

2021

**REPORT ON THE QUALITY
ASSURANCE OF THE
AUGUST 2021 NATED
REPORT 190/191 N2
– N3 ENGINEERING
STUDIES EXAMINATIONS**

UMALUSI



Quality Council for General and Further
Education and Training

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INTRODUCTION AND BACKGROUND

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

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

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

- a. Must perform the external moderation of assessment of the different assessment bodies and education institutions;
- b. May adjust raw marks during the standardisation process;
- c. 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:
 - i. conducted the assessment free from any irregularity that may jeopardise the integrity of the assessment or its outcomes;
 - ii. complied with the requirements prescribed by the Council for conducting assessments;
 - iii. applied the standards prescribed by the Council which a learner is required to comply with in order to obtain a certificate; and
 - iv. complied with every other condition determined by the Council.

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

In 2021, the NATED Report 190/191: Engineering Studies N2 - N3 examinations would be conducted in two terms as the November examinations would only be conducted in January/February 2022. The delay in the administration of these examinations was due to the advent of the global COVID-19 pandemic.

All the 55 question papers for the August 2021 examinations were set nationally and externally moderated by Umalusi. The DHET distributed question papers via courier to nodal points, from where the surrounding colleges/campuses collected them and had to return the answer scripts within 60 minutes after the stipulated finishing time of the examination session. The drawing subjects were written during the first week of the examinations. All the August 2021 examinations were written as morning sessions, starting at 9:00.

No formal appointment of marking staff was conducted for this examination by the DHET and the marking centre management staff of the national and provincial marking centres were mandated to make use of the marking personnel that performed the same function during November 2020 examinations.

The marking model followed was decentralised (provincial) marking for most N2 and centralised (national) for most of the N3 subjects. The N2 marking guidelines were standardised on-line, after which they were distributed electronically to the different marking centres.

Like in the previous examinations, the August 2021 NATED Report 190/191: Engineering Studies N2-N3 examinations were conducted at a few schools, some correctional services centres, private colleges, public colleges, and a few centres from other countries.

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

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

The purpose of this draft report is to provide feedback on the processes followed by Umalusi in the quality assurance of the August 2021 examinations NATED Report 190/191: Engineering Studies N2 to N3 examinations. The report also reflects on 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 the Umalusi moderation, monitoring, verification and standardisation processes, as well as from reports received from the DHET.

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

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

ABBREVIATIONS AND ACRONYMS

ASC	Assessment Standards Committee
CD: NEA	Chief Directorate: National Examinations and Assessment
CEO	Chief Executive Officer
COVID-19	Coronavirus Disease – 2019
Umalusi	Council for Quality Assurance in General and Further Education and Training
DHET	Department of Higher Education and Training
DMCA	Deputy Marking Centre Manager Academic
EC	Eastern Cape Province
FET	Further Education and Training
FS	Free State
GP	Gauteng Province
GFETQSF	General and Further Education and Training Qualifications Sub-framework
GENFETQA	General and Further Education and Training Quality Assurance
GPW	Government Printing Works
HOD	Head of Department
ID	Identity Document
ICASS	Internal Continuous Assessment
KZN	KwaZulu-Natal Province
LP	Limpopo Province
MP	Mpumalanga Province
NQF	National Qualifications Framework
NW	North West Province
NC	Northern Cape Province
OHS	Occupational Health and Safety
PAM	Personnel Administrative Measures
PoA	Portfolio of Assessment (lecturer portfolio)
PoE	Portfolio of Evidence (learner portfolio)
SA	South Africa
SACE	South African Council for Educators
SMS	Short Message Service
SOR	State of Readiness
TVET	Technical and Vocational Education and Training
WC	Western Cape Province

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CHAPTER 1
MODERATION OF

QUESTION PAPERS

1.1 Introduction

The moderation of question papers is a critical element of the quality assurance of assessment process. The purpose of external moderation of examination question papers and marking guidelines is to ensure that the quality and standard is maintained in all the NATED Report 190/191: Engineering Studies N2-N3 examination cycles.

Umalusi conducts external moderation of question papers that are set nationally by the Department of Higher Education and Training (DHET). The external moderation process confirms that the question papers have been developed with rigour and comply with Umalusi's criteria and the curriculum and assessment policy documents of the assessment body.

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

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

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

1.2 Scope and Approach

Umalusi moderated and approved a total of 50 question papers and marking guidelines for the August 2021 NATED Report 190/191: Engineering Studies N2 –N3 examinations.

The instructional offerings were moderated off-site whereby the question papers, marking guidelines, assessment frameworks and internal moderators' reports were forwarded electronically to Umalusi moderators.

Table 1A indicates the instructional offerings moderated per level:

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

No.	Instructional offerings	Level
1.	Aircraft Maintenance Theory	N3
2.	Building and Civil Technology	N3
3.	Building Drawing	N2 and N3
4.	Bricklaying and Plastering Theory	N2
5.	Building Science	N2 and N3
6.	Carpentry and Roofing Theory	N2
7.	Diesel Trade Theory	N2 and N3
8.	Electrical Trade Theory	N2 and N3

No.	Instructional offerings	Level
9.	Electrotechnology	N3
10.	Engineering Drawing	N2 and N3
11.	Engineering Science	N2 and N3
12.	Fitting and Machining Theory	N2
13.	Industrial Electronics	N2 and N3
14.	Industrial Organisation and Planning	N3
15.	Industrial Orientation	N2 and N3
16.	Instrument Trade Theory	N2 and N3
17.	Logic Systems	N2 and N3
18.	Mathematics	N2 and N3
19.	Mechanotechnology	N3
20.	Motor Electrical Theory	N2
21.	Motor Trade Theory	N2 and N3
22.	Plant Operation Theory	N2 and N3
23.	Platers' Theory	N2
24.	Plating and Structural Steel Drawing	N2 and N3
25.	Plumbing Theory	N2
26.	Radio Theory	N2 and N3
27.	Radio and Television Theory	N2 and N3
28.	Refrigeration Trade Theory	N2 and N3
29.	Supervision in Industry	N3
30.	Waste-water Treatment Practice	N3
31.	Water and Waste-water Treatment Practice	N2
32.	Water Treatment Practice	N3
33.	Welders' Theory	N2

For the August 2021 examinations, DHET administered a total of 55 instructional offerings for N2 and N3 of which Umalusi sampled 50 for moderation. Table 1B below gives an indication of the number of instructional offerings moderated by Umalusi per level and their percentages.

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

Level	Number of instructional offerings offered by DHET	Number of instructional offerings moderated BY Umalusi	Percentage of instructional offerings moderated
N2	30	25	83%
N3	25	25	100%
Total	55	50	91%

The criteria according to which the question papers were moderated covered the following aspects:

- Technical aspects related to the presentation of the 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 to achieve the desired response;

- e. Distribution of marks across cognitive levels;
- f. Consistency and appropriateness of mark allocation;
- g. Relevance and correctness of the marking guidelines;
- h. Appropriateness of language register, correct use of grammar in question papers and marking guidelines and content which is free from bias;
- i. Degree of predictability of questions and innovation in question papers; and
- j. An overall evaluation of the question papers in terms of their appropriateness to the level being assessed.

The Table 1C and Figure 1A below indicates the approval status of the NATED Report 190/191: Engineering Studies question papers after preliminary moderation.

Table 1C: Approval status of the NATED Report 190/191: Engineering Studies question papers and marking guidelines after preliminary moderation

August 2021 examinations				
Report 190/191	Number of question papers moderated by Umalusi	Number of question papers approved	Number of question papers conditionally approved	Number of question papers rejected
N2	25	6	19	0
N3	25	8	17	0
Total	50	14	36	-

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

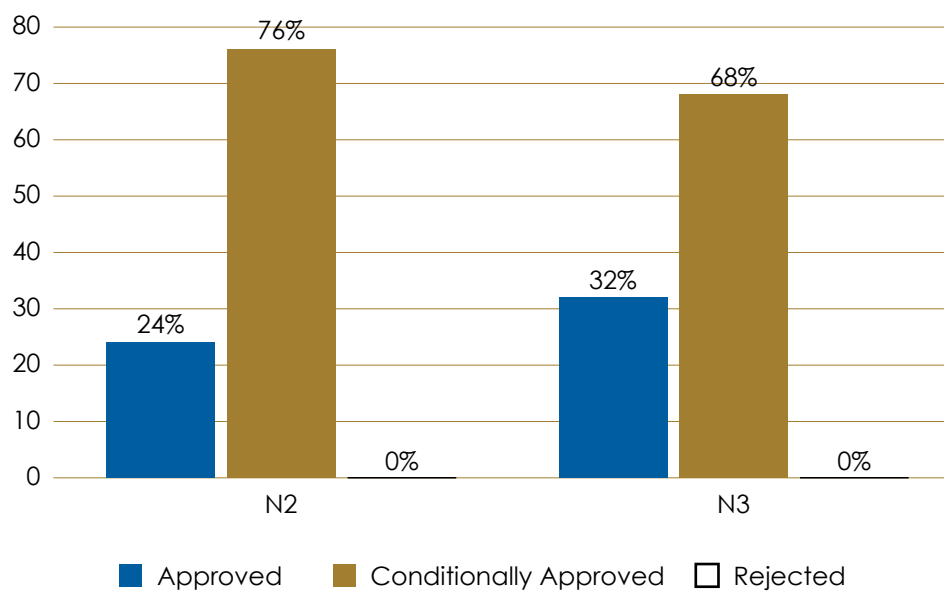


Figure 1A: Approval status of the NATED Report 190/191: Engineering Studies question papers and marking guidelines after preliminary moderation

1.3 Summary of Findings

Table 1D provides a summary of the most significant findings from the moderation of the question papers and marking guidelines of the August 2021 examinations. All findings are discussed in terms of the sample of (50) instructional offerings moderated.

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

Criterion	Challenges	Instructional offering concerned
Technical criteria		
Information on the cover page	In two (4%) question papers, some of the instructions on the cover pages were incorrect or unclear.	
	The instructions referred to 'A4 sheet' instead of 'A2 sheet'.	Engineering Drawing N3
	Instruction 1 required rephrasing to ensure that the candidates understood what is required of them regarding choice questions in Section A.	Fitting and Machining Theory N2
Layout of the question paper	The cover page of three (6%) question papers did not contain all the necessary details such as the logo, name of instructional offering, time allocation, number of pages and additional information. This is 4% less than the 10% of the August 2020 examinations.	Building Drawing N2 Engineering Drawing N2 and N3
Numbering of pages	In one (2%) question paper, not all of the pages were correctly numbered, a decrease of 11% from the 13% of the August 2020 examinations.	Industrial Electronics N2
Numbering of questions	In three (6%) question papers, some of the questions were not correctly numbered, an increase of 1% from the 5% of the August 2020 examinations.	Engineering Drawing N2 Industrial Electronics N2 Motor Electrical Theory N2
Headers and footers	In two (4%) question papers, the headers and footers were not consistent and did not adhere to the required format, a decrease of 1% from the 5% of the August 2020 examinations.	Industrial Electronics N2 Motor Electrical Theory N2
Font type and size	In one (2%) question paper the fonts were not used appropriately throughout the paper, a decrease of 1% from the 3% of the August 2020 examinations.	Mathematics N2

Criterion	Challenges	Instructional offering concerned
Mark and time allocation	In four (8%) question papers the mark allocations were not clearly indicated. This is 1% more than the 7% of the August 2020 examinations.	Engineering Drawing N2 Fitting and Machining Theory N2 Motor Electrical Theory N2 Plating and Structural Steel Drawing N2
	The mark allocation on the question paper did not correspond with that on the marking guidelines in five (10%) question papers. This is 3% less than the 13% of the August 2020 examinations.	Building Science N2 and N3 Engineering Drawing N2 Plating and Structural Steel Drawing N2 Water Treatment Practice N3
Quality of graphics and illustrations	In eight (16%) question papers, the quality of illustrations, graphs, tables and visuals was poor and/or not print ready, a decrease of 12% from the 28% of the August 2020 examinations.	Building Drawing N2 Building Science N3 Engineering Drawing N2 Mathematics N2 Motor Trade Theory N2 Plant Operation Theory N2 and N3 Refrigeration Trade Theory N3
Format requirements	One (2%) question paper did not adhere to the format requirements of the syllabus.	Fitting and Machining Theory N2
Internal Moderation		
Incomplete moderator reports	In 13 (26%) question papers the moderator reports were not adequately completed, an increase of 1% from the 25% of the August 2020 examinations.	Building Drawing N2 Building Science N2 Engineering Drawing N3 Fitting and Machining Theory N2 Industrial Orientation N2 Logic Systems N2 and N3 Mechanotechnology N3 Motor Trade Theory N2 and N3 Radio Theory N2 Refrigeration Trade Theory N2 Water and Waste-water Treatment Practice N2

