

## BQA NCQF QUALIFICATION TEMPLATE

SECTION A: QUALIFICATION DETAILS																	
<b>QUALIFICATION DEVELOPER (S)</b>			Roads Training Centre														
<b>TITLE</b>		Certificate III in Heavy Plant Operations in Construction								<b>NCQF LEVEL</b>		3					
<b>STRANDS (where applicable)</b>		Not applicable															
<b>FIELD</b>		Manufacturing, Engineering and Technology								<b>CREDIT VALUE</b>		120					
<b>SUB FIELD</b>		Engineering and Engineering Trades															
New Qualification		✓		Legacy Qualification						Renewal Qualification							
										Registration Code							
<b>SUB-FRAMEWORK</b>		General Education						TVET		✓		Higher Education					
<b>QUALIFICATION TYPE</b>		Certificate		I		II		III		✓ IV		V		Diploma		Bachelor	
		Bachelor Honours				Post Graduate Certificate						Post Graduate Diploma					
		Masters								Doctorate/ PhD							
<b>RATIONALE AND PURPOSE OF THE QUALIFICATION</b>																	
<b>RATIONALE:</b> <p>The Botswana Education and Training Sector Strategic Plan (ETSSP 2015-2020) marked a significant milestone in our collective efforts as a nation to bring about a more diversified, knowledge-based economy. In particular, the ETSSP intended to strengthen the match between qualifications and labour market requirements, thereby ensuring that education and training outputs are more closely aligned to socio economic development needs of the country. The Botswana Standard Classification of Occupations (BOSCO) provides a structured framework for categorising various occupations within</p>																	

Botswana. It helps organise and classify different job roles based on their functions and responsibilities. According to Bosco (2016), under Earthmoving and Related Plant Operators, the occupation is needed or critical to the construction sector of Botswana, hence the motivation to offer training in heavy plant operations.

According to Technical and Vocational Education and Training (TVET), Pitso Action Plan Implementation through the Human Resource Development Council (HRDC) outlines the contribution of TVET to the development of the national economy, particularly in the sectors of construction and manufacturing has proven that opportunities for employment creation abound. Hence, we aim to produce competent heavy plant operators to improve the country's economy. While there have been reports of labour shortages in many industries, this is particularly true for the construction industry. Skills needs assessment was done for heavy plant operations by Roads Training Centre during an external stakeholders meeting where the chairperson of the Association of Consulting Engineers (ACEB) said that,

*“The problem is that many construction workers are part of the Baby Boomer generation and are starting to retire. Baby Boomers account for more than 40% of construction workers, meaning that more than 40% of construction workers have already retired or will retire soon. This gap in experienced and qualified workers caused by the Baby Boomers retiring is causing the demand for trained construction workers and heavy equipment operators to increase sharply”.*

In its quest to contribute to Botswana's knowledge-based economy and socio-economic activity, the developer wishes to be one of the global players, producing competent heavy plant operators for construction and maintenance. The developer, therefore, wishes to be one of the global players in developing competent artisans for heavy plant operations, which would be integrated into the development and maintenance of roads. The input that the Roads Training Centre will play will cover operating bulldozers, motor graders, front-end loaders and compacting rollers. These are incorporated because they are critical machinery for construction and maintenance.

The qualification was compared with other existing heavy plant operations qualifications at level three, and it was found that the qualifications offer different types of machine operators from different industries, such as mining. Hence, there is a need to develop an earthmoving plant operator's qualification that only focuses on the construction industry.

### **PURPOSE:**

The purpose of the qualification is to equip graduates with basic operational and theoretical knowledge, skills and competencies to:

- Perform construction efficiently in line with project requirements using heavy machinery under supervision
- Conduct regular maintenance on machinery to maintain peak performance and liability.

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- Follow safety, health and environmental protocols to reduce risk and prevent accidents during equipment operations.
- Engage clients, team members and stakeholders using appropriate communication methods.

### MINIMUM ENTRY REQUIREMENTS (including access and inclusion)

- NCQF Level 2 Certificate II (TVET) or equivalent.
- Recognition of Prior Learning (RPL) and Credit Accumulative Transfer (CAT) will be considered for admission in accordance with applicable policies.

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SECTION B QUALIFICATION SPECIFICATION	
GRADUATE PROFILE (LEARNING OUTCOMES)	ASSESSMENT CRITERIA
1. Operate heavy plant machinery in construction according to the manufacturer's operating manual.	1.1 Comply with safety operational guidelines and hazard identification procedures 1.2 Conduct pre-operational and start-up procedures of the machine according to the manufacturer's operating manual. 1.3 Operate machinery according to job specifications. 1.4 Respond to dashboard warning light symbols. 1.5 Perform Park and shut down procedures of the machine according to the operating manual.
2. Perform minor maintenance on heavy plant machinery in construction according to manufacturer's manual.	2.1 Apply the machinery hygiene processes 2.2 Carry out minor service of the machine as per the manufacturer manual. 2.3 Complete inspections and maintenance records according to the manufacturer's operating manual and organisational procedures.
3. Apply requirements of current legislation impacting Health, Safety and environmental issues in construction.	3.1 Implement statutory safety legislation, regulations and standard practices as per construction requirements. 3.2 Implement statutory health legislation, regulations and standard practices as per construction requirements. 3.3 Implement statutory environment legislation, regulations and standard practices as per construction requirements.
4. Communicate with clients, colleagues and others using effective basic forms of communication.	4.1 Identify forms of communication on a site 4.2 Interpret stipulated instructions or requirements in a site. 4.3 Log daily activities to track progress. 4.4 Interpret various road traffic signs for effective communication and safety of machines and other road users.

