




Assessment Specification				
Occupational Code	Qualification Title	NQF Level		
734212-000	Railway Track Master	4		
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Assessment Quality Partner	National Artisan Moderating Body (NAMB)	http://www.dhet.gov.za	012 312 5911 0800 87 2222 086 999 0123	 <p>higher education & training Department: Higher Education and Training REPUBLIC OF SOUTH AFRICA</p>

DQP Representative Signature

Date

AQP Representative Signature

Date

Table of content

1 ASSESSMENT STRATEGY	3
1.1 Assessment Model	3
1.2 Qualification Purpose	3
1.3 Assessment Standards	3
1.3.1 Assessment Standards for the Qualification	3
1.3.2 Assessment Standards for Phases	5
1.3.3 Assessment Standards for Part Qualifications	5
2 ASSIGNMENTS TO BE EVALUATED EXTERNALLY	5
3 CRITICAL ASPECTS OF THE INTERNAL ASSESSMENTS TO BE ASSESSED EXTERNALLY	7
4 CRITERIA FOR THE REGISTRATION OF ASSESSORS	7
5 FOUNDATIONAL LEARNING	7
6 ELIGIBILITY REQUIREMENTS FOR THE EXTERNAL ASSESSMENT	8
6.1 Qualification	8
6.2 Phase 1	Error! Bookmark not defined.
6.3 Part Qualification	Error! Bookmark not defined.

1 ASSESSMENT STRATEGY

1.1 Assessment Model

The final integrated external assessment will be done at a registered assessment site accredited by the QCTO where both theory and practical ability will be assessed. (Simulated environment) It will consist of a knowledge/theory test and the execution of a set of practical tasks that will be observed and evaluated by NAMB registered assessors. The total assessment will be conducted over a minimum period of two days.

1.2 Qualification Purpose

A Railway Track Master: Constructs, aligns, repairs and maintains permanent way infrastructure and associated works in the field of Civil Engineering to ensure the safe running of trains.

A qualified learner will be able to:

- Execute basic construction, maintenance and rehabilitation tasks on railway lines. NQF Level 2;
- Execute specialised railway construction and maintenance work NQF Level 3;
- Ensure the ongoing upgrading of the railway tracks, NQF Level 4;
- Manage rail construction and maintenance projects and processes, NQF Level 4.

1.3 Assessment Standards

1.3.1 Assessment Standards for the Qualification

Integrated Assessment Focus Area 1

Apply specific welding and joining techniques to execute basic and specialised railway construction, maintenance and rehabilitation tasks on railway lines.

Associated Assessment Criteria

- Wheel spin burns/battered rail ends are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Rail Manufactured frogs are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Railway switchblades are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Preventative grinding is executed using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Exothermic joints are cast using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately

according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;

- Rail bound 14% cast manganese frogs are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice.

Integrated Assessment Focus Area 2

Apply civil construction processes and techniques to execute basic and specialised railway construction, maintenance and rehabilitation tasks on railway lines.

Associated Assessment Criteria

- Broken block joints/rails are identified, and the different types of breaks are described indicating the most likely causes for these breaks;
- Detailed planning of how to replace railway block joints/tracks describe all the required steps, materials that must be used and accurately indicates the potential risks and delineates a feasible time line for the work;
- The Clearances for a range of railway situations are accurately measured and evaluated indicating any deviations from standard;
- Explanations of the actions required to correct sub-standard clearances are according to internationally accepted railway standards and in accordance with local legislation and related codes of practice;
- Hand screening of railway ballast is executed according to the accepted standard and completed within the time frame and in compliance with all Occupational Health and Safety requirements;
- Constructed railway turnouts are evaluated, all defective components are identified and replaced according the internationally accepted railway standards and in compliance with all occupational health and safety standards and related legal determinations;
- Track geometry is accurately calculated in order to determine the relevant railway track standard and classification;
- Using the required tools and equipment the stress-free temperatures of various sections of railway track lines are determined and the most appropriate method for destressing the line is described according to the internationally accepted processes and the tested best practices.

Integrated Assessment Focus Area 3

Manage rail construction and maintenance projects and processes

Associated Assessment Criteria

- Measured results of track conditions are accurately read, interpreted and the priority actions to deal with defects are listed and described in terms of internationally accepted railway practices and local legislative requirements;
- Various sections of railway tracks are inspected and the quality of the construction and maintenance work on these tracks are assessed. Reports on this assessment is accurate and indicates all the defects, problems and potential problems associated with the completed work;
- Reflection on the appropriate application of the occupational health, safety and environmental requirements associated with the work being done during railway track construction and maintenance demonstrates a deep understanding of the practical hazards and risks associated with railway construction and maintenance work;
- Planning for the execution of rail construction and maintenance activities are completed within the parameters of an approved budget and time frames and in compliance with all Occupational Health safety and environmental requirements;
- End products delivered by construction and maintenance machines are evaluated and quality assured according to the international leading practices for such work, all defects are identified, and the potential short, medium and long-term consequences of these defects are described.

1.3.2 Assessment Standards for Phases

There are no phase assessments

1.3.3 Assessment Standards for Part Qualifications

Part Qualification 01: Railway Track Welder

Integrated Assessment Focus Area 1

Apply specific welding and joining techniques to execute basic and specialised railway construction, maintenance and rehabilitation tasks on railway lines.

Associated Assessment Criteria

- Wheel spin burns/battered rail ends are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Rail Manufactured frogs are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Railway switchblades are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;

- Preventative grinding is executed using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Exothermic joints are cast using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice;
- Rail bound 14% cast manganese frogs are repaired using the appropriate grinding and welding techniques, appropriately selected tools, materials and equipment. All required measurements are made accurately according to the given diagrams and drawings, all OHS requirements are complied with in terms of the regulatory requirements and relevant codes of practice.

