higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

GETC: AET L4 ~ NQF L01

EXAMINATIONS AND ASSESSMENT GUIDELINES

for

MATHEMATICS AND MATHEMATICAL SCIENCES L4

CODE: MMSC4

January 2020

1. PREAMBLE

Examinations and Assessment Guidelines are part of a developmental process that is aimed at increasing the capacity of the post-school higher education and training system, lecturers, CLC management teams and departmental officials to enhance the effective implementation of the General Education and Training Certificate: Adult Basic Education and Training Level 4 qualification.

This EAG is an attempt at developing an authentic assessment system that is congruent with outcomes based education in general and the SAQA registered Unit Standards in particular. The Department expects a critical engagement with the document, as it does not reflect a "zero defect" solution and all who use it are encouraged to alert the Department of Higher Education and Training to any inconsistencies, impractical suggestions or any other elements that may detract from the goal of strengthening an effective examinations and assessment system. In alerting the DHET please furnish suggested examples of good assessment tasks that could enhance classroom teaching and learning. This EAG document lays a firm foundation in establishing a common approach by both the Quality Council Umalusi and DHET in their respective oversight functions regarding the GETC: AET L4 qualification.

TABLE OF CONTENTS

---

2. GLOSSARY

AET	Adult Education and Training.
ABET	Adult Basic Education and Training.
Accreditation	Systems and procedures to determine whether or not training providers have the capacity to provide high quality education and training against specified unit standards and qualifications. Accreditation is necessary as it provides a guarantee to all users of an accredited training provider that the provider complies with the required standards for learning and assessment services. It also means that all learners can be assured of a quality learning and assessment experience and that the credits and qualifications they achieve through these services will be nationally and internationally recognised, regardless of where or how they were obtained.
Assessor	A person who is qualified against the registered unit standards for assessors and is registered as an assessor with the ETQA function of a SETA or with a professional body ETQA.
Assessment	A structured process for gathering evidence and making judgments about an individual's performance in relation to registered national standards and qualifications. Assessment is the process of gathering data. It is the ways an educator gather data about their teaching and their students' learning. The data provide a picture of a range of activities using different forms of assessment such as class test; observations and examinations. The gathered data can then be used to evaluate the students' performance. It measures if and how students are leaving and if the teaching methods are effectively relaying the intended messages. Stated slightly different, Assessment is a process of making decisions about a learner's performance. It involves gathering and organising information (evidence of learning), in order to review what learners have achieved. It informs decision making in education, and helps lecturers to establish whether learners are performing according to their full potential and making progress towards the required levels of performance (or standards).
Assessment Criteria (AC)	They are descriptive statements that provide learners and educators with information about the qualities, characteristics, and aspects of a given learning task. Assessment criteria allow lecturers to evaluate learners' work more openly, consistently and objectively.
Assignments	Assignments are problem-solving exercises with clear guidelines and a specified length. More structured and less open-ended than projects, but they do not necessarily involve strict adherence to a prescribed procedure and they are not concerned exclusively with manual skills. Possible uses: Problem-solving around a particular topic. Assignments are unsupervised pieces of work that often combine formative and summative assessment tasks. They form a major component of continuous assessment in which more than one assessment item is completed within the semester. Any of the methods of assessment below can be set as assignments although restrictions in format, such as word limits and due dates, are often put on the assessment task to increase their practicality.

Band	The three education and training areas used to locate qualifications – namely General Education, Further Education and Training and Higher Education.
Baseline Assessment	Baseline assessment is assessment usually used at the beginning of a phase, Grade or learning experience to establish what learners already know. It assists educators with the planning of learning programmes and learning activities.
Case Study	A case study is a description of an event concerning a real-life or simulated situation, usually in the form of a paragraph or text, a video (description of the picture for the blind/captions for the deaf), a picture or a role-play exercise. This is followed by a series of instructions to elicit responses from learners. Individuals or small groups may undertake case studies
CET	Community Education and Training
CETC	Community Education and Training College
CLC	Community Learning Centre
Competencies	Competence is defined as the behaviours that employees must have, or must acquire in order to achieve high levels of performance based on skills, knowledge and behaviours.
Credit	A credit is the value assigned by SAQA to 10 notional learning hours. Every unit standard offers a number of credits that are awarded to learners who successfully complete the unit standard. The credits reflects the average length of time the average learner might take to complete the learning leading to the achievement of the unit standard. For example a 5-Credit Unit Standard will require that a typical or average learner devotes about 50 hours of learning to that qualification.
Critical Cross-Field Outcomes (CCFO)	Critical outcomes are generic skills which can be applied in most situations in work and life Refer to those generic outcomes that are a by-product of all teaching and learning, they express qualities that should be achieved in a unit standard. Critical cross-field outcomes may include (e.g. problem solving skills; working effectively with others as a member of a team; collecting, analysing, organising and critically evaluating information). Each unit standard will incorporate a number of critical outcomes.
Demonstration	This is an activity that allows learners to demonstrate manual and/or behavioural skills. The assessment may be based on the end-result of the activity (the product), or the carrying-out of the activity (the process), or a combination of both.
DHET	Department of Higher Education and Training
Diagnostic Assessment	Diagnostic assessment can help the educator to identify the students' current knowledge of a subject, their skill sets and capabilities, and to clarify misconceptions before teaching takes place. Knowing students' strengths and weaknesses can help you better plan what to teach and how to teach it. • Pre-tests(content and abilities) • Self-assessments(identifying skills and competencies) • Discussion board responses(on content-specific prompts) • Interviews(brief, private, 10-minute interview of each student)
EAG	Examinations and Assessment Guidelines

ETQA	Education and Training Quality Assurance (body)
Formative Assessment	Refers to an assessment that is carried out during the process of learning and teaching.it occurs on a continuous basis during the course of learning. This type of assessment is designed to diagnose the learner's strength and weaknesses and It provides feedback and information during the instructional process, while learning is taking place. Formative assessment measures student progress but it can also assess your own progress as an instructor. For example, when implementing a new activity in class, you can, through observation or surveying the students, determine whether or not the activity should be used again or modified. • Observations during in-class activities • Homework exercises as review for exams and class discussions • Questions and answers sessions, both formal-planned and informal spontaneous
Full qualification	Full qualification is a cluster of unit standards with a defined number of credits combined together, using 'rules of combination' defined by SAQA, to form a qualification.
GETC	General Education and Training Certificate
Investigation	Investigation activities are one type of performance activity that engage learners in some form of systematic inquiry of a phenomenon
Lecturer's Portfolio	A lecturer's portfolio is a compilation and recording of all the tasks for site-based assessment. This means that it is a collection of all the assessment tasks, assessment tools, recording tools, the annual Programme of Assessment and Learning Area record sheets. A lecturer should keep a portfolio to enable him/her to monitor his/her progress and that of individual learners and to plan for the next step in the learning experience. Any additional pieces of evidence should be included in the lecturer's portfolio.
Learning Outcomes	Learning outcomes are the knowledge, skills and attitudes which a learner is able to demonstrate within a particular context. They are the result of formal, non-formal or informal learning processes.
Level (L)	Level indicates the complexity of outcomes and the level of knowledge required of a learner to successfully achieve a unit standard or qualification at level on the NQF.
Listening comprehension	Listening comprehension assesses the learner's ability to understand and interpret spoken text. This is a very important activity. Learners are exposed to so many visual stimuli that very often, listening skills are under-developed and should therefore be re-enforced
Moderation	A process of ensuring that the learners who are being assessed are being assessed in a consistent manner. This assists in ensuring that all assessors who assess a particular unit standard or qualification are making similar and consistent judgments about learner's performance, using similar methods. It also focuses on ensuring consistency between assessments being conducted by service providers i.e. where there are two or more service providers providing training on the same unit standard, the way in which they are assessing should be consistent.
NQF	National Qualifications Framework

