

		Qualification Document			
Occupational Code	Qualification Title		NQF Level		
671301-002-00-00	Railway Traction Line Worker		4		
	Name	Email	Phone	Logo	
Development Quality Partner	Transport Education and Training Authority (TETA)	Physical Address	TETA House 344 Pretoria Avenue Randburg Gauteng		
		Postal Address	Private Bag X10016 Randburg 2125		
		Telephone	(011) 577-7000/ 7040		
Assessment Quality Partner	National Artisan Moderating Body (NAMB)	http://www.dhet.gov.za	012 312 5911 0800 87 2222 086 999 0123		

QUALIFICATION DETAILS

Qualification Title: Occupational Certificate: Railway Traction Line Worker.

Occupational Code: 671301-002.

Quality Assuring Body: Quality Council for Trades and Occupations (QCTO).

Sub-Framework: Occupational Qualifications Sub-Framework.

Field: Field 12 – Physical Planning and Construction.

Subfield: Electrical Infrastructure Construction.

NQF Level: 4.

Credits: 570.

Originator/Development Quality Partner (DQP): Transport Education and Training Authority (TETA)

Qualification Type: Occupational Certificate.

Registered qualifications and or learning programmes to be replaced:

- SAQA ID: 49773; National Certificate: Rail Construction and Maintenance of Overhead Track Equipment; NQF Level 02; 137 credits;
- SAQA ID: 50020; National Certificate: Construction and Maintenance of Overhead Track Equipment; NQF Level 03; 146 credits; and
- SAQA ID: 49774; Further Education and Training Certificate: Construction and Maintenance of Overhead Track Equipment; NQF Level 04; 154 Credits.

RATIONALE

This qualification will equip learners with the appropriate knowledge skills and work experience required to be recognised as a Tradesperson who will be able to build and maintain railway overhead track equipment nationally and internationally.

Overhead track equipment (OHTE) forms a critical part of the infrastructure of a rail transport system and contributes to the safe and efficient running of rail traffic. Due to the density of rail traffic and the emphasis placed on reliability, availability and safety of overhead track equipment, it is vitally important that the equipment be repaired in a timeous, efficient and safe manner with a minimal disruption of the continuity of the power supply to the system.

To enable safe and timeous repair of overhead track equipment, maintenance personnel must have a sound knowledge of various overhead track systems and must follow predetermined faultfinding and repair procedures based on overhead track engineering practices and specifications.

The development of railway infrastructure is a key driver for economic development. In South Africa, one of the key barriers to accelerated economic development is the provisioning of cost effective and reliable mass transport systems for both freight and passenger services. One of the key strategies in the National Development Plan is the improvement and proper maintenance of infrastructure.

We require a dynamic railway sector with the skills and abilities to build and maintain an ever-growing railway network.

This qualification is targeted at mobilising and capacitating the fundamental human resource capabilities required to deliver this strategy.

The qualification is a specialisation of the Overhead Line Mechanic qualification. The Line Mechanic constructs transmission lines from the power generation facilities and distribution networks to the various users. The Railway Traction Line Worker specialises in the construction and maintenance of the electrical overhead track equipment for the railway sector. The knowledge and skills components of the qualification is aligned with the International Railway Construction standards (IRIS). The qualification incorporates two-part qualifications that will enable smooth career progression and it will contribute towards skills flexibility and mobility within the sector.

This qualification provides an opportunity for learners, with limited formal education, to enter the trade and will then capacitate them to exit with an NQF Level 4 trade, which could be internationally accepted as an entry for articulation into related careers and/or further studies within the Electrical Engineering Construction field.

The two, part qualifications, contained in this parent qualification are:

- Railway OHTE Technical Worker - (NQF Level 2); and
- Railway OHTE Technical Assistant – (NQF Level 3).

Each of these part qualifications will enable qualified learners to gain meaningful employment within the Railway sector. Structuring the qualification in this way also meets the needs of the various stakeholders and will therefore contribute towards cost efficiency and productivity.

