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QCTO OCCUPATIONAL SKILLS PROGRAMME DOCUMENT

IN LINE WITH OQSF POLICY (2021) OCCUPATIONAL QUALIFICATION TYPE (NOMENCLATURE)

SKILLS PROGRAMME	SKILLS PROGRAMME ID	TITLE (DESCRIPTOR)	NQF LEVEL	CREDITS
Skills Programme	SP-250303	Turbine Fitter (Steam and Gas)	5	42
START DATE	**END DATE**	**LAST DATE FOR ENROLMENT**	**LAST DATE FOR ACHIEVEMENT**	
27 March 2025	27 March 2030	27 March 2031	27 March 2034	
CURRICULUM CODE	900488-000-00-00			
PARTNER DETAILS	**ORGANISATION NAME**	**WEBSITE ADDRESS**	**TELEPHONE NUMBER**	**LOGO**
QUALITY PARTNER - DEVELOPMENT	Energy and Water Services Education and Training Authority (EWSETA)	Home - Energy & Water SETA (ewseta.org.za)	+27 11 274-4700	EW SETA

Contents

1. QUALIFICATION/PART-QUALIFICATION/SKILLS PROGRAMME DETAILS

1.1 Sub-Framework: Occupational Qualifications Sub-Framework

1.2 Type (Nomenclature):

1.2.1 Specify if this is a Skills Programme

Skill Programme

1.2.2 Type: (Nomenclature) e.g. Advanced Occupational Certificate)

Skill Programme

1.3 Title Descriptor:

Turbine Fitter (Steam and Gas)

1.4 NQF Level:

5

1.5 Credits:

42

1.6. Organising Field and Sub-field:

1.6.1 Organising Field:

Field 06 - Manufacturing, Engineering and Technology

1.6.2 Organising Sub-Field:

Engineering and Related Design

1.7 QCTO Curriculum Code:

900488-000-00-00

1.8 Originator/Quality Partner (QP) – Development/Assessment

1.8.1 Quality Partner (Qualifications Development):

Energy and Water Services Education and Training Authority (EWSETA)

1.8.2 Quality Partner (Assessment):

N/A

1.9 Replacement

This qualification does not replace any existing, currently registered programme or qualification replaces:

SAQA QUAL/US/LP ID OR QCTO/SETA APPROVAL ID	QUALIFICATION TITLE	Pre-2009 NQF Level	CURRICULUM CODE *(if Occupational)*	NQF LEVEL	MIN. CREDITS

N/A					

2. RATIONALE

2.1 The need for the Qualification, Part-Qualifications/Skills Programmes

In South Africa, the demand for skilled mechanical fitters with specialised expertise in diagnosing, restoring, and refurbishing steam and gas turbines is critical due to the country's reliance on these machines for energy production. As aging infrastructure in power plants requires regular maintenance and upgrades, there is an urgent need to develop a specialised skills programme to enhance the capabilities of mechanical fitters. Such a programme will ensure that these professionals are equipped with the necessary skills to maintain and optimise turbine performance, thereby contributing to the stability and efficiency of South Africa's energy sector. Additionally, by developing local expertise, the programme will reduce dependency on foreign specialists, lower maintenance costs, and create employment opportunities, fostering economic growth and energy security in the region.

2.2 Similar Qualification(s), Part-Qualifications/Skills Programmes

There are currently no similar programmes registered on the NQF or approved by the QCTO.

2.3 Benefit to the sector, society and the economy:

The development and implementation of a specialised skills programme to capacitate steam and gas turbine fitters in South Africa would offer significant benefits to the energy sector, South African society, and the broader South African economy.

For the energy sector, such a programme is crucial because steam and gas turbines are vital components of the country's power generation infrastructure. Properly trained fitters ensure that these turbines operate at optimal efficiency, reducing downtime and improving the reliability of power supply. According to research, maintenance is a critical factor in the longevity and performance of turbines, and skilled maintenance personnel can prevent costly failures and extend the lifespan of these assets. By enhancing local expertise, South Africa can ensure a steady supply of trained professionals who are proficient in the latest maintenance techniques, thus improving the overall resilience of the power grid.