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SECTION C		QUALIFICATION STRUCTURE			
COMPONENT	TITLE	Credits Per Relevant NCQF Level			Total Credits
		Level [ II ]	Level [ III ]	Level [ IV ]	
<b>FUNDAMENTAL COMPONENT</b> Subjects/ Courses/ Modules/Units	General Safety, Health and Environment		6		6
	Communication Skills		6		6
	Road traffic signs and regulations		6		6
<b>CORE COMPONENT</b> Subjects/Courses/ Modules/Units	Basic construction processes		8		8
	Introduction to Heavy plant operations		14		14
	Machine components and systems		8		8
	Machine Minor Maintenance		12		12
	<b>Total Credits</b>		<b>60</b>		<b>60</b>
<b>STRANDS/ SPECIALIZATION</b>	Subjects/ Courses/ Modules/Units	Credits Per Relevant NCQF Level			Total Credits
		Level [ II ]	Level [ III ]	Level [ IV ]	

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<b>1</b>					
<b>2.</b>					
<b>Electives</b>	Operate A tractor Loader Backhoe (TLB)		30		30
	Operate A Bulldozer		30		30
	Operate A Front-End Loader		30		30
	Operate an excavator		30		30
	Operate A Dump truck.		30		30
	Operate A Drum Roller		30		30
	Operate A Motor Grader		30		30

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### SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL

#### TOTAL CREDITS PER NCQF LEVEL

NCQF Level	Credit Value
3	120
<b>TOTAL CREDITS</b>	<b>120</b>

#### Rules of Combination:

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

This Certificate III in Heavy Plant Operations in construction comprises 120 credits. It comprises of Fundamental component, core component and two elective components from electives.

#### Fundamental Components:

The Fundamental components to the value of 18 credits are compulsory.

#### Core Components:

The Core components to the value of 42 credits are compulsory.

#### Electives:

Learners are to choose two (2) Electives from seven (7) Electives (with 30 credits) to the value of 60 credits to attain the 120 credits required for the qualification.

#### Credits Summary

120 Credits at level 3

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### ASSESSMENT ARRANGEMENTS

- Formative assessment will contribute 60%.
- Summative assessment will constitute the other 40%.

### MODERATION ARRANGEMENTS

- There will be both Internal Moderation and External moderation
- BQA BQA-accredited moderators shall carry out moderation for assessment.
- Moderation will be carried out in accordance with the institutional policies and in line with the national policy.

### RECOGNITION OF PRIOR LEARNING

This qualification is designed to allow award through RPL assessment in accordance with Institutional and National RPL policy.

### CREDIT ACCUMULATION AND TRANSFER

This qualification is designed to allow award through CAT assessment, in accordance with Institutional and National CAT policy.

### PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

#### Horizontal Pathways

- National Certificate: Construction: Crane Operations, NQF Level 3.
- National Certificate: Fishing Operations, NQF Level 3.
- Construction: Advanced Plant Operations, NQF Level 3
- Certificate III in Civil Construction Plant Operations

#### Vertical Pathways

- National Certificate: Construction: Advanced Plant Operations, NQF Level 4.
- National Certificate: Construction: Advanced Crane Operations, NQF Level 4.
- National Certificate: Lifting Machine Operation, NQF Level 4

#### Employment Pathways

- Heavy Plant Operator



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- Construction Plant Operator

### QUALIFICATION AWARD AND CERTIFICATION

#### Award of the Qualification

A candidate is required to achieve 120 credits to be awarded the Certificate III in Heavy Plant Operations in construction qualification, inclusive of the fundamental, core and elective components.

#### Certification

There will be testing and issuance of a certificate III in Heavy Plant Operations in construction and official transcript at award.

### SUMMARY OF REGIONAL AND INTERNATIONAL COMPARABILITY

The Certificate III in Heavy Plant Operations was compared with similar qualifications in other countries in terms of scope, level and curriculum content. The purpose of this study was to compare the qualification against existing regional and international practice. National certificate: Advanced Plant Operations and Certificate III in Civil Construction Plant Operations are offered in South-Africa and Australia respectively.

#### Similarities

The developed qualification has 120 credits, similar to Certificate III in Civil Construction Plant Operations and National Certificate in Advanced Plant Operations. The qualifications are all at level 3. The exit outcomes for the Developed qualification (Certificate III in Heavy Plant Operations) are similar to the learning outcomes of Certificate III in Civil Construction Plant Operations and of Advanced Plant Operations.

#### Differences

The developed qualification and Certificate III in Civil Construction Plant Operations and of National certificate; Advanced Plant Operations have different names while they are all developed under civil engineering. The developed qualification uses modules, while the compared qualifications use standard units.

#### Conclusion

The developed qualification compares well with benchmarked qualifications looking at the credits value, level and learning outcomes therefore the developed qualification is appropriate to construction industry, despite different names of qualifications.

### REVIEW PERIOD

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

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**For Official Use Only:**

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



**BOTSWANA**  
Qualifications Authority