PURPOSE

The purpose of this qualification is to prepare a learner to operate as a Railway Traction Worker

A Railway Traction Worker constructs and maintains high voltage electrical overhead traction equipment networks and distribution networks within the railway infrastructure environment to ensure the safe and efficient running of trains.

A qualified learner will be able to:

- Execute basic technical support work on overhead track equipment;
- Execute advanced technical support work on overhead track equipment; and
- Operate as a traction lines-person.

RULES OF COMBINATION

This qualification is made up of the following compulsory Knowledge, Practical Skills and Work Experience Modules:

Knowledge Modules

- 671301-002-00-00 KM-01 General principles of overhead track equipment maintenance; NQF Level 2, Credits 36
- 671301-002-00-00 KM-02 Fundamental principles of overhead track equipment construction and maintenance; NQF Level 3, Credits 57
- 671301-002-00-00 KM-03 Specialised principles of overhead track equipment construction and maintenance, NQF Level 4, Credits 55

Total number of credits for Knowledge Modules: 148

Practical Skill Modules

- 671301-002-00-00 PM-01 Maintain overhead track structures and return circuits. NQF Level 2, 57 Credits
- 671301-002-00-00 PM-02 Perform earthing and bonding on traction systems and transmission lines., NQF Level 3, Credits 20
- 671301-002-00-00 PM-03 Afford on-track protection, NQF Level 2, Credits 5
- 671301-002-00-00 PM-04 Under Supervision perform construction and maintenance of overhead track equipment under isolated and earthed NQF Level 3, Credits 98
- 671301-002-00-00 PM-05 Inspect, do fault finding, installation, repair and adjustment of OHTE under live and/or isolated and earthed conditions. NQF Level 4, Credits 17
- 671301-002-00-00 PM-06 Work under isolated and earth conditions and to clearance from exposed "live" high-voltage electrical equipment (3kV DC, 25 kV and 50kV AC overhead traction equipment (OHTE) and all transmission lines and associated equipment) with a mechanized vehicle/on track machine. NQF Level 4, Credits 52

Total number of credits for Practical Skill Modules: 249

Work Experience Modules

- 671301-002-00-00 WM-01 Execute basic technical work within overhead track equipment maintenance processes, NQF Level 2, Credits 59
- 671301-002-00-00 WM-02 Execute technical support work within the construction and maintenance of Railway OHTE, NQF Level 3, Credits 66
- 671301-002-00-00 WM-03 Execute specialised OHTE construction and maintenance work NQF Level: 4, Credits: 48

Total number of credits for Work Experience Modules: 173

ENTRY REQUIREMENTS

NQF level 1 with English communication and maths literacy; Compliance with the medical fitness requirements for employment as a railway worker.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA

Exit Level Outcome 1

Apply basic electrical engineering techniques and principles to execute basic technical support work related to the construction and maintenance of railway overhead line equipment

Associated Assessment Criteria

- Painting and stencilling of OHTE structures within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Earthing within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Bonding within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation of Height gauges within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Manufacturing of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

Exit Level Outcome 2

Apply electrical construction and maintenance processes and techniques to execute basic and specialised technical work on Railway Overhead Track Equipment.

Associated Assessment Criteria

- Assembly and fitting of small steelwork within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety

requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Installation and positioning of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation and maintenance of OHTE conductors within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Application of additional portable earth connections within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards.

Exit Level Outcome 3

Independently operate as a Railway OHTE linesman executing a range of electrical construction and maintenance tasks

Associated Assessment Criteria

- Engineering drawings, layouts and switching diagrams are accurately interpreted according to the internationally accepted standards for operational staff;
- Splicing and termination of different conductors including cables within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Sagging and tensioning of overhead conductors on different constructions within the railway environment are properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation of section insulator/phase breakers within the railway environment are properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Set up of foundation boxes within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and

the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Issuing and cancelling of work permits are executed according to the regulatory requirements and the leading practices for safety and health within the railway sector;
- Testing and Connecting of different components and equipment on H frames within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Testing and Connecting of different components and equipment on switch structures within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards.

