SECTION A:	***QUALIFICATION DETAILS***																	
QUALIFICATION DEVELOPER (S)	BA ISAGO University																	
TITLE	Bachelor of Commerce in Actuarial Science															***NCQF LEVEL***		*7*
FIELD	Natural, Mathematical and Life Sciences							***SUB-FIELD***	Actuarial Science							***CREDIT VALUE***		528
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 Human Resource Development Council (HRDC) Top Occupations in High Demand (2016:23) has identified actuaries, financial pension fund administrators, fund consultants and valuers as occupations in high demand within the business financial services sector. These occupations were identified based on the sub sector's potential growth and the creation of employment. Furthermore, according to the HRDC report, people with these skills are scarce and the market heavily relies on imported labour. Therefore, there is a need to localize the professions by training people through development of relevant qualifications. Moreover, the Human Research Development Council's report on 'Priority skills and Employment Trends' (2016:17) has identified actuary, together with financial planner and investment analyst as specialisations areas in demand in Botswana.

The need for this qualification is further reinforced by the provisions of Vision 2036 (2016) standpoint which states that the investment in human capital enhances productivity, economic growth and emergence of industries. Specifically, Pillar 1 which calls for Sustainable Economic Development and Pillar 2 which emphasizes on the need for Human and Social Development. The two pillars emphasise transformation of Botswana economy to a knowledge based economy and producing globally competitive human resource as key strategies for driving economic growth and diversification. The qualification will drive the objectives of Vision 2036 by ensuring that Botswana utilizes developed financial services capability to fund investment opportunities and generate wealth through the export of financial services.

Furthermore, the qualification responds to the strategic change imperative stipulated by the National Human Resource Development Strategy (NHRDS) (2009:6) to move from the reliance on natural resource to human resource development. Therefore, the Bachelor of Commerce Actuarial Science seeks to close this gap by preparing graduates for direct entry into the insurance, business and financial sectors of the economy.

The needs assessment survey conducted by the qualification developer amongst the key industrial players in the financial sector particularly insurance companies, investment and pension fund administrators and financial regulators, also highlighted the need for local skills training and development in the area of actuarial science. 80% of the respondents affirmed the need and relevance of this qualification to Botswana and highlighted that the actuarial profession is in growing demand, given today's competitive business environment, where companies are becoming more and more aware of the importance of actuarial valuations, budgeting and reporting, product development and pricing, actuarial systems and actuarial risk management.

PURPOSE:

The purpose of this qualification is to equip candidates with specialised knowledge, skills and competences to:

- Employ actuarial science techniques and models in the design of insurance products and valuation of financial contracts.
- Quantify and manage risk primarily in the fields of life and health insurance, pensions, employee benefits, and investments.
- Conduct research, analyse and interpret the economic environment and make informed decisions on future inflation, returns on investment, stock market behaviour, exchange rates and economic growth.

ENTRY REQUIREMENTS (including access and inclusion)

i. Candidates must have obtained NCQF level 4, Certificate IV (General Education or TVET) with at least five (5) credits at BGCSE or equivalent with a credit in Mathematics and English language.

ii. Candidates who do not meet the minimum academic qualifications stated above will be considered through Recognition of Prior Learning (RPL) process which shall be administered according to the National RPL Policy. There will also be provision for Credit Accumulation Transfer to the learner in a case they are transfer in from another institution as per National Policy on CAT.

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SECTION B	***QUALIFICATION SPECIFICATION***
GRADUATE PROFILE (LEARNING OUTCOMES)	***ASSESSMENT CRITERIA***
1. Develop Risk Based Supervision Models, Capital models and other Actuarial Models.	1.1 Analyze the basic principles of actuarial modelling. 1.2 Compute compound interest and discounting taking into account the time value of money. 1.3 Perform asset/liability modelling 1.4 Apply the principles of modelling to actuarial work using deterministic models.
2. Interpret the results of the linear regression generalized linear models.	2.1 Examine the essential features of statistical distributions. 2.2 Summarize data using appropriate statistical analysis, descriptive statistics and graphical presentation. 2.3 Apply the principles of statistical inference to draw conclusions based on the given data. 2.4 Apply algorithms to solve problems numerically, algebraically, and graphically.
3. Apply actuarial concepts to problems related to financial security planning such as pension funding, pricing and insurance.	3.1 Analyze the economic environment and make informed decisions on future inflation, returns on investment, stock market Behaviour, exchange rates and economic growth. 3.2 Recommend appropriate life assurance policies, pensions and employee benefits and investments. 3.3 Interpret demographic to design retirement benefits and pension plans. 3.4 Calculate insurance premiums, considering the many factors that impact the risk. 3.5 Perform annual pension and post-retirement medical valuations for a variety of clients. 3.6 Evaluate actuarial valuation and financial condition reports for life and general business insurance.