From a societal perspective, developing this programme would directly address the high unemployment rates in South Africa by creating job opportunities for skilled labour. The National Development Plan 2030 highlights the need for skills development in sectors that are key to economic growth, such as energy. By training a new generation of fitters who can work on steam

and gas turbines, the programme aligns with national policies aimed at fostering sustainable development and inclusive growth. Furthermore, the programme would encourage the development of vocational skills, which are often undervalued but are essential to maintaining critical infrastructure. It would also promote a culture of technical proficiency and innovation, contributing to the broader social objective of developing a skilled and capable workforce.

Economically, the proper development and implementation of a skills programme for turbine fitters could significantly boost the South African economy by reducing reliance on foreign expertise and imported parts. Currently, South Africa often needs to hire international specialists for complex turbine maintenance and refurbishment tasks, leading to high costs and extended downtimes. A local pool of highly skilled fitters would not only reduce these costs but also increase the speed and efficiency of maintenance work. This is in line with global best practices observed in countries like Germany and Japan, where strong vocational training programmes in mechanical and technical fields have built a robust domestic capability for maintaining critical infrastructure. These countries have demonstrated that investing in specialised skills training leads to lower operational costs, greater self-reliance, and a more competitive industrial base.

In addition to cost savings, a specialised skills programme would foster innovation and knowledge transfer within South Africa. By engaging with international experts and incorporating global best practices in turbine maintenance and refurbishment, South Africa could develop a unique expertise base that might be exported to other countries facing similar challenges. This would open up new markets for South African companies and further diversify the economy. The development of such a programme would also support local manufacturing and engineering sectors by driving demand for high-quality tools, parts, and services related to turbine maintenance. This would create a positive feedback loop, encouraging further investment and innovation in related industries.

Moreover, a focus on training steam and gas turbine fitters would align with global trends toward sustainability and energy efficiency. As the world shifts toward cleaner and more efficient energy production methods, the ability to maintain and refurbish existing turbines to meet new standards will be increasingly important. By positioning itself as a leader in this area, South Africa can play a significant role in the global energy transition while also ensuring that its energy sector remains competitive and sustainable. The development of a specialised skills programme would thus provide long-term benefits by ensuring that South Africa has a ready pool of skilled professionals capable of supporting its energy infrastructure needs well into the future. This strategic approach would support the country’s goals of energy security, economic resilience, and social development.

2.4 Typical learners:

The typical learners who would be in line to take up the training offered in a specialised skills programme for steam and gas turbine fitters in South Africa can be categorised into several groups:

- Technical and Vocational Education and Training (TVET) Graduates:
- Experienced Mechanical Fitters and Technicians:
- Apprentices and Interns:
- Unemployed or Underemployed Individuals with Technical Backgrounds:
- Military Veterans and Former Artisans:
- Engineers Seeking Cross-Skilling Opportunities:
- International Learners from Developing Countries:

2.5 Relation to Occupation(s) and/or Profession(s)

2.5.1 Occupation(s) related:

2.5.1.1 Collaboration with relevant stakeholders:

- Employers – From Public and Private sector
- Technical Vocational Education and Training Colleges
- Engineering regulator of South Africa
- DHET

2.5.1.2 List typical occupations in which the qualifying learner will operate (if relevant)

South African Industry Titles:

- Turbine Technician
- Power Plant Technician
- Mechanical Maintenance Technician
- Rotating Equipment Technician
- Industrial Turbine Mechanic
- Plant Maintenance Technician
- Turbine Fitter
- Mechanical Artisan
- Maintenance Fitter
- Field Service Technician

Global Industry Titles:

- Turbine Maintenance Technician
- Gas Turbine Technician
- Steam Turbine Technician
- Mechanical Technician

- Turbine Mechanic
- Field Service Engineer
- Rotating Equipment Engineer
- Power Generation Technician
- Industrial Maintenance Technician
- Turbine Service Technician
- Maintenance Engineer
- Power Plant Mechanic

2.5.2 Profession(s) related:

2.5.2.1 Collaboration with relevant stakeholders:

N/A

2.5.2.2 List typical professions in which the qualifying learner will operate (if relevant)

- None

3. PURPOSE

3.1 Benefit the learners:

Qualified learners would acquire skills programme is to capacitate a learner to function effectively as a Gas and Steam Turbine Fitter. A Steam and Gas Turbine Fitter utilises their base knowledge and capabilities as a Mechanical Fitter to carry out specialised mechanical maintenance and repair activities on Gas and Steam turbine components including generators and associated auxiliaries.