Notional learning hours	Notional learning hours which is the amount of time (in hours) which the average learner would take, learning under average conditions, to acquire competence in the unit standard under review. These learning hours are not only contact hours with the trainer but include time spent completing assignments etc.
NSBs	National Standards Bodies
Oral task	These are mainly used to generate evidence on learners' ability to listen/sign, interpret, communicate ideas and sustain a conversation in the language of assessment. Oral questions include oral examinations, interviews, conferences and other conversations in which information is obtained about student's learning Oral task also refers to activities that develop the learners ability to apply spoken or signed communication strategies appropriately, to a specific purpose and a defined situation
Outcomes Based Education (OBE)	Outcomes Based Education is an education system which focuses on the learning which learners are able to demonstrate (i.e. learning outcomes) rather than on the content which they have been exposed to. It is intended to better equip learners for active participation in social and economic life and for lifelong learning.
Performance	This type of assessment emphasises the learners' ability to use their knowledge and skills to produce something and has particular relevance in Arts and Culture. This includes presentations, research papers, investigations, projects, demonstrations, exhibitions, singing, speeches, musical presentations, etc. In other words, this type of assessment requires learners to demonstrate a skill or proficiency when creating, producing or doing something. Sometimes this kind of task can be set in a real world context. The educators should not only assess the end product but also the process that the learners followed in order to complete the task.
Prepared Speech	This activity requires learners to undertake some form of research or investigation as a preparatory activity. The results of this, the product, would then be presented in spoken or signed form, preferably with some supporting resources such as visual aids. The preparation would be a vital aspect of the assessment.
Project	A project is any exercise or investigation in which the time constraints are more relaxed. Projects are: Practical; Comprehensive and open-ended; Tackled without close supervision, but with assessor guidance and support Projects can involve individuals or a group of learners. The assessor directs the choice of the project, usually by providing the learner with a topic or brief for the investigation. Possible uses: Comprehensive range of skills can be assessed; Integration of activities
Reading	A learner should be able to read a passage (prepared and unprepared) using voice projection, fluency, expression and other strategies for spoken presentations.

RPL	Recognition of Prior Learning. RPL is a particular type of assessment. It is the acknowledgement of learning that has taken place before, irrespective of whether the learning was acquired formally or informally e.g. through formal education and training at an institution of learning or through on the job training, in-house training, experience etc.
Rules of Combination	Rules of combination are the rules regarding the combination of credits into a qualification. The National Standards Body that is developing the qualification will make sure that the unit standards that are selected for the qualification are combined in a way that 'makes sense' i.e. you wouldn't have unit standards with outcomes related to nursing skills in a management qualification. The NSB must also ensure that the qualification consists of fundamental, core and elective learning.
SAQA	South African Qualifications Authority
SETA	Sector Education and Training Authority
SGBs	Standards Generating Bodies
Specific Outcomes (SOs)	Specific outcomes are outcomes demonstrated in a specific context and reflect knowledge and skills in the particular area in which the learner is located. The achievement of specific outcomes enables a learner to acquire credits on the NQF. They are clear statements that describe the skills and knowledge (competencies) that students must acquire upon completion.
Summative Assessment	Summative assessment takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process. It is used to establish whether or not the candidate has met all the requirements of the Unit Standard or qualification in question. Summative assessment is more product-oriented and assess the final product Examinations; Term papers
Tests	Tests could be used for summative or formative purposes. They usually consist of a range of questions. Learners are required to respond to questions within a specified time. Tests are usually used to assess the recall of information and cognitive skills such as problem solving or analyses etc. For a paper and pencil test, objective tests and essay tests could be used. The objective tests could include multiple choice, matching, true or false, short answer completion etc. Alternative response questions True/False; Yes/No questions Possible uses: Recall of information; Ability to discriminate
Training Provider	Organisation delivering training. Ideally the training provider should be accredited with an ETQA.

Unit standard	A unit standard is a group of registered statements of desired education and training outcomes and their associated assessment criteria. In other words, a description of outcomes (both critical and specific) and related knowledge requirements and how these can be assessed. A Unit standard describes: • the knowledge and skills that a student must acquire in order to be declared competent, these statements are called specific outcomes, • the standards of performance required as proof of competence (assessment criteria), and • the scope and contexts within which competence is to be judged. Unit standards are generated by Standards Generating Bodies checked with National Standards Bodies and then registered on the NQF. They are the "currency" in which learning is traded on the NQF.
Unprepared Speech	Although this activity suggests no preparation, a short preparation time, which depending on the nature of the exercise could vary from five to fifteen minutes, should be given. During this time learners would jot down their ideas and develop an outline for the speech.
Verification	A process of ensuring that assessments are credible and legitimate. A person carrying out this part of the assessment system would validate the work of assessors (among others), by ensuring that assessors have conducted assessment in the correct way and that assessments have been checked for consistency. It is a means of ensuring that credit is only awarded for learning against the outcomes that have been specified in the NQF registered unit standards, or qualifications.

AAAT4	Applied Agriculture and Agricultural Technology L4
ANHC4	Ancillary Health Care L4
ARTC4	Arts and Culture L4
ECDV4	Early Childhood Development L4
EMSC4	Economic and Management Sciences L4
HSSC4	Human and Social Sciences L4
INCT4	Information Communication Technology L4
LIFO4	Life Orientation L4
MLMS4	Mathematical Literacy L4
MMSC4	Mathematics and Mathematical Sciences L4
NATS4	Natural Sciences L4
SMME4	Small, Medium and Micro Enterprises L4
TECH4	Technology L4
TRVT4	Travel and Tourism L4
W\HRT4	Wholesale and Retail L4

LCAF4	Language, Literacy and Communication: Afrikaans L4
LCEN4	Language, Literacy and Communication: English L4
LCND4	Language, Literacy and Communication: IsiNdebele L4
LCSO4	Language, Literacy and Communication: Sesotho L4
LCSW4	Language, Literacy and Communication: SiSwati L4
LCSP4	Language, Literacy and Communication: Sepedi L4
LCTS4	Language, Literacy and Communication: Setswana L4
LCXH4	Language, Literacy and Communication: IsiXhosa L4
LCXI4	Language, Literacy and Communication: Xitsonga L4
LCVE4	Language, Literacy and Communication: Tshivenda L4
LCZU4	Language, Literacy and Communication: IsiZulu L4

3. INTRODUCTION TO THE MMSC4 LEARNING AREA

This Examinations and Assessment Guidelines document furnishes guidelines for assessment in the MMSC4 learning area of the GETC: AET L4 qualification. It provides lecturers with information on assessment as well as ways of implementing prescribed assessment activities. This document should be read in conjunction with the policies governing the GETC: AET L4 examinations and assessment processes.

Assessment for the GETC: AET L4 forms an integral part of teaching and learning and should be included in all the levels of planning. Therefore, this EAG document replaces any other guideline document that has preceded it. However, it does not signal a fundamental shift from formal national assessment processes that have been managed by the Department of Higher Education and Training. It attempts to consolidate and enhance assessment practices and formalises them into a useful reference document for mainly examiners, moderators and lecturers who are involved in both summative and formative assessment practices.
The MMSC4 EAG document is based on the GETC: AET Level 4 qualification with the South African Qualifications Authority identity number 71751. The other users of this document shall be the Community Learning Centres, Management Teams, Departmental Officials, Policy Analysts, Learning Area Coordinators or Advisers and any interested stakeholder in Community Education and Training.

Furthermore, the EAG document is intended to assist the lecturer in preparing the students for Examinations as well as Site-Based Assessment. It should be treated as a resource material that seeks to highlight and prescribe the Unit Standards for the MMSC4 Learning Areas and how to unpack them for assessment. It also indicates the possible core content knowledge (as outlined in the Unit Standards) to be assessed. It provides clarity on how Specific Outcomes and Assessment Criteria are weighted. The possible Learning and Teaching Support Materials relevant to the learning area are highlighted.

While the aim is not to be prescriptive on curriculum, it is hoped that this EAG document will offer lecturers more guidance in their own teaching and assessment practices. The document creates a uniform framework for examinations and formative assessment, in order to avoid a variety of different approaches to examinations and assessment practices.
The EAG document reflects on the Rules of Combination, Fundamentals Component, Core Component and the Electives Component of the GETC: AET L4 qualification.

It guides on how to use available resources to achieve specified unit standards of the learning area. The National Policy on the Conduct, Administration and Management of the GETC: AET Level 4 examinations and assessment serves as the framework upon which this EAG document is rooted.