1.3.2 Assessment Standards for Phases

There are no phase assessments

INTERNATIONAL COMPARABILITY

For purposes of establishing an international comparability the Occupational Certificate: Railway Traction Worker; was compared with similar qualifications in Australia and the United Kingdom. In each of these countries there are suites of qualifications that should be viewed in total in order to conduct a meaningful comparison.

Australia

In Australia a similar situation as in South Africa exists where the Railway Traction Line Worker is seen as a specialisation of the Electrical Line Worker.

The South African Railway Traction Line Worker operates as an independent tradesperson ensuring the construction and maintenance of Railway OHTE infrastructure.

In Australia the underpinning knowledge and skills required to be deemed competent to access the occupation of a Railway Traction Line Worker can be gained through completion of “Certificate III in ESI – Power Systems – Rail Traction”. The following summary of learning units forms part of this certificate:

- Plan and prepare work.
- Jointing of electrical cables.
- Testing of cables.
- Installation of circuit breakers.
- High-voltage switchgear above 1000 kV.
- Clean up.

United Kingdom

In the United Kingdom the City and Guilds training organisation conducts training for Railway Workers leading to the completion of an apprentice programme. The training caters for learners who would want to start a career in the rail industry and progress either through an apprenticeship or proving competence of the skills and knowledge required for each of the following areas: track, **traction** and rolling stock, **electrification**, signalling and telecoms.

They have five qualifications that covers these specialisation areas:

- The Certificate in Rail Engineering Underpinning Knowledge provides serves as an introduction to the railway industry and prepares them for the NVQs in Rail Engineering;
- The NVQs in Rail Engineering will enables the development of professional skills and knowledge in a wide range of specialist areas;
- The Certificate in Rail Engineering Underpinning Knowledge is aimed at apprentices within the rail engineering industry; and
- The NVQs are aimed at anyone working in railways engineering, including those preparing for a specialised role or management responsibility.

Conclusion

The Occupational Certificate Railway OHTe compares favourably with the various qualifications used in Australia and the United Kingdom as far as content is concerned. In all cases the technical standards are guided by international guidelines. The South African qualifications and part qualifications are structured to meet the African needs and cater for the unique situations in our continent, it therefore and includes some of the more basic skills and creates a career path where learners can enter with minimal education and exit at the level of a tradesperson. There is however a large degree of similarity in terms of entry, content, duration and level with the international qualifications.

INTEGRATED ASSESSMENT

Integrated formative assessment

The skills development provider will use the curriculum to guide them on the stipulated internal assessment criteria and weighting. They will also apply the scope of practical skills and applied knowledge as stipulated by the internal assessment criteria. This formative assessment leads to entrance into the integrated external summative assessment.

Integrated summative assessment

An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality Partner is required for the issuing of this qualification. The external integrated summative assessment will focus on the exit level outcomes and associated assessment criteria.

RECOGNITION OF PRIOR LEARNING (RPL)

RPL for access to the external integrated summative assessment

Accredited providers and approved workplaces must apply the internal assessment criteria specified in the related curriculum document to establish and confirm prior learning. Accredited providers and workplaces must confirm prior learning by issuing a statement of result or certifying a work experience record.

RPL for access to the qualification

Accredited providers and approved workplaces may recognise prior learning against the relevant access requirements.

ARTICULATION

Horizontal

This qualification articulates horizontally with the following qualification:

- Occupational Certificate: Electrical Line Mechanic: Overhead Lines: NQF Level 4

Vertical

This qualification articulates vertically with the following qualifications:

- Occupational Certificate: Electrical Substation Operations Technician (Power Systems Controller): NQF: Level 5.

NOTES

Qualifying for External Assessment

In order to qualify for an external assessment, learners must provide proof of completion of all required modules by means of statements of results and work experience records including the Foundational Learning Competence.

Additional Legal or Physical Entry Requirements

None

Criteria for the Accreditation of Providers

Accreditation of providers will be done against the criteria as reflected in the relevant curriculum on the QCTO website.