3.2 What the Skills Programme intends to achieve:

A Steam and Gas Turbine Fitter utilises their base knowledge and capabilities as a Mechanical Fitter to carry out specialised mechanical maintenance and repair activities on Gas and Steam turbine components including generators and associated auxiliaries.

Qualified learners will be able to:

Utilise specialised tools to disassemble gas and steam turbines.

Inspect gas and steam turbines and identify the need for maintenance and refurbishment of components.

Conduct manual refurbishment of gas and steam turbine components.

Reassemble, test and commission maintained/repaired gas and steam turbines.

Document and report on repair and maintenance conducted on gas and steam turbines.

3.3 Typical Graduate attributes

Qualified and competent learners will demonstrate the following key behavioural competencies/ attributes:

- Detail Orientated
- Technical Problem Solving
- Operationally adaptable and flexible
- Compliance orientated “Risk averse”
- Effective Team Player

4. ENTRY REQUIREMENTS

NQF Level 4 Qualification in an appropriate Mechanical Trade

5. RECOGNITION OF PRIOR LEARNING (RPL)

5.1 RPL for Access to Training:

Learners may use the RPL process to gain access to training opportunities for a skills programme if they do not meet the formal, minimum entry requirements for admission. RPL assessment provides an alternative access route into a skills programme.

Such an RPL assessment may be developed, moderated, and conducted by the accredited Skills Development Provider which offers that specific qualification/part qualification/skills programme. Such an assessment must ensure that the learner is able to display the equivalent level of competencies required for access, based on the NQF level descriptors.

For exemption from modules through RPL, learners who have gained the stipulated competencies of the modules of a programme of learning, qualification, part-qualification, or skills programme through any means of formal, informal, or non-formal learning and/or work experience, may be awarded credits towards relevant modules, and gaps identified for training, which is then concluded.

5.2 RPL for Access to the Final Integrated Supervised Assessment (FISA):

Learners who have gained the stipulated competencies of the modules of a skills programme through any means of formal, informal, or non-formal learning and/or work experience, may be awarded credits towards relevant modules, and gaps identified for training, which is then concluded.

For a Skills Programme, the accredited Skills Development Provider (SDP) must ensure all modular competency requirements are met prior to the FISA and keep record of such evidence.
Upon successful completion of the EISA/FISA, RPL learners will be issued with the QCTO certificate for the qualification, part-qualification, or skills programme. Quality Partners are responsible for ensuring the RPL mechanism and process for qualifications and part-qualification is approved by the QCTO.

6. RULES OF COMBINATION

6.1 Components:

KNOWLEDGE/THEORY COMPONENT

State compulsory modules:

MODULE CODE	MODULE TITLE	NQF LEVEL	CREDITS	MODE OF DELIVERY
900488-000-00- KM-01	Steam and Gas turbine operating principles	5	4	BLENDED
900488-000-00- KM-02	Principles for Steam and Gas turbine maintenance and refurbishment inspection.	5	4	BLENDED
900488-000-00- KM-03	Specialised concepts and principles for the refurbishment of Steam and Gas turbine components.	5	4	BLENDED
900488-000-00- KM-04	Concepts and principles for the Reassemble, testing and commissioning of Steam and Gas turbines.	5	4	BLENDED
900488-000-00- KM-05	Fundamentals of maintenance reporting and documentation management	5	4	BLENDED

Total Knowledge Credits = 20

APPLICATION COMPONENT

PRACTICAL SKILLS MODULE(S)