Criterion	Challenges	Instructional offering concerned
Quality and standard of internal moderation report	In 15 (30%) question papers the internal moderation reports were not of appropriate standard; an increase of 5% from the 25% of the August 2020 examinations.	Building Drawing N2 Carpentry and Roof Work N2 Engineering Drawing N2 and N3 Industrial Orientation N2 Logic Systems N3 Mathematics N2 and N3 Motor Electrical Theory N2 Motor Trade Theory N2 and N3 Radio Theory N2 Radio and Television Theory N3 Waste-Water Treatment Practice N3 Water Treatment Practice N3
	In thirteen (26%) internal moderators' reports, the assessment grid accompanying the internal moderator's report did not correspond with the question paper; was not provided at all or an incomplete assessment grid was provided.	Building Drawing N2 Building Science N2 Engineering Drawing N2 Engineering Drawing N3 Industrial Orientation N2 Logic Systems N2 and N3 Mathematics N2 and N3 Motor Electrical Theory N2 Radio Theory N2 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
Content Coverage		
Coverage of learning outcomes and assessment standards	The syllabus was not adequately covered in four (8%) question papers, This concurs with the August 2020 examinations.	Industrial Organisation and Planning N3 Mathematics N3 Refrigeration Trade Theory N2 Water Treatment Practice N3
	In two (4%) question papers, the topics were not appropriately spread throughout the paper; a decrease of 1% from the 5% of the August 2020 examinations.	Mathematics N3 Motor Electrical Theory N2
	Five (10%) question papers were not representative of the latest developments in the teaching of the subject. This is 8% less than the 18% of the August 2020 examinations.	Aircraft Maintenance Theory N3 Building Drawing N2 Mathematics N2 Motor Electrical Theory N2 Refrigeration Trade Theory N2
	In two (4%) question papers; some of the questions were beyond the scope of the syllabus; a decrease of 1% from the 5% of the August 2020 examinations.	Industrial Organisation and Planning N3 Radio and Television Theory N2

Criterion	Challenges	Instructional offering concerned
Types and quality of questions		
Types of questions	Two percent of question papers did not show a wide variety of question types.	Industrial Organisation and Planning N3
Correlation between difficulty level and mark allocation	There was no correlation between mark allocation, level of difficulty and time allocation for questions in ten (20%) question papers, an increase of 7% from the 13% of the August 2020 examinations.	Engineering Drawing N2 Fitting and Machining Theory N2 Logic Systems N3 Mathematics N2 and N3 Motor Electrical Theory N2 Plant Operation Theory N3 Radio Theory N3 Radio and Television Theory N2 Refrigeration Trade Theory N3
Relevance and clarity of questions	In ten (20%) question papers, the questions contained vaguely defined problems, ambiguous wording, extraneous or irrelevant information, trivia and unintentional clues to the correct answers. This is 2% more than the 18% of the August 2020 examinations.	Carpentry and Roof Work N2 Fitting and Machining Theory N2 Industrial Electronics N2 and N3 Logic Systems N2 and N3 Mathematics N3 Plant Operation Theory N3 Radio and Television Theory N2 Refrigeration Trade Theory N3
	Some of the questions in nine (18%) question papers did not provide clear instructional key words/verbs.	Carpentry and Roof Work N2 Engineering Drawing N2 Fitting and Machining Theory N2 Industrial Electronics N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Radio and Television Theory N3 Refrigeration Trade Theory N3
	In nine (18%) question papers, some questions did not contain sufficient information to elicit appropriate responses, an increase of 8% from the 10% of the August 2020 examinations.	Carpentry and Roof Work N2 Engineering Drawing N2 Industrial Electronics N3 Mathematics N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2 Plumbing Theory N2 Radio and Television Theory N3 Refrigeration Trade Theory N3
	Six (12%) question papers contained factual errors or misleading information, an increase of 4% from the 8% of the August 2020 examinations.	Building Science N2 and N3 Carpentry and Roof Work N2 Engineering Science N2 Mathematics N3 Radio and Television Theory N3

Criterion	Challenges	Instructional offering concerned
Cognitive skills		
Distribution of cognitive levels	In eleven (22%) question papers, the analysis grid did not indicate the cognitive level of each question/ sub-question. This is 4% more than the 18% of the August 2020 examinations.	Bricklaying and Plastering Theory N2 Engineering Drawing N3 Industrial Orientation N2 Mathematics N2 and N3 Mechanotechnology N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
	In nine (18%) question papers, marks were inappropriately distributed across cognitive levels, a decrease of 2% from the 20% of the August 2020 examinations.	Bricklaying and Plastering Theory N2 Electro-technology N3 Engineering Drawing N2 and N3 Industrial Orientation N2 Logic Systems N3 Mathematics N3 Mechanotechnology N3 Motor Electrical Theory N2
	In six (12%) question papers, some of the questions did not match the cognitive level instruction: e.g. if it says analyse, the answer in fact, shows analysis.	Bricklaying and Plastering Theory N2 Logic Systems N2 and N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2 and N3
Assessment of latest developments	Two (4%) question papers were not representative of the latest developments in the knowledge field. This is 9% less than the 13% of the August 2020 examinations.	Mathematics N2 Motor Electrical Theory N2

Criterion	Challenges	Instructional offering concerned
Marking Guidelines		
Accuracy of marking guidelines	In three (6%) marking guidelines some of the answers did not correspond with the question papers, a decrease of 2% from the 8% of the August 2020 examinations.	Building Science N3 Engineering Drawing N2 Mathematics N2
	Nineteen (38%) marking guidelines contained answers that were inaccurate and/or incomplete. This is 13% more than the 25% of the August 2020 examinations.	Building Science N3 Carpentry and Roof Work N2 Engineering Drawing N2 Engineering Science N3 Fitting and Machining Theory N2 Industrial Electronics N2 and N3 Logic Systems N3 Mathematics N3 Motor Electrical Theory N2 Plant Operation Theory N2 and N3 Plating and Structural Steel Drawing N2 Radio and Television Theory N2 and N3 Refrigeration Trade Theory N2 and N3 Water and Waste-water Treatment Practice N2 Water Treatment Practice N3
	Five (10%) marking guidelines did not make provision for alternative responses, where these were possible, a decrease of 3% from the 13% of the August 2020 examinations.	Building Science N3 Industrial Orientation N3 Logic Systems N2 Motor Electrical Theory N2 Plant Operation Theory N2
Mark allocations on marking guidelines	In eight (16%) marking guidelines, there were errors in mark allocations and/or the mark allocations were incomplete and/or did not indicate how marks for the method are to be allocated (where applicable).	Building Science N2 Carpentry and Roof Work N2 Industrial Electronics N3 Industrial Organisation and Planning N3 Logic Systems N3 Plant Operation Theory N3 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N3
Language and Bias		
Language register	The language register was not appropriate to the level of the candidate in 2% of the question papers.	Engineering Drawing N2
Subject terminology	Subject terminology or data were not always used correctly in 4% of the question papers.	Mathematics N3 Plumbing Theory N2

Criterion	Challenges	Instructional offering concerned
Sentence structure	In four (8%) question papers, some of the questions contained complicated sentence structures which might present difficulty/confusion for candidates to elicit the desired response.	Carpentry and Roof Work N2 Fitting and Machining Theory N2 Mathematics N3 Plumbing Theory N2
Grammar	There were grammatical errors in eight (16%) question papers.	Engineering Drawing N2 Fitting and Machining Theory N2 Plumbing Theory N2 Radio Theory N2 and N3 Radio and Television Theory N2 and N3 Water Treatment Practice N3
	The language in the marking guidelines contained grammatical errors in four (8%) question papers.	Bricklaying and Plastering Theory N2 Radio Theory N2 and N3 Radio and Television Theory N3
Predictability		
Use of questions from previous examinations	Seven (14%) question papers contained questions that could easily be spotted or predicted, an increase of 4% from the 10% of the August 2020 examinations.	Engineering Drawing N2 Logic Systems N2 and N3 Mathematics N2 and N3 Radio and Television Theory N2 and N3
	Six (12%) papers contained questions from examination papers of the past three years, an increase of 2% from the 10% of the August 2020 examinations.	Building Science N3 Engineering Drawing N2 Logic Systems N2 and N3 Radio and Television Theory N2 and N3
Innovation	Seven (14%) question papers lacked an appropriate degree of originality.	Engineering Drawing N3 Logic Systems N3 Mathematics N2 and N3 Motor Electrical Theory N2 Radio and Television Theory N2 and N3

Criterion	Challenges	Instructional offering concerned
Overall impression		
Standard of question papers	Four (8%) question papers did not satisfy all the requirements of the syllabus, a decrease of 2% from the 10% of the August 2020 examinations.	Fitting and Machining Theory N2 Industrial Organisation and Planning N3 Mathematics N3 Refrigeration Trade Theory N2
	One (2%) question paper did not assess the outcomes of the curriculum/ syllabus as a whole.	Industrial Organisation and Planning N3
	Nine (18%) question papers were not of the appropriate standard, an increase of 3% from the 15% of the August 2020 examinations.	Carpentry and Roof Work N2 Engineering Drawing N2 Engineering Drawing N3 Industrial Organisation and Planning N3 Logic Systems N3 Mathematics N3 Plant Operation Theory N3 Radio and Television Theory N2 and N3
	Seven (14%) question papers did not compare favourably to those of the previous years. This is 1% more than the 13% of the August 2020 examinations.	Engineering Drawing N2 and N3 Industrial Organisation and Planning N3 Logic Systems N3 Mathematics N3 Radio and Television Theory N2 and N3
	In four (8%) question papers, there was an imbalance in the assessment of skills, knowledge, attitudes, values and reasoning; a decrease of 2% from the 10% of the August 2020 examinations.	Electrotechnology N3 Logic Systems N2 Mathematics N3 Motor Electrical Theory N2

1.4 Areas of Improvement

The following areas of improvement were observed during the first moderation of question papers in the following instructional offerings:

- The cover page of 94% of question papers were done appropriately, citing an improvement of 4% from the 90% of the August 2020 examinations; and
- In 84% of papers, the quality of illustrations, graphs and tables was appropriate. This is an improvement of 12% from the 72% of the August 2020 examinations.

1.5 Areas of Non-compliance

Umalusi reports revealed the following areas of non-compliance:

a. Internal Moderation

- Twenty-six percent of moderator reports were not adequately completed, and 30% were not of appropriate standard; and
- In 26% of the internal moderators' reports, the assessment grid accompanying the internal moderator's report did not correspond with the question paper; was not provided at all or an incomplete assessment grid was provided.

b. Content Coverage

- i. The syllabus was not adequately covered in 8% of question papers; and
- ii. Ten percent of question papers were not representative of the latest developments in the teaching of the subject.

c. Types and Quality of Questions

- i. In 20% of question papers, there was no correlation between mark allocation, level of difficulty and time allocation for some of the questions;
- ii. Likewise, 20% of question papers contained vaguely defined problems, ambiguous wording, extraneous or irrelevant information, trivia and unintentional clues to the correct answers;
- iii. In 18% of question papers, the questions did not provide clear instructional key words/verbs;
- iv. Similarly, in 18% of question papers, some questions did not contain sufficient information to elicit an appropriate response; and
- v. Twelve percent of question papers contained factual errors or misleading information.

d. Cognitive Skills

- i. In 18% of question papers, there was an inappropriate distribution of marks across cognitive levels; and
- ii. In 12% of papers, some of the questions did not match the cognitive level instruction; for example, if it says analyse, the answer in fact shows analysis.

e. Marking Guidelines

- i. Thirty-eight percent of marking guidelines contained answers that were inaccurate and/or incomplete;
- ii. Ten percent of marking guidelines did not allow for alternative responses, where these were possible; and
- iii. In 16% of marking guidelines, there were errors in mark allocations and/or the mark allocations were incomplete and/or did not indicate how marks for the method are to be allocated (where applicable).

f. Language and bias

- i. There were grammatical errors in 16% of question papers and 8% of marking guidelines.

g. Predictability

- i. Fourteen percent of question papers contained questions that could easily be spotted or predicted and 12% of papers contained questions that were from examination papers of the past three years; and
- ii. Fourteen percent of question papers lacked an appropriate degree of originality.

h. Standard of question papers

- i. Eighteen percent of question papers were not of the appropriate standard; and
- ii. In 8% of question papers, there was an imbalance in the assessment of skills, knowledge, attitudes, values and reasoning.