4. THE GETC: AET L4 QUALIFICATION

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED QUALIFICATION:

General Education and Training Certificate: Adult Basic Education and Training

SAQA QUAL ID	**QUALIFICATION TITLE**			
71751	General Education and Training Certificate: Adult Basic Education and Training			
ORIGINATOR				
Task Team - Adult Basic Education and Training				
PRIMARY OR DELEGATED QUALITY ASSURANCE FUNCTIONARY			**NQF SUB-FRAMEWORK**	
The individual Primary or Delegated Quality Assurance Functionary for each Learning Programme recorded against this qualification is shown in the table at the end of this report.			SFAP - Sub-framework Assignment Pending	
QUALIFICATION TYPE	**FIELD**		**SUBFIELD**	
National Certificate	Field 05 - Education, Training and Development		Adult Learning	
ABET BAND	**MINIMUM CREDITS**	**PRE-2009 NQF LEVEL**	**NQF LEVEL**	**QUAL CLASS**
Undefined	120	Level 1	NQF Level 01	Regular-Unit Stds Based
REGISTRATION STATUS		**SAQA DECISION NUMBER**	**REGISTRATION START DATE**	**REGISTRATION END DATE**
Reregistered		SAQA 06120/18	2018-07-01	2021-06-30
LAST DATE FOR ENROLMENT		**LAST DATE FOR ACHIEVEMENT**		
2022-06-30		2025-06-30		

In all of the tables in this document, both the pre-2009 NQF Level and the NQF Level is shown. In the text (purpose statements, qualification rules, etc.), any references to NQF Levels are to the pre-2009 levels unless specifically stated otherwise.

This qualification does not replace any other qualification and is not replaced by any other qualification.

PURPOSE AND RATIONALE OF THE QUALIFICATION

Purpose:

The General Education and Training Certificate in Adult Basic Education and Training is suitable for adult learners and will provide them with fundamental basics of general education learning. The purpose of the Qualification is to equip learners with foundational learning by acquiring knowledge, skills and values in specified Learning Areas. In addition, it also allows learners to choose Elective Unit Standards which relate to occupational type learning relevant to their area of interest or specialisation.

In particular, the Qualification aims to:

- Give recognition to learners who achieve and meet the necessary requirements and competencies as specified in the Exit Level Outcomes and Associated Assessment Criteria.
- Provide a solid foundation of general education learning which will help prepare learners and enable them to access Further Education and Training learning and qualifications, particularly occupational workplace-based or vocational qualifications.
- Promote lifelong learning to enable learners to continue with further learning.
- Prepare learners to function better in society and the workplace.

Rationale:

Adult Basic Education is identified as a critical priority in South Africa and plays a vital role in equipping adult learners with the necessary knowledge, skills and values in order to be functional in society and as a person by contributing to the workforce, community and economy. This GETC: ABET qualification provides learners with foundational learning through the acquisition of knowledge and skills needed for social and economic development and the promotion of justice and equality. It also seeks to promote and instill learners with a culture of life-long learning needed for future learning. It also enables learners to acquire the necessary competencies in order to access further education and training, career development and employment opportunities.

The achievement of the GETC: ABET qualification allow learners the following learning pathways:

- To choose a vocational route through completion of the National Certificate: Vocational Qualifications at Levels 2, 3 and 4 which contain vocational specializations.
- To access academic learning at NQF Level 2 and above.
- To access Occupational specific qualifications at NQF Level 2, which consist of knowledge, skills and workplace experience and learning.

The Qualification aims to equip learners to:

- Develop and apply relevant skills, knowledge and attitudes in the chosen Learning Areas.
- Function better in and contribute to the world of work.
- Be sensitive and reflective of issues relating to diversity, inclusivity, cultural values, human rights, gender, development and change.
- Develop an appreciation for lifelong learning.
- Function better as a citizen in South Africa and contribute to cultural, social, environmental and economic development.
- Make informed judgments about critical ethical issues.
- Develop study skills to be able to access further learning.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

It is assumed that learners have literacy and numeracy skills in order to cope with the complexity of learning in this Qualification.

Recognition of Prior Learning:

The structure of this Qualification makes Recognition of Prior Learning (RPL) possible through the

assessment of individual Unit Standards. The learner and assessor should jointly decide on methods to determine prior learning and competence in the knowledge, skills, and values implicit in the Qualification and the associated Unit Standards. RPL will be done by means of an integrated assessment which includes formal, informal and non-formal learning and work experience.

This Recognition of Prior Learning may allow for:

- Accelerated access to further learning at this or higher Levels on the NQF.
- Gaining of credits for Unit Standards in this Qualification.
- Obtaining this Qualification in whole or in part.

All RPL is subject to quality assurance by the relevant ETQA or an ETQA that has a Memorandum of Understanding with the relevant ETQA.

Access to the Qualification:

It is recommended that learners have achieved the following in order to access this Qualification:

- Communication at ABET Level 3 or equivalent.
- Mathematical Literacy at ABET Level 3 or equivalent.

RECOGNISE PREVIOUS LEARNING? Y

Recognition of Prior Learning:

The following Critical Cross-Field Outcomes (CCFO) underpin the entire US:

Critical Cross-field Outcomes (CCFO):

UNIT STANDARD CCFO IDENTIFYING

- ✓ Identify and solve problems: using context to decode and make meaning individually and in groups in oral/signed activities.
- ✓ Reflect on and explore a variety of strategies to learn more effectively: listening skills include listening for meaning in order to promote study skills such as note-taking, asking for clarification, etc.
- ✓ Explore education and career opportunities: speaking/signing and listening skills at this level enable access to information on such opportunities, and provides the foundation for successful engagement in such opportunities.
- ✓ Develop entrepreneurial opportunities: speaking/signing and listening skills at this level enable access to information on such opportunities, and provides the foundation for successful engagement in such opportunities.

UNIT STANDARD CCFO WORKING

Work effectively with others and in teams: using interactive speech/signing in activities, discussion and research projects.

UNIT STANDARD CCFO ORGANISING

Organize and manage oneself and one`s activities responsibly and effectively: through using language.

UNIT STANDARD CCFO COLLECTING

Collect, analyze, organize and critically evaluate information: fundamental to the process of growing language capability across language applications and fields of study.

UNIT STANDARD CCFO COMMUNICATING
Communicate effectively using visual, mathematical and/or language skills: in formal and informal communications.

UNIT STANDARD CCFO SCIENCE
Use science and technology effectively and critically: language makes it possible for people to access and use scientific and technological information and applications.

UNIT STANDARD CCFO DEMONSTRATING
Understand the world as a set of related systems: through using language to investigate and express links, and to explore a global range of contexts and texts.
Be culturally and aesthetically sensitive across a range of social contexts: listening and speaking skills enhance understanding and discussion of such issues.

UNIT STANDARD CCFO CONTRIBUTING
Participate as responsible citizens in the life of local, national and global communities: listening and speaking/signing skills enable people to participate effectively in such processes.

QUALIFICATION RULES
This Qualification consists of **Fundamental, Core and Elective** Unit Standards. **A minimum of 120 credits from those listed must be achieved for the awarding of the Qualification**. The following rules apply to the choice of unit standards:

Fundamental Component:
The Fundamental Component consists of:
Language, Literacy and Communication (LLC) Unit Standards, totaling 23 credits.
A choice of either:
Mathematical Literacy Unit Standards, totaling 16 credits.
Or
Mathematics and Mathematical Sciences, totaling 14 credits.
A learner must choose Mathematical Literacy or Mathematics and not a combination of both.
Learners must complete all the LLC Unit Standards, totaling 23 credits and either Mathematical Literacy Unit Standards or the Mathematics and Mathematical Sciences Unit Standards, totaling a minimum of 14 credits to give a total of 37 credits for the Fundamental Component.

Language, Literacy and Communication (LLC) (English = LCEN4, Afrikaans = LCAF4, Xitsonga = LCXI4, Sepedi = LCSP4.IsiXhosa = LCXH4, Tshivenda = LCVE4, SiSwati = LCSW4, Setswana = LCTS4, Sesotho = LCSO4, IsiZulu = LCZU4, IsiNdebele = LCND4):
- ID 119635: Engage in a range of speaking/signing and listening interactions for a variety of purposes; 6 credits.
- ID 119631; Explore and use a variety of strategies to learn; 5 credits.
- ID 119640; Read/view and respond to a range of text types; 6 credits.
- ID 119636; Write/Sign for a variety of different purposes; 6 credits.

Total = 23 credits.
And

Mathematical Literacy (MLMS4):
- ID 119373; Describe and represent objects in terms of shape, space and measurement; 5 credits.
- ID 119364; Evaluate and solve data handling and probability problems within given contexts; 5 credits.
- ID 119362; Work with numbers, operations with numbers and relationships between numbers; 4 credits.