4. Prepare annual budget projections on the underwriting KPI's based on the trend analysis of a company.	4.1 Calculate quarterly and annual actuarial valuations. 4.2 Develop periodic solvency reports. 4.3 Analyze a company's financial condition report. 4.4 Review documents pertaining to the retrocession arrangements. 4.5 Analyze key performance indicators to predict future trends. 4.6 Perform credit rate analysis for insurance companies.
5. Appraise organizations financial standings and recommend viable investment projects.	5.1 Interpret annual financial statements of companies 5.2 Analyses financial data and craft investment solutions for businesses 5.3 Determine viable investments using actuarial principles 5.4 Project future performance of investments.
6. Manage risk to mitigate potential financial losses in a variety of businesses including banks, insurance companies, investment funds and government agencies.	6.1 Analyze the financial costs of risk and uncertainty using mathematical and statistical models 6.2 Conduct quantitative risk analysis to identify consequences of an event in actuarial profession. 6.3 Compute the pricing for insurance premiums based on known risk factors. 6.4 Guide businesses to better understand the risks they face in a holistic manner. 6.5 Recommend the instruments that can be used by companies to manage financial risk.
7. Develop effective actuarial, strategies policies and procedures to achieve enterprise goals and objectives	7.1 Conduct on-site inspections of insurance companies 7.2 Establish actuarial parameters suitable for the insurance industry. 7.3 Recommend appropriate premium rates for general insurance companies 7.4 Formulate actuarial policies and procedures to improve earnings of the company as well as to develop new business prospects 7.5 Monitor policy development, implementation and compliance issues. 7.6 Advice the management and the board on compliance issues.

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SECTION C		***QUALIFICATION STRUCTURE***				
COMPONENT	***TITLE***	***Credits Per Relevant NCQF Level***				***Total (Per** Subject/ Course/ Module/ Units)*
		Level [5]	***Level [6]***	***Level [7]***	***Level [8]***	
FUNDAMENTAL COMPONENT *Subjects/ Courses / Modules/Units*	Introduction to Accounting	10				10
	Introduction to Business	10				10
	Principles of Economics	10				10
	Further Mathematics	12				12
	Financial Mathematics	12				12
	Introduction to Information Technology		12			12
	Business Communication		10			10
	Principles of Micro Economics		10			10
	Principles of Management		10			10
CORE COMPONENT *Subjects/ Courses / Modules/Units*	Fundamentals of Actuarial Science			12		12
	Accounting 1A			12		12
	Commercial Law			12		12
	Calculus 1			12		12
	Actuarial Statistics IA (Introduction to Probability and Statistics)			12		12
	Accounting 1B			12		12
	Macroeconomics			12		12
	Commercial Law II			12		12
	Actuarial Science IIB (Contingencies)			12		12
	Risk and Insurance			12		12
	Calculus II (Several Variables)			12		12

	Actuarial Mathematics 1			12		12
	Corporate Finance			12		12
	Actuarial Financial Management and Analysis			12		12
	Actuarial Statistics IB (Statistical Theory & Inference)			12		12
	Research Methods and Insurance			12		12
	Actuarial Statistics IIA (Linear Models)			12		12
	Computer Packages and Applications in Insurance			12		12
	Corporate Finance II			12		12
	Introduction to Machine Learning			12		12
	Actuarial Science IIA (Survival Models)			12		12
	Industrial Attachment			60		60
	Actuarial Statistics IIB (Stochastic Processes & Time Series)			12		12
	Research Project			24		24
	Actuarial Statistics III (Stochastic Processes and Distributions)			12		12
	Actuarial Science III (Financial Economics)			12		12
	Investment and Asset Management			12		12
	Actuarial Mathematics IIB				12	12
	Actuarial Statistics IV (Statistical Modelling and Bayesian Analysis)				12	12
	Actuarial Mathematics IIA				12	12
ELECTIVE/ OPTIONAL COMPONENT	***(Choose 1)***					
	Life & Health Insurance			12		12
	Enterprise Risk Management			12		12

Subjects/ Courses / Modules/ Units						

SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL	
TOTAL CREDITS PER NCQF LEVEL	
NCQF Level	***Credit Value***
Level 5	54
Level 6	42
Level 7	396
Level 8	36
TOTAL CREDITS	***528***

Rules of Combination:

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

The credit combination for this qualification includes 96 credits from the fundamental component, 420 credits from the core component and the remaining 12 credits from the elective component, where candidates choose only 1 module.

