



Transport Education Training Authority  
Heart of Skills Innovation




## Occupational Qualification and Occupational Curriculum Project

<b>Organising Framework of Occupations (OFO) Code:</b>	653306
<b>Occupation:</b>	Diesel Mechanic
<b>Specialisation</b>	Locomotive Diesel Electrical Fitter
<b>Document Type:</b>	Occupational Profile
<b>Status:</b>	Industry verification
<b>Due Date:</b>	24 August 2015

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## Introduction

### 1. Overview of new qualification landscape

- 1.1. The QCTO is one of the three Quality Councils provided for in the National Qualifications Framework Act (NQF Act No 67 of 2008)
- 1.2. The QCTO was established under the Skills Development Act and became operational on the 1st April 2010 following the publication of Government Gazette No 33059, 1st April 2010
- 1.3. The QCTO has been putting in place the necessary building blocks to operate since its establishment. On 20th July 2011 it officially started delegating functions to the first Development Quality Partners (DQPs) and have gradually entered into such relationships with more DQPs since then

### 2. Development Quality Partners


- 2.1. These are bodies delegated by the QCTO to manage the process of developing specific occupational qualifications, curricula and assessment specifications.
- 2.2. DQPs manage / coordinate and fund the development of occupational qualifications.
- 2.3. The broader occupational constituency (stakeholders with an interest in the occupation) must identify and agree on a suitable body to perform these activities.

### 3. Occupational qualifications

- 3.1. An occupational qualification defines the learning required to be competent to practice an occupation.
- 3.2. These are associated with a trade, occupation or profession, resulting from work-based learning and consisting of knowledge unit standards, practical unit standards and work experience unit standards as defined in the Skills Development Act and has an external summative assessment
- 3.3. All occupational qualifications are linked to the Organising Framework for Occupations (OFO)

### 4. Occupational curriculum

- 4.1. Occupational qualifications are based on the development of occupational curricula. The occupational curricula document provides an outline of the following:
- 4.2. Occupational profile - based on occupational tasks
- 4.3. Learning components in the form of Specifications for:
  - Subjects constituted from the theory and knowledge

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- Practical skills modules constituted from the practical skills that provide the essential skills for the work with its associated applied knowledge
- Work experience modules constituted from work experiences that would develop occupational competence with its associated workplace knowledge

4.4. These Specifications contain the internal assessment criteria and provider accreditation or workplace approval requirements.

## 5. Integrated External Summative Assessment Specifications

5.1. All occupational qualifications will be assessed externally through an appropriate nationally standardised integrated summative assessment.

5.2. Each occupational qualification will have an associated qualification assessment specifications document to focus on occupational competence and enhance consistency, quality and credibility of the external assessment process.


5.3. Qualification assessment specifications provide an outline of:

- external assessment strategy: method to be used, qualification outcomes and assessment standards
- key occupational outcomes to be assessed: linked to occupational tasks and the specified critical external assessment focus areas
- points or specific times when external assessment must take place: phase tests, particular points in the activity cycle
- critical elements of the internal assessments to be moderated (if any)
- eligibility requirements for learners to access the external assessment
- criteria for registration of assessors.

**At this stage of the process the detailed content of this section is not available but will be submitted on completion of the occupational curriculum**

## 6. Occupational profile

6.1. The occupational profile is one of the results of the curriculum development process and provides the basis for the development of the curriculum content of the specific occupation or occupational specialisation. It comprises an occupational purpose and the occupational tasks that are performed by practitioners of the occupation or specialisation. Each task is also broken down into a related product or service, one or more occupational responsibility and one or more occupational context.

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The occupational profile forms the unit of analysis for the development of the curriculum components as well as the external summative assessment specifications.


## 7. Process Background

7.1. The Transport Education and Training Authority (TETA) submitted various applications to the Quality Council for Trades and Occupations (QCTO) to generate occupational and trade qualifications:

OFO Code	OFO Title	Specialisation
311102	Meteorologist	Meteorological Technician
653201	Aircraft Maintenance Mechanic	Aircraft Mechanic
653202	Aircraft Structures Worker	Aircraft Structures Technician
672101	Avionics Mechanician	Avionics Mechanic
315501	Airborne Electronics Analyst	Air Traffic Safety Electronic Practitioner
132401	Supply and Distribution Manager	Customs Compliance Manager
734301	Crane or Hoist Operator	Lift Machine Operator
734301	Crane or Hoist Operator	Mobile Elevated Work Platform Specialist
734402	Forklift Driver	Lift Truck Operator
313301	Chemical Plant Controller	Fuel Transportation Pipeline Controller
653306	Diesel Mechanic	Locomotive Diesel Electrical Fitter
671101	Electrician	Rolling Stock Electrical Fitter
684905	Vehicle Body Builder	
672107	Special Class Electrician	Railway Signalling Maintenance Worker