Part Qualification 02: Railway Track Constructor

Integrated Assessment Focus Area 2

Apply civil construction processes and techniques to execute basic and specialised railway construction, maintenance and rehabilitation tasks on railway lines.

Associated Assessment Criteria

- Broken block joints/rails are identified, and the different types of breaks are described indicating the most likely causes for these breaks;
- Detailed planning of how to replace railway block joints/tracks describe all the required steps, materials that must be used and accurately indicates the potential risks and delineates a feasible time line for the work;
- The Clearances for a range of railway situations are accurately measured and evaluated indicating any deviations from standard;
- Explanations of the actions required to correct sub-standard clearances are according to internationally accepted railway standards and in accordance with local legislation and related codes of practice;
- Hand screening of railway ballast is executed according to the accepted standard and completed within the time frame and in compliance with all Occupational Health and Safety requirements;
- Constructed railway turnouts are evaluated, all defective components are identified and replaced according to the internationally accepted railway standards and in compliance with all occupational health and safety standards and related legal determinations;
- Track geometry is accurately measured and calculated in order to determine the relevant railway track standard and classification;

- Using the required tools and equipment the stress-free temperatures of various sections of railway track lines are determined and the most appropriate method for destressing the line is described according to the internationally accepted processes and the tested best practices.

Part Qualification 03: Railway Track Construction and Maintenance Practitioner

Integrated Assessment Focus Area 3

Manage rail construction and maintenance projects and processes

Associated Assessment Criteria

- Measured results of track conditions are accurately read, interpreted and the priority actions to deal with defects are listed and described in terms of internationally accepted railway practices and local legislative requirements;
- Various sections of railway tracks are inspected and the quality of the construction and maintenance work on these tracks are assessed. Reports on this assessment is accurate and indicates all the defects, problems and potential problems associated with the completed work;
- Reflection on the appropriate application of the occupational health, safety and environmental requirements associated with the work being done during railway track construction and maintenance demonstrates a deep understanding of the practical hazards and risks associated with railway construction and maintenance work;
- Planning for the execution of rail construction and maintenance activities are completed within the parameters of an approved budget and time frames and in compliance with all Occupational Health safety and environmental requirements;
- End products delivered by construction and maintenance machines are evaluated and quality assured according to the international leading practices for such work, all defects are identified, and the potential short, medium and long-term consequences of these defects are described.

2 ASSIGNMENTS TO BE EVALUATED EXTERNALLY

None

3 CRITICAL ASPECTS OF THE INTERNAL ASSESSMENTS TO BE ASSESSED EXTERNALLY

- None

4 CRITERIA FOR THE REGISTRATION OF ASSESSORS

- External assessors must be in possession of a recognised qualification or trade that is accepted by the industry as appointment for the position of a Railway Track Master;
- External assessors must have at least five years practical experience working as a practicing Railway Track Master

5 FOUNDATIONAL LEARNING

This is an NQF level 4 qualification FLC is a requirement.

6 ELIGIBILITY REQUIREMENTS FOR THE EXTERNAL ASSESSMENT

In order to qualify for the external summative assessment learners must have a copy of a completed and signed Statement of Work Experience as well as proof of successful completion of the following subjects and modules or alternative programmes where applicable, as well as a signed logbook indicating that the work experience have been completed.

6.1 Qualification

KNOWLEDGE MODULES

• 734212000-KM-01 Fundamental principles and theories of welding, NQF Level 2	15
• 734212000-KM-02 Concepts and principles of per-way construction and maintenance, NQF Level 3	72
• 734212000-KM-03, Railway Track Diagnostics, NQF Level 4	33
• 734212000-KM-04, Concepts of managing and supervising per-way construction and maintenance, NQF Level 4	66
	186

PRACTICAL SKILLS MODULES

• 734212-000-PM-01 Operate and care for engineering hand and power tools within a railway construction and maintenance environment, NQF Level 2;	16
• 734212-000-PM-02 Execute basic per-way maintenance and construction work, NQF Level 2;	24
• 734212-000-PM-03 Execute basic grinding and welding work to install and repair railway lines, NQF Level 3;	24
• 734212-000-PM-04 Execute generic railway maintenance and construction tasks, NQF Level 3, Credits 32;	24
• 734212-000-PM-05 Join and repair railway rails using welding techniques, NQF Level 3;	24
• 734212-000-PM-06 Build and construct specialised railway lines and related infrastructure, NQF Level 4;	16
• 734212-000-PM-07 Execute advanced rail joining, repair and maintenance work, NQF Level 4;	24
• 734212-000-PM-08 Supervise and oversee the execution of rail construction and maintenance activities, NQF Level 4.	16
	168

WORK EXPERIENCE MODULES

734212-000-WM-01 Apply generic processes and procedures of constructing and maintaining a Railway Lines, NQF Level 2;	32
734212-000-WM-02 Execute basic per-way maintenance and construction work, NQF Level 2;	32
734212-000-WM-03 Execute basic grinding and welding work to install and repair railway lines NQF Level: 2;	32
734212-000-WM-04 Execute generic railway maintenance and construction tasks, NQF Level 3;	32
734212-000-WM-05 Join and repair railway rails using welding techniques, NQF Level 4;	32
734212-000-WM-06 Build and construct specialised railway lines and related infrastructure, NQF Level 4;	32
734212-000-WM-07 Execute advanced rail joining, repair and maintenance work, NQF Level 4;	32
734212-000-WM-08 Supervise and oversee the execution of rail construction and maintenance activities, NQF Level 4.	32