Compulsory modules

MODULE CODE	MODULE TITLE	NQF LEVEL	CREDITS	MODE OF DELIVERY
900488-000-00- PM-01	Use specialised tool to Disassemble Steam and Gas Turbines	5	6	FACE TO FACE
900488-000-00- PM-02	Inspect Steam and Gas Turbines to determine repair and refurbishment needs.	5	4	FACE TO FACE
900488-000-00- PM-03	Manually refurbish Steam and Gas Turbine components.	5	6	FACE TO FACE
900488-000-00- PM-04	Maintaining steam and gas turbines.	5	4	FACE TO FACE

900488-000-00- PM-05	Complete Maintenance and repair documentation.	5	2	FACE TO FACE

Total credits of the selected modules = 22

WORK EXPERIENCE MODULES
N/A

6.2 Soft Skills Included:

The following soft skills are included in the Skills Programme curriculum specifications:

- KT0205: Documentation and Record Keeping: Maintaining accurate records of replacements and upgrades to support maintenance history and regulatory compliance.
- KM-05-KT01: Principles of technical writing and documentation standards.

% of Soft Skills Credits included in the Skills Programme = 6%

6.3. Foundational Learning:

None

7. EXIT LEVEL OUTCOMES (ELO) AND ASSOCIATED ASSESSMENT CRITERIA (AAC)

7.1 Exit Level Outcomes (ELO) 1:

Apply essential methods, procedures and techniques to utilise specialised tools and equipment for the disassembly of steam and gas turbines.

Associated Assessment Criteria (AAC) for ELO 1:

- Technical requirements and the required scope of maintenance/repair work are read and interpreted.
- The safe lifting and movement of turbine components are facilitated.
- Specialised tools are correctly and safely used according to manufacturer guidelines.
- Turbine components are accurately identified and removed without causing damage.
- A clean and organised work area is maintained to prevent tool loss and contamination.
- The condition and arrangement of disassembled parts are checked, measured, and recorded for accurate reassembly.
- All safety protocols and procedures are followed to prevent accidents and equipment damage.

7.2 Exit Level Outcomes (ELO) 2:

Apply fundamental knowledge and understanding of the components and workings of steam and gas turbines and use own knowledge to inspect the turbines.

Associated Assessment Criteria (AAC) for ELO 2:

- Each turbine component is thoroughly examined for signs of wear, damage, or corrosion.
- Precision measurement tools are used to assess the condition and alignment of parts.
- All findings are documented and reported, with areas needing maintenance or replacement highlighted.
- Inspection results are interpreted to determine the appropriate maintenance or refurbishment actions.
- The need for maintenance and refurbishment of turbine components is identified.

7.3 Exit Level Outcomes (ELO) 3:

Apply essential methods, and procedures to repair and restore gas and steam turbine parts to their original specifications.

Associated Assessment Criteria (AAC) for ELO 3:

- Turbine components are disassembled and cleaned to remove contaminants and prepare them for refurbishment.
- Precision machining, grinding, or welding is performed to repair or restore parts to their original specifications.
- Worn or damaged components are replaced with new or refurbished parts, ensuring proper fit and function.

7.4 Exit Level Outcomes (ELO) 4:

Apply own knowledge to solve turbine operational problems and adjust common solutions to ensure the effective reassembly, testing and commissioning of repaired/refurbished gas and steam turbines.

Associated Assessment Criteria (AAC) for ELO 4:

- Turbine components are reassembled, ensuring correct alignment and secure fastening according to specifications.
- Comprehensive functional tests are conducted to verify the performance and reliability of the reassembled turbine.
- Settings are calibrated and adjusted to achieve optimal operational efficiency and compliance with manufacturer standards.
- Any issues detected during testing are identified and rectified to ensure the turbine operates correctly and safely.

- All reassembly and testing procedures are documented, with a detailed report provided for future reference and compliance purposes.
- The recommissioning of the properly functioning turbine and its reintegration into the operational system is facilitated.

7.5 Exit Level Outcomes (ELO) 5:

Gather, evaluate and interpret technical information to document and report on repair and maintenance conducted on gas and steam turbines.