The curriculum title and code are: Railway Traction Line Worker: 671301-002-00-00

Encompassed Trades

This qualification encompasses the following trades as recorded on the NLRD:

Railway Traction Line Worker

Assessment Quality Partner (AQP)

National Artisan Moderating Body (NAMB).

MODULES

Component	Number	Title	NQF Level	Credits
Knowledge	671301-002-KS- 01	General principles of overhead track equipment maintenance;	2	36
Knowledge	671301-002-KS- 02	Fundamental principles of overhead track equipment construction and maintenance;	3	57
Knowledge	671301-002-KS- 03	Specialised principles of overhead track equipment construction and maintenance.	4	55
Practical Skills	671301-002-PM- 01	Maintain overhead track structures and return circuits.	2	57
Practical Skills	671301-002-PM- 02	Perform earthing and bonding on traction systems and transmission lines.	3	20
Practical Skills	671301-002-PM- 03	Afford on-track protection	2	5
Practical Skills	671301-002-PM- 04	Under Supervision perform construction and maintenance of overhead track equipment under isolated and earthed conditions.	3	98
Practical Skills	671301-002-PM- 05	Inspect, do fault finding, installation, repair and adjustment of	4	17
Practical Skills	671301-002-PM- 06	Work under isolated and earth conditions and to clearance from exposed "live" high-voltage electrical equipment (3kV DC, 25 kV and 50kV AC overhead traction equipment (OHTE) and all transmission lines and associated equipment) with a mechanised vehicle/on track machine.	4	52
Work Experience	671301-002-WM-01	Overhead track equipment maintenance processes	2	59
Work Experience	671301-002-WM-02	Processes for constructing and maintaining overhead track equipment	3	66
Work Experience	671301-002-WM-03	Specialised OHTE construction and maintenance processes	4	48

PART QUALIFICATIONS

SAQA ID	Curriculum Code	Title	NQF Level	Credits
	671301-002-00-01	Railway OHTE Technical Worker	2	151
	671301-002-00-02	Railway OHTE Technical Assistant	3	241

PART QUALIFICATION 1

		Curriculum Document			
Occupational Code	Part Qualification Title	NQF Level			
671301-002-00-01	Railway OHTE Technical Worker	2			
	Name	Email	Phone	Logo	
Development Quality Partner	Transport Education and Training Authority (TETA)	Physical Address	TETA House 344 Pretoria Avenue Randburg Gauteng		
		Postal Address	Private Bag X10016 Randburg 2125		
		Telephone	(011) 577-7000/ 7040		
		Fax	086 76 505 14		
Assessment Quality Partner	National Artisan Moderating Body (NAMB)	http://www.dhet.gov.za	012 312 5911 0800 87 2222 086 999 0123		

QUALIFICATION DETAILS

Qualification Title: Occupational Certificate: Railway OHTE Technical Worker.

Occupational Code: 671301-002-00-01.

Quality Assuring Body: Quality Council for Trades and Occupations (QCTO).

Sub-Framework: Occupational Qualifications Sub-Framework.

Field: Field 12 – Physical Planning and Construction.

Subfield: Electrical Engineering Construction.

NQF Level: 2.

Credits: 151.

Originator/Development Quality Partner (DQP): Transport Education and Training Authority (TETA)

Qualification Type: Occupational Certificate.

Registered qualifications and or learning programmes to be replaced:

- SAQA ID: 49773; National Certificate: Construction and Maintenance Overhead Track Equipment; NQF Level 02; 137 credits.

RATIONALE

This part qualification will equip learners with the appropriate knowledge skills and work experience required to execute the work of a Railway OHTE Technical Worker who will be able to use basic electrical engineering and general construction techniques to provide technical support for the construction and maintenance of railway overhead track equipment nationally and internationally.

The development of railway infrastructure is a key driver for economic development. In South Africa, one of the key barriers to accelerated economic development is the provisioning of cost effective and reliable mass transport systems for both freight and passenger services. One of the key strategies in the National Development Plan is the improvement and proper maintenance of infrastructure. Currently and in the future, we will require a dynamic railway sector with the skills and abilities to build and maintain an ever-growing railway network. This qualification is targeted at mobilising and capacitating the fundamental human resource capabilities required to deliver this strategy.

