

Domain

SOLAR INSTALLATION

Unit ID: 1663

Title:

Demonstrate advanced knowledge of environmental and sustainability issues

Level: 3

Credits: 4

Purpose

This unit standard specifies the competencies required to demonstrate advanced knowledge of environmental and sustainability issues. It includes the following elements: demonstrate the knowledge of energy efficiency principles, demonstrate knowledge of water use and conservation, demonstrate knowledge of land use and ecology, demonstrate knowledge of material use and recycling; demonstrate knowledge of Waste Management and Demonstrate knowledge of Renewable Energy. This unit standard is intended for those who work as solar installation technicians.

Special Notes

1. This unit standard should be assessed in the context of solar system operations and should be assessed in conjunction with other relevant technical unit standards selected from this domain.
2. To demonstrate competence, at a minimum, evidence is required to demonstrate knowledge of Energy Efficiency principles, knowledge of Water use and conservation, knowledge of Material use and Recycling, and knowledge of Land use and ecology.
3. Assessment evidence may be collected from a real workplace or an appropriate simulated realistic environment in which system operations are carried out.
4. Performance of all elements in this unit standard must comply with all relevant workplace requirements and manufacturers' specifications.
5. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act No. 11 of 2007.
 - Petroleum Products and Energy Amendment Act No. 2 of 2005.
 - National Energy Fund Act of 2000.
 - Gas Act (Draft 2b).
 - Occupational Health and Safety Regulations No. 18, 1997 and all subsequent amendments.
 - ISO 14001 (Environmental Management Standard) and all subsequent amendments to any of the above.

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 on www.namqa.org and the Namibia Training Authority on www.nta.com.na.

Elements and Performance Criteria

Element 1: Demonstrate knowledge of Energy Efficiency principles

Performance criteria

- 1.1 Energy forms or types, sources, processes and applications are explained.
- 1.2 Energy efficiency defined and importance, benefits and challenges of energy efficiency explained.
- 1.3 The relationship between energy generation, delivery and usage and environment explained and discussed.
- 1.4 Energy efficiency and conservation principles and methods are demonstrated, approaches used in energy efficiency and conservation explained.
- 1.5 Relevant calculations on energy use leading to selection of relevant or appropriate energy efficiency concepts or methodologies are demonstrated.

Element 2: Demonstrate knowledge of water use and conservation

Performance criteria

- 2.1 Challenges and importance including different uses of water to society discussed and explained for clear understanding.
- 2.2 Different water sources of water are identified, explained and discussed.
- 2.3 Clean water supply ways are explained and discussed.
- 2.4 Relationship between water supply, usage and disposal, and environment are discussed.
- 2.5 Water conservation principles are explained, importance and challenges of water conservation discussed and ways of water conservation discussed.

Element 3: Demonstrate knowledge of land use and ecology

Performance criteria

- 3.1 Ecology is defined and the importance of applying ecological knowledge to land use decisions are explained and discussed.
- 3.2 Ecological knowledge relevant to land-use is explained and how to use the knowledge to make decision on land use are discussed.

- 3.3 Ecological land use planning for sustainable development discussed.
- 3.4 Impacts of land use change on ecosystems and society.

Element 4: Demonstrate knowledge of material use and recycling

Performance criteria

- 4.1 Grading of materials used in technical and engineering are categorised (bio-degradable and non-bio-degradable).
- 4.2 Recycling defined and importance, and terminologies and symbols used in recycling defined and explained.
- 4.3 The concept of reduce, reuse and recycle are explained.
- 4.4 Recycling industries are identified and explained, and the linkage between waste disposal and recycling discussed.

Element 5: Demonstrate knowledge of Waste Management

Performance criteria

- 5.1 Types (bio-degradable and non-bio-degradable) and different sources (e.g. domestic, industrial, hospital etc.) of waste are explained and discussed in details.
- 5.2 Waste management defined, importance of waste management discussed and the relationship between waste disposal and environmental degradation are explained.
- 5.3 Ability and qualifications of waste management personnel are explained.
- 5.4 Waste management concepts in various fields (e.g. MSW, industries, hospitals, domestic, offices etc.).

Element 6: Demonstrate knowledge of Renewable Energy

Performance criteria

- 6.1 Differences (including advantages and limitations) between conventional and non-conventional resources are explained.
- 6.2 Principles of resource generation, operation and technologies of different renewable energy systems discussed.
- 6.3 Relationship between renewable energy resources and utilisation are discussed.

Registration Data

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