SECTION A:	***QUALIFICATION DETAILS***				
QUALIFICATION DEVELOPER (S)					
TITLE	*Master of Education (Mathematics)*			***NCQF LEVEL***	*9*
FIELD	*Education and Training*	***SUB-FIELD***	*Mathematics Education*	***CREDIT VALUE***	*255*
New Qualification			*Review of Existing Qualification*		
SUB-FRAMEWORK	*General Education*		*TVET*	*Higher Education*	√

QUALIFICATION TYPE	*Certificate*	*I*		*II*		*III*		*IV*		*V*		*Diploma*		*Bachelor*	
	Bachelor Honours			*Post Graduate Certificate*								*Post Graduate Diploma*			
	Masters		√	*Doctorate/ PhD*											

RATIONALE AND PURPOSE OF THE QUALIFICATION

RATIONALE:

The Science, Mathematics, Technology, and Engineering (STEM) disciplines are key to the economic development of any country. Mathematics is underpinning the other disciplines of STEM because it serves as a language for science, engineering, and technology. For Botswana to be realistic about having a knowledge-based economy and creating more and better jobs, she will require a sustained focus on teacher and teacher-training development, particularly for mathematics teaching, hence the Master's in mathematics qualification is geared to this end. The qualification is meant to develop an understanding of the complexities of equitable and culturally responsive practices in mathematics teaching and learning within the education sector. Graduates will be able to plan and undertake research or a scholarship in mathematics education. The qualification provides for high level gain of skills in analysis, synthesis and critical evaluation of mathematics pedagogy and curriculum.

On a similar note, the Sustainable Development Goals (SDGs, Goal 4: provision of quality education) and the Africa Agenda 2063 (Aspiration 1: A prosperous Africa based on inclusive growth and sustainable development and, Aspiration 6: An Africa whose development is people-driven …) speak to STEM areas of study. Graduate work in the areas would ascertain greater understanding of the disciplines and the methods to teach them at school levels. The Government of Botswana has since realized this, as evidenced in policy documents such as Vision 2036 (Pillar 1: Sustainable Economic Development – to produce productive and competitive human resources that drive growth across economic sectors including emerging industry, and 2) Pillar 2: Human and Social Development– Education and Skills Development – to provide relevant quality education that is outcome-based with an emphasis on technical and vocational skills as well as academic competencies).

This realization is underscored by the National Policy on Research, Science, Technology, and Innovation of 2011 that recognizes the value of these disciplines on technology and innovation and the need to include them in the school curriculum with a view to influencing change. The master's in mathematics education qualification would serve well the sustainability of provision of the disciplines through supply of needed teaching personnel.

PURPOSE:

The purpose of this qualification is to produce graduates with advanced knowledge and high level of mastery of issues and ideas to:

- Develop well-rounded, coherent, and systematic evidenced based arguments in Mathematics Education.
- Analyze, synthesis and critically evaluate mathematics pedagogy and curriculum.
- Plan, conduct and present results of independent inquiries in Mathematics Education.
- Practically apply Mathematics in society and exhibit the potential to use the information to inform research paradigms.

ENTRY REQUIREMENTS (including access and inclusion)

- Bachelor degree in Mathematics Education NCQF Level 7 or equivalent
- Entry through Recognition of Prior Learning (RPL) or Credit Accumulation Transfer (CAT) is allowable through institutional policies in-line with national RPL and CAT policies.

SECTION B	***QUALIFICATION SPECIFICATION***
GRADUATE PROFILE (LEARNING OUTCOMES)	***ASSESSMENT CRITERIA***
LO1: Demonstrate intellectual independence, critical thinking, and analytical skills in the development of well-rounded, coherent, and systematically developed evidenced based arguments	AC1.1: Relate knowledge, skills, and competences to mathematics education contexts. AC1.2: Demonstrate high level skill in analysis, synthesis and critical evaluation of mathematics pedagogy and curriculum. AC1.3: Effectively communicate scholarly work in mathematics education through written, oral, and/or alternate formats.
LO2: Critically analyse and evaluate data in mathematics education.	AC2.1: Differentiate among inferences, hypotheses, assumption, and conclusions in statements about mathematics education. AC2.2: Assess data sets and results for asserted truths, expressed doubt, evidence for a claim and a justification for action or whether the statement given is a stated fact.
LO3: Contribute to systematic and discipline specific thinking about educational matters and issues in Mathematics Education.	AC3.1: Demonstrate scholarly habits of curiosity, inquiry, scepticism, and data-based decision making in issues of mathematics education. AC3.2: Assess theoretical positions and proffered solutions to educational problems
LO4: Display competence in planning, conducting, and presenting results of an independent inquiry in Mathematics Education.	AC4.1: Design and evaluate appropriate theoretical and methodological frameworks for studies in Mathematics Education. AC4.2: Use appropriate research techniques to collect, organize, analyse, and critically evaluate information from primary and secondary sources. AC4.3: Demonstrate evidence for engagement with the wider field of relevant educational and research literature. AC4.4: Effectively communicate by presenting written research report in mathematics education.
LO5: Apply Mathematics in society and use it to inform research work.	AC5.1 Demonstrate ability to manage educational contradictions and make general scientific and educational value commitments. AC5.2: Interact and engage in debates with learning or professional groups in Mathematics education.
LO6: Use Mathematics for innovation and technological developments.	AC6.1: Critically evaluate their own and others' work in Mathematics education with a view to influencing change.

