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SECTION A: QUALIFICATION DETAILS													
<b>QUALIFICATION DEVELOPER (S)</b>			Gaborone University College of Law and Professional Studies										
<b>TITLE</b>		Certificate V in Electrical Installation									<b>NCQF LEVEL</b>		5
<b>FIELD</b>		Manufacturing, Engineering and Technology		<b>SUB-FIELD</b>		Electrical Installations			<b>CREDIT VALUE</b>		130		
New Qualification								Review of Existing Qualification					
<b>SUB-FRAMEWORK</b>		General Education					TVET				Higher Education		
<b>QUALIFICATION TYPE</b>		Certificate	I	II	III	I	V			Diploma		Bachelor	
		Bachelor Honours			Post Graduate Certificate			Post Graduate Diploma					
		Masters					Doctorate/ PhD						
<b>RATIONALE AND PURPOSE OF THE QUALIFICATION</b>													
<p><b>RATIONALE:</b></p> <p>With reference to the National Development Plan (NDP 11) on poverty eradication there is need to develop skills and talent within Botswana. The central thrust of Botswana's overall strategy for eradication of extreme poverty during NDP 11 will be to provide opportunities for the poor to have sustainable livelihoods (NDP 11: 2017 -2023). This will be achieved by accelerating job creation through vocational training, economic diversification and broad-based growth and strengthening human development of the poor. To realize these objectives, concerted efforts will be made to improve training and education, and to enhance skills</p>													

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development. In light with this short-term programme have been developed to sustain livelihoods and develop talent within the country by offering a qualification in electrical installations and repair.

It is further noted in HRDC Priority Skills of 2019, that electrical and equipment installers and repairers occupation is a needed skill with forecast showing the need now and in the future years.

Central to the rationale for this qualification is the development of a culture of professionalism and service excellence in the electrical installation and repair. Certificate V in Electrical Installation will provide for breadth and flexibility to match the needs of the learners, employers, and industry as a whole. It will give the learners the key skills essential to be able to function effectively as flexible, adaptable, and competitive electricians and for a lifelong career in electrical installations and repair. These skills will make the learners employable, and they will be able to make effective contributions to the electrical engineering business by being able to apply the acquired knowledge and skills.

Certificate V in Electrical Installation qualification has been designed to address knowledge and socio-cultural needs and it has been recognized that ways in which education in the electrical installations sector can help stimulate the Botswana communities.

#### **PURPOSE:**

The purpose of this qualification is to produce electrical artisans who can competently conduct electrical installations, conduct maintenance, repair and construction of basic electrical systems in practice and possess knowledge attitude and interpersonal skills needed in the industry.

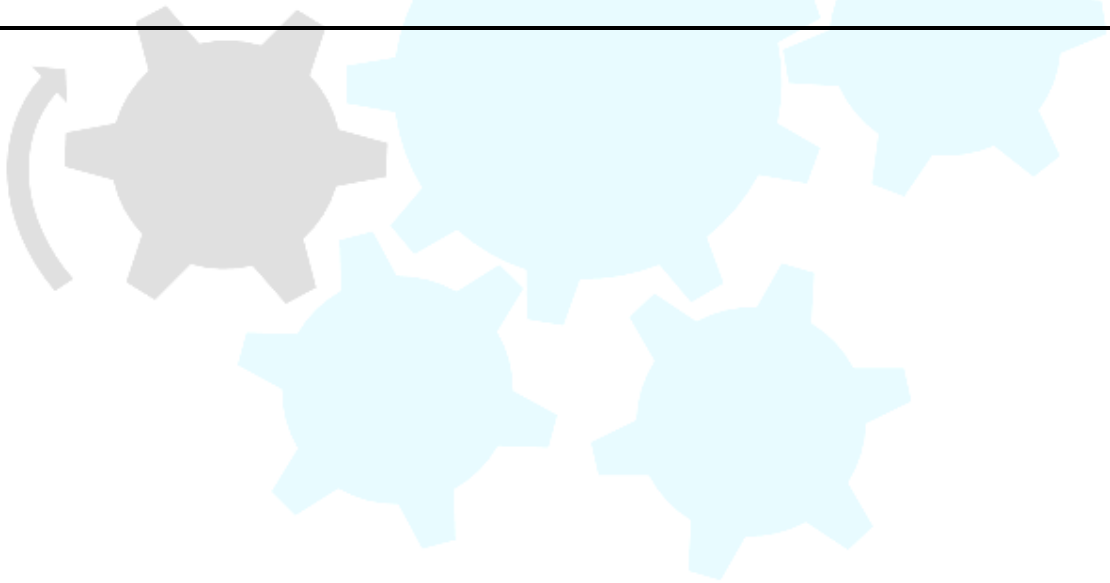
#### ***At the end of this qualification, graduates will be able to:***