1.6 Directives for Compliance and Improvement

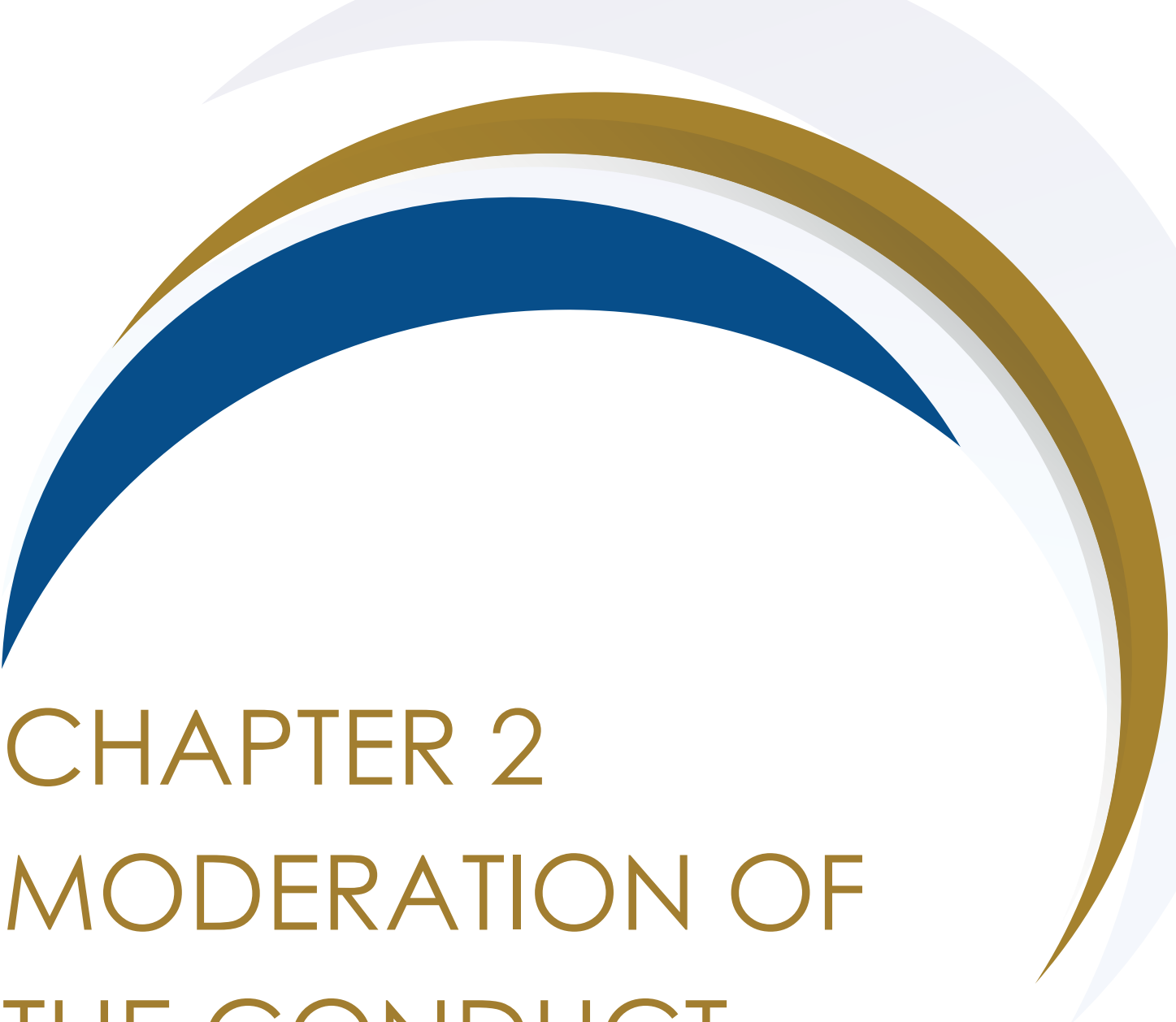
Based on the findings in the external moderators' reports, the following directives were issued to improve the quality of question papers for national examinations:

The DHET must ensure that:

- a. Question papers presented for external moderation are accompanied by relevant supporting documents;
- b. Illustrations, graphs, tables and visuals in the question papers are of good quality and print ready;
- c. Internal moderation is conducted thoroughly, with the aim of improving the quality and standard of question papers;
- d. Question papers adequately cover the syllabi and adhere to assessment policy and guideline documents;
- e. Marking guidelines are comprehensive and error free, and the allocation of marks within questions are clearly indicated;
- f. Questions are carefully formulated to elicit the desired response;
- g. Question papers and marking guidelines are free from grammatical errors;
- h. Examiners refrain from using similar questions to that of past papers; and
- i. Question papers include the latest developments in the subject.

1.7 Conclusion

Although the standard of the question papers was generally satisfactory, the quality of questions can be much improved. The cognitive intensity of some question papers had to be raised in order to improve standard of the question paper. The poor quality of internal moderators' reports indicates negligence, and improvement in this area should be prioritised in the next setting and moderation cycle. Examiners and internal moderators should also improve the quality and standard of marking guidelines.



CHAPTER 2
MODERATION OF
THE CONDUCT
OF INTERNAL
CONTINUOUS
ASSESSMENT

2.1 Introduction

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

The main objectives of moderating and monitoring the internal continuous assessment (ICASS) are to:

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

The purpose of this section of the report is to:

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

2.2 Scope and Approach

Umalusi external moderators were sent to five of the nine provinces on 23 to 26 August 2021 to moderate the ICASS of N2 and N3 students' and lecturers' portfolios from a sample of NATED Report 190/191 instructional offerings. Fifteen instructional offerings, compared with 15 in 2020, were moderated at ten (six in 2020) private Further Education and Training (FET) colleges and five (nine in 2020) public Technical and Vocational Education and Training (TVET) colleges.

Table 2A below provides information on the sampled instructional offerings, sites and provinces involved in the external moderation of NATED Report 190/191 ICASS during August 2021.

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

No.	Instructional Offering	TVET/FET College	Site	Province
1.	Welder's Theory N2	Northlink TVET	Bellville	WC
2.	Building and Civil Technology N3	Damelin	Pretoria City	GP
3.	Engineering Drawing N2	Princeview College	Durban	KZN
4.	Industrial Orientation N2	Central Technical College	Durban	KZN
5.	Industrial Electronics N2	Nkangala TVET	Waterval-Boven	MP
6.	Radio and Television Theory N3	Central Johannesburg TVET	Johannesburg	GP
7.	Building Science N2	Springfield FET	Klerksdorp	NW
8.	Engineering Science N2	Springfield FET	Rustenburg	NW
9.	Bricklaying and Plastering N2	4 Tops Academy	Mogwase	NW

No.	Instructional Offering	TVET/FET College	Site	Province
10.	Electrical Trade Theory N2	Tim Brown Electrical Works	Pretoria	GP
11.	Building Drawing N2	Mthashana TVET	Nongoma	KZN
12.	Diesel Trade Theory N2	Growth Path Projects	Middelburg	MP
13.	Building Drawing N3	Pax Commercial College	Durban	KZN
14.	Water and Waste-Water Treatment Practice N2	Elangeni TVET	Ndwedwe	KZN
15.	Mathematics N3	Academic Institute of Excellence	Midrand	GP

Umalusi moderators were also requested to gather information on three additional instructional offerings. The sites were not informed prior to the visits of this additional monitoring of specific instructional offerings. The purpose of the unannounced request for evidence of the additional instructional offerings was to prevent any suspected window-dressing of the tasks and all accompanying documents.

2.3 Findings

Table 2B below indicates the findings as reported by the external moderators for the implementation of internal continuous assessment of the Engineering Studies instructional offerings.

Table 2B: Findings observed in the moderation of August 2021 internal continuous assessment

Criterion	Findings	FET/TVET College and Site
Physical resources	The available facilities at 93% of the sites were sufficient for the number of enrolled students.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	The textbooks/ teaching material at 87% of the sites were available when the classes commenced at the beginning of the trimester.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	The students at 47% of the sites were exposed to practical implementation of the theory component of the subject at the site of teaching and learning.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Damelin (Pretoria City) Mthashana TVET (Nongoma) Northlink TVET (Bellville) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	There were computers and printers for the students at 67% of the sites to complete assignments/case studies/do research.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)

Criterion	Findings	FET/TVET College and Site
Human Resources	The college had a process in place for the identification of training needs of the staff members at 87% of the sites visited.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	The college had a plan for training of staff/staff development at 80% of the sites visited.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	There was evidence that the training plan was implemented at 60% of the sites visited.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
	There were areas where the educators felt that they needed further training at 73% of the sites.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Pax Commercial College (Durban) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
Internal Assessment Policies and Systems	The educators were exposed to the workplace environment/relevant industry at 47% of the sites visited.	4 Tops Academy (Mogwase) Central Technical College (Durban) Damelin (Pretoria City) Growth Path Projects (Middelburg) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Tim Brown Electrical Works (Pretoria)
	There was an up-to-date college assessment policy at 80% of the sites visited.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	There was evidence of a structure/ plan for the monitoring of assessment at the site of learning at 73% of the sites visited.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Rustenburg)
	There was evidence of a subject monitoring report per lecturer at 73% of the sites visited.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
	<p>There was a plan in place for the development of the assessment tasks at 80% of the sites, a slight decrease experienced as compared to the 87% of August 2020 examinations.</p>	<p>4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)</p>
	<p>The tasks were developed according to the plan/schedule of assessment at 80% of the sites, an increase experienced as compared to the 73% in the August 2020 examinations.</p>	<p>4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)</p>
	<p>At 80% of the sites (73% in the August 2020 examinations), there were systems in place to ensure that tasks were of an acceptable standard.</p>	<p>4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)</p>

Criterion	Findings	FET/TVET College and Site
	At 60% of the visited sites, the college had an irregularity register.	Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Rustenburg)
	There were internal assessment irregularities recorded in the register at 27% of the sites visited.	Academic Institute of Excellence (Midrand) Damelin (Pretoria City) Northlink TVET (Bellville) Springfield FET (Rustenburg)
Lecturer files	Forty-seven percent of the sites visited had lecturer files that contained all the following documents: a. Name; b. Certified copies of qualifications; c. SACE registration; d. Teaching/lecturing experience; and e. Workplace experience.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Technical College (Durban) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville)
	The lecturer file contained the subject syllabus at 100% of the sites visited.	All the sites
	The subject file at 93% of the sites visited contained lesson plans.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
	The assessment file contained relevant documents at 80% of the sites visited, namely: Assessment schedules; Assessment instruments and tools; Evidence of pre-assessment moderation; Evidence of post-assessment moderation; and Mark sheets of all groups.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
	Assessment scores were recorded accurately on the mark sheet at 67% of the sites visited.	4 Tops Academy (Mogwase) Central Technical College (Durban) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
Content coverage	Copies of previous question papers or sections of previous question papers were used as assessment tasks (tests) at 93% of sites compared to 53% in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
	Ninety-three percent of sites (60% in the August 2020 examinations) ensured that a substantial amount of work had been covered in both tests.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	The weighting and spread of content of the topic(s) in both tests was appropriate at 87% of the sites, similar to August 2020.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	The type of questions was not in line with the stipulated content at one site (7%).	Growth Path Projects (Middelburg)
Cognitive demand and difficulty levels	The two tasks varied in the level of difficulty, were pitched at the right level, and assessed a variety of knowledge and skills at 93% of the sites.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
Internal moderation of tasks	Eighty seven percent, the same as in the August 2020 examinations, of the sites had evidence of moderation of marking in both tests of a minimum sample of 10% of the scripts.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
	The sample of both tests that was internally moderated included the full range of performance, that is, high, average, and low scoring students at 80% of sites, compared to 73% of sites in the August 2020 examinations.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
Technical aspects	Ten sites (67%) contained all relevant information like The name of the subject; The level of subject; Time allocation; Content covered; Number of test; and Date. This is an increase of 7% from the August 2020 findings.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Rustenburg)

Criterion	Findings	FET/TVET College and Site
	There were instructions to students on both tasks at 93% of sites visited.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
	The language and terminology used was appropriate and relevant in both tests at all sites (100%).	All the sites
	The mark allocation was clearly indicated for each question in both tests at 100% of the sites, compared to 87% in August 2020.	All the sites
	The mark allocation on the test was the same as that on the marking tool for both tests at 93% of the sites, an improvement from the 73% experienced in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)

Criterion	Findings	FET/TVET College and Site
	The time allocation was realistic for the administration of the tests at 100% of the sites, compared to the 80% of sites which complied in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)
Marking tools	The marking guideline tool facilitated marking and was easy to use at 87% of sites, compared to 60% in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
Student performance	The students interpreted questions correctly and was able to answer all or most of the questions in the tests at 93% of sites, compared to 67% of the sites in August 2020.	4 Tops Academy (Mogwase) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
Quality of marking	Marking was consistent with the marking guidelines at 80% of the sites, the same as in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
	The mark allocated was a true reflection of the students' performance in both tests at 80% of the sites, an improvement to the 60% of sites visited in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Rustenburg)
	The totalling of marks and transfer of marks to the mark sheet was accurate at 93% of the sites, an improvement to the 80% of sites visited in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg) Tim Brown Electrical Works (Pretoria)

Criterion	Findings	FET/TVET College and Site
	The quality and standard of marking was acceptable at 87% of the sites, an improvement to the 67% of sites visited in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Growth Path Projects (Middelburg) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
Internal moderation of marking	There was evidence that the students' work had been moderated internally at 87% of the sites, the same as in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Central Technical College (Durban) Damelin (Pretoria City) Elangeni TVET (Ndwedwe) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Princeview College Springfield FET (Klerksdorp) Springfield FET (Rustenburg)
	The quality and standard of internal moderation was acceptable at 67% of sites, an improvement to the 53% experienced in August 2020.	4 Tops Academy (Mogwase) Academic Institute of Excellence (Midrand) Central Johannesburg TVET (Johannesburg) Damelin (Pretoria City) Mthashana TVET (Nongoma) Nkangala TVET (Waterval-Boven) Northlink TVET (Bellville) Pax Commercial College (Durban) Springfield FET (Klerksdorp) Springfield FET (Rustenburg)

2.3.1 Compliance check of additional instructional offerings

The external moderators were also requested to do a compliance check on documents pertaining to other instructional offerings at the sites visited. The external moderators found that there were similarities at 33% of the sites between the numbers registered with DHET for these instructional offerings and the numbers registered at the colleges.

