

Domain	Control and Instrumentation
Title:	Install and maintain safety systems and security devices
Level: 4	Credits:7

Purpose

This unit standard specifies the competencies required to Install and maintain safety systems and security devices. It includes demonstrate knowledge of safety and security systems, Carry out Risk Assessment, Install safety system and security devices, Configure safety system and security device, Maintains safety system and security devices., Commission safety system and security

Special Notes

1. Entry information:

Prerequisite

- *Unit 1157 - Demonstrate basic knowledge of workplace health and safety*
- *Unit I&C02 - Plan and organise work in instrumentation work environment*

2. Assessment evidence may be collected from a real workplace or an appropriate simulated realistic environment in which Instrument and Control operations are carried out.

3. To demonstrate competence, minimum evidence of install and configure at least on type of safety and security system, including identification, testing and fault finding on an operational safety and security system.

4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions

4. Glossary of terms:

- *specifications'* refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements

5. All inspection, operation and maintenance procedures associated with the use of tools and equipment

4. Glossary of terms:

- *specifications'* refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements
- PIR – Passive Infra-Red
- CCTV – Closed - Circuit Television
- IEC 61508 - International Electro Technical Commission (standard for functional safety of electrical/electronic/programmable electronic safety related system)
- IEC 61511 - International Electro Technical Commission (standard for functional safety –safety instrumented system for the process industry sector.

5. Regulations and legislation relevant to this unit standard include the following:

- Labour Act 2007, No. 11, 2007
- IEEE 518

- IEC 61508
 - IEC 61511
 - Regulations relating to the health & safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007
 - And all subsequent amendments
6. Performance of all elements in this unit standard must comply with industry standards.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Demonstrate knowledge of safety and security systems

Performance Criteria

- 1.1 Safety precautionary measures related to safety and security devices are explained.
- 1.2 Types of safety and security systems are identified and explained in regard to their principles of operation.
- 1.3 The meaning of safety integrity levels and their cost implication are interpreted.
- 1.4 Basic of safety instrumentation required to attain safety integrity levels target is defined.
- 1.5 Risk management principles are applied to protection system.
- 1.4 Process hazards analysis and its link to protection system are demonstrated.

Element 2: Carry out Risk Assessment

Range

Hazards Identification may include but are not limited to moving Machinery and Equipment, Dust, Hot pipes, potential acid leaks and obtaining permit to work.

Performance Criteria

- 2.1 Safety requirements are followed in line with safety plans and policies.
- 2.2 Hazards in the work area are identified, assessed and appropriate personnel notified in line with workplace procedures.
- 2.3 Identified Hazards are recorded and managed.

Element3 : Install safety system and security devices

Range

Install security system components may include but is not limited to surveillance cameras (CCTV), access ports, PIR motion sensors and alarms stations.

Performance Criteria

3.1 Locations to install safety system and security devices is determined according to environmental conditions, ambient temperature, engineered designs and regulations.

3.2 safety procedures are adhered to at all times.

3.3 type of security system and security devices are selected according to process applications, industrial standards and codes.

3.4 tools and equipment are selected and used.

3.6 safety system and Security devices are installed, powered and signal line is connected.

3.7 Installation procedures are carried out in accordance to manufacturer specification, workplace procedure and applicable health and safety regulations.

3.8 Operational tests of the security device are carried out in accordance to design parameters.

3.9 safety system and security devices are configured according to manufacturers' specifications and engineered designs.

Element 4: Configure safety system and security device

Range

Configuring of a security system may include but is not limited to industrial control systems security (ICS).

Performance Criteria

4.1 Information systems are categorized in line with workplace requirements.

4.2 Appropriate safety system and security controls devices are selected.

4.3 Security controls are implemented in line with workplace requirements.

4.4 Security control assessed for functionality in accordance with design parameters.

4.5 Authorisation of information systems setup and implemented in accordance with company policies.

4.6 Monitoring of security controls carried and logs are kept for trend analyses.

Element 5: Maintains safety system and security devices.

Performance Criteria

5.1 Test equipment and materials are selected and used such as ultraviolet/infrared.

(UV/IR) source, calibration gases, filters and smoke generators to verify protection system or device

5.2 systems is verified according to jurisdictional regulations and manufacturers' specifications for proper operation.

5.3 safety system components and devices are calibrated according to manufacturers' instructions, testing and maintenance schedule, process requirements and data sheets.

5.5 Routine function testing of entire safety loops is performed as per company requirement.

Element 6: Commission safety system and security

Range

Commissioning of security system may include but is not limited to to industrial control systems security (ICS).

Performance Criteria

6.1 Verify that risk management framework task for industrial control systems was executed and implemented.

6.2 Guidance on the application of security controls to ICS was carried out.

Registration Data

Subfield:	Electrical Engineering
Date first registered:	
Date this version registered:	
Anticipated review:	
Body responsible for review:	Namibia Training Authority