 ID 7450; Work with measurement in a variety of contexts; 2 credits.
Total = 16 credits.
Or
Mathematics and Mathematical Sciences (MMSC4):
 ID 7448; Work with patterns in various contexts; 4 credits.
 ID 7452; Describe, represent and interpret mathematical models in different contexts; 6 credits.
 ID 7449; Critically analyse how mathematics is used in social, political and economic relations; 2 credits.
 ID 7464; Analyse cultural products and processes as representations of shape, space and time; 2 credits.
Total = 14 credits.

Core Component:
The Core consists of Life Orientation Unit Standards totaling 32 credits which are all compulsory.
Life Orientation (LIFO4):
 ID 14656; Demonstrate an understanding of sexuality and sexually transmitted infections including HIV/AIDS; 5 credits.
 ID 14659; Demonstrate an understanding of factors that contribute towards healthy living; 4 credits.
 ID 14664; Demonstrate knowledge of diversity within different relationships in the South African society; 3 credits.
 ID 14569; Demonstrate an understanding of how to participate effectively in the workplace; 3 credits.
 ID 14661; Demonstrate knowledge of self in order to understand one's identity and role within the immediate community and South African society; 3 credits.
 ID 15092; Plan and manage personal finances; 5 credits.
 ID 113966; Identify security, safety and environmental risks in the local environment; 6 credits.
 ID 15091; Plan to manage one's time; 3 credits.
Total = 32 credits.

Elective Component:
The Elective Component consists of an Academic Learning Area and Vocational Specialisations. Learners must choose an Academic or Vocational specialisation and complete the following:
 All the compulsory unit standards given for that specialisation;
 Additional unit standards from the Electives given for that specialisation giving a total of either 49 credits if Mathematical Literacy is chosen or 51 credits if Mathematical Sciences is chosen in the Fundamental component.

LEARNERS ARE TO FOLLOW EITHER AN ACADEMIC LEARNING AREA OR A VOCATIONAL SPECIALISATION.

Academic Learning Areas
Academic:
If Learners wish to follow the Academic Learning Area, they are to choose a minimum of three of the following components/subjects and complete all the unit standards listed for each one:
 Human and Social Studies (HSSC4)
 Natural Sciences (NATS4)
 Economic and Management Sciences (EMSC4)
 Arts and Culture (ARTC4)
 Technology (TECH4)

 Additional Language.
Unit Standards making up the components/subjects in the Academic Learning Area:

Human and Social Studies (HSSC4):
 ID 115477; Demonstrate knowledge and understanding of the relationships between social justice, human rights and democracy; 5 credits.
 ID 115480; Demonstrate an understanding of diversity and change in a dynamic society; 6 credits.
 ID 115483; Explain the relationship between society, environment and development; 6 credits.
 ID 115471; Explain the relationship between events, time and space and the effect on society; 6 credits.

Natural Sciences (NATS4):
 ID 7509; Apply basic concepts and principles in the natural sciences; 5 credits.
 ID 7513; Assess the impact of scientific innovation on quality of life; 2 credits.
 ID 7508; Conduct an investigation in the natural science; 4 credits.
 ID 7511; Analyse how scientific skills and knowledge contribute to sustainable use of resources; 2 credits.
 ID 7507; Demonstrate an understanding of the concept of science; 2 credits.

Economic Management Sciences (EMSC4):
 ID 13999; Demonstrate an understanding of basic accounting practice; 4 credits.
 ID 13995; Demonstrate an understanding of contracts and their sources; 5 credits.
 ID 13998; Demonstrate an understanding of the principles of supply and demand and the concept production; 2 credits.
 ID 13994; Identify and discuss different types of business and their legal implications; 4 credits.
 ID 13996; Identify, discuss, describe and compare major economic systems with emphasis on the South African economy; 2 credits.
 ID 14001; Demonstrate an understanding of management expertise and administrative systems; 4 credits.

Arts and Culture (ARTC4):
 ID 7533; Access creative arts and cultural; 2 credits.
 ID 7529; Display creative an innovative knowledge, skills and creative concepts through participation in arts and culture activities; 4 credits.
 ID 7531; Investigate the influence of the mass media on indigenous practices; 3 credits.
 ID 7525; Reflect on and engage critically with arts experience and works from diverse groups; 3 credits.
 ID 7527; Understand the origins and functions of South African cultures through promoting indigenous Arts and Culture forms and practices; 3 credits.
 ID 7532; Use arts skills and cultural expression to make an economic contribution to self and society; 2 credits.

Technology (TECH4):
 ID 14098; Understand and use energy in technological product and systems; 1 credit.
 ID 14092; Understand and apply technological knowledge and skills in systems and control; 3 credits.
 ID 14095; Understand and apply technological knowledge and skills in structure; 2 credits.
 ID 14096; Understand and apply technological knowledge and skills in Processes; 2 credits.
 ID 14097; Know, select and use materials, tools and equipment safely for technological purposes; 3 credits.

Academic Curriculum:
If learners wish to follow the curriculum learning area, they are to choose a minimum of three of the following subjects and complete all the learning allocated to them:
- Applied Agriculture and Agricultural Technology
- Arts and Culture
- Ancillary Health Care
- Economic and Management Sciences
- Human and Social Sciences
- Natural Sciences
- Small Medium and Micro Enterprises
- Technology
- Travel and Tourism

Vocational Specialisations:
Learners wishing to follow a vocational specialisation must choose one of the following Vocational Specialisations and complete all the compulsory unit standards for that specialisation as listed as well as additional unit standards as approved by the relevant ETQA to give a minimum of 51 credits for the Elective Component:

Applied Agriculture and Agricultural Sciences (AAAT4):
ID 13355; Demonstrate an understanding of the physical and biological environment and its relationship to sustainable crop production; 4 credits.
- ID 13356; Assess the influence of the environment on sustainable livestock production; 4 credits.
- ID 13357; Demonstrate an understanding of agricultural production management practices in relation to the socio-economic environment; 3 credits.
- ID 13358; Implement and maintain the principles, systems, practices and technology applicable to an agricultural venture; 7 credits.
- ID 13354; Demonstrate an understanding of agriculture as a challenging and applied system; 2 credits.

Total = 20 credits.

Ancillary Health Care (ANHC4):
ID 119563; Engage in basic health promotion; 8 credits.
ID 119567; Perform basic life support and first aid procedures; 5 credits.
ID 260463; Assist the client and significant others to manage home based health care; 12 credits.
ID 119559; Demonstrate knowledge of the provision and implementation of primary health care; 10 credits.
- ID 119564; Assist the community to access services in accordance with their health related human rights; 5 credits.
- ID 119566; Explain preventive measures to reduce the potential impact of disasters; 5 credits.

Total = 45 credits.

Small, Medium and Micro Enterprises (SMME4):
- ID 10006; Demonstrate an understanding of entrepreneurship and develop entrepreneurial qualities; 2 credits.
- ID 10007; Identify, analyse and select business opportunities; 3 credits.
- ID 10008; Write and present a simple business plan; 7 credits.
- ID 10009; Demonstrate the ability to start and run a business and adapt to a changing business environment; 5 credits.

Total = 17 credits.

Travel and Tourism (TRVT4):
- ID 12539; Identify career opportunities in different sectors of the tourism industry; 4 credits.
- ID 12543; Identify key features of tourism in South Africa; 4 credits.
- ID 12541; Understand the nature of tourists in and to South Africa; 4 credits.
- ID 11333; Understand the tourism industry; 5 credits.
- ID 11334; Select a career path with knowledge of the role-players in the tourism industry and their functions; 5 credits.
- ID 11335; Apply knowledge to identify and promote tourist destinations and attractions in South Africa; 7 credits.
- ID 11336; Interact appropriately with a range of tourists; 4 credits.
- ID 11337; Apply knowledge of the relationship between tourism and the community; 5 credits.

Total = 38 credits.

Information Communication Technology (INCT4):
- ID 9357; Develop and use keyboard skills to enter text; 4 credits.
- ID 116932; Operate a personal computer system; 3 credits.
- ID 116933; Use a Graphical User Interface (GUI)-based presentation application to create and edit slide presentations; 3 credits.
- ID 116938; Use a Graphical User Interface (GUI)-based word processor to create and edit documents; 4 credits.
- ID 117943; Install a Personal Computer (PC) peripheral device, in a GUI environment; 2 credits.
- ID 117902; Use generic functions in a Graphical User Interface (GUI); 4 credits.
- ID 117867; Managing files in a Graphical User Interface (GUI); 3 credits.