The knowledge and skills components of the qualification is aligned with the International Railway Construction standards (IRIS). This is one of the two-part qualifications that will enable smooth career progression and it will contribute towards skills flexibility and mobility within the sector.

This qualification provides an opportunity for learners, with limited formal education, to enter a trade and will then capacitate them to exit with an NQF Level 2 qualification and progress to the next level eventually exiting with full trade at NQF Level 4.

This part qualifications will enable qualified learners to gain meaningful employment within the Railway sector. The qualification meets the needs of the various stakeholders and will therefore contribute towards cost efficiency and productivity.

PURPOSE

A Railway OHTE Technical Worker, provides basic technical support to the OHTE construction and maintenance service and experience and execute basic cleaning, maintenance, painting and related technical work.

RULES OF COMBINATION

This qualification is made up of the following compulsory Knowledge Practical Skills and Work Experience Modules:

Knowledge Modules

Total number of credits for Knowledge Modules: 30

Practical Skill Modules

Total number of credits for Practical Skill Modules: 62

Work Experience Modules

Total number of credits for Work Experience Modules: 59

ENTRY REQUIREMENTS

NQF level 1 with English communication and maths literacy; Compliance with the medical fitness requirements for employment as a railway worker.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA

Exit Level Outcome 1

Apply basic electrical engineering techniques and principles to execute basic technical support work related to the construction and maintenance of railway overhead line equipment

Associated Assessment Criteria

- Painting and stencilling of OHTE structures within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Earthing within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Bonding within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation of Height gauges within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Manufacturing of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

INTERNATIONAL COMPARABILITY

For purposes of establishing an international comparability the Occupational Certificate: Railway Traction Worker; was compared with similar qualifications in Australia and the United Kingdom. In each of these countries there are suites of qualifications that should be viewed in total in order to conduct a meaningful comparison.

Australia

In Australia a similar situation as in South Africa exists where the Railway Traction Line Worker is seen as a specialisation of the Electrical Line Worker.

South African “Railway OHTE Technical Worker” executes the basic support duties related to preparation for work and ensuring that the area is clean and ready for operations after the completion of work, in addition they also execute basic routine maintenance functions.

In Australia the underpinning knowledge and skills required to be deemed competent to access the occupation of a Railway Traction Line Worker can be gained through completion of “Certificate III in ESI – Power Systems – Rail Traction”. The following learning units forms part of this certificate:

- Plan and prepare work.
- Jointing of electrical cables.
- Testing of cables.
- Installation of circuit breakers.
- High-voltage switchgear above 1000 kV.
- Clean up.

In the part qualification for Technical Workers only some of the skills and knowledge will be required. The South African situation requires additional inputs relating to the basics of the electrical environment and the safety practices for operating in this environment.

United Kingdom

In the United Kingdom the City and Guilds training organisation conducts training for Railway Workers leading to the completion of an apprentice programme. The training caters for learners who

would want to start a career in the rail industry and progress either through an apprenticeship or proving competence of the skills and knowledge required for each of the following areas: track, **traction** and rolling stock, **electrification**, signalling and telecoms.

They have five qualifications that covers these specialisation areas:

- The Certificate in Rail Engineering Underpinning Knowledge provides serves as an introduction to the railway industry and prepares them for the NVQs in Rail Engineering;
- The NVQs in Rail Engineering will enables the development of professional skills and knowledge in a wide range of specialist areas;
- The Certificate in Rail Engineering Underpinning Knowledge is aimed at apprentices within the rail engineering industry; and
- The NVQs are aimed at anyone working in railways engineering, including those preparing for a specialised role or management responsibility.

The qualifications contain a lot of elements that are similar to the learning modules to the Technical Worker qualification.

Conclusion

This qualification compares favourably with the various qualifications used in Australia and the United Kingdom as far as content is concerned. In all cases the technical standards are guided by international guidelines. The South African qualification are structured differently and includes some of the more basic skills, but is overall similar in terms of entry, content, duration and level.

