

BQA NCQF QUALIFICATION TEMPLATE

SECTION A: QUALIFICATION DETAILS															
QUALIFICATION DEVELOPER (S)			Joint Technical Training School (Botswana Defence Force)												
TITLE		Diploma in Small Arms Engineering								NCQF LEVEL		6			
STRANDS (where applicable)		N/A.													
FIELD		Manufacturing, Engineering and Technology			SUB-FIELD		Engineering and Engineering Trades			CREDIT VALUE		360			
New Qualification					☒		Legacy 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 proposed qualification is designed to produce highly skilled technicians who specialize in the maintenance, repair and servicing of Small Arms. The qualification seeks to address the operational requirements of the Botswana Defense Force (BDF) more efficiently and effectively. Small arms constitute a significant portion of the BDF's weapons inventory and ensuring their functionality is critical to national security. The availability of qualified Small Arms technicians would give the BDF the confidence to deploy at any time, whether for domestic missions or missions beyond national borders.															

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Furthermore, by developing a local pool of highly skilled personnel, the organization would reduce reliance on external service providers as evidenced in the Training Needs Analysis (TNA) conducted in April 2023 by Joint Technical Training School (JTTS) in conjunction with the Corps of Armament Services (CAS). This would in turn reduce costs associated with outsourcing maintenance and repair services from abroad. Such initiative aligns with Botswana's broader vision of fostering self-reliance in critical sectors such as defense and security.

The development of this qualification also aligns with The Botswana Education and Training Sector Strategic Plan (ETSSP 2015-2020) which prioritizes human capital development to transition Botswana towards a knowledge based economy through recognition of the role of polytechnics and technical training schools in improving trained technical man power for our industries and field organizations.

PURPOSE: (itemise exit level outcomes)

The purpose of this qualification is to produce graduates with technicians with knowledge and skill to:

1. Conduct comprehensive inspections of various small arms weapon systems in accordance with manufacturer's procedures and guidelines before, during, and after firing.
2. Prepare detailed inspection reports and documentation for various small calibre weapons using standardized templates and procedures under diverse operational conditions.
3. Manage the maintenance, repair, and operational procedures of firearms, ensuring compliance with national security regulations and international standards.
4. Apply core engineering principles to troubleshoot, analyse, and propose solutions for complex technical issues related to small arms operation and effectiveness.

MINIMUM ENTRY REQUIREMENTS (including access and inclusion)

The minimum entry requirement:

1. Certificate IV, NCQF Level 4 (GE/TVET) or equivalent.
2. Access through RPL will be provided through ETP policies in line with CAT and RPL national policies.

SECTION B

QUALIFICATION SPECIFICATION

GRADUATE OUTCOMES)

PROFILE

(LEARNING

ASSESSMENT CRITERIA

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1. Troubleshoot and fix faults in small arms ordnance efficiently and effectively.	1.1 Identify and diagnose faults in diverse small arms using appropriate diagnostic tools and techniques. 1.2 Demonstrate mastery in removing and assembling components of different weapons. 1.3 Apply corrective actions to resolve faults in accordance with standard operating procedures (SOPs) and weapon maintenance standards. 1.4 Document fault resolution strategies using standardized reporting templates.
2. Perform basic maintenance on the firing mechanisms of various rifles, guns and mortars.	2.1 Inspect firing mechanisms for wear, damage, or malfunction. 2.2 Clean, lubricate, and adjust firing mechanisms to ensure proper operation. 2.3 Replace defective components in accordance with manufacturer guidelines. 2.4 Test firing mechanisms to verify functionality and safety.
3. Demonstrate advanced understanding of different weapon components, design principles and operational theory.	3.1 Identify and categorize weapon components by function and design. 3.2 Describe and apply the mechanical action of firing and recoil systems in weapons. 3.3 Demonstrate proficiency in disassembling and assembling weapon systems 3.4 Test the functionality and performance of the assembled weapon. 3.5 Develop comprehensive maintenance records in alignment with technical regulations.
4. Conduct detailed inspections and ensure compliance with safety regulations in small arms handling.	1.1 Identify critical components and systems that require detailed inspection and assessment. 1.2 Develop a comprehensive inspection checklist and procedures for different types of small arms systems. 1.3 Conduct inspections in accordance with established protocols and safety standards. 1.4 Document findings and recommendations in a technically accurate and clear report.

