

BQA NCQF QUALIFICATION TEMPLATE

SECTION A: QUALIFICATION DETAILS													
QUALIFICATION DEVELOPER (S)	Institute of Health Sciences - Gaborone												
TITLE	Diploma in Medical Laboratory Sciences					NCQF LEVEL	6						
STRANDS (where applicable)	N/A.												
FIELD	Health and Social Services					CREDIT VALUE	368						
SUB FIELD	Health Science												
New Qualification	Legacy Qualification			√		Renewal Qualification							
						Registration Code							
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													
<p>RATIONALE:</p> <p>Over the past two decades (2000–2019), global health indicators have improved, with declines in deaths due to communicable, maternal, perinatal and nutritional conditions, as well as injuries. However, increased life expectancy has contributed to a growing burden of non-communicable diseases (NCDs). According to the World Health Organization, deaths attributed to NCDs increased from 60.8% of all deaths in 2000 to 73.6% in 2019, while deaths from communicable diseases declined from 30.7% to 18.4% during the same period (WHO, 2022). This epidemiological transition has heightened the need for effective diagnostic and monitoring systems to support disease prevention, early detection, and treatment monitoring.</p> <p>Botswana has experienced similar demographic and health transitions. Life expectancy increased from 55.5 years in 1971 to 68 years in 2011 and was estimated at 66.2 years in 2017. These changes have necessitated strengthening health systems, particularly laboratory services, which play a critical role in disease detection, treatment monitoring and public health surveillance. The importance of this</p>													

workforce is reflected in the Human Resource Development Council Consolidated List of Priority Occupations and Skills (2024), which identifies Medical Laboratory Scientists and Technicians among the priority occupations required in Botswana.

The emergence and re-emergence of infectious diseases such as COVID-19, SARS, MERS and Ebola has further demonstrated the importance of strong laboratory systems. In Botswana, laboratory services were central to the national response to the COVID-19 pandemic and continue to support the management of the HIV/AIDS epidemic through diagnostic testing, treatment monitoring and viral load surveillance.

The expansion of specialised facilities such as the Botswana Public Health Laboratory and the decentralisation of advanced diagnostic services have increased the demand for competent laboratory personnel. The Botswana Institute of Clinical Laboratory Professionals plays a critical role in regulating the profession, promoting professional standards and ensuring that training programmes align with national laboratory practice requirements.

Consequently, the Diploma in Medical Laboratory Science remains essential for addressing workforce shortages and strengthening diagnostic services in support of national health priorities, including Vision 2036 and Sustainable Development Goal 3.

PURPOSE: (itemise exit level outcomes)

The purpose of this qualification is to produce graduates with advanced knowledge, skills and competencies to:

- 1. Integrate and apply foundational scientific and social science knowledge to support the provision of laboratory services.*
- 2. Perform and interpret clinical laboratory investigations using appropriate technologies in accordance with established quality, safety, and professional standards.*
- 3. Communicate healthcare and laboratory-related information effectively and professionally to diverse audiences.*
- 4. Demonstrate professional judgement and operational competence in managing laboratory processes to ensure effective and efficient service delivery.*
- 5. Apply adaptability and professional judgement to maintain continuity and quality of laboratory services in changing or challenging environments.*

MINIMUM ENTRY REQUIREMENTS (including access and inclusion)

- Certificate IV, NCQF level 4 or its equivalent.
- Recognition of Prior Learning (RPL) shall be applied in line with the national RPL policy.