Associated Assessment Criteria (AAC) for ELO 5:

- Detailed documentation outlining all repair and maintenance tasks performed on gas and steam turbines is compiled.
- Records, including parts replaced, procedures followed, and time taken, are checked to ensure accuracy and completeness.
- Clear and concise reports highlighting any issues encountered and actions taken during the repair process are provided.
- Compliance with regulatory requirements and manufacturer specifications in all documentation is verified.
- Records are systematically archived for future reference, audits, and maintenance planning purposes.

8. INTEGRATED ASSESSMENT

8.1 Formative Assessments conducted internally

Formative assessments are conducted throughout the training of learners. A range of formal, non-formal, and informal ongoing assessment activities are used to focus on teaching and learning outcomes to improve learner attainment.

Formative assessments are conducted continuously by the facilitator to feed into further learning, to identify strengths and weakness, and to ensure the learner's ability to apply knowledge, skills and workplace experience gained.

Formative Assessments are conducted by the accredited Skills Development Provider (SDP), and a variety of ongoing assessment methods may be used, for example, quizzes, assignments, tests, scenarios, role play, interviews. Continuous feedback must be provided.

8.2 Integrated Summative Assessments conducted Internally

Integrated Assessment involves all the different types of assessment tasks required for a particular qualification, part-qualification, or occupational skills programme, such as written assessment of theory and practical demonstration of competence. To achieve this, the Internal Assessment Criteria (IAC) for all modules as found in the QCTO curriculum document must be followed.

An accredited SDP should implement a well-designed, formal, relevant, final internal Summative Assessment strategy for all modules to prepare learners for the FISA. These assessments evaluate learning achievements relating to the achievement of each module of the relevant components of the qualification, part-qualification, or skills programme.

Internal Summative Assessments are developed, moderated, and conducted by the SDP at the end of each module or after integration of relevant modules, e.g. applied knowledge, tests, workplace tasks, practical demonstrations, simulated tasks/demonstrations, projects, case studies, etc.

8.3 Final Integrated Supervised Assessment (FISA)

The FISA is de-centralised, and the assessment standards set by the QCTO must be implemented by the accredited SDP in the development, moderation, and implementation of all FISA for Skills Programmes.

The accredited SDP manages and conducts the FISA and submits learner results for QCTO approval for certification, according to QCTO required compliance standards.

For entrance into the FISA, the learner must have completed the Skills Programme successfully and be found competent in all modules, recorded internally by the SDP.

- Continuous Assessment

Continuous assessment will be conducted in the form of exercises, tasks, assignment, and reports/presentations must meet the outcomes of all modules/topics as indicated in the Skills Programme document.

The Assessment Criteria that must be assessed internally (as per modules/topics) during training here is included in the Skills Programme Curriculum Document.

Final Integrated Supervised Assessment (FISA)

All learners gain entrance to the Final Integrated Supervised Assessment by successfully completing all formal summative assessments conducted by the SDP.

Format of FISA: Written and Practical assessments integrating the relevant Exit Level outcomes, with simultaneous verbal assessment of embedded knowledge by the assessor before, during or after the FISA.

All FISAs must be supervised, and virtual FISAs must be recorded throughout the assessment.

All Exit Level Outcomes must be covered in the FISA. In the FISA, the learner must demonstrate applied knowledge and skills to prove that the competencies of the Skills Programme have been achieved.

The FISA may not contain any assessments used in the "Continuous Assessment" process (thus no re-assessment).

Special considerations should be made for candidates with special learning needs.

Standards for Written Final Integrated Supervised Assessment (FISA):

The Written **FISA INSTRUMENT** must be developed and moderated by the SDP and conducted in a supervised environment. It is assessed by means of an INSTRUMENT and MEMORANDUM developed by the SDP for this purpose.

In the **written** component, the learners should be provided with real-life scenarios to prove applied competency relevant to the Exit Level Outcomes and the purpose of the Skills Programme. This is the section where the learner must apply relevant knowledge and skills attained (what the learner must be able to do, and to what expected standard).

The applied knowledge that must be proven for the various ELOs should be:

1. Apply essential methods, procedures and techniques to utilize specialized tools and equipment for the disassembly of steam and gas turbines.