- Install and commission electrical equipment in integrated circuits.
- Read and interpret technical drawings, and electrical sketches.
- Maintain and repair electrical faults and systems.
- Apply health, safety and security procedures at the workplace.


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

- (i) A minimum entry of NCQF level 4 or equivalent.
- (ii) Recognition of Prior Learning (RPL) and Credit Accumulation and Transfer (CAT) will be considered for access and inclusion of prospective candidates




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<b>SECTION B</b>		<b>QUALIFICATION SPECIFICATION</b>	
<b>GRADUATE PROFILE (LEARNING OUTCOMES)</b>		<b>ASSESSMENT CRITERIA</b>	
<p>1. Demonstrate the ability to test, fault find, maintain and repair electrical equipment.</p> 		<p>1.1 Isolate electrical circuits according to work procedures</p> <p>1.2 Inspect for non-conformance of electrical circuits.</p> <p>1.3 Test and verify the correct operation of equipment in electrical circuits.</p> <p>1.4 Identify and repair or replace faulty equipment in electrical circuits accordingly in the correct procedure.</p> <p>1.5 Monitor, record and maintain electrical equipment according to correct workshop standards</p>	
<p>2. Read and interpret technical drawings and electrical sketches during the execution of tasks with an ability to read, interpret technical drawings, and electrical sketches.</p>		<p>2.1 Apply principles of electrical engineering in solving integrated circuit in electrical drawing.</p> <p>2.2 Demonstrate the principles and operation of electrical circuits in accordance with circuit and equipment specifications. 3.3</p> <p>2.3 Interpret and construct electronic circuits according to circuit diagrams and components provided.</p>	
<p>3. Construct and interpret basic electronic circuits in electrical appliances and systems</p>		<p>3.1 Interpret wiring diagrams</p> <p>3.2 Use tools and equipment according to manufacturer operating guidelines.</p>	

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	<p>3.3 Source out tools and equipment from available supplies.</p> <p>3.4 Identify faulty tools and take corrective action in accordance with workplace procedures</p>
4. Operate in a safe and efficient working environment	<p>4.1 Identify and report basic electrical related problems and hazards according to workplace standards.</p> <p>4.2 Demonstrate efficient operation as a team member.</p> <p>4.3 Clean and inspect isolated electrical equipment.</p>
5. Install and commission electrical equipment in integrated circuits	<p>5.1 Identify and install components and equipment relating to the installation of integrated electrical circuits.</p> <p>5.2 Connect components and equipment in integrated electrical circuits according to technical diagrams.</p> <p>5.3 Demonstrate understanding of health and safety procedures in conducting practical assignments.</p> <p>5.4 Integrate circuit installations according to statutory requirements</p> <p>5.5 Remove and replace components according to manufacturer specifications.</p>

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<b>SECTION C</b>	<b>QUALIFICATION STRUCTURE</b>				
<b>COMPONENT</b>	<b>TITLE</b>	<b>Credits Per Relevant NCQF Level</b>			<b>Total</b> <b>(Per Subject/</b> <b>Course/</b> <b>Module/</b> <b>Units)</b>
		<b>Level [ 5]</b>	<b>Level [6]</b>	<b>Level [7]</b>	
<b>FUNDAMENTAL COMPONENT</b> <i>Subjects/ Courses/ Modules/Units</i>	Engineering drawing	10			10
	Introduction to Information and Communications Technology	10			10
	Entrepreneurial Skills	10			10
	Technical Mathematics	10			10
<b>CORE COMPONENT</b> <i>Subjects/Courses/ Modules/Units</i>	Electrical Engineering Technology	10			10
	Health and Safety in the Work Environment	10			10
	Electrical and Electronics Materials and Components	10			10
	Basic Electrical Machines	15			15
	Electrical Installation and Maintenance	20			20
	Work based learning (internship)	25			25
<b>ELECTIVES</b>					