Total = 23 credits.

Early Childhood Development (ECDV4):
- ID 244261: Maintain records and give reports about babies, toddlers and young children; 3 credits.
- ID 244263: Prepare an environment for babies, toddlers and young children; 3 credits.
- ID 244255: Care for babies, toddlers and young children; 10 credits.
- ID 244258: Demonstrate basic understanding of child development; 5 credits.
- ID 244262: Interact with babies, toddlers and young children; 5 credits.

Total = 26 credits.

Wholesale and Retail (WHRT4):
- ID 259939; Describe Wholesale and Retail in South Africa; 4 credits.
- ID 259937; Identify career opportunities in the Wholesale and retail sector; 8 credits.
- ID 259938; Identify the importance of customer service in Wholesale and Retail environment; 5 credits.
- ID 117900; Plan self development; 10 credits

Total = 27 credits.

5. UNIT STANDARDS FOR MMSC4 LEARNING AREA

The MMSC4 Learning Area comprise 6 unit standards:

SAQA US ID	US TITLE	CREDITS
7448	Work with patterns in various context	4
7452	Describe , represent and interpret mathematical models in different context	6
7449	Critically analyse how mathematics is used in social, political and economic relations	2
7464	Analyse cultural products and processes as representations of shape, space and time	2
	TOTAL	**14**

SAQA US ID	US TITLE	CREDITS
7448	Work with patterns in various context	4

PURPOSE OF THE UNIT STANDARD

People credited with this unit standard are able to recognise, identify, describe, generate, complete and extend numeric, geometric and other patterns in various contexts

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

SPECIFIC OUTCOME 1	SPECIFIC OUTCOME 2	SPECIFIC OUTCOME 3	SPECIFIC OUTCOME 4	SPECIFIC OUTCOME 5
Recognise, identify and describe patterns in various contexts **OUTCOME RANGE** Numeric, geometric, patterns from a variety of contexts. **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Patterns are recognised in terms of the relationship between the elements of the pattern. **ASSESSMENT CRITERION 2** Patterns are correctly identified in terms of the relationship between the elements of the pattern. **ASSESSMENT CRITERION 3** Patterns are correctly described in terms of the relationship between the elements of the pattern and remain consistent through the pattern **ASSESSMENT CRITERION 4** The language of comparison is appropriate and describes the relationship between the elements of the pattern.	Complete, extend and generate patterns in a variety of contexts **OUTCOME RANGE** Numeric, geometric, patterns from a variety of contexts **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Completed patterns are internally consistent with respect to the relationship between elements of the pattern. **ASSESSMENT CRITERION 2** The extension is consistent with respect to the relationship between elements of the pattern **ASSESSMENT CRITERION 3** Generated patterns are internally consistent .	Devise processes for a general rule **OUTCOME RANGE** Processes include: systematic counting, sequencing numbers, tables, drawings, pictures, classification, organised lists, mathematical and models such as graphs **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Appropriate processes are devised according to the context **ASSESSMENT CRITERION 2** Processes have potential to lead to a general rule **ASSESSMENT CRITERION 3** A general rule is devised such that it is consistent with the relationship of the elements of the patterns	Represent patterns using different generalised mathematical forms **OUTCOME RANGE** Graphs, formulae, expressions and other rules for expressing patterns **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Appropriate mathematical forms are used to represent patterns **ASSESSMENT CRITERION 2** The representation is consistent with relationships within the pattern and represents the pattern completely. **ASSESSMENT CRITERION 3** Conversions are made between various forms of representations **ASSESSMENT CRITERION 4** Relationships between various possible forms of representations are described	Use general rules to generate patterns. **OUTCOME RANGE** Processes include: systematic counting, sequencing numbers, tables, drawings, pictures, classification, organised lists, mathematical models such as graphs. **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Patterns generated are consistent with the general rule **ASSESSMENT CRITERION 2** Patterns are generated to the extent that they enable the rule to be devised from the patterns

SAQA US ID	US TITLE	CREDITS
7452	Describe , represent and interpret mathematical models in different contexts.	6

PURPOSE OF THE UNIT STANDARD
People credited with this unit standard are able to:

Describe and represent relationships in a variety of contexts using tables;
Describe and represent relationships in a variety of contexts using simple algebraic expressions and/or equations;
Describe and represent relationships in a variety of contexts using graphs;
Describe and represent relationships in a variety of contexts geometrically;
Analyse and explain the behaviour of graphs in terms of increasing and decreasing trends;
Analyse and explain the behaviour of general algebraic equations and formulae in terms of increasing and decreasing relationships between variables

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

SPECIFIC OUTCOME 1 Describe and represent relationships in a variety of contexts using tables **OUTCOME RANGE** Simple linear, quadratic and exponential relationships. Relationships may be given in the form of words, equations, and graphs or as a result of experiments **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Independent and dependent variables are identified **ASSESSMENT CRITERION 2** The descriptions are consistent with the given relationship **ASSESSMENT CRITERION 3** The representation is consistent with the given relationship	**SPECIFIC OUTCOME 2** Describe and represent relationships in a variety of contexts using simple algebraic expressions **OUTCOME NOTES** Describe and represent relationships in a variety of contexts using simple algebraic expressions and/or equations. **OUTCOME RANGE** Simple linear, quadratic and exponential relationships. Relationships may be given in the form of words, tables, and graphs or as a result of experiments **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Independent and dependent variables are identified **ASSESSMENT CRITERION 2** The descriptions are consistent with the given relationship	**SPECIFIC OUTCOME 3** Describe and represent relationships in a variety of contexts using graphs **OUTCOME RANGE** Simple linear, quadratic and exponential relationships and simple cyclical relationships such as trig functions. Number lines for inequalities. Relationships may be given in the form of words, tables, and equations or as a result of experiments **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Independent and dependent variables are identified **ASSESSMENT CRITERION 2** The descriptions are consistent with the given	**SPECIFIC OUTCOME 4** Describe and represent relationships in a variety of contexts geometrically **OUTCOME RANGE** Heights and distances using right-angled triangles. **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** The descriptions are consistent with the given relationship **ASSESSMENT CRITERION 2** The representation is consistent with the given relationship **ASSESSMENT CRITERION 3**	**SPECIFIC OUTCOME 5** Analyse and explain the behaviour of graphs in terms of increasing and decreasing trends. **OUTCOME RANGE** Limited to situations where the information can be directly read off the graph **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** The variables are identified **ASSESSMENT CRITERION 2** The potential or existing relationships between variables are described **ASSESSMENT CRITERION 3** The increasing and decreasing trends are described **ASSESSMENT CRITERION 4** The maximum and minimum	**SPECIFIC OUTCOME 6** Analyse and explain the behaviour of general algebraic equations and formulae **OUTCOME RANGE** Linear and quadratic equations **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** The dependent and independent variables are identified **ASSESSMENT CRITERION 2** The potential or existing relationships between variables are described **ASSESSMENT CRITERION 3** The increasing and decreasing trends are described

ASSESSMENT CRITERION 4 Sufficient information is represented in such a way that the relationship is evident	**ASSESSMENT CRITERION 3** The representation is consistent with the given relationship **ASSESSMENT CRITERION 4** Sufficient information is represented in such a way that the relationship is evident	relationship **ASSESSMENT CRITERION 3** The representation is consistent with the given relationship **ASSESSMENT CRITERION 4** Sufficient information is represented such that the relationship is evident	Sufficient information is represented in such a way that the relationship is evident.	are identified	

SAQA US ID	US TITLE	CREDITS
7449	Critically analyse how mathematics is used in social, political and economic relations	2

PURPOSE OF THE UNIT STANDARD

People credited with this unit standard are able to:
analyse critically the use of mathematical language and relationships in the work place and in the economy;
analyse critically the use of mathematics in social relations;
analyse critically the use of mathematics and mathematical language and relationships in political relations.