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SECTION B QUALIFICATION SPECIFICATION	
GRADUATE PROFILE (LEARNING OUTCOMES)	ASSESSMENT CRITERIA
<p>1. <i>Apply knowledge of basic sciences, social sciences, and general education in provision of quality laboratory services.</i></p>	<p>1.1 <i>Utilise scientific knowledge to interpret and communicate laboratory results.</i></p> <p>1.2 <i>Apply understanding of scientific method of establishing facts and utilise information to improve service</i></p> <p>1.3 <i>Apply basic statistical concepts and principles to analyse and interpret laboratory data to support evidence-based decision-making.</i></p>
<p>2. <i>Perform and interpret clinical laboratory investigations proficiently, utilizing current technologies and adhering to established quality, safety, and professional standards</i></p>	<p>2.1 <i>Evaluate, prioritize and organize specimens for analysis and ensure their appropriate storage.</i></p> <p>2.2 <i>Recognize possible specimen/analytical deficiencies and take appropriate action.</i></p> <p>2.3 <i>Apply knowledge of calibrators, standards, and quality control materials in laboratory testing.</i></p> <p>2.4 <i>Verify test results using calibration and quality control data to identify abnormal results and take appropriate action.</i></p> <p>2.5 <i>Apply established procedures to review and confirm laboratory testing protocols prior to implementation</i></p> <p>2.6 <i>Follow-up and investigate unusual results prior to reporting.</i></p> <p>2.7 <i>Recognize major determinants affecting validity of laboratory results and investigate unusual results before reporting.</i></p> <p>2.8 <i>Perform routine maintenance on laboratory equipment in accordance with established procedure.</i></p>
<p>3. <i>Communicate healthcare concepts clearly and effectively, tailoring information appropriately to the needs of clients or audiences.</i></p>	<p>3.1 <i>Communicate laboratory information to members of the health care team and clients in a professional and confidential manner.</i></p> <p>3.2 <i>Explain healthcare and laboratory-related concepts accurately using appropriate scientific terminology and clear language.</i></p> <p>3.3 <i>Present and document laboratory information clearly and logically in written, oral, and electronic formats in accordance with standard operating procedures.</i></p>
<p>4. <i>Apply leadership, decision-making, and problem-solving skills in accordance with laboratory management system to ensure effective and efficient service delivery</i></p>	<p>4.1 <i>Analyse and resolve challenges arising with staff and customers.</i></p> <p>4.2 <i>Apply and promote Laboratory Quality Management System</i></p> <p>4.3 <i>Implement appropriate resource management measures to contribute to efficient and cost-effective utilisation of medical laboratory</i></p>

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	<p><i>resources.</i></p> <p><i>4.5 Apply safety standards in laboratory management.</i></p> <p><i>4.6 Utilize laboratory data to monitor the performance characteristics based on established quality control ranges.</i></p>
<p><i>5. Adapt laboratory operations effectively to ensure continuity of service in changing or challenging circumstances</i></p>	<p><i>5.1 Apply problem solving skills to overcome challenges and limitations to laboratory service provision.</i></p> <p><i>5.2 Apply adaptive strategies to respond to unexpected changes or challenges in laboratory operations, ensuring continuity, safety, and quality of service</i></p> <p><i>5.3 Integrate new technologies into laboratory procedures to enhance service delivery.</i></p>

Note: Please use Arial 11 font for completing the template)



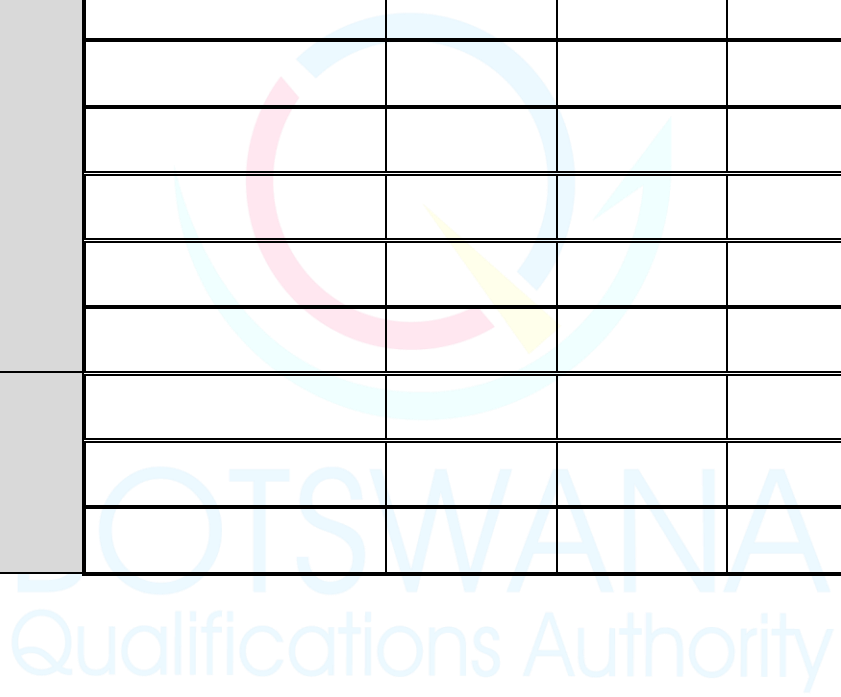
SECTION C	QUALIFICATION STRUCTURE				
COMPONENT	TITLE	Credits Per Relevant NCQF Level			Total Credits
		Level [5]	Level [6]	Level [7]	
		FUNDAMENTAL COMPONENT	<i>Communication Skills</i>	6	
	<i>Biology</i>	10			10