Table 2C below provides information on the enrolments of these additional sampled instructional offerings at the sites involved in the spot-check moderation of NATED Report 190/191 ICASS during August 2021.

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

No.	College/Campus	Mathematics N2	Engineering Science N2	Plumbing Theory N2	Building and Civil Technology N3	Building Science N2	Electrical Trade Theory N2	Mechanotechnology N3
1.	4 Tops Academy	53 (53)	11 (10)	21 (21)				
2.	Academic Institute of Excellence	67 (67)	62 (62)					21 (21)
3.	Central Johannesburg TVET, Johannesburg	353 (353)		23 (23)	61 (61)			
4.	Central Technical College	31 (31)	26 (26)			10 (10)		
5.	Damelin, Pretoria City	3 (0)	5 (0)					16 (17)
6.	Elangeni TVET, Ndwedwe	45 (18)	25 (9)			18 (18)		
7.	Growth Path Projects	55 (53)	52 (49)				18 (21)	
8.	Mthashana TVET, Nongoma	91 (91)	58 (58)				62 (62)	
9.	Nkangala TVET, Waterval-Boven	141 (138)	133 (130)					47 (46)
10.	Northlink TVET, Bellville	191 (191)	220 (220)					36 (36)
11.	Pax Commercial College	25 (N3)			13 (11)			12 (11)
12.	Princeview College, Durban	67 (50)	76 (71)					27 (25)
13.	Springfield FET, Klerksdorp	94 (56)	74 (34)		5 (5)			

No.	College/Campus	Mathematics N2	Engineering Science N2	Plumbing Theory N2	Building and Civil Technology N3	Building Science N2	Electrical Trade Theory N2	Mechanotechnology N3
14.	Springfield FET, Rustenburg	126 (126)					63 (58)	14 (17)
15.	Tim Brown Electrical Works	27 (21)	25 (8)					

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

The sites were requested to provide evidence of the marked tests and mark sheets of the additional instructional offerings. The status of the sites on compliance to the ICASS requirements as stated in the 2021 DHET ICASS Instructions are listed in table 2D.

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

TVET/FET College	Campus/Site	Instructional offerings	Test 1	Test 2	Correct conversion
4 Tops Academy	Mogwase	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Plumbing Theory N2	✓	✓	✓
Academic Institute of Excellence	Midrand	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
Central Johannesburg TVET	Johannesburg (Ellispark)	Mathematics N2	✓	✓	✓
		Plumbing Theory N2	✓	✓	✓
		Building and Civil Technology N3	✓	✓	✓
Central Technical College	Durban	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Building Science N2	✓	✓	✓
Damelin	Pretoria City	Mathematics N2	X*	X*	X*
		Engineering Science N2	X*	X*	X*
		Mechanotechnology N3	✓	✓	✓
Elangeni TVET	Ndwedwe	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Building Science N2	✓	✓	✓

TVET/FET College	Campus/Site	Instructional offerings	Test 1	Test 2	Correct conversion
Growth Path Projects	Middelburg	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Electrical Trade Theory N2	✓	✓	✓
Mthashana TVET	Nongoma	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Electrical Trade Theory N2	✓	✓	✓
Nkangala TVET	Waterval-Boven	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
Northlink TVET	Bellville	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
Pax Commercial College	Durban	Mathematics N2	✓	✓	✓
		Building and Civil Technology N3	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
Princeview College	Durban	Mathematics N2	X**	X**	X
		Engineering Science N2	X**	X	X
		Mechanotechnology N3	X	X	X
Springfield FET	Klerksdorp	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Building and Civil Technology N3	✓	✓	✓
Springfield FET	Rustenburg	Mathematics N2	✓	✓	✓
		Electrical Trade Theory N2	✓	✓	✓
		Mechanotechnology N3	✓	✓	✓
Tim Brown Electrical Works	Pretoria	Mathematics N2	✓	✓	✓
		Engineering Science N2	✓	✓	✓
		Mechanotechnology	✓	✓	✓

* According to college officials, there were no candidates enrolled for subjects.

** Only one script was made available to the Umalusi moderator.

With some instructional offerings at certain sites, there was little/no compliance in terms of marked tests and mark sheets. Sites that experienced challenges in terms of compliance to the ICASS requirements as stated in the 2021 DHET ICASS Instructions are listed in table 2E.

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

Evidence of additional subjects	College	Subject
No/only one evidence of tests and mark sheets	Damelin (Pretoria City)	Engineering Science N2
		Mathematics N2
	Princeview College (Durban)	Engineering Science N2
		Mathematics N2
		Mechanotechnology N3

2.4 Areas of Improvement

The following improvements were observed:

- Ninety-three percent of the sites (60% in August 2020) ensured that a substantial amount of work had been covered in both tests;
- The mark allocation was clearly indicated for each question in both tests at 100% of the sites, compared to 87% in August 2020;
- The mark allocation on the test was the same as that on the marking tool for both tests at 93% of the sites (73% in August 2020);
- The students interpreted questions correctly and were able to answer all or most of the questions in the tests at 93% of the sites, compared to 67% of the sites in August 2020;
- The marking guideline tool facilitated marking/was easy to use at 87% of sites, compared to 60% in August 2020;
- The mark allocated was a true reflection of the students' performance in both tests at 80% of the sites, compared to 60% in August 2020;
- The totalling of marks and transfer of marks to the mark sheet was accurate at 93% of the sites (80% in August 2020); and
- The quality and standard of marking was acceptable at 87% of the sites, a notable improvement to the 67% of sites visited in August 2020.

2.5 Areas of Non-compliance

There were also a number of concerns that had been raised, these include:

- There was a plan in place for the development of the assessment tasks at 80% of the sites, compared to the 87% of August 2020;
- Copies of previous question papers or sections of previous question papers were used as assessment tasks (tests) at 93% of sites compared to 53% in August 2020;
- There was little/no compliance in terms of marked tests and mark sheets with the additional subjects at 13% of the sites; and
- The quality and standard of internal moderation was acceptable at only 67% 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 the colleges by ensuring that:

- a. There are systems in place to ensure that tasks are of an acceptable standard;
- b. Marks on the marksheets are accurately recorded in correlation with the marks obtained by the students;
- c. Marking is consistent with the marking guidelines; and
- d. Internal moderation of the students' work is done thoroughly.

2.7 Conclusion

The NATED Report 190/191 programmes remain popular choices amongst students at the FET and TVET colleges. Although knowledge on the theory of subjects is gained, the practical application of the theoretical components which will prepare the students for the industry is still lacking. The internal assessment serves as preparation of students for the final examination at the end of the trimester. The continuous internal assessments should therefore contribute to the holistic development of the student for the workplace/further studies.



CHAPTER 3
MONITORING OF
THE WRITING OF
EXAMINATIONS

3.1 Introduction

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

This chapter reports on the findings of the monitoring of a sample of 22 examination centres. It acknowledges areas of improvement, indicates areas of non-compliance and issues directives for improvement and compliance.

3.2 Scope and Approach

The sample of 22 examination centres that was monitored included campuses from nine provinces. The Umalusi monitors and staff collected data from these sites using verification, observation and interview methods. Reports were then written, based on the data collected from monitored examination centres. The details of examination centres that were monitored are provided in Table 3A.

Table 3A: Examination centres monitored

No.	Name of College and Type	Site/Campus	Province	Subject/ Instructional Offering	Date Visited
1.	Anitec College Private	Germiston	Gauteng (GP)	Engineering Science N2	23/08/2021
2.	Flavius Mareka TVET College Public	Sasolburg	Free State (FS)	Industrial Electronics N3	19/08/2021
3.	Gateway City College Private	Durban	KwaZulu-Natal (KZN)	Engineering Science N2	23/08/2021
4.	Innovation Technology Campus Private	Witbank	Mpumalanga (MP)	Mechano- technology N3	25/08/2021
5.	Lephalale TVET College Public	Ellisras	Limpopo (LP)	Engineering Science N2	23/08/2021
6.	Maluti TVET College Public	Itemoheleng	Free State (FS)	Engineering Science N2	23/08/2021
7.	Motheo TVET College Public	Thaba Nchu	Free State (FS)	Building Science N2	23/08/2021
8.	National Skills and Technical College Private	Middelburg	Mpumalanga (MP)	Engineering Science N2	23/08/2021
9.	Northern Cape Rural TVET College Public	Kathu	Northern Cape (NC)	Mathematics N3	23/08/2021
10.	Northlink TVET College Public	Wingfield	Western Cape (WC)	Mathematics N2	18/08/2021
11.	Port Elizabeth TVET College Public	Iqhayiya	Eastern Cape (EC)	Electrotechnics N2	03/09/2021

No.	Name of College and Type	Site/Campus	Province	Subject/ Instructional Offering	Date Visited
12.	Ratanang Business College Private	Middelburg	Mpumalanga (MP)	Mathematics N3	23/08/2021
13.	Ribolla Learning Academy Private	Thohoyandou	Limpopo (LP)	Engineering Science N2	23/08/2021
14.	Rock of Springs Technical College Private	Germiston	Gauteng (GP)	Engineering Science N2	23/08/2021
15.	Shalom Technical College Private	Johannesburg	Gauteng (GP)	Mathematics N3	23/08/2021
16.	Thekwini City College Private	Polokwane	Limpopo (LP)	Engineering Science N2	23/08/2021
17.	Thekwini City College Private	Durban	KwaZulu-Natal (KZN)	Engineering Science N3	20/08/2021
18.	Tshwane Institute of Technology Private	Pretoria	Gauteng (GP)	Engineering Science N3	20/08/2021
19.	Tswelopele Correctional Centre	Kimberley	Northern Cape (NC)	Engineering Science N2	23/08/2021
20.	Vaal Skills Training Institute Private	Durban	KwaZulu-Natal (KZN)	Engineering Science N2	23/08/2021
21.	Varsity Institute of Science and Technology Private	Johannesburg	Gauteng (GP)	Engineering Science N3	20/08/2021
22.	Vuselela TVET College Public	Potchefstroom	North West (NW)	Electrical Trade Theory N2	30/08/2021

3.3 Summary of Findings

The monitoring findings are indicated below, by criteria, as per Umalusi's monitoring of the writing of the examinations instrument.

Table 3B reflects the overall findings on levels of compliance at the 22 sampled examination centres monitored by Umalusi monitors and staff.

