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## SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with regulation 24(c) of the Standard Generating Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

**Manufacturing, Engineering and Technology**

publishes the following unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualification and unit standards. The qualification and unit standards can be accessed via the SAQA web site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 15 Aug 2005.*** All correspondence should be marked **Standards Setting – SGB Measurement, Control and Instrumentation** and addressed to

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**DUGMORE MPHUTHING**
**ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT**

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### *QUALIFICATION:*

### *National Certificate: Measurement, Control and Instrumentation*

| *SAQA QUAL ID* | *QUALIFICATION TITLE* | | |
|---|---|---|---|
| 49746 | National Certificate: Measurement, Control and Instrumentation | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *QUAL TYPE* | | *FIELD* | *SUBFIELD* |
| National Certificate | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *MINIMUM CREDITS* | *NQF LEVEL* | *QUALIFICATION CLASS* |
| Undefined | 121 | Level 5 | Regular-Unit Stds Based |

***PURPOSE AND RATIONALE OF THE QUALIFICATION***

Purpose:

The purpose of the qualification is to build the necessary knowledge, understanding, abilities and skills for further learning towards becoming a professional practicing engineer in Measurement, Control and Implementation of engineering equipments.

Qualifying learners will gain competencies that will promote expertise in this sub field by being able to:

> Fault find and repair advanced Instrumentation
> Set-up and Configure a Process Control System
> Apply Measurement principles and related applications
> Apply management principles to a business environment

Rationale:

The National Certificate in Measurement, Control and Implementation is designed to contribute to developing Engineering and related design competence in terms of Measurement, Control and Implementation equipment with particular application to the flow, temperature, level and pressure field instrumentation.

This is the fourth qualification in a series designed for learners who want to follow a career in Measurement, Control and Instrumentation. The series outlines a learning progression from NQF level 2 to NQF level 5 for learners learning and working in the field of measurement, control and instrumentation. It reflects the skills, knowledge and understanding required to participate effectively in this field, whether in small, medium or large operations.

This learning pathway recognizes the skills, knowledge and values relevant to a workplace. It is designed for learners who:

> Have acquired the skills and knowledge without attending formal courses or training.
> Are part of a learnership or skills programme which integrates structured learning and work experience.
> Have attended courses or training sessions and then apply the knowledge and skills gained to activities in the workplace initiatives.
> Have full physical mobility as the Measurement, Control and Instrumentation environment is physically demanding.
> Do not suffer from colour blindness, which will require testing for, in order to safeguard industry and the learner.

For the new entrant, this qualification recognises the applied competence needed by a productive person in a measurement, control and instrumentation environment.

The qualification also forms the basis for further development to the National Diploma in Measurement, Control and Instrumentation.

***RECOGNIZE PREVIOUS LEARNING?***

Y

***LEARNING ASSUMED TO BE IN PLACE***

This qualification assumes that the candidate has an FETC in Measurement Control and Instrumentation.Or The candidate must prove competence in terms of the NQF Level 4 qualification and learning in preparation for this qualification should include the aspects of:
> Communication and Mathematical Literacy at NQF Level 4
> Science and Measurement Control and Instrumentation technology
> Dexterity and technical aptitude
> Teamwork

Recognition of prior learning:

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided and guidance should be provided to assist in the process of developing a portfolio. While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

Care should be taken that the process used provides the learner with an opportunity to demonstrate competence and is not too demanding as to prevent learners from taking up the RPL option towards gaining the qualification.

***QUALIFICATION RULES***

> All the fundamental unit standards are compulsory (18 credits)
> All the core unit standards are compulsory (79 credits)
> A minimum elective component of 24 credits are required

Learners should complete a minimum of 121 credits to obtain the qualification.

***EXIT LEVEL OUTCOMES***

1. Fault find and repair specialized sensing devices.
2. Install and maintain a process control system.
3. Apply Measurement principles and related applications.
4. Apply management principles to a business environment.

***ASSOCIATED ASSESSMENT CRITERIA***

1.
> Specialized sensing devices are understood.
> Faults on specialized sensing devices are diagnosed.
> Specialized sensing devices are repaired and calibrated.

2.
> A process control system is set-up and configured.
> A process control system is diagnosed and repaired.
> Process control sub-systems are integrated.

3.
> Control philosophies within a measurement environment are understood.
> The integrity of measurements are understood and ensured.

4.
> A work unit to achieve its objectives is supervised.
> Project management tools are used to manage a project.