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

SPECIFIC OUTCOME 1	SPECIFIC OUTCOME 2	SPECIFIC OUTCOME 3	SPECIFIC OUTCOME 4
Critically analyse the use of mathematical language and relationships in the workplace. **OUTCOME RANGE** Wage negotiations, salary increases, and productivity as a ratio. **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** The ways in which mathematics is used in the workplace are described. **ASSESSMENT CRITERION RANGE** Percentage, graphs, differences, ratio and proportion. **ASSESSMENT CRITERION 2** Ways in which mathematical relationships and language can be used to represent particular perspectives are described.	Critically analyse the use of mathematical language and relationships in the economy. **OUTCOME RANGE** Budgeting, banks: interest rates, mortgage, service charges; fuel prices; pensions; inflation; value of the rand and exchange rates. **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** The ways in which mathematics is used is described. **ASSESSMENT CRITERION RANGE** %, graphs, differences, ratio and proportion. **ASSESSMENT CRITERION 2** Ways in which mathematical relationships and language can be used to represent particular perspectives are described. **ASSESSMENT CRITERION RANGE** Different forms of comparisons such as	Critically analyse the use of mathematics in social relations. **OUTCOME RANGE** Social differentiation: gender, social mobility, race; historical and possible future contexts, e.g. employment equity; apartheid policies. **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Ways in which mathematics can be used as a filter for social differentiation are described. **ASSESSMENT CRITERION RANGE** Social differentiation includes examples such as entrance qualifications; number of women doing mathematics **ASSESSMENT CRITERION 2** The significance attached to number by different societies is described. **ASSESSMENT CRITERION RANGE** Spiritual; superstitious; aesthetic; political.	Critically analyse use of mathematics & mathematical language & relationships in political relations **OUTCOME NOTES** Critically analyse the use of mathematics and mathematical language and relationships in political relations. **OUTCOME RANGE** Income distribution; census; elections; voting; opinion polls. **ASSESSMENT CRITERIA** The ways in which mathematics is used is described. **ASSESSMENT CRITERION RANGE** Percentage, graphs, differences, ratio and proportion. **ASSESSMENT CRITERION 2** Ways in which mathematical relationships and language can be used to represent particular perspectives are described. **ASSESSMENT CRITERION RANGE**

ASSESSMENT CRITERION RANGE Different forms of comparisons such as differences versus ratio. Manipulation of graphs through choice of graph, scale of axes and nature of axes. Use of different averages: mean, median, mode. More than one perspective is to be described.	differences versus ratio. Manipulation of graphs through choice of graph, scale of axes and nature of axes. Use of different averages: mean, median, and mode. More than one perspective to be described. **ASSESSMENT CRITERION 3** The impact of economic changes on the individual is described.	**ASSESSMENT CRITERION 3** The use of mathematics in the media is described. **ASSESSMENT CRITERION RANGE** Adverts, reports, sports.	Different forms of comparisons such as differences versus ratio. Manipulation of graphs through choice of graph, scale of axes and nature of axes. Use of different averages: mean, median, and mode. More than one perspective to be described. **ASSESSMENT CRITERION 3** The impact of the use of mathematics in these contexts on individuals and social groups is described.

SAQA US ID	US TITLE	CREDITS
7464	Analyse cultural products and processes as representations of shape, space and time	2

PURPOSE OF THE UNIT STANDARD

People credited with this unit standard are able to:
Identify geometric shapes and patterns in cultural products;
Analyse similarities and differences in shapes and patterns, and the effect of colour, used by different cultures; and
Analyse and explain the way shapes and space are used in different epochs

SPECIFIC OUTCOMES AND ASSESSMENT CRITERIA:

SPECIFIC OUTCOME 1	SPECIFIC OUTCOME 2	SPECIFIC OUTCOME 3
Identify geometric shapes and patterns in cultural products **OUTCOME RANGE** Shapes of and decorations on cultural products such as drums, pots, mats, buildings, and necklaces **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Basic transformations are identified **ASSESSMENT CRITERION 2** Basic geometric shapes are identified **ASSESSMENT CRITERION 3** Basic patterns are identified and described **ASSESSMENT CRITERION 4** Basic patterns are extended in a way that maintains the consistency of the pattern	Analyse similarities & differences in shapes & patterns, & effect of colour, used by cultures **OUTCOME NOTES** Analyse similarities and differences in shapes and patterns, and the effect of colour, used by different **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Similarities in shapes and patterns are identified **ASSESSMENT CRITERION 2** Differences in shapes and patterns are identified **ASSESSMENT CRITERION 3** Possible reasons for similarities and/or differences in shapes and patterns used by different cultures are identified. **ASSESSMENT CRITERION 4** The effect of colour on shape and symmetry is described and illustrated	Analyse and explain the way shapes and space are used in different epochs and cultures **OUTCOME RANGE** Architecture, town and settlement planning **ASSESSMENT CRITERIA** **ASSESSMENT CRITERION 1** Shapes used by different cultures are identified **ASSESSMENT CRITERION 2** The use of space in different cultures is analysed and explained **ASSESSMENT CRITERION 3** The use of space in different epochs is analysed

6. LTSM IN COMMUNITY LEARNING CENTRES

The recommended Learning and Teaching Support Materials (LTSM) for this learning area are listed in a catalogue provided by the CET branch of the Department of Higher Education and Training.

A variety of LTSM are used in various contexts in CLCs across the country and these are sourced or adapted from a variety of sources. Given this background, it is not yet possible to propose a set body of material to be studied. This allows lecturers to use their own discretion and creativity in the selection of materials, but it must be reiterated that the choice must be informed by the applicable Unit Standards.

7. WEIGHTING OF UNIT STANDARDS

Since the credits assigned to a unit standard gives it a particular weighting value in relation to other unit standards, an attempt will be made to balance the relative value of unit standards in assessments. The following weighting ratios reflect the composition of the summative assessment tool (question paper):

TABLE 1: Suggested weighting per Unit Standard

US ID	US TITLE	CREDITS	WEIGHTING % / MARKS
7448	Work with patterns in various context	4	± 29
7452	Describe, represent and interpret mathematical models in different contexts	6	± 43
7449	Critically analyse how mathematics is used in social, political and economic relations	2	± 14
7464	Analyse cultural products and processes as representations of shape, space and time	2	± 14
	TOTAL:	**14**	**100**

8. CORE KNOWLEDGE AREAS

This section unpacks the Unit Standards and their Specific Outcomes, summarising the core knowledge areas of each, and suggesting activities and applicable assessment tools, as well as the skills tested or practiced in each activity. It then locates each US and SO in either the Summative or Formative Assessment, specifying which question or task in the assessment will be covered. The unpacking of the US & SO is done sequentially here, in order to provide lecturers with a broad overview of the total scope of the US in the learning area (as circumscribed by the Range Statements of each SO), in preparation for the assessments. Examiners will make any selection of these activities to include in both the question paper as well as the SBA tasks. By working through them, the lecturer is thus preparing students for the full range of possible tasks in the assessment.

SAQA US ID	US TITLE	CREDITS
7448	Work with patterns in various context	4

DESCRIPTION		CLARIFICATION
SO1	Recognise, identify and describe patterns in various contexts.	Describe patterns
AC1	Patterns recognised in terms of relationships between elements of the pattern	▪ Classify patterns as increasing or decreasing eg Increasing pattern: 1;3;5;7; … Decreasing pattern:
AC2	Patterns identified in terms of relationship between elements of the pattern.	
AC3	Patterns described in terms of relationship between elements of pattern.	▪ Use appropriate language to describe patterns/relationship (terms, twice, multiply, add, subtract, etc.) eg Finding the common difference3;6;9; …
AC4	Appropriate language of comparison and describes relationships between elements of pattern.	
SO2	Complete, extend and generate patterns in a variety of contexts.	Extend patterns
AC1	Completed patterns are internally consistent with respect to relationship between elements of pattern.	▪ Continue with patterns to show consistency between terms. 2;10;50;150 start with a prime number, multiply each by 5
AC2	The extension is consistent with respect to the relationship between elements of the pattern.	
AC3	Generated patterns are internally consistent.	▪ Own patterns are generated, given a description in words.
SO3	Devise processes for a general rule.	Determine general rule in words or in formula. Range: use counting, sequencing, tables, drawings, pictures, classifications, lists, graphs.
AC1	Appropriate processes are devised according to the content.	▪ Use different methods to determine the general rule. eg a table, drawing etc
AC2	Processes have potential to lead to a general rule.	
AC3	General rule devised such that it is consistent with the relationship of the elements of the patterns.	▪ Check whether the rule is appropriate. Words- squaring numbers
SO4	Represent patterns using different generalised mathematical forms.	Represent patterns in words, graphs or formula. Range: graphs, formulae, words. Only geometric shapes can be used
AC1	Appropriate mathematical forms used to represent patterns.	▪ Represent patterns in graphs, formula or words.
AC2	Representation is consistent with relationships within the pattern and represents the pattern completely.	▪ Check for consistency in patterns.
AC3	Conversions are made between various forms of representations.	▪ Convert with confidence between different forms. Inches → centimeters Millimeters →centimetes Minutes → hours
AC4	Relationships between various possible forms of representations are described.	
SO5	Use general rules to generate patterns.	Use general rules to form patterns.

