SECTION A:	***QUALIFICATION DETAILS***																	
QUALIFICATION DEVELOPER (S)	New Era College of Arts, Science and Technology																	
TITLE	Bachelor of Commerce in Health Informatics														***NCQF LEVEL***		*7*	
FIELD	Health and Social Services		***SUB-FIELD***		Health Informatics										***CREDIT VALUE***		*480*	
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 Botswana Government has emphasised the importance of health programmes in the Education Act of 2003 and the National Development Plan II of April 2017 – March 2023. The Essential Health Service Package (EHSP) in the above plan has been considered as the cornerstone of health service provision through promotion, preventative, curative, and rehabilitative care. Furthermore, the health sector has the responsibility to develop and implement health quality standards across all levels of care and policies such as emergency medical service policy, material health road maps rolling out of specialist programmes including heath informatics and other digital enabling systems to improve health services. To achieve all these, the health sector, especially health centres and hospitals need qualified personnel who have been trained in

health informatics to control and manage both the health information records and services of such health centres and hospitals. This task is fully entrenched in the National Development Plan II goals and objectives.

The National Development Plan II further emphasized the needs to move from the present analogue to full digital system in the administration of our health services. To successfully achieve the above task and challenges, we need graduates in health informatics who will be able to use their skills to address challenges in the health sector, especially in our hospitals. In light of these challenges, the qualification is intended to fill the gap where there are skilled personnel to perform these new roles and functions in the health sector. Botswana and other African countries are in high needs of manpower or personnel in Health Informatics who have the skills to move our health institutions forward.

This qualification aims to support the capacity building, awareness, and implementation of the international multi-bilateral environmental agreements that Botswana is a signatory to, which include but are not limited to: United Nation, World Health Organisation, United Nations Education Scientific Committee, World Bank.

The structuring of this qualification is in line with the Botswana National Development Plan which indicates that: The Botswana Government Plan to work conscientiously towards the achievement of health-related Millennium Development Goals (MDGs) during NDP II as indicated in the section on the progress towards achieving the MDGs. Policies and strategies in the health sectors have been developed to support the health sector.

The Botswana Government also plan to give the health sector a priority, particularly in palliative care, material and child health, rehabilitation services and mental health care services.

The Government attention is also focused on addressing social determinants of health and strengthening the policies, products and services aimed at preventative and curative medicine to improve the health of the citizens.

It is also reflected in the NDP II document that 85 percent availability of vital and essential medical supplies at health facilities (hospitals and clinics), will help in improving access to affordable quality health services and more knowledge on these services could be achieved through education programme around health.

At present, there is no sufficient manpower to provide those services with good knowledge of health informatics. In view of this, the qualification will produce the necessary manpower needed to perform the above functions.

The government of Botswana plans to have the group of health officials who have sound knowledge in health informatics to have a digital turnaround strategy in the health sector.

For the role players in the health sectors to be able to perform their duties effectively, they need to have knowledge in the field of health informatics. There is a large market share to train individuals with these special skills which is highly in demand in respect of global competition. This will be beneficial to those in both the public and private sectors in Botswana and in SADC region. qualification.

In recent time, African Governments have committed themselves at continental level to the Millennium Development Goals under the framework of the New Partnership for Africa's Development (NEPAD). This is the initiative of the African Union and a commitment of African leaders to place their respective countries on path of sustainable growth and development. This has led NEPAD to focus and encourage capacity building in African regions.

PURPOSE:

The purpose of this qualification is to produce graduates with specialised knowledge, skills, and competence to:

- Address issues in the health sector, locally and internationally.
- Implement best practices in Health Informatics.
- Analyze and utilize data using technologies to improve the organization's operational effectiveness.
- Mitigate the impact of health digital problem in health institutions.
- Digitise health information for efficiency and productivity to meet challenges in the 4th Industrial Revolution.

ENTRY REQUIREMENTS (including access and inclusion)

- Certificate IV (NCQF level 4) with passes in English, Mathematics, and a science subject or equivalent.
- Graduates with Diploma in Health Informatics and possess relevant industry experience may be considered through Recognition of Prior Learning in accordance with ETP and national policies.

SECTION B	***QUALIFICATION SPECIFICATION***
GRADUATE PROFILE (LEARNING OUTCOMES)	***ASSESSMENT CRITERIA***
1. Apply standards and regulatory requirements in the collection, storage, classification, and transmission of health data.	1.1 Evaluate the role of health information system in management practices and health care system. 1.2 Interpret the legal and regulatory requirements of healthcare delivery systems, patient privacy, confidentiality, and security of health data. 1.3 Apply the safety, confidentiality, and privacy issues pertaining to health information policies, and government regulations and requirements.
2. Promote the use of health informatics and its administration in health care system.	2.1 Critically assess the role of health information technologies in promoting efficiency in the health sector. 2.2 Use applicable information and research evidence to support effective health informatics practice. 2.3 Apply strategies and methods for ongoing quality and efficiency improvement to yield better healthcare outcomes using a combination of simulated and real-world data within the informatics field.
3. Develop a full understanding of health care data analysis and information governance in the health sector.	3.1 Categorize and interpret healthcare data using appropriate graphical techniques. 3.2 Analyse components of risk management as related to a health organization.