Integrated Assessment:

Integrated assessment at the level of the qualification provides an opportunity for learners to show they are able to integrate concepts, actions and ideas achieved across a range of unit standards and contexts.

Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance, and must be based on a summative assessment guide.

The guide will spell out how the assessor will assess different aspects of the performance and will include:
> observing the learner at work (both in the primary activity as well as other interactions)
> asking questions and initiating short discussions to test understanding
> looking at records and reports in the portfolio and reviewing previous assessments

In some cases inference will be necessary to determine competence depending on the nature and context within which performance takes place.

It is necessary to ensure that the fundamental part of the qualification is also targeted to ensure that while the competence may have been achieved in a particular context, learners are able to apply it in a range of other contexts and for further learning. The assessment should also ensure that all the critical cross-field outcomes have been achieved.

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes. The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles that underpin the activities associated with the tube and pipe manufacturing process.

***INTERNATIONAL COMPARABILITY***

This series of qualifications (NQF level 2 - 5) was compared to:

> The Certificate II in Electrotechnology - Instrumentation, the Certificate III in Electrotechnology - Instrumentation and the Diploma and advanced Diploma in Instrumentation and Control Engineering registered on the Austrailian NQF. This qualification covers a range of specific skill sets as well as generic engineering skills

> The National Certificate in Industrial Measurement & Control registered on the National Qualifications Framework in New Zealand. This qualification covers a range of specific skill sets as well as generic engineering skills. The qualification provides certification from level 4 to level 5 on the New Zealand NQF, and consists of unit standards ranging from level 3 to level 6.

Further findings on comparison:

> In both the Australian and New Zealand cases, the fundamental learning elements are not specified, the core elements are specified with electives grouped into two different categories (elective1 & elective 2), and also include optional units and specialities.

> In both the Australian and New Zealand cases, the learning required crosses several levels of their NQF respectively.

> The Australian and New Zealand NQF framework differs from the South African NQF with levels.

> All three qualifications require the learners to master skills of a specific nature. However while the unit standards from New Zealand are much more specific, the South African unit standards are generic. The applied competence in the South African qualifications focuses on achieving a specific level of competence by a person working in a real-world context, in which a particular specialisation, experience and problem-solving ability is required.

A broad comparison can, however, be made and is summarised in the following table:

Australia:

> Scope: Broad in scope
> Approach: Competency based

> Level: Certificate 1,2,3,4,Diploma & Advanced Diploma
> Context: Contextual
> Assessment: Institution and work-based
> Essential embedded knowledge: Very detailed & specific (Referred to as underpinning knowledge)
> Credits: Not specified
> Fundamental learning: Not formally specified
> Business relations: Not formally specified
> Working with and developing others: Specified with a unit standard
> Life skills: Not covered

New Zealand:

> Scope: Nominal competence in a wide range of specific tasks
> Approach: Competency based
> Level: Level 3 to 6
> Context: Contextual
> Assessment: Institution and work-based
> Essential embedded knowledge: Specified without to much detail (Referred to as entry information)
> Credits: > Level 4 233
> Level 5 90
> Fundamental learning: Not formally specified
> Business relations: Not formally specified
> Working with and developing others: Not formally specified
> Life skills: Mentioned under the sub section of Humanities & includes a unit standard, but not well covered

South Africa:

> Scope: Mastery of specific outcomes in context
> Approach: Competency based
> Level: Level 2, 3 and 4
> Context: Contextual
> Assessment: Institution and work-based
> Essential embedded knowledge: Specified with reasonable detail
> Credits: > Level 2 189
> Level 3 195
> Level 4 167
> Level 5 136
> Fundamental learning: Specified
> Business relations: Specified
> Working with and developing others: Specified under the critical cross field outcomes
> Life skills: Specified under fundamental unit standards

In summary, there are considerable similarities in the technical competence required but the approach of the South African series of qualifications looks at whole-person development in not only technological, but also in team- and business-related skills and makes explicit assumptions related to level of schooling and life skills.

***ARTICULATION OPTIONS***

This series of qualifications can articulate directly to learning programmes and qualifications in the Measurement, Control and Instrumentation field. The qualification articulates horizontally with the National Certificate in Metrology: NQF Level 5. It also opens the possibility for further learning in the sub-field of Engineering and related design to the National Diploma in Measurement, Control and Instrumentation.