Table 3B: Findings at Examination Centres monitored

Criteria	Findings	Examination Centres
Preparation for the examination	<p>It was evident that the DHET had verified the state of readiness and availability of facilities at 15 (68%) of the examination centres visited; a decrease of 13% when compared to 81% in the August 2020 examinations.</p> <p>Seven (32%) of the examination centres had not been verified by DHET.</p>	<p>Innovation Technology Campus Itemoheleng Campus National Skills and Technical College Ratanang Business College Ribolla Learning Academy Vaal Skills Training Institute Varsity Institute of Science and Technology</p>
	<p>There was an official timetable for the current examinations at 21 (95%) examination centres monitored, a decrease of 5% when compared to 100% in the August 2020 examinations.</p> <p>One (5%) of the examination centres monitored did not have an official timetable.</p>	<p>Ratanang Business College</p>
	<p>In 22 (100%) of the examination centres monitored, all the candidates were registered to write the examination; same as August 2020 examinations.</p>	<p>All examination centres monitored.</p>
	<p>Sixteen (73%) of the examination centres monitored had sufficient space in the examination room to accommodate all the candidates, seated at 1.5 metres.</p> <p>Six (27%) of the examination centres monitored had insufficient space in the examination room to accommodate all the candidates, seated at 1.5 metres apart.</p>	<p>Anitec College National Skills and Technical College Ribolla Learning Academy Tshwane Institute of Technology Vaal Skills Training Institute Varsity Institute of Science and Technology</p>
	<p>In twenty-one (95%) of the examination centres monitored the furniture used was suitable for the instructional offerings written.</p> <p>In one (5%) examination centre monitored the furniture was not suitable for the instructional offering written, because candidates were sharing desks.</p>	<p>Anitec College</p>

Criteria	Findings	Examination Centres
	Twenty-one (95%) of the examination centres monitored had good lighting. One (5%) examination centre had very poor lighting.	Innovation Technology Campus
	Twenty-two (100%) examination centres monitored had water and the ablution facilities available.	All examination centres monitored.
	Twenty-two (100%) examination centres monitored had a safe or strongroom in which the examination material was kept.	All examination centres monitored.
	At twenty-one (95%) of the examination centres monitored the venues were suitable for the writing of examinations. In one (5%) examination centre the venues were not conducive for the writing of examinations, due to the high noise levels.	Anitec College
	Twenty-two (100%) examination centres monitored were in possession of dispatch documents.	All examination centres monitored.
	Twenty (91%) examination centres monitored had a stock control register; an increase of 3% when compared to 88% in the August 2020 examinations. At two (9%) examination centres monitored there was no evidence of a stock register.	Tshwane Institute of Technology Vaal Skills Training Institute
	The Chief Invigilator verified that the question papers were sealed at 21 (95%) examination centres. At one (5%) examination centre, the Chief Invigilator did not verify that question papers are sealed on arrival.	Tshwane Institute of Technology
	Invigilators and their training	The Principal/Campus Manager was appointed as Chief Invigilator at 19 (86%) of the examination centres; an increase of 8% when compared to 78% in the August 2020 examinations. At three (14%) examination centres there was no evidence that the Principal/Campus Manager had been appointed as Chief Invigilator and there was no delegation and appointment letter available.
Chief Invigilators received training from the assessment body at 17 (77%) examination centres; a decrease of 1% when compared to 78% in the August 2020 examinations.		

Criteria	Findings	Examination Centres
	At five (23%) examination centres there was no evidence that the Chief Invigilator had been trained by the assessment body.	Anitec College Innovation Technology Campus National Skills and Technical College Ribolla Learning Academy Varsity Institute of Science and Technology
	Invigilators were appointed in writing by the Chief Invigilator at 21 (95%) examination centres. At one (5%) examination centre there was no evidence that the invigilators were appointed by the Chief Invigilator.	Ribolla Learning Academy
	Invigilators received training for the current examination at 19 (86%) examination centres. At three (14%) examination centres there was no evidence that the invigilators were trained by the Chief Invigilator for the current examination.	Ribolla Learning Academy Tshwane Institute of Technology Varsity Institute of Science and Technology
Preparations for writing and examination rooms/ venue(s)	Nineteen (86%) examination centres admitted candidates at least 60 minutes before the examination commenced; an increase of 12% when compared to 74% in the August 2020 examinations. In three (14%) examination centres candidates were admitted 30 minutes before the commencement of the examination.	Potchefstroom Campus Shalom Technical College Thekwini City College – Durban Campus
	In twenty-two (100%) of the examination centres monitored, the admission letters/ identity documents of the candidates were verified before they were allowed into the examination venue.	All examination centres monitored.
	There were enough invigilators available at 22 (100%) examination centres.	All examination centres monitored.
	Invigilation timetable was available at 22 (100%) examination centres; an increase of 7% when compared to 93% in the August 2020 examinations.	All examination centres monitored.
	A relief timetable was available at 18 (82%) examination centres; an increase of 1% when compared to 81% in the August 2020 examinations. In four (18%) examination centres there was no relief timetable available.	Innovation Technology Campus Itemoheleng Campus Thaba Nchu Campus Varsity Institute of Science and Technology

Criteria	Findings	Examination Centres
	An attendance register signed by all invigilators was available at 20 (91%) examination centres. There was no attendance register signed by invigilators at two (9%) of the examination centres monitored.	Innovation Technology Campus Itemoheleng Campus
	A seating plan was available and candidates were seated accordingly at 17 (77%) examination centres; a decrease of 16% when compared to 93% in the August 2020 examinations. Five (23%) examination centres did not have a seating plan and the candidates were not seated according to a plan.	Anitec College Ribolla Learning Academy Thekwini City College – Polokwane Campus Tshwane Institute of Technology Varsity Institute of Science and Technology
	A clock or another time displaying device was present in 22 (100%) examination centres.	All examination centres monitored.
	There was an information board available/visible at 20 (91%) examination centres. There was no information board available/visible at two (9%) of the examination centres monitored.	Innovation Technology Campus Ribolla Learning Academy
	The examination venue/s at 22 (100%) examination centres were free of any material/writing/drawing that might assist the candidates in writing the examination.	All examination centres monitored.
	Invigilators ensured that candidates were not in possession of cellphones or other material/equipment not required for the examination, at 22 (100%) examination centres.	All examination centres monitored.
	Calculators were checked for compliance, where applicable, at 18 (82%) examination centres. The calculators were not checked for compliance at four (18%) examination centres.	Anitec College Potchefstroom Campus Vaal Skills Training Institute Varsity Institute of Science and Technology
	Time management of activities during examinations	Invigilators arrived on time at 21 (95%) examination centres; an increase of 17% when compared to (78%) in the August 2020 examinations.

Criteria	Findings	Examination Centres
	At one (5%) examination centre invigilators did not arrive on time.	Potchefstroom Campus
	An attendance register was signed by candidates at 22 (100%) examination centres.	All examination centres monitored.
	Candidates were issued with the official answer book at 22 (100%) examination centres.	All examination centres monitored.
	At 21 (95%) examination centres the invigilators verified the information on the cover page of the answer books. The invigilators did not verify information on the cover page of answer books at one (5%) examination centre.	Iqhayiya Campus
	The question papers were opened in front of the candidates at 22 (100%) examination centres.	All examination centres monitored.
	Question papers were distributed to candidates on time at 20 (91%) examination centres. At two (9%) examination centres the question papers were not distributed to candidates on time.	Shalom Technical College (8:55 AM) Thekwini City College – Polokwane Campus (09:00 AM)
	The question papers were checked for technical accuracy at 21 (95%) examination centres; an increase of 17% when compared to 78% in the August 2020 examinations. One (5%) of the examination centre did not check the question papers for technical accuracy.	Innovation Technology Campus
	Candidates were given regulated reading time at 17 (77%) examination centres. At five (23%) examination centres, candidates were not given regulated reading time.	Innovation Technology Campus National Skills and Technical College Potchefstroom Campus Shalom Technical College Thekwini City College – Polokwane Campus
	Examination rules were read to candidates at 22 (100%) examination centres.	All examination centres monitored.
	The examination started at the time indicated on the timetable at 20 (91%) examination centres; a decrease of 5% when compared to 96% in the August 2020 examinations.	

Criteria	Findings	Examination Centres
	Two (9%) examination centres did not start the examination at the time indicated on the timetable.	Thekwini City College – Polokwane (09:10 AM) Tshwane Institute of Technology (09:30 AM)
	Answer books were stamped at 19 (86%) examination centres. At three (14%) examination centres the answer books were not stamped.	Anitec College Innovation Technology Campus Vaal Skills Training Institute
	The examination ended at the stipulated time at 22 (100%) examination centres.	All examination centres monitored.
Activities during writing	Invigilators were not requested by candidates to clarify any aspect of the question paper in all monitored examination centres.	All examination centres monitored.
	In twenty-two (100%) examination centres there were no candidates that left the examination room temporarily without any escort; an increase of 15% when compared to 85% in the August 2020 examinations.	All examination centres monitored.
	There were no unauthorised personnel (other than examination officials and invigilators) in any of the examination room during the examination session.	All examination centres monitored.
	Candidates were not allowed to leave the examination venue during the last 15 minutes of the session at 22 (100%) examination centres.	All examination centres monitored.
	No irregularities were noted/reported during the examination session at 20 (91%) examination centres. Irregularities were noted/reported during the examination session at two (9%) examination centres.	Itemoheleng Campus Ratanang Business College
	Invigilators were active and vigilant throughout the examination session at 20 (91%) of the examination centres. At two (9%) examination centres, invigilators were not active and vigilant throughout the examination session.	Ratanang Business College Rock of Springs Technical College
	There was no official erratum at 22 (100%) examination centres.	All examination centres monitored.
Packaging and transmission of answer scripts	Invigilators collected answer books wearing non-surgical gloves at 10 (45%) examination centres.	

Criteria	Findings	Examination Centres
	Invigilators collected answer books without wearing non-surgical gloves at 12 (55%) examination centres.	Anitec College Gateway City College Innovation Technology Campus Itemoheleng Campus National Skills and Technical College Potchefstroom Campus Ratanang Business College Sasolburg Campus Shalom Technical College Thekwini City College – Durban Campus Tshwane Institute of Technology Wingfield Campus
	Answer books were counted and packed in a secure area at 21 (95%) examination centres; an increase of 10% when compared to 85% in the August 2020 examinations. At one (5%) examination centre, answer books were counted and packed in a non-secure area.	Varsity Institute of Science and Technology
	Absentee forms were inserted at 22 (100%) examination centres.	All examination centres monitored.
	The scripts were packaged using the sequence in the mark sheet at 22 (100%) examination centres.	All examination centres monitored.
	The number of scripts corresponded to that written on the wrapper at 21 (95%) examination centres. At one (5%) examination centre, the number of scripts did not correspond to that written on the wrapper.	Ratanang Business College
	Scripts were sealed in the official satchel at 22 (100%) examination centres.	All examination centres monitored.
	Scripts were sealed in the presence of the Umalusi monitor at 22 (100%) examination centres.	All examination centres monitored.
	The Chief Invigilator completed a daily situational report at 19 (86%) examination centres. There was no evidence that the Chief Invigilator completed a daily situational report at three (14%) examination centres.	Iqhayiya Campus Potchefstroom Campus Vaal Skills Training Institute
	Scripts were transported to a nodal point or locked in a strong room by authorised personnel at 22 (100%) examination centres.	All examination centres monitored.

Criteria	Findings	Examination Centres
Monitoring by the DHET	<p>There was evidence of monitoring by the assessment body at 12 (55%) examination centres; an increase of 25% when compared to 30% in the August 2020 examinations.</p> <p>At ten (45%) examination centres there was no evidence that the assessment body had monitored the centres during Umalusi visit/s.</p>	<p>Anitec College Gateway City College National Skills and Technical College Ratanang Business College Ribolla Learning Academy Thaba Nchu Campus Thekwini City College – Polokwane Campus Tshwane Institute of Technology Vaal Skills Training Institute Varsity Institute of Science and Technology</p>
COVID-19 Compliance	<p>Sixteen (73%) examination centres were fully COVID-19 compliant, a decrease of 16% when compared to 89% in the August 2020 examinations.</p> <p>Six (27%) examination centres were not fully COVID-19 compliant.</p>	<p>Anitec College Innovation Technology Campus Ribolla Learning Academy Tshwane Institute of Technology Vaal Skills Training Institute Wingfield Campus</p>

3.3.1 Irregularities Identified

The Umalusi monitors and staff noted irregularities at examination centres as follows:

a. Itemoheleng Campus:

A candidate was found in possession of a cellphone in the examination venue during the writing of the examination.

b. Ratanang Business College:

The number of scripts submitted to the nodal point does not correspond with the number of candidates signed on the mark sheet during the writing of examination for the following instructional offerings:

- i. Mathematics N2 (Four scripts dispatched, one candidate signed.)
- ii. Industrial Electronics N3 (Four scripts dispatched, two candidates signed.)
- iii. Engineering Science N3 (Eight scripts dispatched, six candidates signed.)

3.4 Areas of Improvement

The following areas of compliance were observed:

- c. All examination centres monitored had a safe or strongroom in which the examination material was kept;

- d. All examination centres monitored were in possession of dispatch documents;
- e. In all examination centres monitored the admission letters/ identity documents of the candidates were verified before they were allowed into the examination venue;
- f. There were enough invigilators available at all examination centres monitored;
- g. Invigilation timetable was available at all examination centres monitored;
- h. In all examination centres monitored, the examination venue/s were free of any material/writing/ drawing that might assist the candidates in writing the examination; and
- i. In all examination centres monitored, the candidates were not allowed to leave the examination venue during the last 15 minutes of the session.