4. Apply the right skills in dealing with health information systems and the use of health information technologies.	4.1. Demonstrate skills in health information management practices. 4.2 Demonstrate skills in electronic health records and health information exchange. 4.3 Evaluate the relationship between computer application in health care sector and the management of health information services. 4.4 Demonstrate skills in understanding ethical and legal requirements in health care delivery system. 4.5 Evaluate the use of existing and emerging health information technologies to support healthcare systems.
5. Demonstrate the ability to use health information technologies in health management practices.	5.1 Demonstrate proficiency in Microsoft Office programs including Excel, Access, PowerPoint, and Word. 5.2 Identify the right technology to be used in health management practices.
6. Employ analytic and problem- solving skills to address healthcare information Challenges.	6.1 Identify the best structures and processes to be adopted in maintaining efficient medical records and health data structures. 6.2 Compare research methodologies pertaining to health care. 6.3 Employ data-driven performance improvement techniques for decision making.

7. Develop reliable database and processes in the management of patient information records.	7.1 Indicate the best computer application to be used in achieving and managing patient health information and medical records. 7.2 Identify standards for exchange of health information. 7.3 Interpret statistics for health services.

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*	Communication and Technical Writing	10				10
	Principles of Business Management	10				10
	End User Computing	10				10
	Human Resource Management in Hospital		10			10
	Business Mathematics		10			10

	Introduction to Accounting	10				10
	Business Ethics	10				10
	Health Informatics		*10*			10
	Medical Statistics for Health Manager		10			10
	Healthcare System and Administration		10			10
	Information Technology and Systems for Health Care		10			10
	Principles of Health Information Management		10			10
CORE COMPONENT *Subjects/Courses/ Modules/Units*	Medical Vocabularies and Classification Systems		10			10
	Health Information systems		10			10
	Electronic Health Records and Health Information Exchange		10			10
	Principles of Strategic Planning and Evaluation in the Health Sector			10		10
	Healthcare Accounting and Financial Administration			10		10
	Health Data structures			10		10
	Medical Coding and Billing			10		10
	Healthcare Data Analysis and Information Governance			10		10

	Advanced Medical Terminology			10		10
	Quality management in Health service			10		10
	Project Cost & Procurement			10		10
	Project Planning, Organizing & Tracking			10		10
	Integrated Project Resource Management			10		10
	Global Healthcare			10		10
	Project Leadership & Communication			10		10
	Project Risk Management			10		10
	Project Monitoring & Evaluation			10		10
	Legal and Ethical Issues in Healthcare			12		12
	Research Methods			10		10
	Internship - Work Related Attachment			*40*		40
	Change management			12		12
	Healthcare Information Law, Privacy and Security			12		12
	Research Project			16		16

	Advanced Computer Application in Healthcare Sector			12		12
	Entrepreneurship			12		12
	Dissertation			16		16
	Innovation Management			12		12
	Project Portfolio Management			12		12
ELECTIVE/ OPTIONAL COMPONENT *Subjects/Courses/ Modules/Units*	Marketing Management			12		12
	Strategic Management			12		12
	Financial Management			12		12
	Law of Intellectual Property			12		12
	Disaster Management			12		12
	Principles and Practices of Management and Organizational Behavior			12		12

SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL	
TOTAL CREDITS PER NCQF LEVEL	
NCQF Level	***Credit Value***
5	***50***
6	***100***
7	***330***

TOTAL CREDITS	***480***

Rules of Combination:

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

1	Fundamental Component	12	120
2	Core Component	28	336
3	Elective Component (Choose 2 Modules)	2	24
4	**Total**	**46**	**480**

ASSESSMENT ARRANGEMENTS

All assessments being formative and summative, leading/contributing to the award of credits or a qualification should be based on learning outcomes.

Formative assessment

Formative assessment or continuous assessment:

This form of assessments contributes to 50% of the final course grade

Summative assessment

The Final Examination 5**0%** of the final course grade.

Final Examinations are written at the end of each semester.

Industrial Attachment and Project

Each of these are assessed at **100%**

MODERATION ARRANGEMENTS
Assessment and moderation shall be carried as per ETP's policies, which are aligned to BQA/ National policies. The ETP will engage only BQA accredited assessors and moderators to carry out assessment and moderation.'
RECOGNITION OF PRIOR LEARNING
Candidates can gain part of qualification through Recognition of Prior Learning (RPL) policy which is in line with National Policies.
CREDIT ACCUMULATION AND TRANSFER
Learners who have accrued credits previously from a recognised EPT may be exempted from such credits already earned through Credit Accumulation and Transfer CAT policy which is in line with National Policies.
PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)
This qualification is intended to provide learners with both horizontal and vertical articulation and employment pathways as shown below. **Horizontal Articulation** Horizontally the qualification articulates with the following qualifications: • Bachelor of Science in Health Informatics and Information Management • Bachelor of Science in Health Services Administration • Bachelor of Arts in Business Administration: General Management • Bachelor of Arts in Business Administration: Hospitality Management • Bachelor of Science in Health Information Management **Vertical Articulation** The qualification may vertically articulate into the following qualifications: • Master of Science in Nursing Education • Master of Science in Nursing and Healthcare Simulation

- Master of Science in Nursing Leadership and Management.
- Master of Science in Healthcare Management.