***MODERATION OPTIONS***

Anyone assessing a learner or moderating the assessment of a learner against this unit standard must be registered as an assessor with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

Any institution offering learning that will enable the achievement of this unit standard must be accredited as a provider with the relevant Education, Training, Quality, Assurance (ETQA) Body, or with an ETQA that has a Memorandum of Understanding with the relevant ETQA.

The relevant Education, Training, Quality, Assurance (ETQA) Body will oversee assessment and

moderation of assessment, or by an ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQA's policies and guidelines for assessment and moderation.

Moderation must include both internal and external moderation of assessments, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described in the Unit Standard.

Anyone wishing to be assessed against this unit standard may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

***CRITERIA FOR THE REGISTRATION OF ASSESSORS***

Assessors should be in possession of:

> Appropriate qualification in the field of Measurement, Control and Instrumentation at one level higher than the level of the qualification and preferably relevant workplace practical experience.The subject matter experience of the assessor can be established by recognition of prior learning.
> Registered as an assessor with the relevant ETQA.

***NOTES***

N/A

***UNIT STANDARDS***
***(Note: A blank space after this line means that the qualification is not based on Unit Standards.)***

| | UNIT STANDARD ID AND TITLE | LEVEL | CREDITS | STATUS |
|---|---|---|---|---|
| Core | 10148 Supervise a project team of a business project to deliver project objectives | Level 5 | 14 | Reregistered |
| Core | 119803 Integrate a Process Control System | Level 5 | 12 | Draft - Prep for P Comment |
| Core | 119805 Apply diagnostic techniques to a process control system | Level 5 | 8 | Draft - Prep for P Comment |
| Core | 119806 Understand electromagnetic and particle radiation principles and applications | Level 5 | 10 | Draft - Prep for P Comment |
| Core | 119809 Design and apply modifications to existing process control systems | Level 5 | 15 | Draft - Prep for P Comment |
| Core | 119811 Demonstrate an understanding of the Integrity of Measurement and Control Philosophy of a process | Level 5 | 10 | Draft - Prep for P Comment |
| Core | 119812 Install, configure, test and analyze process communication systems | Level 5 | 10 | Draft - Prep for P Comment |
| Elective | 15220 Set, monitor and measure the achievement of goals and objectives for a team, department or division within an organisation | Level 5 | 4 | Registered |
| Elective | 15225 Identify and interpret related legislation and its impact on the team, department or division and ensure compliance | Level 5 | 4 | Registered |
| Elective | 114049 Demonstrate an understanding of Computer Database Management Systems | Level 5 | 7 | Registered |
| Elective | 119255 Apply the ISO document "guide to the expression of uncertainty in measurement" to estimate uncertainty of measurement | Level 5 | 5 | Registered |
| Elective | 119804 Demonstrate an understanding of Custody Transfer | Level 5 | 4 | Draft - Prep for P Comment |
| Elective | 119807 Fault find and repair Electromagnetic and Particle Radiation Sensing Devices | Level 5 | 10 | Draft - Prep for P Comment |
| Elective | 119810 Fault find and repair Specialised sensing devices | Level 5 | 6 | Draft - Prep for P Comment |
| Elective | 7880 Prepare, implement, manage and control budgets | Level 6 | 10 | Reregistered |
| Fundamental | 12433 Use communication techniques effectively | Level 5 | 8 | Registered |
| Fundamental | 119808 Apply engineering mathematics in the Measurement, Control and Instrumentation environment | Level 5 | 10 | Draft - Prep for P Comment |

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### *UNIT STANDARD:* 1

**Integrate a Process Control System**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119803 | Integrate a Process Control System | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 12 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Plan and prepare for integration of a process control system.

***SPECIFIC OUTCOME*** 2

Assemble hardware architecture.

***SPECIFIC OUTCOME*** 3

Set-up software.

***SPECIFIC OUTCOME*** 4

Verify system integrity.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### *UNIT STANDARD:* 2

**Demonstrate an understanding of Custody Transfer**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119804 | Demonstrate an understanding of Custody Transfer | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 4 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Understand custody transfer requirements with reference to the Trade Metrology Act.

***SPECIFIC OUTCOME*** 2

Explain the function of equipment in a metering system.

***SPECIFIC OUTCOME*** 3

Perform metering calculations.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 3

**Apply diagnostic techniques to a process control system**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119805 | Apply diagnostic techniques to a process control system | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 8 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Establish conditions for fault finding and repairing a process control system.

***SPECIFIC OUTCOME*** 2

Diagnose faults in a process control system.