		Range: use counting, sequencing, tables, drawings, pictures, classifications, lists, graphs.
AC1	Patterns generated are consistent with the general rule.	▪ Use given general rule to generate patterns. Tn= 4n- 3 where n is the number of terms
AC2	Patterns are generated to the extent that they enable the rule to be devised from the pattern.	▪ Generate patterns from a description in words to deduce a general rule.

SAQA US ID	US TITLE	CREDITS
7452	Describe , represent and interpret mathematical models in different contexts.	6

DESCRIPTION		CLARIFICATION
SO1	Describe and represent relationships in variety of contexts using tables.	Use tables to describe relationships. Range: linear, quadratic and exponential relationships given in the form of words, equations, graphs
AC1	Independent and dependent variables are identified.	The concepts will not be examined formally, but must be discussed.
AC2	The descriptions are consistent with the given relationship.	Check table entries for consistency.
AC3:	Representation is consistent with given relationship.	Represent relationship given in words, equations or graphs using tables.
AC4	Sufficient information is represented in such a way that the relationship is evident.	
SO 2	Describe and represent relationships in a variety of contexts using simple algebraic expressions**.**	Use expressions or equations to describe relationships. Range: Linear relationships given in the form of words, tables or graphs
AC1	Independent and dependent variables are identified.	The concepts will not be examined formally, but must be discussed.
AC2	The descriptions are consistent with the given relationships.	Check linear equation/expression for consistency by substitution.
AC3	The representation is consistent with the given relationship.	Represent relationship given in words, tables or graphs using equations/expressions.
AC4	Sufficient information is represented in such a way that the relationship is evident.	
SO3	Describe and represent relationships in a variety of contexts using graphs.	Use graphs like number line to describe relationships. Range: linear relationships given in the form of words, tables, inequalities and equations.
AC1	Independent and dependent variables are identified.	The concepts will not be examined formally, but must be discussed.
AC2	Descriptions are consistent with the given relationship.	Check coordinates in graphs for consistency
AC3	Representation is consistent with the given relationship.	Represent relationship given in words, tables or equations using graphs.
AC4	Sufficient information is represented such that the relationship is evident.	
SO 4	Describe and represent relationships in a variety of contexts geometrically.	Use Pythagoras to calculate any sides/distances in a right-angled triangle.

		$r^2 = x^2 + y^2$
AC1	Descriptions are consistent with the given relationship.	Apply the theorem of Pythagoras for different right-angled triangles.
AC2	Use the theorem of Pythagoras to calculate a missing side.	
AC3	Sufficient information is represented in such a way that the relationship is evident.	
SO 5	Analyse and explain the behaviour of graphs	Reading from a graph. Range: any given graph
AC1	The variables are identified	Read from the graph.
AC2	The potential or existing relationships between variables are described.	
AC3:.	The increasing and decreasing trends are described	Analyse and make decisions from graph about the trend.
AC4:	The maximum and minimum are identified.	Read maximum and minimum values from graph.
SO 6:	Analyse and explain the behaviour of general algebraic equations	Describe relationship between variables in an equation/formula. Range: linear and quadratic equations.
AC1:	The dependent and independent variables are identified.	The concepts will not be examined formally, but must be discussed.
AC2:	The potential or existing relationships between variables are described.	Describe relationships in algebraic equations/formulae in words or tables.
AC3:	The increasing and decreasing trends are described.	Use words or tables to describe trends.

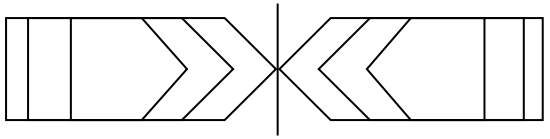
SAQA US ID	**US TITLE**	**CREDITS**
7449	Critically analyse how mathematics is used in social, political and economic relations	2

DESCRIPTION		**CLARIFICATION**
SO1	Critically analyse the use of mathematical language and relationships in the workplace.	Use percentages to calculate salary adjustment versus productivity
AC1	The ways in which mathematics is used in the workplace are described.	▪ Calculate the percentage increase or decrease of salaries. ▪ Use ratio to determine employee productivity. ▪ Draw graphs to show salary trends of a company
AC2	Ways in which mathematical relationships and language can be used to represent particular perspectives are described.	▪ Determining the mean, mode and median
SO2	Critically analyse the use of mathematical language and relationships in the economy.	▪ Use inflation increase and its impact on peoples' daily live ▪ The impact and effect or rand/dollar exchange rates. ▪ Expenses versus income ▪ Interest rate ie simple vs compound interest ▪ Impact
AC1	The ways in which mathematics is used is described.	▪ Direct and indirect proportion ▪ Calculating VAT and its impact on

AC2	Ways in which mathematical relationships and language can be used to represent particular perspectives are described.	• Scales of the axes might distort the information. • Use and compare information using the averages: the mean ; mode and median
AC3	The impact of economic changes on the individual is described.	▪ The impact of price increases on individual
SO3	Critically analyse the use of mathematics in social relations.	▪ The effect of numbers on employment equity, on gender parity,
AC1	Ways in which mathematics can be used as a filter for social differentiation are described.	▪ Percentages determining the number of political party representation in parliament
AC2	The significance attached to number by different societies is described.	▪ The effect certain numbers in different societies
AC3	The use of mathematics in the media is described.	▪ Price reduction of goods as advertised ▪ Scoring of points in different sporting codes ▪ Eg soccer, tennis, cricket, rugby etc
SO4	Critically analyse use of mathematics & mathematical language & relationships in political relations	▪ Use of numbers and impact of number in opinion polls. ▪ Census as numbers versus service delivery ▪ Elections is the game of numbers as votes
AC1	The ways in which mathematics is used is described.	
AC2	Ways in which mathematical relationships and language can be used to represent particular perspectives are described.	
AC3	The impact of the use of mathematics in these contexts on individuals and social groups is described.	

SAQA US ID	**US TITLE**	**CREDITS**
7464	Analyse cultural products and processes as representations of shape, space and time	2

DESCRIPTION		**CLARIFICATION**	
SO 1:	Identify geometric shapes and patterns in cultural products.	Shapes and decorations on cultural products in SA using basic transformations (translation, reflection, rotation). Range: drums, beads, pots, mats, buildings, necklaces, flags, etc.	Identify shapes in the Ndebele mural; and other cultures. Identify shapes in nature example the honey comb
AC1:	Basic transformations are identified.	▪ Transformations including translations (up, down, right, left), reflections (limited to the horizontal/x-axis, vertical/y-axis and the line y=x) and rotations (90°, 180° clock/anti-clockwise about the origin). ▪ Symmetry should be covered in terms of reflection.	Describe transformations completely, e.g. translation of 3 units upwards, reflection about the y-axis or rotation of 90° in a clockwise direction about the origin.
AC2	: Basic geometric shapes are identified.	▪ Shapes such as triangles, circles, ovals, all types of quadrilaterals in different contexts. ▪ These geometric shapes must be identified according to their properties.	Identify shapes in different contexts also taking into consideration their properties
AC3:	Basic patterns are identified and described.	Identify patterns in cultural products e.g. parallel lines, number images, etc.	▪ Patterns are identified in terms of the geometric shapes and their properties.