	AC6.2: Demonstrate the responsibility, self-reflexivity, and adaptability as an educational leader. AC6.1: Analyse tensions and contradictions in Mathematics education in response to the scientific and technological issues being addressed.

SECTION C	***QUALIFICATION STRUCTURE***				
COMPONENT	***TITLE***	***Credits Per Relevant NCQF Level***			***Total*** ***(Per** Subject/ Course/ Module/ Units)*
		Level [8]	***Level [9]***	***Level [10]***	
FUNDAMENTAL COMPONENT *Subjects/ Courses/ Modules/Units*	Integrated Foundations of Education		***9***		***15***
	Educational Research		***9***		***30***
	Advanced Curriculum Development, Implementation and Evaluation in Mathematics Education		***9***		***15***
CORE COMPONENT *Subjects/Courses/ Modules/Units*	Advanced Instructional Strategies in Mathematics Education		***9***		***15***
	Research Seminar in Mathematics Education		***9***		***15***
	Computer Applications in Mathematics and Science Education		***9***		***15***
	Statistical Models and Experimental Designs		***9***		***15***
	Critique of Educational Literature in Mathematics Education		***9***		***15***

ELECTIVE/ OPTIONAL COMPONENT *Subjects/Courses/ Modules/Units*	**Dissertation Option**				***120***
	Dissertation		**9**		***120***
	Research Essay Option				
	Research Essay		***9***		***90***
	Pick two modules				
	Research Seminar in mathematics Education II		***9***		***15***
	Philosophical Foundations of Mathematics Education		***9***		***15***
	Development of Mathematics Education in Botswana		***9***		***15***
	Ethnomathematics		***9***		***15***

SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL	
TOTAL CREDITS PER NCQF LEVEL	
NCQF Level	***Credit Value***
9	***255***
TOTAL CREDITS	***255***

Rules of Combination:

(Please Indicate combinations for the different constituent components of the qualification)

The qualification is made of fundamental, core and elective components as follows:

- Fundamental – 60 credits
- Core – 75 credits
- Elective – 120 credits

ASSESSMENT ARRANGEMENTS

- There shall be formative and summative assessment.
  - Summative assessment will be 50%
  - formative assessment will be 50%.
- Assessors shall all be registered with BQA.

MODERATION ARRANGEMENTS

- There shall be provision for both internal and external moderation in accordance with institutional policies aligned with national policies.
- Moderators shall all be registered with BQA.

RECOGNITION OF PRIOR LEARNING

There is provision for award of this qualification through RPL in-line with institutional and national RPL policies.

CREDIT ACCUMULATION AND TRANSFER

There is provision for credit accumulation and transfer in-line with institutional and national policies on credit accumulation and transfer.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Horizontal Articulation

- Master of Science (Mathematics)
- Masters of Educational Technology
- Master of Education Degree in Curriculum and Instruction
- Master of Education Degree in Measurement and Evaluation

Vertical Articulation

- PhD in Mathematics Education
- PhD in Measurement and Evaluation
- PhD in Curriculum Instruction

Employment Pathways

- Lecturer
- Teacher

- Curriculum designer
- Education officer
- Publication officer
- Researchers

QUALIFICATION AWARD AND CERTIFICATION

Qualification Award

To be awarded *Master of Education (Mathematics Education)*, a candidate must have acquired a minimum of 255 credits.

Qualification Certification

There will be issuance of a certificate and an official transcript at award.

REGIONAL AND INTERNATIONAL COMPARABILITY

The *Master of Education (Mathematics)* qualification is comparable to those on offer in the region and internationally. The qualification was compared to those on offer in three universities; one in the region (University of Pretoria, South Africa) and two internationally (University of Wisconsin-Madison, USA) and (Victoria University, Australia). There is a comparable emphasis in research in the three qualifications. The qualifications have similar models of assessment that are predominately based on continuous assessment using models such as term papers, projects, and reports.

REVIEW PERIOD

The qualification shall be reviewed every five (5) years.