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Subjects/ Courses/ Modules/Units	<i>Chemistry</i>	12			12
	<i>Physics</i>	10			10
	<i>Mathematics</i>	10			10
	<i>Computer Skills</i>	6			6
	<i>Human Anatomy & Physiology</i>		15		15
	<i>Elective</i>				8
	<i>Research Methods</i>		6		6
	<i>Sociology</i>	8			8
CORE COMPONENT Subjects/Courses/ Modules/Units	<i>Introduction to Clinical Laboratory Sciences</i>		10		10
	<i>Genetics & Molecular Biology</i>		10		10
	<i>Clinical Chemistry</i>		30		30
	<i>Haematology</i>		29		29
	<i>Histology/Cytology</i>		18		18
	<i>Immunology</i>		12		12
	<i>Immunohaematology</i>		15		15
	<i>Medical Bacteriology</i>		26		26
	<i>Medical Parasitology</i>		8		8
	<i>Medical Virology & Mycology</i>		6		6
	<i>Lab Management</i>			7	7
	<i>Clinical Attachment</i>		106		106
	STRANDS/ SPECIALIZATION				

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1.					
2.					
Electives					



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SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL

TOTAL CREDITS PER NCQF LEVEL

NCQF Level	Credit Value
5	70
6	291
7	7
TOTAL CREDITS	368

Rules of Combination:

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

- *Fundamental Component – Credits: 83 (22.6%)*
- *Core Component – Credits: 273 (74.2%)*
- *Elective – 8 (2.2%)*

NB.

Students will be on clinical rotation for 25 weeks

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ASSESSMENT ARRANGEMENTS

All assessments, formative and summative, leading/contributing to the award of a Diploma in MLS qualification shall be based on learning outcomes.

Formative and Summative assessment

The weighting of formative assessment shall be 60% and summative assessment shall be at 40%. Assessment shall be carried out by BQA registered and accredited Assessors

MODERATION ARRANGEMENTS

There shall be provision for both internal and external moderation by BQA accredited moderators and assessors. Moderators should be holders of at least Bachelor's Degree (NCQF Level 7) in Medical Laboratory Sciences.

RECOGNITION OF PRIOR LEARNING

Candidates may submit evidence of prior learning and current competence and/or undergo appropriate forms of RPL assessment for the award of credits towards the qualification in accordance with applicable RPL policies and relevant national-level policy and legislative framework. Implementation of RPL shall also be consistent with requirements, if any, prescribed for the field or sub-field of study by relevant national, regional or international professional bodies.

CREDIT ACCUMULATION AND TRANSFER

Candidates may submit evidence of prior learning and current competence and/or undergo appropriate forms of Recognition of Prior Learning (RPL) assessment for the award of credits towards the qualification in accordance with applicable Institutional RPL policies and relevant national-level policy and legislative frameworks. Implementation of RPL shall also be consistent with requirements, if any, prescribed for the field or sub-field of study by relevant national, regional or international professional bodies.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Vertical articulation

Graduates of this Programme can progress to do:

- BSc Cytotechnology and Histotechnology Sciences
- BSc Medical Laboratory Sciences
- BSc Forensic Science
- Bachelor of Public Health
- BSc Biotechnology
- BSc Clinical Technology
- BSc Microbiology
- BSc Molecular Biology