INTEGRATED ASSESSMENT

Integrated formative assessment

The skills development provider will use the curriculum to guide them on the stipulated internal assessment criteria and weighting. They will also apply the scope of practical skills and applied knowledge as stipulated by the internal assessment criteria. This formative assessment leads to entrance into the integrated external summative assessment.

Integrated summative assessment

An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality Partner is required for the issuing of this qualification. The external integrated summative assessment will focus on the exit level outcomes and associated assessment criteria.

RECOGNITION OF PRIOR LEARNING (RPL)

RPL for access to the external integrated summative assessment

Accredited providers and approved workplaces must apply the internal assessment criteria specified in the related curriculum document to establish and confirm prior learning. Accredited providers and

workplaces must confirm prior learning by issuing a statement of result or certifying a work experience record.

RPL for access to the qualification

Accredited providers and approved workplaces may recognise prior learning against the relevant access requirements.

ARTICULATION

Horizontal

This part qualification articulates horizontally with the following qualification:

- National Certificate: Vocational: Civil Engineering and Building Construction; NQF Level 2

Vertical

This part qualification articulates vertically with the following qualification currently being developed

- Occupational Certificate: Railway OHTE Technical Assistant; NQF Level 3.

NOTES

Qualifying for External Assessment

In order to qualify for an external assessment, learners must provide proof of completion of all required modules by means of statements of results and work experience records.

Additional legal or physical entry requirements

None

Criteria for the Accreditation of Providers

Accreditation of providers will be done against the criteria as reflected in the relevant curriculum on the QCTO website.

The curriculum title and code are: Railway OHTE Technical Worker: 671301-002-00-01

Encompassed Trades

This qualification encompasses the following trades as recorded on the NLRD:

- This is not a trade qualification

Assessment Quality Partner (AQP)

National Artisan Moderating Body (NAMB).

MODULES

Component	Number	Title	NQF Level	Credits
Knowledge	671301-002-00-00 KS- 01	General principles of overhead track equipment maintenance;	2	36
Practical Skills	671301-002-00-00 PM- 01	Maintain overhead track structures and return circuits.	2	57
Practical Skills	671301-002-00-00 PM- 03	Afford on-track protection	2	5
Work Experience	671301-002-00-00 WM-01	Overhead track equipment maintenance processes	2	59

PARENT QUALIFICATION

SAQA ID	Curriculum Code	Title	NQF Level	Credits
	671301-002-00-00	Railway Traction Line Worker	4	570

PART QUALIFICATIONS

Part qualifications related to this part qualification

SAQA ID	Curriculum Code	Title	NQF Level	Credits
	734212-000-00-02	Railway OHTE Technical Assistant	3	241

PART QUALIFICATION 2

		Curriculum Document			
Occupational Code	Part Qualification Title	NQF Level			
671301-002-00-02	Railway OHTE Technical Assistant	3			
	Name	Email	Phone	Logo	
Development Quality Partner	Transport Education and Training Authority (TETA)	Physical Address	TETA House 344 Pretoria Avenue Randburg Gauteng		
		Postal Address	Private Bag X10016 Randburg 2125		
		Telephone	(011) 577-7000/ 7040		
		Fax	086 76 505 14		
Assessment Quality Partner	National Artisan Moderating Body (NAMB)	http://www.dhet.gov.za	012 312 5911 0800 87 2222 086 999 0123	 higher education & training Department: Higher Education and Training REPUBLIC OF SOUTH AFRICA	

QUALIFICATION DETAILS

Qualification Title: Occupational Certificate: Railway OHTE Technical Assistant

Occupational Code: 671301-002.

Quality Assuring Body: Quality Council for Trades and Occupations (QCTO).

Sub-Framework: Occupational Qualifications Sub-Framework.

Field: Field 12 – Physical Planning and Construction.

Subfield: Electrical Engineering Construction.

NQF Level: 3.

Credits: 241.