Employment Pathways

The graduates will have requisite competencies and attributes to work as:

- Clinical informaticist
- Pharmacy or nutrition informaticist
- Health Informatics analyst
- Health Informatics Consultant
- Clinical Informatics specialist
- Health Informatics Officer
- Health Information Technology Project Manager

QUALIFICATION AWARD AND CERTIFICATION

To be awarded a **Bachelor of Commerce in Health Informatics**, a candidate must attain a minimum of 480 credits to graduate.

Certification.

Candidates must pass all modules to be awarded Bachelor of Commerce in Health informatics qualification in accordance with applicable policies.

REGIONAL AND INTERNATIONAL COMPARABILITY

1. Gondar University Ethiopia offers a Bachelor of Science in Health informatics whereas this qualification will be offered as a Bachelor of Commerce in Health Informatics. Both qualifications are offered over a period of four years with each academic year consisting of two semesters for full time students. The proposed qualification has a total of 480 credits as compared to the 249 credits in Gondar university qualification. Both qualifications share common modules such as health information systems, data structures, health informatics, project management, entrepreneurship, medical coding, and research project and health ethics. The proposed qualification has a compulsory six-month internship that constitutes 40 credits whereas the Gondar university qualification includes Health informatics practical

attachment I module that constitutes 6 credits in year 3 second semester and Practical attachment II module that constitutes 8 credits in the 4th year first semester. The two qualifications both have similar assessments strategies of 40% formative assessments and 60% of summative assessments.

https://www.academia.edu/29314327/New_bachelors_degree_program_in_health_informatics_in_Ethiopia_curriculum_content_and_development

2. Bachelor of Science in Health Records Management and Informatics offered by Kenyatta University targets A level graduates and those with Diplomas in the relevant areas wishing to advance while the proposed qualification targets Form 5 graduates and those with comparable or better qualifications internationally as well as diploma holders in relevant fields. The duration for both qualifications is four years with each academic year consisting of two semesters for full time students. The BSc in Health records management and informatics offered by Kenyatta university uses a 'unit system' and a learner is awarded the degree after taking and passing all units (minimum 48 units departmental units), University Common Units (3), School Common Unit (1), a total of 52 units. The proposed qualification uses a credit system. A learner is awarded the degree after passing all fundamental, core and elective modules amounting to 480 credits. Both qualifications offer internships or industrial attachment to learners, however the duration of the internship differs between the qualifications as the Kenyatta BSc in Health records management and informatics internship is for three months as compared to the six months for this qualification. The two qualifications share common modules such as medical terminology, electronic health records management, and health information systems, legal and ethical issues in healthcare, communication skills, computer applications in healthcare and entrepreneurship. This qualification uses both summative and formative assessments with weightage for summative assessments being 60% and the weightage for formative assessments being 40%. Whereas the Kenyatta university qualification though using the same formative and summative assessments, differs in the weightage assigned to each with formative assessments at 30% and summative assessments at 70%.

https://pdf.usaid.gov/pdf_docs/PA00TB4R.pdf

http://www.ku.ac.ke/schools/public_health/index.php/academic-programs/undergraduate/90-programmes/145-bachelor-of-science-health-records-and-information-management.

3. Queensland University of technology (QUT) Australia offers a Bachelor of Health Information Management whereas this qualification will be offered as Bachelor of commerce in Health informatics. The QUT qualification has 288 credits compared to the 480 credits of the proposed qualification. The QUT qualification can be completed in three years compared to the four years for this qualification. Both qualifications have similar modules such as Quality management in health service, health informatics, management, health information management, medical terminology, and project management. The proposed qualification offers a six-month internship or work-related attachment that has 40 credits as compared to the QUT integrated health information management practice module that has 24 credits. In the same vein, the qualifications have similar assessment methodology which includes examinations, assignments and class test.
https://www.qut.edu.au/courses/bachelor-of-health-information-management

4. St John's University, New York (USA) offers a Bachelor of Science in Health informatics just like this qualification. St John's University uses the credit system, and the qualification consists of 120 credits compared to 480 credits in this qualification. Both qualifications share many common modules like health informatics, ethical issues in healthcare, health information systems, health data structures and computer applications. The St John's qualification can be completed in seven semesters with six theory-based semester (3 years), and one semester for practical work which makes up for seven (7) semesters. Whereas this qualification can be completed in eight semesters with seven theory-based semesters, and one semester for internship which makes it four years. The St John's qualification assessments methods include written examinations and submission of, and class test which are similar to this qualification. The learners must comply with the prescribed hours for instruction and assessment before the degree can be awarded to the learners for both qualifications.
https://www.stjohns.edu/academics/programs/healthcare-informatics-bachelor-science

REVIEW PERIOD
The review period shall be 5 years or as and when the need arises.