Horizontal articulation

- Diploma in Public Health
- Diploma Clinical Technology
- Diploma Health Education
- Diploma Medical Microbiology

Employment Pathways

Upon successful completion of this qualification the holder may be absorbed in the job market as:

- Medical Laboratory Technologist/Technician
- Laboratory Assistant/Technician
- Phlebotomy Technician
- Specimen Processing Officer
- Public Health Laboratory Officer
- Laboratory Quality Assurance Officer
- Diagnostic and Medical Equipment Sales Representative
- Veterinary and Environmental Laboratory Technician

QUALIFICATION AWARD AND CERTIFICATION

Candidates meeting the required minimum of 368 credits will be awarded Diploma in Medical Laboratory Sciences in accordance with the qualification composition rules and applicable policies.

Certification

There will be certification upon awarding of Diploma in Medical Laboratory Sciences qualification.

SUMMARY OF REGIONAL AND INTERNATIONAL COMPARABILITY

1. **Marvelous University of Technology and Applied Science, Namibia: Diploma in Medical Laboratory Technology**

Qualification length of study and level in the national qualification framework similar to IHS-G qualification as reflected below:

- A 3-year training program
- Level 6 in Namibia National Qualifications Framework (NNQF)
- No credit allocation in the NNQF Level Descriptors

Courses Offered:

Similarities:

Molecular biology and genetics, Immunology, Medical microbiology, Haematology in practice, Pathology for the laboratory scientist, Biochemistry of macromolecules and metabolic pathways

Assessment mode include tests, examinations and assignments similar to IHS-G

Differences in course offerings:

Pharmacology and medicine management, Microbiological techniques, Business/Professional practice units, Corporate finance, Corporate strategy and planning, Action project, Specialized professional practice

2. Universiti Kuala Lumpur Kampus Cawangan Institute of Medical Science Technology, Malaysia: Diploma in Medical Laboratory Technology

- Program duration is 3 years similar to IHS-G qualification
- Credit load: 106
- Level 4 in the Malaysian Qualifications Framework

Courses offered:

Similarities

Chemistry, Human Anatomy, Mathematics & Statistics, Physics, Transfusion Science & Blood Banking, Cytopathology, Human Biochemistry, Basic Microbiology, Human Physiology, Human Genetics, Human Immunology, Hematology, Pathology, Parasitology, Clinical Chemistry, Diagnostic Microbiology, Diagnostic Immunology, Histotechnology, Final Year Project- Clinical attachment (semester long)

- Assessment modes similar to that of HIS-G, which includes tests, assignments, practical laboratory assessments and examinations

Differences

Interpersonal Skills, Communication English, Instrumentation for Biomedical Sciences, Religious Practices in Malaysia, Culture and Lifestyle In Malaysia, Foreign Language, Human Pharmacology, Clinical Lab. Technology (Bacteriology & Virology), Co-curriculum, Introduction to Entrepreneurship, Competency English, Cell Biology

3. British Columbia Institute of Technology (BCIT), Canada: Diploma in Medical Laboratory Science.

- A 2.5-year long training program
- Graduates registrable with the Canadian Society for Medical Laboratory Scientists
- Accredited through EQual Canada Program (Accreditation Canada)
- Credit load not stated

Courses offered:

Similarities: Anatomy & physiology, transfusion science, Clinical microbiology, Haematology, histology.

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- BCIT has a 38-week practicum period before completion of program compared to 24 weeks at IHS-G
- Assessments include final examination, continuous assessment and practical, similar to proposed qualification

Differences: Some courses that are covered as topics in various courses in our program are full semester courses for BCIT e.g. Specimen procurement and haemostasis.

NB: The qualification compares well with others both regionally and internationally. Core courses may differ in name but covering essentially the same content.

REVIEW PERIOD

This qualification will be reviewed every five (5) years or when need arises determined by the developer (implementers), stakeholders and regulatory bodies.

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For Official Use Only:

CODE (ID)	REGISTRATION STATUS	BQA DECISION NO.	REGISTRATION START DATE	REGISTRATION END DATE
LAST DATE FOR ENROLMENT			LAST DATE FOR ACHIEVEMENT	