- Interpret technical requirements and maintenance/repair of scopes for turbine disassembly.
- Elaborate on the safe lifting procedures and correct handling of turbine components.
- Apply knowledge on the correct use of specialized tools and safety precautions
- Outline procedures for maintaining a clean, organized work area during disassembly

- Evaluate how to inspect, record, and preserve the condition of disassembled parts.

2. Apply fundamental knowledge and understanding of the components and workings of steam and gas turbines and use own knowledge to inspect the turbines.

- Evaluate the structure and function of key turbine components.
- Apply knowledge on common wear and damage indicators found in steam and gas turbines.
- Outline the use of precision measurement tools for inspection purposes.
- Outline the steps involved in documenting and reporting inspection findings.
- Interpret inspection results to determine appropriate maintenance actions.

3. Apply essential methods and procedures to repair and restore gas and steam turbine parts to their original specifications.

- Apply knowledge of the procedures for cleaning and preparing turbine parts for refurbishment.
- Apply knowledge on various repair methods.
- Evaluate quality standards required for restored or replaced turbine parts.
- Evaluate how to ensure component compatibility and fit during part replacement.

4. Apply own knowledge to solve turbine operational problems and adjust common solutions to ensure the effective reassembly, testing and commissioning of repaired/refurbished gas and steam turbines.

- Evaluate the steps for turbine reassembly and alignment of components.
- Evaluate how to perform functional testing and performance verification.
- Outline calibration procedures and adjustments for optimal performance.
- Outline how to diagnose and resolve issues arising during testing.
- Apply knowledge on documentation requirements during reassembly and recommissioning.

5. Gather, evaluate and interpret technical information to document and report on repair and maintenance conducted on gas and steam turbines.

- Evaluate how to compile repair and maintenance documentation accurately.
- Apply knowledge on the importance of record-keeping and compliance with documentation.
- Evaluate the structure of technical reports and how to present repair findings
- Evaluate how to archive documentation for audit and planning purposes.

To respond to challenges/issues/problems in the scenarios above:

a. The assessment should be a maximum of 120 marks.
b. The assessment should be a maximum of 3 hours.
b. The pass mark is 70% for the FISA.

c. No FISA instrument is allowed to be used verbatim for re-assessment or for a different cohort of learners.

The memorandum used to assess these competencies must also include a section for the assessor/facilitator used in this session to make a note of competencies shown, (or not shown), as well as the questions that were asked, and a summary of the learner's answers, and state whether these are of the acceptable standard or not.

The memorandum or compliance checklist compiled should contain specific compulsory sections in order for the learner to pass the final assessment. Compulsory sections are when the safety of the candidate or others would be affected if incorrectly completed, [e.g. what to do in an emergency].

A computer-based assessment may be administered so that the above evidence can be created using document processing applications such as Word, excel etc.

Learners who complete this skills programme will accumulate credits towards the relevant full or part qualification. The Credit Accumulation and Transfer (CAT) Policy may apply to these learners.

The Practical FISA INSTRUMENT (brief/job card/task) must be developed and moderated by the SDP and conducted in a supervised environment. It is assessed by means of an **INSTRUMENT** and **RUBRIC** developed by the SDP for this purpose.

The learner should be provided with a brief/job card/task to demonstrate what the learner should show, know and apply, relevant to the Exit Level Outcomes and the purpose of the Skills Programme. This is the section where the learner must show applied competency (what the learner must be able to do, and to what expected standard).

A candidate must prove that he/she can work competently as a Gas and Steam Turbine Fitter in terms of each of the Exit Level Outcomes by demonstrating competencies in the following standards:

Given a simulated or controlled work environment with all the tools, equipment and related resources to perform the task, the candidate must:

1. Disassemble steam and gas turbines using specialised tools and techniques.

- Identify the tools and procedures needed.
- Safe lift and move turbine components.
- Use specialised tools correctly and safely during turbine disassembly.
- Remove turbine components without causing damage.
- Maintain a clean and organised workspace.
- Measure and record the condition of disassembled parts for reassembly.
- Apply safety protocols throughout the disassembly process.

2. Inspect turbine components and assess their condition.

- Examine turbine components for wear, corrosion, and damage.
- Use micrometres, dial gauges, and other measurement tools to assess parts.