Originator/Development Quality Partner (DQP): Transport Education and Training Authority (TETA)

Qualification Type: Occupational Certificate.

Registered qualifications and or learning programmes to be replaced:

- SAQA ID: 50020; National Certificate: Construction and Maintenance of Overhead Track Equipment; NQF Level 03; 138 credits.

RATIONALE

This part qualification will equip learners with the appropriate knowledge skills and work experience required to execute the work of a Railway OHTE Technical Assistant who will be able to use electrical engineering and general construction techniques for the construction and maintenance of railway overhead track equipment, under supervision of a qualified tradesperson, nationally and internationally.

The development of railway infrastructure is a key driver for economic development. In South Africa, one of the key barriers to accelerated economic development is the provisioning of cost effective and reliable mass transport systems for both freight and passenger services. One of the key strategies in the National Development Plan is the improvement and proper maintenance of infrastructure. Currently and in the future, we will require a dynamic railway sector with the skills and abilities to build and maintain an ever-growing railway network. This qualification is targeted at mobilising and capacitating the fundamental human resource capabilities required to deliver this strategy.

The knowledge and skills components of the qualification is aligned with the International Railway Construction standards (IRIS). This is one of the two-part qualifications that will enable smooth career progression and it will contribute towards skills flexibility and mobility within the sector.

This qualification provides an opportunity for learners, with limited formal education, to enter a trade and will then capacitate them to exit with an NQF Level 3 qualification and progress to the next level eventually exiting with full trade at NQF Level 4.

This part qualifications will enable qualified learners to gain meaningful employment within the Railway sector. The qualification meets the needs of the various stakeholders and will therefore contribute towards cost efficiency and productivity.

PURPOSE

A Railway OHTE Technical Assistant executes technical work within the railway OHTE construction and maintenance environment under supervision.

RULES OF COMBINATION

This qualification is made up of the following compulsory Knowledge Practical Skills and Work Experience Modules:

Knowledge Modules

Total number of credits for Knowledge Modules: 57

Practical Skill Modules

Total number of credits for Practical Skill Modules: 118

Work Experience Modules

Total number of credits for Work Experience Modules:

ENTRY REQUIREMENTS

Occupational Certificate: Railway OHTE Technical Worker; NQF Level 2.

EXIT LEVEL OUTCOMES AND ASSOCIATED ASSESSMENT CRITERIA

Exit Level Outcome 2

Apply electrical construction and maintenance processes and techniques to execute basic and specialised technical work on Railway Overhead Track Equipment.

Associated Assessment Criteria

- Assembly and fitting of small steelwork within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Installation and positioning of droppers within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety

requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;

- Installation and maintenance of OHTE conductors within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards;
- Application of additional portable earth connections within the railway environment is properly planned, all required preparations are done according to the relevant occupational health and safety requirements and the work is executed in line with internationally accepted health, safety, environmental and quality standards

INTERNATIONAL COMPARABILITY

For purposes of establishing an international comparability the Occupational Certificate: Railway Traction Worker; was compared with similar qualifications in Australia and the United Kingdom. In each of these countries there are suites of qualifications that should be viewed in total in order to conduct a meaningful comparison.

Australia

In Australia a similar situation as in South Africa exists where the Railway Traction Line Worker is seen as a specialisation of the Electrical Line Worker.

South African “Railway OHTE Technical Assistant” executes construction and maintenance work under supervision of a tradesperson.

In Australia the underpinning knowledge and skills required to be deemed competent to access the occupation of a Railway Traction Line Worker can be gained through completion of “Certificate III in ESI – Power Systems – Rail Traction”. The following learning units forms part of this certificate:

- Plan and prepare work.
- Jointing of electrical cables.
- Testing of cables.
- Installation of circuit breakers.
- High-voltage switchgear above 1000 kV.
- Clean up.

In the part qualification for Technical Assistant only some of the skills and knowledge will be required. The South African situation requires additional inputs relating to the basics of the electrical environment and the safety practices for operating in this environment as well as specific legal requirements.