3.5 Areas of Non-compliance

During the writing phase of August 2021 NATED Report 190/191: Engineering Studies N2-N3 examinations, Umalusi staff and monitors observed the following areas of non-compliance:

- a. Examination centres with insufficient rooms/venues to accommodate the candidates (seated at 1.5 metres apart);
- b. Examination centres where there was no evidence that the Principal/Campus Manager had been appointed as Chief Invigilator and there was no delegation letter available;
- c. Examination centres where there was no evidence that the Chief Invigilator had been trained by the assessment body;
- d. Examination centres where there was no evidence that the invigilators were trained by the Chief Invigilator for the current examination;
- e. Examination centres conducting national examinations without the relief timetables and the seating plans;
- f. Failure to distribute question papers to the candidates on time;
- g. Candidates were not given regulated reading time;
- h. Examination centres where invigilators were not active and vigilant throughout the examination session;
- i. Examination centre where answer books were counted and packed in a non-secure area;
- j. Invigilators collecting examination answer books without wearing non-surgical gloves; and
- k. Examination centres that were not fully compliant with regards to COVID-19 regulations.

3.6 Directives for Compliance and Improvement

The DHET is required to ensure that:

- a. Examination centres have sufficient rooms/venues to accommodate the candidates (seated at 1.5 metres apart);
- b. Chief Invigilators are in possession of appointment and delegation letters for the current examinations;
- c. The Chief Invigilators have evidence that they were trained by the assessment body;
- d. Examination centres have evidence that the invigilators were trained by the Chief Invigilator for the current examination;

- e. The relief timetables and seating plans of all the examination centres are always available, displayed and kept in the examination file;
- f. Question papers are distributed to the candidates on time;
- g. Candidates are afforded with sufficient regulated reading time before the commencement of the writing of examinations;
- h. Invigilators are trained to be active and vigilant throughout the examination session;
- i. Examination answer books are counted and packed in a secure area;
- j. Invigilators collecting examination answer books are provided with non-surgical gloves as per the DHET instructions for the conduct and administration of examinations amid COVID-19; and
- k. Examination centres are fully compliant with regards to COVID-19 regulations.

3.7 Conclusion

The conduct, administration and management of the August 2021 NATED Report 190/191: Engineering Studies N2-N3 examinations was of an acceptable standard. Although some challenges were observed at some examination centres, they did not compromise the overall integrity and credibility of the examinations. All stakeholders contributed towards the credibility of the examination process.



CHAPTER 4

MONITORING OF THE MARKING CENTRES

4.1 Introduction

To comply with the quality assurance of assessment mandate, Umalusi monitored eight marking centres for the August 2021 examinations of NATED Report 190/191: Engineering Studies N2-N3. This was done to establish whether the required systems and processes were in place to ensure integrity and credibility of the marking processes.

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

- a. Registration data that indicated the number of candidates enrolled for various instructional offerings;
- b. The location of the various marking centres, including the physical addresses; and
- c. The dates for marking.

4.2 Scope and Approach

The marking of the August 2021 NATED Report 190/191: Engineering Studies N2–N3 was conducted at eight marking centres across seven provinces. Umalusi sent out monitors and staff members to monitor marking centres used by the DHET.

Data used to compile this report was gathered from on-site monitoring of the marking centres, interviews and observations by Umalusi monitors and staff, using an instrument designed for this purpose. The details of marking centres monitored are provided in Table 4A and 4B.

Table 4A: Marking centres monitored by Umalusi monitors

No.	Centre	Province	Level	Date
1.	Hillside View Campus	Free State	N2 and N3	08 September 2021
2.	Seshego Campus	Limpopo		
3.	Thornton Campus	Western Cape		

Table 4B: Marking centres monitored by Umalusi staff members

No.	Centre	Province	Level	Date
1.	Centurion Campus	Gauteng	N2 and N3	09 September 2021
2.	Mpondozankomo Campus	Mpumalanga		07 September 2021
3.	Northdale Campus	KwaZulu-Natal		07 September 2021
4.	Pretoria West Campus	Gauteng		09 September 2021
5.	Struandale Campus	Eastern Cape		08 September 2021

4.3 Summary of Findings

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

4.3.1 Preparation and Planning for Marking

- a. All marking centres were in possession of a marking centre management plan. Marking personnel arrived according to the plan at all marking centres and marking was staggered over the weekends as follows:
 - i. Instructional offerings written from 17 to 23 August 2021 were marked from 28 August 2021; and
 - ii. Instructional offerings written from 24 to 30 August were marked from 4 September 2021.

- b. Blocked marking commenced on 7 to 8 September 2021 for various marking centres as scheduled. Comprehensive lists of all chief markers, internal moderators, markers and examination assistants were available at all centres.
- c. The training of marking personnel was conducted as per the DHET's management plans at all the marking centres visited.
- d. The marking guidelines were received on time at all the marking centres.

4.3.2 Marking Centre Resources

- a. All marking centres were equipped with excellent infrastructure. The required furniture was available at all marking centres. Marking centres were provided with communication facilities such as Wi-Fi, telephone, etc. No accommodation was provided for the marking personnel at any of the marking centres.
- b. Marking at all marking centres commenced between 07:00 and 08:00 and ended between 17:00 and 20:00 daily. All marking centres complied fully with the Occupational Health and Safety (OHS) requirements and regulations.

4.3.3 Security Measures

- a. Security was provided by controlled access at the gates and entrances of the marking centres. Vehicle boot searches were conducted at the gates of most marking centres, except for Struandale and Hillside View marking centres, where Umalusi officials entered the marking centre without searching their vehicle boot.
- b. The extra security measures were undertaken at the following marking centres:
 - i. Pretoria West marking centre - A letter was written to the nearest South African Police Services (SAPS) station to inform them about the marking centre activities and to request the periodic patrol around the marking centre at night and during the day for the safety of scripts and the marking personnel; and
 - ii. Seshego marking centre - All vehicles of the marking personnel were searched by the security officers at the main gate and the members of the SAPS were on standby at the gate to ensure that all markers are protected.
- c. Scripts from the nodal points were transported to the relevant marking centres by courier services. At the marking centres, the number of scripts was verified and all the mark sheets were scanned.
- d. It was the responsibility of the examination assistants to move scripts in and out of the marking venues under direct supervision of the deputy marking centre manager academic (DMCMA).

4.3.4 Management of Irregularities

- a. The marking centre managers discussed processes and procedures regarding irregularities with chief markers and internal moderators during their training sessions. The chief markers and internal moderators in turn discussed the procedures with markers during their marking guideline discussions.
- b. At all the marking centres monitored irregularity committees were in place; which is comprised of the marking centre management team and the chief marker and/or internal moderator of the respective subject.
- c. The process of identifying and dealing with irregularities was standardised across all marking centres:

- i. Once a marker had identified an irregularity, he/she immediately discussed it with the chief marker.
- ii. After the implicated script(s) had been internally moderated, the chief marker would evaluate the validity of the irregularity.
- iii. If evidence was substantive and convincing, the matter would be escalated to the marking centre manager and the irregularity committee.
- iv. The irregularity committee would then forward a report together with all the evidence to the DHET.
- v. The original script(s) and a copy of the mark sheet would be sent together with the report to DHET, whilst the copy of the script(s) will be inserted back into the batch.
- vi. The irregularity would be recorded in the irregularity register.

4.3.5 Monitoring by the DHET

- a. Three of the eight marking centres visited by Umalusi monitors and staff were monitored by the assessment body. The DHET verified the state of readiness of these marking centres.
- b. Five marking centres (Centurion, Hillside View, Mpondozankomo, Pretoria West and Seshego) were not monitored by the DHET official/s during the time of Umalusi visit.

4.3.6 Quality Assurance and Reports

- a. In all marking centres visited by Umalusi monitors and staff, scripts were checked by examination assistants that marks were correctly totalled, transferred to the front pages, and transferred to the mark sheets.
- b. The mark capturing system at the marking centres was quality assured by the use of a double-entry system, where one official captured and the other one verified.
- c. There was a delay of capturing the marks at Seshego marking centre, due to the non-connectivity to the mainframe but this was later rectified by the DHET.
- d. Markers play a huge role in augmenting the information for the chief marker to consolidate a qualitative marking report. The reports generated by the chief markers and internal moderators were quality assured by the DMCMA in most marking centres before they were sent to the DHET. At Centurion marking centre the reports were checked/quality assured by the marking centre manager before they were sent to the DHET.

4.3.7 Covid-19 Compliance

- a. Seven of the eight marking centres monitored complied fully with the regulations of Covid-19:
 - i. The marking centres had Covid-19 committees.
 - ii. Screening, temperature readings and recording of the staff, marking personnel and visitors took place at the entrance of the marking centre.
 - iii. Sanitisers were provided at all entrances to the marking centres and marking venues.
 - iv. The staff and marking personnel wore masks or protective cloths at all times.
 - v. The areas were clearly marked when entering the sites and the marking venues to comply with social distancing protocols.
 - vi. The marking venues were cleaned/sanitised on a daily basis.

- b. One (Seshego marking centre) of the eight marking centres monitored did not comply fully with the Covid-19 regulations. The following were noted:
 - i. Markers were seated closer than the prescribed social distance in a certain marking venue (mobile classroom); and
 - ii. Markers were still using the old method of marking around the same table.

4.4 Areas of good practice

The Umalusi monitors and staff noted the following areas of good practice:

- a. The training of marking personnel was conducted as per the DHET management plans at all the marking centres visited;
- b. The marking guidelines were received on time at all the marking centres;
- c. All marking centres complied fully with the Occupational Health and Safety (OHS) requirements and regulations;
- d. Standard irregularity management procedures existed to deal with irregularities;
- e. In all marking centres visited, scripts were checked by examination assistants that marks were correctly totalled, transferred to the front pages, and transferred to the mark sheets; and
- f. Most of the marking centres monitored by Umalusi complied fully with the regulations of Covid-19.

4.5 Areas of Non-compliance

The following areas of non-compliance were observed:

- a. Vehicles entering/exiting the marking venue were not searched at the gate/entrance; and
- b. Markers were seated closer than the prescribed social distance of 1.5 metres apart.


4.6 Directives for compliance and improvement

DHET must ensure that:

- a. The cars/vehicles entering or exiting the marking centre are searched; and
- b. The markers in the marking venues are not seated closer than the prescribed social distance of 1.5 metres apart.

4.7 Conclusion

The marking centres were well organised, and all activities were conducted according to the marking management plan. Marking personnel fulfilled their duties in a professional manner. The monitoring visits confirmed that marking was conducted in a manner that ensured that the credibility and integrity of the August 2021 examinations for NATED Report 190/191: Engineering Studies N2–N3 were not compromised.



CHAPTER 5
STANDARDSISATION
OF MARKING
GUIDELINES

5.1 Introduction

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

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

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

The standardisation of marking guidelines was conducted on online platforms to comply with the Covid-19 regulations. These meetings were chaired by the respective examiner or the internal moderator who were responsible for the setting of the question paper. All appointed officials were required to take part in the marking guideline discussions. In the case of large enrolments, only the chief markers and internal moderators from each marking centre were invited to join the meetings.

5.2 Scope and Approach

Eight external moderators from Umalusi joined the online marking guideline discussion meetings for a sample of N3 (three) and N2 (five) instructional offerings (as listed below).

Table 5A and 5B provide lists of the instructional offerings for which meetings were attended by Umalusi, and the dates.

Table 5A: N2 marking guideline discussions attended by external moderators

No.	Instructional offerings	Date
1.	Diesel Trade Theory N2	26 August 2021
2.	Engineering Drawing N2	06 September 2021
3.	Fitting and Machining Theory N2	26 August 2021
4.	Plumbing Theory N2	02 September 2021
5.	Radio Theory N2	31 August 2021

Table 5B: N3 marking guideline discussions attended by external moderators

No.	Instructional offerings	Date
1.	Electrotechnology N3	06 September 2021
2.	Logic System N3	02 September 2021
3.	Mathematics N3	25 August 2021

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

- a. Attendance by internal moderators and chief markers;
- b. Appointment of marking staff;
- c. Standardisation of marking guidelines process;
- d. Training at the standardisation of marking guideline meetings;
- e. Adjustments and justification;
- f. Umalusi's role; and
- g. Approval of the final marking guidelines.

Umalusi moderators attended the standardisation of marking guideline meetings to monitor the proceedings, give guidance where needed, ratify final decisions and, subsequently, approve the final marking guidelines to be used during the marking.

5.3 Summary of Findings

The findings of the August 2021 NATED Report 190/191: Engineering Studies N2–N3 examinations marking guideline discussion meetings are summarised below:

a. Attendance

The panel for the marking guideline discussions for each question paper consisted of an examiner or internal moderator of the setting of the question paper who chaired the meetings. Attendance for Fitting and Machining Theory N2 raised concerns: the internal moderators from Ighayiya and Mpondozankomo were not present. Some officials joined the meeting late, which made the chairperson to start the meeting 15 minutes later.

b. Status of marking guidelines and amendments

Additional answers were added to marking guidelines. The purpose was to clarify and provide alternative answers or methods, as well as to include more possible answers. These amendments were aimed at promoting consistency in marking and to accommodate a wider range of correct responses where possible. In some instructional offerings, mark allocation was redistributed to demarcate where the actual mark should be awarded.