7.2. QCTO have specific requirements to be met in the development of occupational qualifications and curricula and therefore initial meetings were held, referred to as Scoping Workshops. The following decisions were confirmed at these workshops:

- TETA as the QCTO's Development Quality Partner (DQP) to resource, co-ordinate and manage the development process
- Identification of Learner Qualification Development Facilitators (LQDFs)

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- The scope of each of the occupational qualifications
- Different industry bodies as well as the TETA as the QCTO’s Assessment Quality Partner (AQP) for the various different qualifications to manage the external assessment process
- The process for nominating expert practitioners (subject matter experts) as well as training providers to the working groups at various stages of the development process
- Project dates including working group meetings, verifications to be completed and final submission

7.3. The second set of workshops were the Occupational Profiling workshops where all 14 occupational profiles for the occupations listed above were generated.

7.4. These Occupational Profiles lay the foundation for the curricula content and occupational qualifications for the specific occupations, which will replace any unit standards-based qualifications or specific industry qualifications for these specific occupations.

## 8. Verification Process


8.1. As part of the QCTO process of developing occupational qualifications and curricula different documents will be submitted to the broader industry stakeholders for verification. The three documents that will be submitted for verification are the:

- Occupational Profile
- Curriculum learning component specifications including:
  - ✓ Subjects (theory and knowledge)
  - ✓ Practical skills modules
  - ✓ Work experience modules
- Assessment Specifications

**At this stage of the process ONLY the Occupational Profiles referred to above are being submitted for verification**


## 9. Process Status and Actions Required

9.1. Please note that you will be receiving three more of these types of documents as identified in the bullet points under point 8.1 above. These documents will be distributed by the DQP and you will be requested to comment within a specific time period. Your comments must be submitted electronically (preferably) and in the format template provided. This is what is referred to by the QCTO as the “Verification Process”

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- 9.2. This is the verification process for the **occupational profile ONLY**, which has been attached for your comment.
- 9.3. Please complete the questions asked in relation to the various sections of the occupational profile. If your response is a disagreement with any of the sections, please provide additional comments and suggestions in order to provide sufficient information to make an amendment.
- 9.4. Please submit your responses, comments, suggestions or change requests to:
- Ms Fulufhelo Ratshibvumo
  - E-mail: fulufhelor@teta.org.za

Due date: **24 August 2015**

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**10. Evaluation and Verification Questionnaire**

<b>Occupation Title:</b>	Locomotive Diesel Electrical Fitter
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**PLEASE INSERT AN “X” IN THE APPROPRIATE BOX AND PROVIDE ADDITIONAL COMMENTS WHERE NECESSARY**

**Occupational title**

- Is Locomotive Diesel Electrical Fitter the most appropriate title?

<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:
Additional comments for clarity, suggestions and inclusion	<a href="#">Click here to enter text.</a>


**Occupational Purpose**

- Does this reflect what you think the key focus of any Locomotive Diesel Electrical Fitter's work is?

<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:
Additional comments for clarity, suggestions and inclusion	<a href="#">Click here to enter text.</a>

**Occupational Task Statements**

- Do these tasks reflect the key performance areas of a Locomotive Diesel Electrical Fitter's work?
- Are these the various steps in the production cycle, business processes or value chain of a Locomotive Diesel Electrical Fitter's work?
- Are these the overarching occupational responsibilities of a Locomotive Diesel Electrical Fitter?

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<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:
Additional comments for clarity, suggestions and inclusion	<a href="#">Click here to enter text.</a>

**Products or services**

- Are these the unique products or services produced or delivered by an Locomotive Diesel Electrical Fitter?
- Would an Locomotive Diesel Electrical Fitter be asked to do this or provide this?
- Would an Locomotive Diesel Electrical Fitter be paid for providing or doing this?

<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:
Additional comments for clarity, suggestions and inclusion	<a href="#">Click here to enter text.</a>

**Occupational Responsibilities**

- Do these reflect what an Locomotive Diesel Electrical Fitter must do to deliver the service or produce the product?
- Are these the highest level activities that best describe the overall responsibilities?
- Do these statements of responsibility reflect an overarching statement for the building blocks in the form of practical skills?
- Are these the steps that must be taken in order to deliver the product or service?
- Do these represent the skills required to deliver the product or service?
- Do these statements represent what a Locomotive Diesel Electrical Fitter must be able to do or learn to do?

