

Domain**Instrumentation and Control****Title:****Apply and maintain safety rules in
Instrumentation and Control Workplace
environment****Level: 2****Credits: 6****Purpose**

This unit standard specifies the competencies required to apply and maintain safety rules in Instrumentation and Control Workplace environment. It include risks assessment, following safety procedures before, during and after job processes, applying knowledge of isolation and lockout procedures, demonstrating safe work on heights, reporting and recording safety abnormalities in accordance with worksite procedures, demonstrating knowledge of mining and electrical regulations, identifying Hazard, HAZOPS(Hazard and Operability studies) and Risk Management, demonstrate knowledge of radiation Safety. This unit standard is intended to those who work in a instrumentation and control environment.

Special Notes

1. Entry information:

Prerequisite

- None

2. This unit standard is to be delivered and assessed in the context of instrumentation and control operations and should be assessed in conjunction with all technical unit standards selected from this domain.

3. Assessment evidence may be collected from a real or a simulated workplace in which instrumentation operations are carried out.

3. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' specifications and/or company's guidelines and instructions.

4. Glossary of terms:

- '*Specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements.
- '*isolation and lockout procedures*' refer to isolating an electrical circuit from the source of supply
- *Risk assessment* is an estimation of the possibility of danger, loss, injury or other adverse consequences.
- *Emergency procedure* is a policy on conduct in a prescribed order and manner during a sudden state of danger that requires immediate action. Emergency procedures related to this unit are to include, but not be limited to: extinguishing fires; organisational first aid requirements; and evacuation.

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

- Labour Act 2007, No. 11, 2007
- Atomic Energy and Radiation Protection 2005

- 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 on www.nta.com.na

Elements and Performance Criteria

Element 1: Demonstrate fundamental knowledge of Safety in the Workplace

Range

Introduction to safety in the workplace may include but is not limited to the roles of the employer and the employee in regard to safety at the workplace, define accident, incident and potential accidents and unsafe acts and behaviours, identify unsafe acts and behaviours that can potentially lead to accidents at workplace, express importance of reporting accidents, incidents and potential accidents.

Performance Criteria

- 1.1 The role of the employer in regard to safety is explained.
- 1.2 The role of the employee in regard to safety is explained.
- 1.3 The importance of adherence to safety signs, regulations and procedures related to a working environment is explained.
- 1.4 Safety signs and procedures are explained and interpreted.
- 1.5 The consequences of incorrect usage of safety procedures and personal safety equipment are explained.

Element 2: Assess risks.

Range

Hazards may include but are not limited to electrical hazards, chemical spills, gases, liquids under pressure, moving machinery and equipment, hazardous materials, work in confined spaces, work on heights, manual handling, high temperatures, noise, dust, vapours, fires, elements of nature, sharp equipment, traffic and moving equipment.

Designated persons may be a manager, supervisor, safety personnel or any other person given the overall responsibility of safety in a workplace.

Performance Criteria

- 2.1 Hazards in the work area are identified, assessed and reported to designated persons.
- 2.1 Safety issues and risks in the work area are identified, assessed and reported to designated persons.
- 2.3 Safe workplace procedures and safe work instructions are followed for controlling risks.
- 2.4 Safety, hazard, accident or incident reports are contributed to, in accordance with workplace and legislative requirements.
- 2.5 The fundamentals of risk assessment and the risk matrix are explained.
- 2.6 The concepts of risk reduction and layers of protection are explained.

Element 3: Follow safety procedures before, during and after job processes.

Range:

Personal protective equipment may include but is not limited to overalls, steel capped boots, jacket, gloves, safety glasses or goggles, dust mask or respirator, ear muffs and/or plugs, safety helmets, rubber mats and safety belts.

Signs may include but are not limited to hazard identification, facility or location signs, site safety, traffic and warning signs and symbols

Performance criteria

3.1 safety procedures related to the tasks are followed according to worksite procedures.