Table 5C presents the findings of the standardisation of marking guidelines process as reported by the external moderators from Umalusi.

Table 5C: Findings of the standardisation of marking guidelines of NATED N2 and N3 instructional offerings

Evaluation criteria	Findings and challenges	Sampled instructional offerings involved
Appointment of marking staff	The chief markers, internal moderators, and markers for all instructional offering (100%) were appointed in good time.	
Attendance and punctuality of participants	The meeting for one instructional offering started after the scheduled time, due to marking officials who joined the meeting late.	Fitting and Machining Theory N2
Recruitment process	The DHET appointed marking staff for the three marking cycles, starting from November 2020, April 2021 and August 2021. Markers were informed of their appointments by email and short message service (SMS); others received appointment letters from their respective colleges.	
Umalusi's changes to question paper and marking guideline during moderation process	The changes recommended by the Umalusi moderators were implemented in all (100%) of the question papers.	
Adjustments to the marking guidelines during the marking guideline discussions	Adjustments were made during the marking guideline discussions for 75% of the instructional offerings, the same as in August 2020 examinations. No adjustments were made in the listed subjects.	Diesel Trade Theory N2 Radio Theory N2
Justification for changes to the marking guidelines	Changes made to the marking guidelines for all instructional offerings were justified. These were clarifications and alternative responses to questions. This was also the case in the August 2020 examinations.	
Effect of changes to marking guidelines on the cognitive level of the answers/ responses	In all the marking guidelines (100%) for the sampled instructional offerings the changes made had no effect on the cognitive level of answers to the questions.	
Signing off of the marking guidelines	Marking guidelines for all sampled instructional offerings (100%) were endorsed by all Umalusi moderators. Due to the nature of online meeting, the signing off procedure was a verbal agreement and not a physical signing of approval.	
Comments and recommendations from Umalusi moderators	Standardisation of marking guideline is more effective when attended by marking officials from all marking centres, in this way marking should be more consistent across the marking centres.	

5.4 Areas of improvement

The following areas of improvement were observed in the marking guideline discussion meetings:

- a. After the marking guideline discussions 100% of the marking guidelines were signed off, verbally;
- b. In all the marking guidelines (100%) for the sampled instructional offerings the changes made had no effect on the cognitive level of answers to the questions.

5.5 Areas of Non-compliance

The following example of non-compliance was observed by the external moderator:

- a. The meeting for Fitting and Machining Theory N2 started after the scheduled time, due to marking officials who joined the meeting late.

5.6 Directives for Compliance and Improvement

The DHET must ensure that:

- b. All appointed markers attend the marking guideline discussions as scheduled; and
- c. Umalusi has access to the names and designations of the marking staff that had been invited to the marking guideline discussions.

5.7 Conclusion

The marking guideline discussions for the August 2021 NATED Report 190/191: Engineering Studies N2-N3 examinations were successfully completed. Although the marking guideline discussions took place on online platforms for August 2021 examinations, the meetings made significant contributions to standardising the marking guidelines for the promotion of consistent and fair marking.



CHAPTER 6

VERIFICATION OF MARKING

6.1 Introduction

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

This chapter will 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 students;
- Identification of areas of compliance and non-compliance; and
- Directives for compliance.

Umalusi quality assured the marking processes for August 2021 NATED Report 190/191: Engineering Studies N2-N3 examinations, by verifying the marking of a sample of instructional offerings. This verification of marking evaluated the adherence of marking to the approved standardised marking guidelines.

6.2 Scope and Approach

Umalusi sampled 12 instructional offerings from four marking centres for on-site monitoring and verification. This sample consisted of six N2 and six N3 instructional offerings. Table 6A lists the distribution of instructional offerings across marking centres:

Table 6A Distribution of instructional offerings across marking centres

No.	Marking Centre	Number of Instructional offerings
1.	Centurion	6
2.	Mpondozankomo	2
3.	Pretoria West	3
4.	Seshego	1

Twelve moderators from Umalusi were deployed to the respective marking centres to verify the standard and quality of marking.

Table 6B lists the six sampled N2 instructional offerings, the dates of verification and the marking centres at which on-site verification was conducted:

Table 6B: N2 instructional offerings sampled

No.	Instructional Offering	Date	Marking Centre
1.	Carpentry and Roofing Theory N2	09 September 2021	Centurion
2.	Industrial Electronics N2	09 September 2021	Mpondozankomo
3.	Industrial Orientation N2	9-10 September 2021	Centurion
4.	Logic Systems N2	08 September 2021	Centurion
5.	Plating and Structural Steel Drawing N2	09 September 2021	Mpondozankomo
6.	Refrigeration Trade Theory N2	10 September 2021	Centurion

Table 6C lists the six sampled N3 instructional offerings, the dates of verification and the marking centres at which on-site verification was conducted:

Table 6C: N3 instructional offerings sampled

No.	Instructional Offering	Date	Marking Centre
1.	Building Drawing N3	10 September 2021	Pretoria West
2.	Electrical Trade Theory N3	10 September 2021	Pretoria West
3.	Industrial Organisation and Planning N3	9-10 September 2021	Centurion
4.	Radio and Television Theory N3	10 September 2021	Centurion
5.	Refrigeration Trade Theory N3	10 September 2021	Pretoria West
6.	Water Treatment Practice N3	10 September 2021	Seshego

The April 2020 examinations was cancelled because of the COVID-19 pandemic. Therefore, during the August 2020 examinations, Umalusi sampled 28 instructional offerings for the verification of the marking process; a larger sample than the norm. The sample for August 2021 (12 instructional offerings), was within the norm as compared to previous years' verification of marking processes, with the exception of August 2020.

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

Table 6D: Verification of marking N2: instructional offerings, number of provinces and number of examination centres per province

Instructional Offering	Number of Provinces	Western Cape	Northern Cape	Free State	Eastern Cape	KwaZulu-Natal	Mpumalanga	Limpopo	Gauteng	North West	Province 10*
Carpentry and Roofing Theory N2	3	0	0	0	0	0	1	0	6	1	0
Industrial Electronics N2	1	0	0	0	0	0	18	0	0	0	0
Industrial Orientation N2	4	1	0	0	0	1	2	0	4	0	0
Logic Systems N2	6	0	1	0	1	2	1	1	3	0	0
Plating and Structural Steel Drawing N2	1	0	0	0	0	0	15	0	0	0	0
Refrigeration Trade Theory N2	3	1	0	0	0	0	0	0	2	0	2

Table 6E: Verification of marking N3: instructional offerings, number of provinces and number of examination centres per province

Instructional Offering	Number of Provinces	Western Cape	Northern Cape	Free State	Eastern Cape	KwaZulu-Natal	Mpumalanga	Limpopo	Gauteng	North West	Province 10*
Building Drawing N3	6	0	0	2	1	4	0	0	7	1	1
Electrical Trade Theory N3	9	1	1	2	1	2	2	0	4	1	2
Industrial Organisation and Planning N3	3	0	0	0	0	0	0	0	5	7	1
Radio and Television Theory N3	2	0	0	0	0	0	0	3	3	0	0
Refrigeration Trade Theory N3	2	0	0	0	0	0	0	0	1	0	2
Water Treatment Practice N3	1	0	0	0	0	0	0	8	0	0	0

6.3 Summary of Findings

The section below indicates the findings as reported by the external moderators for the verification of marking for the August 2021 N2-N3 examinations.

Table 6F summarises the findings of the verification of marking of the six N2 instructional offerings:

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

Criteria	Findings	Instructional Offerings
Delivery of scripts	In four (67%) of the instructional offerings sampled, the full complement of scripts had been received at the time of moderation. This was an improvement of 23% from the August 2020 examinations.	Industrial Electronics N2 Industrial Orientation N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
Training for marking	Markers were trained at 100% of the sampled instructional offerings, an increase of 19% from the August 2020 examinations.	All N2 instructional offerings

Criteria	Findings	Instructional Offerings
Sample marking	For five (83%) of the sampled instructional offerings; after training for marking, each marker marked a copy of the same script to determine consistency of marking. This was an improvement of 2% compared to the August 2020 examinations.	Carpentry and Roofing Theory N2 Industrial Electronics N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	Thereafter, in four (67%) of the instructional offerings, markers received a sample of scripts to mark from a range of centres, a decline of 14% from the August 2020 examinations.	Industrial Electronics N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	Markers for two instructional offerings did not receive a sample of scripts from a range of centres.	Carpentry and Roofing Theory N2 Industrial Orientation N2
	During sample marking, markers in five (83%) of the sampled instructional offerings adhered to the marking guidelines.	Carpentry and Roofing Theory N2 Industrial Orientation N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
Marking: adherence to the marking guideline	Adherence to marking guidelines was considered good in four of the six (67%) instructional offerings, a decline of 27% from the August 2020 examinations.	Industrial Orientation N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	In the remaining two instructional offerings (33%), adherence to the marking guidelines was rated as average.	Carpentry and Roofing Theory N2 Industrial Electronics N2
Standard of marking	The standard of marking was rated as good in four (67%) instructional offerings. This was a decline of 33% from the August 2020 examinations.	Industrial Orientation N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	The standard of marking was rated as average in the two remaining instructional offerings (33%).	Carpentry and Roofing Theory N2 Industrial Electronics N2
Administration: recording of marks	The prescribed procedure for the recording of marks on the front page of the script was followed by all instructional offerings (100%), as in the August 2020 examinations.	All N2 instructional offerings
Administration: mark indication per question	Marks were clearly indicated per question in all (100%) of the sampled instructional offerings.	All N2 instructional offerings

Criteria	Findings	Instructional Offerings
Administration: indication of errors	The moderator and/or examination assistant clearly highlighted errors in five (83%) of the sampled instructional offerings. This was a decline of 17% from the August 2020 examinations.	Industrial Electronics N2 Industrial Orientation N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
Administration: transfer of marks to the cover page	Marks were transferred correctly to the cover page in all (100%) of the sampled instructional offerings.	All N2 instructional offerings
Administration: correct completion of mark sheets	Mark sheets were completed correctly in all six (100%) of the instructional offerings: <ul style="list-style-type: none"> a. No correction fluid was used; b. All marks were indicated as three digits; c. No blank spaces; d. "IRR" was indicated to left of candidate number; e. Initial and surname of examination assistant was included; and f. Signature of chief marker was included. 	All N2 instructional offerings
Administration: note keeping	Notes were kept by markers throughout the marking process in three instructional offerings (50%).	Industrial Electronics N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	Markers did not keep notes throughout the marking process in three instructional offerings (50%), a decline of 25% from the August 2020 examinations.	Carpentry and Roofing Theory N2 Industrial Orientation N2 Logic Systems N2
Control: marker identification	In four (67%) of the instructional offerings sampled, the markers indicated their code/name in red ink on the cover page of the script, a decline of 33% from the August 2020 examinations.	Carpentry and Roofing Theory N2 Industrial Electronics N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
Control: chief marker identification	In four (67%) of the instructional offerings sampled, the chief markers wrote their names clearly on the moderated scripts, a decline of 33% from the August 2020 examinations.	Carpentry and Roofing Theory N2 Industrial Electronics N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
Control: examination assistant identification	In four of the six instructional offerings (67%) sampled, the examination assistants did not write their initials/signatures clearly on the scripts checked.	Carpentry and Roofing Theory N2 Industrial Electronics N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2

Criteria	Findings	Instructional Offerings
Internal moderation	In all instructional offerings (100%), moderation of scripts throughout the marking process was evident, compared to 81% in the August 2020 examination.	All N2 instructional offerings
Internal moderation: sampling of scripts	In five instructional offerings moderated (83%), the moderators randomly sampled high, average and low performing candidate scripts for internal moderation, a decline of 17% from the August 2020 examinations.	Carpentry and Roofing Theory N2 Industrial Electronics N2 Industrial Orientation N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	The moderator for one instructional offering did not randomly sample high, average and low performing candidate scripts.	Logic Systems N2
Internal moderation approach	A whole script moderation approach was adopted in five internally moderated instructional offerings (83%).	Carpentry and Roofing Theory N2 Industrial Electronics N2 Industrial Orientation N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
Standard of internal moderation	In five (83%) of the six instructional offerings internally moderated, the standard of internal moderation was rated as good, an improvement of 21% from the August 2020 examinations.	Carpentry and Roofing Theory N2 Industrial Orientation N2 Logic Systems N2 Plating and Structural Steel Drawing N2 Refrigeration Trade Theory N2
	In one (17%) of the six instructional offerings internally moderated, the standard of internal moderation was rated as average.	Industrial Electronics N2
Candidates' responses	Candidates found the papers for all instructional offerings (100%) to be fair, an increase of 25% from the August 2020 examinations.	All N2 instructional offerings
Prevention and handling of irregularities	Irregularities were reported in two (33%) of the instructional offerings sampled, an improvement of 5% when compared to reported irregularities in the August 2020 examinations.	Industrial Electronics N2 Refrigeration Trade Theory N2
General fairness of marking	Marking was declared as consistent and fair in all six (100%) of the instructional offerings verified, an improvement of 6% when compared to the consistency of marking in the August 2020 examinations.	All N2 instructional offerings