- Complete an inspection checklist and highlight any faults found.
- Conduct a basic diagnosis and recommendation based on inspection data.

3. Repair and restore turbine parts to specification.

- Clean turbine components effectively using appropriate cleaning agents and tools.
- Perform minor machining, welding, or grinding operations safely.
- Replace worn parts with correct spares or refurbished equivalents.
- Verify that repaired components meet original specifications.

4. Reassemble, test, and commission turbine.

- Reassemble turbine components with proper alignment and torque.
- Perform operational tests and adjust settings as needed.
- Identify and correct any abnormalities during testing.
- Document all reassembly, testing, and commissioning procedures.

5. Document and report on maintenance activities

- Complete a maintenance report capturing all actions taken.
- Log all replaced parts, timelines, and procedures followed.
- Compile a summary report highlighting challenges and solutions.
- Ensure documentation meets compliance and archiving standards.

Please take note of the following:

a) Candidates must be provided with clear guidelines and instructions on how to complete the assessment tasks/job, including the assessment criteria and expected outcomes.
b) The duration of the assessment is 8 hours.
c) No FISA instrument is allowed to be used verbatim for re-assessment or for a different cohort of learners.

NOTE: Should a learner be found to be competent in all of the above areas, they should be declared "Competent". If not yet competent in any of the above areas, they should be declared "NYC", re-trained and then be reassessed with different applicable tasks/scenarios.

Whilst conducting the above, strategic, well-timed questions should be asked of the learner to assess embedded knowledge gained during the skills programme, as well as critical thinking and problem-solving skills: for e.g.

- "Why.....?"
- "What would happen if …?"
- "When …. is done, what would the result be?"
- "How would you deal with …...?"

The marking rubric/compliance checklist used to assess these competencies must include a section for the assessor used in this session to make a note of competencies shown, (or not shown), as well as the questions that were asked, and a summary of the learner's answers, and state whether these are of the acceptable standard or not.

The marking rubric/compliance checklist compiled should contain specific areas marked with an asterisk (*) as compulsory sections for the learner to be declared C (Competent). Compulsory sections include but are not limited to when the candidate's or others' safety would be affected if incorrectly completed. [e.g., what to do in an emergency].

Learners who complete this skills programme will accumulate credits towards the relevant full or part-qualification. The Credit Accumulation and Transfer (CAT) Policy may apply to these learners.

Submission of final results

Final results must be submitted to the QCTO in the required format, within 21 days of the date of the FISA, together with the following:

- Completed QA Verification Report on the FISA (QCTO template: various sections).
- Learner results spreadsheet
- A copy of the final Assessment Instrument used, as well as the marking guideline/rubric

9.1 Articulation for Skills programmes

9.1.1 Work Opportunities:

The skills of a Gas and Steam Turbine Fitter are highly specialised and can be applied in a variety of roles across different industries. Here are some specific jobs where these skills can be utilised:

- Power Plant Maintenance Technician
- Rotating Equipment Technician
- Field Service Technician
- Mechanical Maintenance Technician
- Industrial Turbine Mechanic
- Plant Maintenance Technician
- Turbine Commissioning Engineer
- Power Generation Technician
- Maintenance Fitter
- Energy Sector Technician
- Hydroelectric Plant Technician

10.2.2 Learning Opportunities:

Successful learners may further their studies by enrolling in programmes related to fitting and or turbine operations, subject to adhering to their entry requirements.

11. NOTES

11.1 Additional Legal or Physical Entry Requirements

A minimum of five years' work experience conducting maintenance on Steam and Gas Turbines under the supervision of an experienced Turbine Engineer.

11.2 Criteria for Accreditation

Accreditation requirements, against which Skills Development Providers (SDP) and Assessment Centres, will be accredited, is found in the Curriculum Document, as listed below.

Curriculum Code:

653303-000-00-00

11.3 Encompassed Trades (where applicable)

This is not a trade

12. ASSOCIATED QUALIFICATION(S)/PART-QUALIFICATION(S):

SAQA QUAL ID	QUALIFICATION TYPE	QUALIFICATION DESCRIPTOR	CURRICULUM CODE	NQF LEVEL	CREDITS
NA					