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5. Demonstrate understanding of engineering management principles and ethics.	5.1 Apply leadership and management principles during the performance of small arms maintenance tasks. 5.2 Implement risk management strategies to ensure conducive small arms operations. 5.3 Use resource management techniques to optimize personnel, time and material in small arms activities
6. Demonstrate proficiency in advanced communication, both verbal and written, within the field of small arms engineering.	6.1 Prepare inspection reports following standardized templates and forms 6.2 Complete maintenance logs for specified small arms. 6.3 Convert drawings of weapon components into step-by-step repair guides. 6.4 Interpret and convey technical information effectively in both oral and written forms. 6.5 Develop effective business communication skills
7. Demonstrate understanding of ethical responsibilities, professional conduct, and regulatory frameworks relevant to small arms weapons engineering practice	7.1 Interpret and apply defense-specific legal and regulatory frameworks related to small arms weapon systems, including national weapons regulations, safety protocols, and international compliance agreements. 7.2 Advise on appropriate weapon handling actions using established codes of ethics, professional standards, and decision-making models.

SECTION C	QUALIFICATION STRUCTURE		
	TITLE	Credits Per Relevant NCQF Level	Total Credits

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COMPONENT		Level [4]	Level [5]	Level [6]	
FUNDAMENTAL COMPONENT Subjects/ Courses/ Modules/Units	Mathematics I		10		10
	Physics		10		10
	Computer Technology		6		6
	Technical Drawing		8		8
	Workshop Technology I		10		10
	Technical Communication		6		6
	Entrepreneurship skills		5		5
	Management Principles			5	5
CORE COMPONENT Subjects/Courses/ Modules/Units	Basic Ammunition			10	10
	Basic Small Arms		10		10
	Machining I			10	10
	Material Science		10		10
	Basic Armament Systems			10	10
	Rifles and Pistols			10	10
	Machine Guns			10	10
	Locking and Mechanical Safety			10	10
	Faults and Remedies			10	10
	Carpentry and Wood Work		10		10
	Rocket Launchers			10	10
	Mechanical Zeroing			10	10

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	Armoury Management Procedure		10		10
	Workshop Practice I		10		10
	Mortars			10	10
	Construction of Infantry Weapons			10	10
	Secondary Weapons			10	10
	Range Management			5	5
	Ethics, Regulation, and Legal Frameworks			5	5
	Guided Weapons			10	10
	Weapon Performance			10	10
	Strength of Materials			10	10
	Workshop Practice II			10	10
	Final Project			10	10
	Apprenticeship I		40		40
	Apprenticeship II			20	20
STRANDS/ SPECIALIZATION	Subjects/ Modules/Units	Credits Per Relevant NCQF Level			Total Credits
		Level []	Level []	Level []	
1.					

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Electives	Battalion Support Weapons (.50 HMG)			10	10
	SCAR H			10	10



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SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL

TOTAL CREDITS PER NCQF LEVEL

NCQF Level	Credit Value
5	135
6	225
TOTAL CREDITS	360

Rules of Combination:

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

To achieve the qualification, a learner must complete a minimum of 360 credits comprising 60 credits from Fundamental modules, 290 credits from Core modules, and at least 10 credits from Elective modules

ASSESSMENT ARRANGEMENTS

ASSESSMENT

Assessment will be integrated, made up of Formative and Summative Assessment.

Formative Assessment

Formative assessment will be administered throughout the learning period in the form of written tests and practical and formative assessment shall contribute 50% of the final grade of the course.

Summative Assessment

A summative assessment will be administered at the end of each module. Summative assessment shall contribute 50% to the course final grade.

Assessment will be conducted by BQA registered and accredited assessors. Assessors must possess a minimum qualification of Bachelor of Engineering in Armament Engineering or related field with a teaching and assessment qualification (e.g. PGDE, CVET, DVET, PGDHE).

MODERATION ARRANGEMENTS

MODERATION

Both internal and external moderation processes will be carried out by BQA registered and accredited moderators in line with institutional policies.

Moderators must possess a minimum qualification of Bachelor of Engineering in Armament Engineering or related field. The moderator should be a highly experienced assessor with a teaching, assessment and moderation qualification.

RECOGNITION OF PRIOR LEARNING

RPL will be applicable for gaining credits towards the qualification accordance to ETP policies that align with national RPL policies.

CREDIT ACCUMULATION AND TRANSFER

CAT will be applicable for gaining credits towards the qualification accordance to ETP policies that align with national CAT policies.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Learning Pathways

Horizontal Articulation

1. Diploma in Armament Engineering
2. Diploma in Mechanical Engineering

Vertical Articulation:

1. Bachelor's Degree in Small Arms Production.
2. Bachelor of Engineering in Industrial Engineering.

Employment Pathways

1. Armament Technicians.
2. Workshop Managers.

QUALIFICATION AWARD AND CERTIFICATION

QUALIFICATION AWARD: To be awarded the qualification of Diploma in Small Arms Engineering, a candidate should satisfy the requirements of the qualification, which is 360 Credits; 60 Credits of Fundamental modules, 290 Credits of Core modules and 10 Credits Elective modules.

