with outliers

Level	Code	Instructional Offering	Excluded Examination Sessions
N3	8090023	Building Drawing	201804
	11040343	Electrotechnology	201908
	15070023	Building Science	201911
	16030143	Mathematics	201904

7.3.2 Capturing of marks

Umalusi did not conduct the verification of the capturing of marks for the August 2020 NATED N2–N3 examination.

7.3.3 Verification of datasets and standardisation booklets

The standardisation datasets and electronic booklets submitted for the August 2020 NATED Report 190/191 Engineering Studies N2–N3 examinations adhered to the requirements as spelt out in the *Requirements and Specifications for Standardisation, Statistical Moderation and Resulting Policy*. The standardisation and electronic booklets were submitted and approved during the first submission.

7.3.4 Pre-standardisation and standardisation

Standardisation decisions were informed by qualitative reports from external moderators, examination monitors, and chief markers.

As already indicated, the DHET presented 55 instructional offerings for the standardisation of the NATED Report 190/191 Engineering Studies N2–N3 Examinations. The decisions for the August 2020 NATED examinations were informed by trends in student performance, the qualitative input, the historical averages and pair's analysis. Eventually, all 55 subjects were standardised. During pre-standardisation, Umalusi commended the DHET for the submission of datasets for approval within the stipulated timeframes. However, the ASC expressed concern about the repetition in some instructional offerings of question papers, and questions copied verbatim from the textbook. The ASC observed the recurrence of high absenteeism rates in some subjects. Furthermore, the ASC reiterated the need for the DHET to address the issue of outdated syllabi in this qualification.

During the pre-standardisation meeting the committee noted the leakage of the question paper for Mathematics N2 at Taletso TVET College, Mafikeng Campus. Separate statistics, excluding the affected candidates, were calculated and a decision to standardise using the whole cohort as the number of candidates did not have an impact on the general performance. Table 14B indicates a summary of the standardisation decisions.

Table 7B: Standardisation decisions for NATED Report 190/191: Engineering Studies N2 and N3

Description	Total
Number of instructional offerings presented	55
Raw marks accepted	28
Adjustments (mainly upwards)	18
Adjustments (mainly downwards)	9
Provisionally standardised	0
Number of instructional offerings standardised	55

7.3.5 Post-standardisation

The N2 and N3 adjustments were approved during the third submission. The statistical moderation and resulting datasets for N2 and N3 were approved during the first submission.

7.4 Areas of Improvement

The following areas of improvement were observed:

- The DHET submitted the datasets for verification within the stipulated timeframes;
- The standardisation booklet was successfully submitted in the prescribed format; and
- The historical averages and the statistical moderation and candidate files were approved during the first submission.

7.5 Areas of Non-compliance

The following concerns were raised:

- Persistent high absenteeism rates in both N2 and N3 for Engineering Science, Mathematics and Industrial Electronics; and
- Extremely high failure rate in most subjects.

7.6 Directives for Improvement and Compliance

The DHET must ensure that strategies are implemented:

- To avoid repetition of question papers and questions taken verbatim from the textbook;
- To minimise high absenteeism in both N2 and N3; and
- To improve candidates' performance.

7.7 Conclusion

The standardisation process was conducted in a systematic, objective and transparent manner. The decisions taken on whether to accept the raw marks or to perform slight upward or downward adjustments were based on sound educational principles. Most subjects were accepted at raw mark.

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