Table 6G summarises the findings of the verification of marking for the six N3 instructional offerings:

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

Criteria	Findings	Instructional Offerings
Delivery of scripts	The full complement of scripts for three of the six (50%) instructional offerings sampled had been received at the time of moderation. This was a decline of 8% from the August 2020 examinations.	Electrical Trade Theory N3 Refrigeration Trade Theory N3 Water Treatment Practice N3
Training for marking	Training for marking was conducted for five (83%) of the sampled instructional offerings, a decline of 17% from the August 2020 examinations.	Building Drawing N3 Electrical Trade Theory N3 Industrial Organisation and Planning N3 Refrigeration Trade Theory N3 Water Treatment Practice N3
Sample marking	After training for marking for all (100%) of the instructional offerings sampled, each marker marked a copy of the same script to determine consistency in marking.	All N3 instructional offerings
	Thereafter, in five (83%) of the instructional offerings, markers received a sample of scripts to mark from a range of centres, a decrease of 17% from the August 2020 examinations.	Building Drawing N3 Electrical Trade Theory N3 Radio and Television Theory N3 Refrigeration Trade Theory N3 Water Treatment Practice N3
	For one instructional offering, markers did not receive a sample of scripts from a range of centres.	Industrial Organisation and Planning N3
	During sample marking, markers adhered to the marking guideline for five (83%) of the six sampled instructional offerings.	Building Drawing N3 Electrical Trade Theory N3 Industrial Organisation and Planning N3 Refrigeration Trade Theory N3 Water Treatment Practice N3
	The marker for the remaining sampled instructional offering did not adhere to the marking guideline.	Radio and Television Theory N3
Marking: adherence to the marking guideline	Adherence to marking guidelines was judged as good in all instructional offerings (100%), an improvement of 25% from the August 2020 examinations.	All N3 instructional offerings
Standard of marking	The standard of marking was rated as good in all six (100%) of instructional offerings, an improvement of 17% from the August 2020 examinations.	All N3 instructional offerings
Administration: recording of marks	The prescribed procedure for the recording of marks on the front page of the script was followed by all instructional offerings (100%), as in the August 2020 examinations.	All N3 instructional offerings
Administration: mark indication per question	Marks were clearly indicated per question in all instructional offerings (100%), as in the August 2020 examinations.	All N3 instructional offerings

Criteria	Findings	Instructional Offerings
Administration: indication of errors	The moderator and/or examination assistant highlighted errors clearly in all (100%) of the sampled instructional offerings, as in the August 2020 examinations.	All N3 instructional offerings
Administration: transfer of marks to the cover page	Marks were transferred correctly to the cover page in five (83%) of the instructional offerings, a decline of 17% from the August 2020 examinations.	Building Drawing N3 Electrical Trade Theory N3 Industrial Organisation and Planning N3 Refrigeration Trade Theory N3 Water Treatment Practice N3
Administration: correct completion of mark sheets	Mark sheets were completed correctly in all (100%) of the instructional offerings according to the following criteria: <ul style="list-style-type: none"> a. No correction fluid was used; b. All marks were indicated as three digits; c. No blank spaces; d. "IRR" was indicated to left of candidate number; e. Initial and surname of examination assistant was included; and f. Signature of chief marker was included. 	All N3 instructional offerings
Administration: note keeping	Notes were kept by markers throughout the process in all instructional offerings (100%), an improvement of 8% on the August 2020 examinations.	All N3 instructional offerings
Control: marker identification	In all six instructional offerings sampled (100%), the markers indicated their code/ name in red ink on the cover page of the script.	All N3 instructional offerings
Control: chief marker identification	All (100%) chief markers of the instructional offerings sampled indicated their names clearly on the moderated scripts, an increase of 8% from the August 2020 examinations.	All N3 instructional offerings
Control: examination assistant identification	In two (33%) of the six instructional offerings sampled, the examination assistants did not clearly indicate their initials/signatures on the checked scripts.	Radio and Television Theory N3 Refrigeration Trade Theory N3
Internal moderation	Moderation of scripts throughout the marking process was evident in all six instructional offerings sampled, as in the August 2020 examinations.	All N3 instructional offerings

Criteria	Findings	Instructional Offerings
Internal moderation: sampling of scripts	In all instructional offerings moderated (100%), the moderators randomly sampled high, average and low performing candidate scripts for internal moderation, as in the August 2020 examinations.	All N3 instructional offerings
Internal moderation approach	A whole script moderation approach was adopted by all (100%) internally moderated instructional offerings, as in the August 2020 examinations.	All N3 instructional offerings
Standard of internal moderation	In all instructional offerings moderated (100%), the standard of internal moderation was rated as good, an improvement of 8% from the August 2020 examinations.	All N3 instructional offerings
Candidates' responses	Candidates in five (83%) instructional offerings found the paper to be fair.	Building Drawing N3 Electrical Trade Theory N3 Industrial Organisation and Planning N3 Radio and Television Theory N3 Refrigeration Trade Theory N3
	Candidates in one (17%) instructional offering found the paper to be difficult.	Water Treatment Practice N3
Prevention and handling of irregularities	No irregularities were reported by any of the six instructional offerings, an improvement of 25% from the August 2020 examinations.	
General fairness of marking	Marking was declared fair in all six (100%) of the instructional offerings verified, as in the August 2020 examinations.	All N3 instructional offerings

6.4 Areas of Improvement

The findings of the August 2021 verification of marking revealed the following areas of improvement:

- Adherence to marking guidelines was judged as good in all N3 instructional offerings (100%), an improvement of 25% from the August 2020 examinations.;
- Notes, which are utilised for the writing of qualitative reports, were kept by markers throughout the marking process in all N3 instructional offerings (100%), an improvement of 8% from the August 2020 examinations;
- Internal moderation of scripts throughout the marking process was evident in all N2 and N3 instructional offerings (100%), an improvement of 19% from the 81% of the August 2020 examinations; and
- The standard of internal moderation was rated as good, an improvement of 21% and 8%, respectively in the N2 and N3 instructional offerings sampled.

6.5 Areas of Non-Compliance

The findings of the verification of marking revealed the following instances of non-compliance that might hinder the progress of future marking processes:

- a. Thirty-three percent of N2 scripts and 50% of N3 scripts had not yet been received for marking at the time of verification of marking;
- b. Markers for two (33%) N2 instructional offerings and one (17%) N3 instructional offering did not receive a sample of scripts from a range of centres to mark after training for marking;
- c. The adherence to the marking guideline rated as good, declined by 27% in the N2 instructional offerings sampled;
- d. The standard of marking rated as good, declined by 33% in the N2 instructional offerings sampled;
- e. Notes, which are utilised for the writing of qualitative reports, were not kept by markers in three N2 instructional offerings (50%), a decline of 25% from the August 2020 examinations; and
- f. Irregularities were reported in two (33%) of N2 instructional offerings;

6.6 Directives for Compliance and Improvement

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

- a. Revise current marking processes to ensure all scripts are received in good time by marking centres;
- b. Ensure that all markers, chief markers and internal moderators mark a sample of scripts from a range of centres irrespective of the number of scripts expected for marking;
- c. Enhance the training of markers to ensure that all markers maintain good standards of marking; and
- d. Adopt more stringent measures during invigilation to curb irregularities during the writing of examinations.

6.7 Conclusion

The marking and moderation of scripts for the August 2021 NATED Report 190/191: Engineering Studies N2–N3 examinations was generally consistent and accurate. The administration and control of marking was of a high standard. Findings reflect that marking was fair in all the sampled instructional offerings. Results indicate that 92% of the candidates found the question papers of the sampled instructional offerings to be fair. The marking of scripts for the August 2021 examination was largely fair, consistent and reliable.



CHAPTER 7

STANDARDSISATION AND RESULTING

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 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 the standardisation meetings. During standardisation, qualitative inputs 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 August 2021 NATED Report 190/1 Engineering Studies virtual standardisation was rescheduled from the initial scheduled date due to the COVID-19 challenges which impacted heavily on the DHET processes. The Department of Higher Education and Training (DHET) presented 55 instructional offerings for the standardisation of the August 2021 NATED Report 190/191: Engineering Studies N2 and N3 Examinations. In turn, Umalusi verified the historical averages, the standardisation datasets and electronic booklets before standardisation, approved 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 that is done, as per policy requirements the DHET 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 the historical averages during the standardisation process.

7.2.2 Verification of datasets and standardisation booklets

Umalusi amended the original management plan for the submission of data for standardisation and resulting processes following the rescheduling of the standardisation and approval meetings. The DHET submitted standardisation datasets and electronic booklets according to the amended Umalusi management plan. The datasets were verified and approved.

7.2.3 Pre-standardisation and standardisation

The pre-standardisation and standardisation meetings for the August 2021 NATED Report 190/191: Engineering Studies N2–N3 examinations were held on 27 September 2021. Umalusi was guided by many 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.

7.2.4 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 Findings and decisions

7.3.1 Calculation of historical averages

As explained in the paragraphs above, the historical averages for August 2021 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 the Umalusi management plan. Where outliers were found, the principle of exclusion was applied and, as a result, the norm was calculated using five examination sittings. Table 7A indicates instructional offerings with outliers.

Table 7A: Instructional offerings with outliers

Level	Code	Instructional Offering	Excluded Examination Sessions
N2	11040862	Radio Theory	201911
N3	11040343	Electro-Technology	201908

7.3.2 Verification of datasets and standardisation booklets

The standardisation datasets and electronic booklets submitted for the August 2021 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.

7.3.3 Pre-standardisation and standardisation

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

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 2021 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. The ASC (Assessment Standards Committee) expressed concern on the recurrence of the repetition of question papers and questions directly copied from the textbook in some subjects. The ASC observed the recurrence of high absenteeism rates in some subjects. Furthermore, the ASC reiterated the need for DHET to address the issue of the outdated syllabi for this qualification.

The committee noted with appreciation during the pre-standardisation meeting the absence of any reported irregularities in Mathematics N2 as compared to November 2020 examinations. However, ASC observed lowest performance in Industrial Trade Theory N3 and Plant Operation Theory N2 and urges the DHET to investigate. Furthermore, the ASC observed the consistent poor performance in Motor Trade Theory N3 and Instrument Trade Theory N3 in all examination sittings and urged DHET to investigate. A bimodal distribution was observed in Rigging Theory N2, evidence that there were no higher order

questions resulting in the examination being the first examination learners obtained more than 70%. The ASC expressed concern over the inconsistency in the marking of Logic System N3 and urged DHET to put systems in place to control it. Table 7B indicates a summary of the standardisation decisions.

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

Description	Total
Number of instructional offerings presented	55
Raw marks accepted	24
Adjustments (mainly upwards)	16
Adjustments (mainly downwards)	15
Provisionally standardised	0
Number of instructional offerings standardised	55

7.3.4 Post standardisation

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

7.4 Areas of Compliance

The following areas of compliance were observed:

- The flipping standardisation booklet was successfully submitted in the prescribed format;
- The absence of any reported irregularities in Mathematics N2 for that examination compared to the November 2020 sitting was commendable; and
- The statistical moderation and resulting datasets were approved during first submission.

7.5 Areas of Non-compliance

The following areas of non-compliance were observed:

- The continued reliance of the outdated syllabi for this qualification needs to be corrected;
- The recurrence of the phenomenon of repetition of the lifting of question directly from the textbook in some subjects is worrisome;
- The inconsistency of marking in Logic Systems N3, an issue that has been raised since November 2020 examinations, needs to be addressed; and
- The non-compliance to the original management plan.

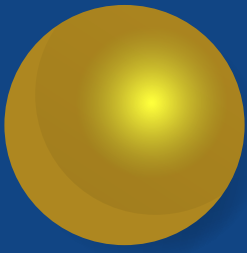
7.6 Directives for Improvement and Compliance

The DHET is directed to put in place strategies to:

- Address the continued reliance on the outdated syllabi;
- Avoid repetition of question papers and lifting of questions directly from the textbooks in particular subjects;
- Improve the performance in Motor Trade Theory N3 and Instrument Trade Theory N3;
- Address the inconsistency of marking in some instructional offerings such as, Logic Systems N3;
- Comply with management plans for submission of standardisation data.

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 reasoning. Most subjects were accepted at raw marks.



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