CERTIFICATION: Upon successful completion of all requirements of the qualification, the ETP shall issue transcripts and certificates to the graduates.

SUMMARY OF REGIONAL AND INTERNATIONAL COMPARABILITY

This comparability matrix evaluates the Diploma in Small Arms Engineering against international programs with similar occupational intent—specifically those preparing technicians in small arms maintenance, repair, and operational readiness. Due to the sensitive nature of military curricula, detailed comparisons are limited by restricted access to course content and assessment frameworks. Globally, small arms technician training varies significantly across defense institutions, with most qualifications tailored to national operational requirements. While no program matches the exact structure and nomenclature of Botswana's NCQF Level 6 diploma, several international offerings provide a baseline for comparability in terms of technical depth, duration, and occupational outcomes.

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1. **Similarities:**

- a. Title of Qualification, NQF Level & Duration: Most qualifications are pegged at Level 6 equivalents except Engineering Technician Qualifying Course (ETQC), UK which is offered at Level 3 in 14 weeks. Botswana's diploma spans 3 years, the rest are 1-year courses
- b. Main Exit Outcomes: All qualifications aim to produce technicians capable of maintaining and repairing small arms systems with emphasis on fault diagnosis, safety protocols, and readiness for operational deployment.
- c. Domains/Modules: All include modules on weapon mechanics, diagnostics, and safety protocols. The Botswana Diploma and the Royal Navy- HMS Colling wood (UK) qualification include more engineering learning areas such as electrical systems and fluid power systems.
- d. Assessment Strategies & Weightings: All use a mix of practical and written assessments.
- e. Qualification Rules & Minimum Standards: All except Advanced Certificate in Firearms & Weapons, Certificate offered by Modern Gun School require prior technical or military experience.
- f. Education & Employment Pathways: All lead to roles in defense, security, or technical maintenance sectors.

Differences:

- a. Title of Qualification, NQF Level & Duration: The developed Diploma in Small Arms Engineering is a 3-year Level 6 qualification with 360 credits, structured under the Botswana NCQF. International qualifications (UK, USA, India) are typically 1-year certificates or diplomas, with no standardized credit systems or formal NQF alignment. On the other hand, WETC is offered in 5 to 9 months and specifically focuses on Naval weapons. The Botswana qualification is military-specific and nationally accredited, while others are either civilian (USA) or modular military courses (India, UK) with limited academic articulation.
- b. Main Exit Outcomes: The developed qualification emphasizes diagnostics, maintenance, operational readiness, and range management tailored to BDF deployment needs. It includes leadership, ethics, and regulatory compliance, preparing graduates for supervisory roles. International qualifications focus narrowly on technical servicing, with limited emphasis on design principles, operational integration, or strategic deployment. Civilian qualifications (USA,) include customization, which is not relevant to Botswana's defense context.

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- c. Domains/Modules: The developed qualification modules include guided weapons, mechanical zeroing, armoury management, and construction of infantry weapons, which are absent in international qualifications. It integrates entrepreneurship, ethics, and range management, supporting broader institutional roles. International qualifications offer basic gunsmithing, safety, and maintenance, often without advanced engineering modules or military-specific systems. India's Diploma in Armament Technology lack modular progression, elective strands, and credit accumulation frameworks.
- d. Assessment Strategies & Weightings: The developed uses integrated formative and summative assessments, each contributing 50% to final grades, conducted by BQA-accredited assessors. International qualifications vary: but generally rely on practical exams and written tests however information on standardized weightings is not readily available.
- e. Qualification Rules: ETQC requires GCSEs and English fluency; The developed allows entry via NCQF Level 4 or RPL pathways. Other International qualifications often require military affiliation or prior technical experience, but there is no information on formal RPL or CAT mechanisms. Other qualifications do not specify minimum credit thresholds, modular combinations, or exit-level outcomes in a structured format.
- f. Education & Employment Pathways: The developed qualification articulates into Bachelor of Engineering in Small Arms Engineering, Mechanical Engineering, and Industrial Engineering. It supports horizontal progression to Armament Engineering and Mechanical Engineering diplomas. International qualifications offer limited or no vertical articulation, often terminating at technician level except WETC which leads to Royal Navy career progression. Botswana graduates are prepared for roles as Armament Technicians, Workshop Managers, and Instructors while international graduates typically enter field-level maintenance roles or civilian gunsmithing.

REVIEW PERIOD

This qualification will be reviewed after 5 years upon registration.

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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	
REVISION DATE:		NAME OF PROFESSIONAL BODIES/REGULATOR	Y

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