AC4	: Basic patterns are extended in a way that maintains the consistency of the pattern.	Complete/extend given patterns.	 Continue the pattern by reflecting along the line AB
SO 2:	Analyse similarities and differences in shapes and patterns and effect of colour, used by cultures.	Similarities and differences Range: circles, rectangles, squares, parallelograms, trapezium, kites.	
AC1	: Similarities in shapes and patterns are identified.	Analyse and compare patterns in terms of similarities and differences.	Similarities and differences between the different shapes are identified eg between parallelogram and rectangle, between rectangle and square etc.
AC2:	Differences in shapes and patterns are identified.		Similarities and differences between the different shapes are identified eg between parallelogram and rectangle, between rectangle and square etc.
AC3	: Possible reasons for similarities and/or differences in shapes and patterns used by different cultures are identified.		Similarities and differences between the different shapes are identified eg between parallelogram and rectangle, between rectangle and square etc.
AC4:	The effect of colour on shape and symmetry is described and illustrated.	▪ Explain why certain colours are used for specific purposes. ▪ This aspect can be done informally.	▪ The meaning of black colour etc on the South African. ▪ The meaning of red colour in the road signs ▪ The meaning of other colours on issues of HIV and AIDS; cancer etc.
SO 3:	Analyse and explain the way shape and space are used in different epochs and cultures.	Explain the use of space in urban and rural areas. Range: architecture, town and settlement planning.	
AC1:	Shapes used by different cultures are identified.	Shapes identified such as circles, rectangles, squares, parallelograms, trapezium, kites.	▪ Why were the old rondavels circular in shape. ▪ The rectangular shape versus the circular
AC2:	The use of space in different cultures is analysed and explained.	Space in architectures e.g. in settlements in KwaZulu Natal (huts) and in a city such as Johannesburg (double story buildings).	▪ Why were the old rondavels circular in shape. ▪ The rectangular shape versus the circular
AC3:	The use of space in different epochs is analysed.	Space in different periods/ages e.g. town and settlement planning.	▪ Why the use of circular building versus rectangular building. ▪ The shape of the garden in relation to area of the shape.

SUMMARY OF COMPETENCIES IN THE UNIT STANDARDS

UNIT STANDARD	KNOWLEDGE	COMPETENCY/SKILL
US 7448	Patterns	Recognise, identify, complete, generate, represent and describe patterns.
US 7452	Tables, algebraic expressions, graphs, theorem of Pythagoras, trends (increasing/decreasing), minimum/maximum.	Describe and represent relationships.
US 7449	The use of mathematics in social, political and economic relations	Analyse and use ratios and percentages, proportions,
US 7464	Shape, space, transformations, patterns.	Identify, describe, extend, analyse, explain, compare shapes and space in cultural context.

9. COGNITIVE LEVELS AND TAXONOMY

In setting the examination question paper and the SBA Tasks, Bloom's Taxonomy is used to scaffold the levels of complexity of questions and tasks.

CATEGORIES	WEIGHTING
Remembering and Understanding	40%
Applying and Analysing	40%
Evaluating and Creating	20%

TABLE 3: Table describing the cognitive levels and their related skills

COGNITIVE LEVEL	EXPLANATION OF SKILLS TO BE DEMONSTRATED
Remembering and understanding (40%)	▪ Straight recall ▪ Estimation: appropriate rounding off ▪ Reading from graphs ▪ Substituting in given formulae ▪ Stating theorems and definitions ▪ Know and use of appropriate vocabulary ▪ Use of basic operations: +, -, × and ÷, including the use of the calculator
Applying and analysing (40%)	▪ Routine calculations: BODMAS, etc. ▪ Changing the subject of the formula ▪ Manipulation of algebraic expressions: products, factors. ▪ Identify patterns and shapes ▪ Completion of graphs on given axes
Evaluating and creating (20%)	▪ Calculations involving more than one step ▪ Mathematical reasoning ▪ Deductions of rules/formulae ▪ Drawing of graph (axes not given)

10.1 SITE-BASED ASSESSMENT

The GETC: ABET level 4 site-based assessment tasks are part of a developmental process aimed at increasing capacity in the CET sector and enhancing the level of teaching and learning in the CLCs. The tasks are also aimed at Quality Assurance and Standardisation of Site Based Assessment in all CLCs across the country.

In delivering the GETC: ABET level 4 Unit Standard based curriculum, it is suggested that the assessment tasks should be integrated into planning for teaching and learning and implemented in conjunction with the assessment guidelines for GETC.

Teaching, learning and assessment are intertwined and planning for assessment is an integral part of planning for teaching and learning. It is therefore strongly recommended that the assessment tasks should be conducted as part of the teaching and learning process. This means that the assessment tasks should be incorporated into a lecturer's work schedule for the year. It is further recommended that lecturers use different teaching strategies and informal assessment to ensure that students are adequately prepared for the THREE formal SBA tasks.
The tasks were carefully designed to ensure that a variety of skills are assessed in each learning area and that the Unit Standards and Assessment Criteria are adequately covered. The performance-based tasks are to be completed or administered over a period of time whilst the pen-and–paper tasks should be administered under controlled conditions.

It is recommended that the tasks be used as part of the formal Site-Based Assessment programme at CLCs. All formal assessment must be recorded and ongoing feedback must be given to students. Evidence of the formally recorded assessment tasks should be included in the lecturer's portfolio of assessment while the students' evidence of learning must contain the recorded pieces of evidence for each assessment. Continuous moderation at site, cluster or circuit, district and provincial levels is strongly recommended.

The results of assessment should be used to support the students' development and make improvements to the learning and teaching process. It is important that students who might experience barriers to learning and development are identified early, assessed, and provided with relevant learning support materials. In such cases the assessment tasks should be adapted to accommodate the identified learning needs.

10.2 STRUCTURE OF SBA TASKS

The SBA is made out of Portfolio of Evidence which contain student's tasks and Portfolio of Assessment which contain lecturer's guides. The student's tasks for each learning area contain **THREE** assessment tasks focusing on the unit standards that should be covered in formative assessment. The lecturer's guide contains the assessment instruments (memorandum, rubric, and/or checklist) for each of the assessment tasks. The tasks include a variety of appropriate assessment strategies and different forms of assessment as prescribed by Department of Higher Education and Training.

In addition, is a Learning Area Assessment Plan which is aimed at assisting the lecturer with the spreading of the Formal Assessment Tasks throughout the academic year.

The THREE assessment tasks consist of: Skills Task – 60 marks; Learning Area Specific Task that is Oral Task – 40 marks; and Preparatory Test – 100 marks. The total mark of the three SBA tasks is 200.

10.3 THE THREE SBA TASKS FOR MMSC4:

All formal and informal assessment leading to formal moderation must be recorded accordingly. These marks should be converted to 50% which is the weighting of the site-based assessment. Moderation of these SBA tasks must be done according to the provincial management plan on the Conduct, Administration and Management of the GETC: ABET Level 4 Examinations and Assessment.

The following section provides an overview of the nature of the tasks for the Site-based Assessment Tasks, preceded by a few guidelines to lecturers on how to prepare their students for each task. More detailed instructions on how to execute each task are provided in the Students' tasks, while detailed guidelines on how to prepare students for each task are provided in the accompanying lecturer guide.

No	TASK	ACTIVITY	TOOL	MARKS	US ID	WEIGHTING
1.	Skills Task	Assignment Investigation Project	Marking Guideline	**20** **20** **20**		**30%**
2.	Learning Area Specific Task-	Worksheet	Marking Guideline	**40**		**20%**
3.	Preparatory Test	Test	Marking Guideline	**100**		**50%**
				200		**100%**

11. THE STRUCTURE OF A QUESTION PAPER

The examination question paper in ANHC4 learning area is written out of 100 marks. The duration of the paper is 3 hours. The structure of the question paper is outline in the table below:

QUESTION	CONTENT	MARKS
1	Number patterns-US 7448	16
2	Number patterns-US 7448	13
3	Modelling-US 7452	15
4	Modelling-US 7452	15
5	Modelling-US 7452	13
6	Analyising-US 7449	14
		[100]

HINTS ON MARKING

MARKING THE MMSC4 QUESTION PAPER

i. Follow-up principal
If a sum is incorrect, the mark will not be 0 out of the total, but only the mistake is penalised. The learner can still obtain the rest of the marks if the other steps are done correctly.

ii. Writing down only answer

When a learner write down only the answer and does not show any calculations, he/she should be penalised. The learner must consider the instruction: “Show all the calculations”.

iii. Symbols used with marks

The symbols accompanying the marks indicated on the memo are A, CA and M. The explanation if these symbols are:

A = Accuracy: The answer should be exactly what is on the memorandum.

CA = Consistent Accuracy: The answer must be checked according to the previous step of the learner, even if the previous step is incorrect.

M = Method: This answer usually is a formula/theorem or directly derived from a formula/theorem and is mathematical concepts.