ASSESSMENT ARRANGEMENTS

All assessments which are leading to the award of the qualification should be based on learning outcomes and associated assessment criteria. Assessments will be conducted by Assessors who have been registered with Botswana Qualifications Authority (BQA). The assessments will be as follows:

i. **Formative assessment**

The weighting of formative assessment is 60 % of the Final assessment mark.

ii. **Summative assessment**

The weighting of summative assessment is 40 % of the Final assessment mark.

MODERATION ARRANGEMENTS

Assessments will be internally and externally moderated by BQA registered and accredited moderators in line with approved moderation policies.

RECOGNITION OF PRIOR LEARNING

Recognition of Prior Learning (RPL) will be applicable for consideration for award in this qualification.

CREDIT ACCUMULATION AND TRANSFER

Credit Accumulation Transfer (CAT) will be applicable for consideration for award in this qualification.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Learning Pathways

Horizontal Articulation

- Bachelor of Commerce in Pensions Management
- Bachelor of Commerce in Insurance
- Bachelor of Commerce in Banking and Finance
- Bachelor of Sciences in. Financial Mathematics

- Bachelor of Arts/ Bachelor of Science/ Bachelor of Commerce in Statistics
- Bachelor of Commerce in Economics
- Bachelor of Commerce in Risk Management & Insurance
- Bachelor of Commerce in Management – Entrepreneurship & Small Business Management

Vertical Articulation

- Master of Science in Mathematics
- Master of Science in Statistics
- Master of Science in Quantitative Financial Economics
- Master of Science in Actuarial Management
- Master of Commerce Pensions Management
- Master of Commerce Insurance and Pensions Management
- Master of Commerce in Actuarial Science
- Master of Science in Actuarial Science and Statistics

Employment Opportunities

- Actuarial Analyst
- Accountants
- Auditors
- Budget Analyst
- Economist
- Mathematician
- Statistician
- Personal Financial Advisor
- Forensic Accountant
- Chartered Accountant

QUALIFICATION AWARD AND CERTIFICATION

Candidates meeting the prescribed requirements will be awarded the qualification in accordance with the qualification composition rules and applicable policies. To be eligible for the award, candidates must have

successfully completed all fundamental, core and elective modules and passed examinations in accordance with regulations set by the Faculty. The Bachelor of Commerce in Actuarial Science certificate will be awarded to candidates who have obtained 528 credits. Certificates and transcripts will be issued to learners upon graduation.

REGIONAL AND INTERNATIONAL COMPARABILITY

The qualification was benchmarked with the following qualifications regionally and internationally;

- Bachelor of Commerce in Actuarial Science – Stellenbosch University (SA)
- Bachelor of Commerce in Actuarial Studies – R.A. Podar College of Commerce & Economics (India)
- Bachelor of Commerce in Actuarial Science – DAV Centenary College (India)

The proposed Bachelor of Commerce in Actuarial Science is placed at NCQF level 7, which is similar to the regional and international qualifications outlined above. All the qualifications follow a similar structure and have the same module coverage in the areas of economics, mathematics, accounting, management, finance, insurance and statistics. Furthermore, all the qualifications use common assessment strategies including tests, assignments and examinations. However, the R.A. Podar College of Commerce & Economics further extends its assessment strategies to projects, class attendance and classroom participation.

Whereas the proposed Bachelor of Commerce in Actuarial Science runs for a duration of 4 years, all other University's compared with offer their qualifications for a duration of 3 years. Another difference relates to the credit weightings, where the proposed qualification carries 528 credits while the qualification offered by Stellenbosch University has 343 credits. The differences in the credits points and duration are attributed to the differing qualification frameworks amongst countries and differing entry requirements amongst the institutions. The proposed Bachelor of Commerce in Actuarial Science' s entry requirements follows Certificate IV, NCQF level 4 (General Education or TVETwhich requires a minimum of 480 credits as opposed to other qualifications which have Certificate 5V, NCQF level 5 as entry requirements. .

Additionally the proposed qualification has a compulsory research project and industrial attachment component which are not provided by the other three institutions.

REVIEW PERIOD

This qualification will be reviewed after 5 years upon registration.

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