***SPECIFIC OUTCOME*** 3

Repair a process control system.

***SPECIFIC OUTCOME*** 4

Establish normal operating conditions after completion.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 4

**Understand electromagnetic and particle radiation principles and applications**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119806 | Understand electromagnetic and particle radiation principles and applications | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 10 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Demonstrate an understanding of electromagnetic and particle radiation.

***SPECIFIC OUTCOME*** 2

Identify the types of radiation detectors and their application.

***SPECIFIC OUTCOME*** 3

Demonstrate an understanding of radiation theory.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

### *UNIT STANDARD:* 5

**Fault find and repair Electromagnetic and Particle Radiation Sensing Devices**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119807 | Fault find and repair Electromagnetic and Particle Radiation Sensing Devices | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 10 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Establish conditions for fault finding and repairing electromagnetic and particle radiation sensing devices.

***SPECIFIC OUTCOME*** 2

Diagnose faults in electromagnetic and particle radiation sensing devices.

***SPECIFIC OUTCOME*** 3

Repair electromagnetic and particle radiation sensing devices.

***SPECIFIC OUTCOME*** 4

Establish normal conditions after completion.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 6

**Apply engineering mathematics in the Measurement, Control and Instrumentation environment**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119808 | Apply engineering mathematics in the Measurement, Control and Instrumentation environment | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 10 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Perform Orifice calculations.

***SPECIFIC OUTCOME*** 2

Perform Mass-Flow calculations.

***SPECIFIC OUTCOME*** 3

Perform Polynomial calculations.

***SPECIFIC OUTCOME*** 4

Perform valve-sizing calculations.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 7

**Design and apply modifications to existing process control systems**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119809 | Design and apply modifications to existing process control systems | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 15 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Design modifications to process control systems.

***SPECIFIC OUTCOME*** 2

Comply with documentation requirements.

***SPECIFIC OUTCOME*** 3

Apply modifications to process control systems.

***SPECIFIC OUTCOME*** 4

Manage the modification of a process control system.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 8

**Fault find and repair Specialised sensing devices**

| ***SAQA US ID*** | ***UNIT STANDARD TITLE*** | | |
|---|---|---|---|
| 119810 | Fault find and repair Specialised sensing devices | | |
| ***SGB NAME*** | | ***NSB 06*** | ***PROVIDER NAME*** |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| ***UNIT STANDARD TYPE*** | | ***FIELD DESCRIPTION*** | ***SUBFIELD DESCRIPTION*** |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| ***ABET BAND*** | ***CREDITS*** | ***NQF LEVEL*** | ***UNIT STANDARD TYPE*** |
| Undefined | 6 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Plan and prepare for fault finding and repairing Specialised sensing devices.

***SPECIFIC OUTCOME*** 2

Diagnose faults in Specialised sensing devices.

***SPECIFIC OUTCOME*** 3

Repair Specialised sensing devices.

***SPECIFIC OUTCOME*** 4

Establish normal conditions after completion.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 9

**Demonstrate an understanding of the Integrity of Measurement and Control Philosophy of a process**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119811 | Demonstrate an understanding of the Integrity of Measurement and Control Philosophy of a process | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 10 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Apply control philosophy.

***SPECIFIC OUTCOME*** 2

Determine loop measurement integrity.

## SOUTH AFRICAN QUALIFICATIONS AUTHORITY

***UNIT STANDARD:*** 10

**Install, configure, test and analyze process communication systems**

| *SAQA US ID* | *UNIT STANDARD TITLE* | | |
|---|---|---|---|
| 119812 | Install, configure, test and analyze process communication systems | | |
| *SGB NAME* | | *NSB 06* | *PROVIDER NAME* |
| SGB Measurement, Control and Instrumentation | | Manufacturing, Engineering and Technology | |
| *UNIT STANDARD TYPE* | | *FIELD DESCRIPTION* | *SUBFIELD DESCRIPTION* |
| Regular | | Manufacturing, Engineering and Technology | Engineering and Related Design |
| *ABET BAND* | *CREDITS* | *NQF LEVEL* | *UNIT STANDARD TYPE* |
| Undefined | 10 | Level 5 | Regular |

***SPECIFIC OUTCOME*** 1

Plan and prepare to install and configure process communications systems.

***SPECIFIC OUTCOME*** 2

Install and configure process communication systems.

***SPECIFIC OUTCOME*** 3

Test and analyse process communication systems.