	Unit ID: 2528
Domain	**ELECTRICAL METERING**
Title:	**Design a voltage and current transformer energy metering installation**
Level: 4	**Credits: 8**

Purpose

This unit standard is intended for those who design a voltage and current transformer energy metering installation. People credited with this unit standard are able to plan and prepare for work; demonstrate knowledge of energy metering installation design; prepare scope of work for energy metering installation design; calculate theoretical values for energy meters; select energy meters for installation; produce energy metering design drawings; and clean-up work area.

This unit standard is intended for those who work as electrical-metering electricians.

Special Notes

1. Entry information:

   Prerequisite
   - *None*

2. To demonstrate competence, at a minimum, evidence is required of design a voltage and current transformer energy metering installation. One should perform these tasks ensuring selection and use of appropriate processes, tools and equipment and completing all work to specification.

3. Assessment evidence may be collected at a real workplace or a simulated workplace environment in which electrical metering are carried out.

4. Performance of all elements in this unit standard must comply with industry standards and workplace requirements.

5. Glossary of terms:
   - *'specifications'* refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements, national and international standards and legislations

6. Regulations and legislation relevant to this unit standard include the following:
   - Labour Act, No. 11 of 2007 as amended
   - Regulations relating to the health & safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007
   - ISO 14001 (Environmental Management Standard)
   - Namibia Electricity Safety Code. 2009: Electricity Act of 2007
   - South African National Standard (SANS SANS 474:2006 Edition 1 and NRS 057:2005 Edition 1) Code of practice for electricity metering
   - And all subsequent amendments

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: Plan and prepare for work

Performance Criteria

1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and interpreted.

1.2 Workplace hazards and associated risks are identified and dealt with in accordance with specified requirements.

1.3 Signage and barricade requirements are identified and implemented, where necessary.

1.4 Personal protective equipment is selected in line job and safety requirements

1.5 Tools and equipment selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement.

1.6 Material quantity requirements are calculated in line with plans, specifications and quality requirements.

1.7 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Demonstrate knowledge of energy metering installation design

Performance Criteria

2.1 Wiring materials and terminal blocks are described in accordance with industry requirements and manufacturer specifications.

2.2 Wiring numbering allocation requirements are described in accordance with industry requirements and manufacturer specifications.

2.3 Design templates are described in accordance with industry, relevant legislative requirements and manufacturer specifications.

2.4 Selection and application of fuses for metering installations is described in accordance with industry, relevant legislative requirements and manufacturer specifications.

2.5 Fuse characteristics for current discrimination are described in accordance with industry relevant legislative requirements and manufacturer specifications.

Element 3: Prepare scope of work for energy metering installation design

Range

Industry requirement may include but is not limited to industry agreement, relevant legislative requirements and manufacturer specifications.

Performance Criteria

3.1 Scope of work is prepared in accordance with industry, relevant legislative requirements and manufacturer specifications.

3.2 Permissible load is assessed in accordance with industry requirements relevant legislative requirements and manufacturer specifications.

3.3 Voltage and current transformer class and burdens are applied in accordance with industry, relevant legislative requirements and manufacturer specifications.

Element 4: Calculate theoretical values for energy meters

Range

Calculation of Voltage and current transformer burden and loading include but not limited to Maximum load, initial load, ultimate load and maximum permissible load.

Performance Criteria

4.1 Energy meter theoretical values are calculated in accordance with industry requirements and manufacturer specifications.

4.2 Maximum demand of metering installation is determined in accordance with industry, relevant legislative requirements and manufacturer specifications.

Element 5: Select energy meters for installation

Performance Criteria

5.1 Meter is selected in accordance with installation and industry requirements.

5.2 Meter communication principles are described and applied to meter selection in accordance with industry relevant legislative requirements and manufacturer specifications.

Element 6: Produce energy metering design drawings

Performance Criteria

6.1 Key energy meter installation requirements are verified in accordance with industry requirements.

6.2 Energy metering installation drawings, symbols and polarity markings are produced interpreted in accordance with industry requirements.

Element 7: Clean-up work area

Performance Criteria

7.1 Work area is cleared, cleaned, restored and secured in line with workplace procedures.

7.2 Tools and equipment are cleaned, checked and stored in line with manufacturer specifications and workplace procedures.

7.3 Materials and wastes are disposed of, reused, or recycled in accordance with legislation, regulations, codes of practice and job specifications.

Registration Data

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