<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:

Additional comments for clarity, suggestions and inclusion	
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**Occupational Contexts**

- Are these the occupational context/s within which the product or service must be delivered?
- Are these the key processes that a Locomotive Diesel Electrical Fitter must be exposed to in the workplace?
- Are these the key physical settings or situations that a Locomotive Diesel Electrical Fitter must be exposed to in the workplace?

<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:
Additional comments for clarity, suggestions and inclusion	Click here to enter text.

**External assessment**

- Is the preliminary information reflected here the most cost-effective and reliable way of assessing the competence of a Locomotive Diesel Electrical Fitter?

<input type="checkbox"/>	I accept the content as reflected
<input type="checkbox"/>	I don't accept the content. I would propose:
Additional comments for clarity, suggestions and inclusion	

## 11. Occupational Profile

<b>OFO code</b>	653306
<b>Occupation</b>	Diesel Mechanic
<b>Specialisation</b>	Locomotive Diesel Electrical Fitter

### 1. Occupational Purpose

A Locomotive Diesel Electrical Fitter maintains, inspects, tests, overhauls, repairs and fits diesel locomotive engines, mechanical parts, transmissions, suspension, steering and brakes.

### 2. Occupational Tasks

- Plan and prepare site, equipment, tools, consumables and materials for maintaining diesel locomotives and auxiliary systems and components (NQF Level 3)
- Maintain and overhaul diesel locomotive engines, auxiliary machines and main motors (NQF Level 4)
- Test, repair and install machinery, mechanical equipment and components (NQF Level 4)
- Test, repair and install electrical components (NQF Level 4)
- Diagnose and repair faults in diesel locomotives and related system components (NQF Level 4)

### 3. Occupational Task Details

#### 3.1. Plan and prepare site, equipment, tools, consumables and materials for maintaining diesel locomotives and auxiliary systems and components (NQF Level 3)


##### Unique Product or Service:

Prepared, safe and equipped diesel locomotives working site

##### Occupational Responsibilities:

- Plan and prepare worksite set up for diesel electrical fitting
- Perform first-aid and fire-fighting as first responders
- Identify, select, use and care for tools used in diesel electrical fitting

##### Occupational Contexts:

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- Planning and preparation process for diesel electrical fitting

### 3.2. Maintain and overhaul diesel locomotive engines, auxiliary machines and main motors (NQF Level 4)

**Unique Product or Service:**

Maintained and functional diesel locomotives

**Occupational Responsibilities:**

- Service and conduct preventative and scheduled maintenance on diesel locomotive engines
- Dismantle, assess, reassemble and fit diesel locomotive engines and engine sub-assemblies
- Remove and repair faulty components on diesel locomotive engines, auxiliary machines and main motors

**Occupational Contexts:**

- Diesel locomotive maintenance processes
- Diesel locomotive engine removal and installation processes

### 3.3. Test, repair and install machinery, mechanical equipment and components (NQF Level 4)

**Unique Product or Service:**

Installed and operational machinery and equipment

**Occupational Responsibilities:**

- Inspect and test functionality of machinery, mechanical equipment and components
- Repair machinery, mechanical equipment and components
- Install machinery, mechanical equipment and components

**Occupational Contexts:**


- Maintenance and installation procedures for machines and mechanical equipment

### 3.4. Test, repair and install electrical components (NQF Level 4)

**Unique Product or Service:**

Repaired electrical circuits and electrical and electronics parts

**Occupational Responsibilities:**

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- Examine and test electrical and electronic components/parts
- Check electrical and electronic component reports and identify anomalies
- Repair electrical and electronic faults
- Wire and install electrical and electronic components

**Occupational Contexts:**

Electrical component maintenance processes

**3.5 Diagnose and repair faults in diesel locomotives and related system components (NQF Level**

4)

**Unique Product or Service:**


Safe, reliable, fully functional diesel locomotives

**Occupational Responsibilities:**

- Diagnose and repair diesel locomotive sub-systems
- Diagnose and repair electrical systems
- Diagnose and repair electronically controlled systems
- Diagnose and repair fuel system

**Occupational Contexts:**

- Fault finding and repair processes of electrical systems
- Fault finding and repair processes of diesel locomotive engines and engine sub-systems

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