3.2 Work area is arranged to minimize accidents and injury.

3.3 Tasks are performed in a safe manner and in line with legislative and workplace requirements.

3.4 Approved personal protective equipment and clothing is worn, used and stored according to workplace procedures.

3.5 Tools and equipment guards are used in line with manufacturers' and workplace specifications and regulations.

3.6 Neither metallic items, nor synthetics are worn on the person while working near live equipment or conductors.

3.7 Disposal of waste materials generated during the activity is demonstrated to meet environmental requirements.

3.8 Reasons for using specific safety procedures and personal protective equipment is explained in terms of work site procedures.

3.9 Safety signs and symbols are identified and followed.

Element 4: Apply knowledge of isolation and lockout procedures.

Range

Isolation and lockout procedures to be applied considering legislative and workplace requirements and are carried out in line with workplace requirements.

Performance Criteria

4.1 Circuit breakers are switched off in line with workplace procedures.

4.2 Where applicable, fuses are pulled out according to workplace procedures.

4.3 Lock with identification tag at power source is put on according to workplace procedures.

4.4 Verification of no-start equipment is demonstrated.

4.5 Procedures for zero-voltage test are explained in line with workplace procedures.

4.6 Earthing of equipment is applied according to workplace procedures.

Element 5: Demonstrate safe work on heights

Range

Equipment needed for work at height may include but is not limited to step ladder, single ladder, extension ladder, trestle ladder, scaffolding and safety harness. Equipment maintenance may include but is not limited to defect identification and rectification of cracks, splinters, loose hinges, damage, missing parts, deterioration, operation of working parts missing and loose bolts/rivets and bending.

Performance Criteria

5.1 Equipment defects are identified according to safe working practices.

5.2 Equipment for carrying out the task is selected, erected and used to meet job requirements in line with safe workplace procedures.

5.3 Equipment is handled, maintained and stored in safe condition in line with workplace procedures.

Element 6: Report and record safety abnormalities in accordance with worksite procedure.

6.1 Unsafe conditions are recognised.

6.2 Recording and reporting procedures are followed.

6.3 Dangers related to incorrect reporting are explained.

6.4 Suitable recommendations are made.

Element 6: Demonstrate knowledge of mining and electrical regulations

Range

Mining and Electrical regulations may include but is not limited to Safety measures during repairs, electrical apparatus, incorrect switching, danger to persons, cable trenches, ring feed, interference with electrical and control system equipment examination of apparatus, entry where there are live conductors, discharge electrically and metal ladders

Performance Criteria

6.1 Safety measures during analysis and repairs are explained.

6.3 Safety measures during incorrect switching on/off are explained.

6.5 Safety measures during ring feed are stated and explained.

6.8 Safety measures at entry where there are live conductors are explained.

6.9 Safety measures during the discharge electrically and metal ladders are explained.

Element 7: Identify Hazard, HAZOPS (Hazard and Operability studies) and Risk Management

Range

Hazard Identification, HAZOPS (Hazard and Operability studies) and Risk Management may include but is not limited to the importance of hazards identification, processes or methodologies to be employed to execute hazard identification, the role of safety instrumented systems, Comparison of hazard analysis methods: FMEA, FTA,LOPA

Performance Criteria

7.1 The importance of identifying hazards is outlined.

7.2 Processes and methodologies to be employed to execute hazard identification are carried out.

7.3 Concept of Hazard studies and related regulations are explained.

7.4 Hazard analysis methods are compared.

Element 8: Demonstrate knowledge of radiation Safety

Range

Radiation Safety may include but not limited to types of sources used, radiation signs used and the type of x-ray emissions, safety procedures in line with the radiation act. (Atomic Energy and Radiation Protection 2005)

Performance Criteria

8.1 Radiation sources and signs are identified.

8.2 Types of x-ray emitted are identified and explained.

8.4 Safety procedures in line with the radiation act are followed.

Registration Data

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