United Kingdom

In the United Kingdom the City and Guilds training organisation conducts training for Railway Workers leading to the completion of an apprentice programme. The training caters for learners who would want to start a career in the rail industry and progress either through an apprenticeship or

proving competence of the skills and knowledge required for each of the following areas: track, **traction** and rolling stock, **electrification**, signalling and telecoms.

They have five qualifications that covers these specialisation areas:

- The Certificate in Rail Engineering Underpinning Knowledge provides serves as an introduction to the railway industry and prepares them for the NVQs in Rail Engineering;
- The NVQs in Rail Engineering will enables the development of professional skills and knowledge in a wide range of specialist areas;
- The Certificate in Rail Engineering Underpinning Knowledge is aimed at apprentices within the rail engineering industry; and
- The NVQs are aimed at anyone working in railways engineering, including those preparing for a specialised role or management responsibility.

The qualifications contain a lot of elements that are similar to the learning modules to the Technical Assistant qualification.

Conclusion

This qualification compares favourably with the various qualifications used in Australia and the United Kingdom as far as content is concerned. In all cases the technical standards are guided by international guidelines. The South African qualification are structured differently and includes the specific South African legislative requirements, but is overall similar in terms of entry, content, duration and level.

INTEGRATED ASSESSMENT

Integrated formative assessment

The skills development provider will use the curriculum to guide them on the stipulated internal assessment criteria and weighting. They will also apply the scope of practical skills and applied knowledge as stipulated by the internal assessment criteria. This formative assessment leads to entrance into the integrated external summative assessment.

Integrated summative assessment

An external integrated summative assessment, conducted through the relevant QCTO Assessment Quality Partner is required for the issuing of this qualification. The external integrated summative assessment will focus on the exit level outcomes and associated assessment criteria.

RECOGNITION OF PRIOR LEARNING (RPL)

RPL for access to the external integrated summative assessment

Accredited providers and approved workplaces must apply the internal assessment criteria specified in the related curriculum document to establish and confirm prior learning. Accredited providers and

workplaces must confirm prior learning by issuing a statement of result or certifying a work experience record.

RPL for access to the qualification

Accredited providers and approved workplaces may recognise prior learning against the relevant access requirements.

ARTICULATION

Horizontal

This part qualification articulates horizontally with the following qualification:

- National Certificate: Electrical Construction, NQF Level 03.

Vertical

This part qualification articulates vertically with the following qualification:

- Occupational Certificate: Railway Traction Line Worker, NQF Level 04.

NOTES

Qualifying for External Assessment

In order to qualify for an external assessment, learners must provide proof of completion of all required modules by means of statements of results and work experience.

Additional Legal or Physical Entry Requirements

None

Criteria for the Accreditation of Providers

Accreditation of providers will be done against the criteria as reflected in the relevant curriculum on the QCTO website.

The curriculum title and code are: Railway Track Constructor: 734212-000-00-02

Trades encompassed

This qualification encompasses the following trades as recorded on the NLRD:

- This is not a trade qualification.

Assessment Quality Partner (AQP)

National Artisan Moderating Body (NAMB).

MODULES

Component	Number	Title	NQF Level	Credits
Knowledge	671301-002-00-00 KS- 02	Fundamental principles of overhead track equipment construction and maintenance;	3	57
Practical Skills	671301-002-00-00 PM- 02	Perform earthing and bonding on traction systems and transmission lines.	3	20
Practical Skills	671301-002-00-00 PM- 04	Under Supervision perform construction and maintenance of overhead track equipment under isolated and earthed conditions.	3	98
Work Experience	671301-002-00-00 WM-02	Processes for constructing and maintaining overhead track equipment	3	66

PARENT QUALIFICATION

SAQA ID	Curriculum Code	Title	NQF Level	Credits
	671301-002-00-00	Railway Traction Line Worker	4	570

PART QUALIFICATIONS

Part qualifications related to this part qualification

SAQA ID	Curriculum Code	Title	NQF Level	Credits
	734212-002-00-01	Railway OHTE Technical Worker	2	151