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<b>SUMMARY OF CREDIT DISTRIBUTION FOR EACH COMPONENT PER NCQF LEVEL</b>	
<b>TOTAL CREDITS PER NCQF LEVEL</b>	
<b>NCQF Level</b>	<b>Credit Value</b>
<b>5</b>	<b>130</b>
<b>TOTAL CREDITS</b>	<b>130</b>
<b>Rules of Combination:</b> <b>(Please Indicate combinations for the different constituent components of the qualification)</b>	
<p><b>Fundamental = 40 credits at Level 5</b></p> <p><b>Core = 90 credits at level 5.</b></p> <p><b>Total = 130 credits</b></p>	

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### **ASSESSMENT ARRANGEMENTS**

The assessment for this qualification shall comprise of both formative and summary assessments. Both formative and summative assessment processes are accounted for to monitor progress during the qualification and to determine competence of the learners at the end of the qualification.

The formative assessment shall contribute 60% and summative assessment shall make up the remaining 40%.

### **MODERATION ARRANGEMENTS**

All assessment tools and processes shall undergo internal and external moderation. The internal and external moderation shall be conducted through ETP policies which will be aligned with the National policies.

Assessment and moderation shall be conducted by BQA registered assessors and moderators.

### **RECOGNITION OF PRIOR LEARNING**

There will be provision for Recognition of Prior Learning for award of the qualification using ETP RPL Policy in line with the National RPL Policy

### **CREDIT ACCUMULATION AND TRANSFER**

There will be provision for Credit Accumulation and Transfer, CAT for award of the qualification using ETP Policy in line with the National CAT Policy


### **PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)**

#### **Learning pathways**

*Vertical:*

- Diploma in Electronics
- Diploma in Electrical Engineering



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- Diploma in Mechanical Engineering

#### *Horizontal*

- Certificate V in Electronics
- Certificate V in Electrical Engineering

### **EMPLOYMENT PATHWAYS**

After successfully completing this qualification, the graduate is equipped to be:

- Wire installers.
- Construction electricians.
- Electrical maintenance workers.
- House wirers.

### **QUALIFICATION AWARD AND CERTIFICATION**

Upon successful completion of 130 credits the candidate will be awarded a Certificate V in Electrical Installation qualification.


### **REGIONAL AND INTERNATIONAL COMPARABILITY**

The proposed qualification was benchmarked with Equip Africa Institute of Kenya, Certificate in Electrical Installation and Electrical Installation, Wiring and Maintenance Certification of Zoe Talent Solutions in Dubai. In terms of main exit outcomes, the above qualifications compare similarly to the proposed qualification as they all intend to equip the learner with skills and competencies required to plan, install, test, maintain and repair different types of electrical installations.

#### ***Certificate in Electrical Installation and Electrical Installation- Equip Africa Institute in Kenya,***

Although the modules are not indicated under the Kenyan qualification, as well as credits, its entry requirements (which when mapped in the NCQF equates to NCQF level 4) suggest that it is similar to the proposed qualification.

#### ***Wiring and Maintenance Certification - Zoe Talent Solutions in Dubai.***

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The qualification is not credited with no NQF level and assessment weightings. However, the content indicated on this qualification correlate with the proposed qualification especially on the main subject of electrical installation, wiring, technical drawing, safety in the workplace, electrical systems, and maintenance. A direct comparison of the title, specific outcomes, assessment criteria and embedded knowledge was benchmarked against two similar qualifications regionally and internationally (see *attached*).

#### **REVIEW PERIOD**

The qualification will be reviewed every 5 years