

Domain**ELECTRONICS****Title:****Analyse AC and DC electrical circuits I****Level: 2****Credits: 10****Purpose**

This unit standard specifies the competencies required to analyse AC and DC electrical circuits. This unit standard is intended for those who work in electronics industry

Special Notes

1. Entry information

Prerequisite

- *Unit E01 - Apply health and safety rules and regulations in electronics workplace*
- *Unit E04 - Carry out basic electrical circuit analysis*

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

3. To demonstrate competence, minimum evidence of analysing AC and DC electrical circuits (at least 50 percent of all areas in the element) is required

4. Glossary of terms:

- “RMS” refers to Root Mean Square value
- IEC 60617-This standard is issued by the International Electro-technical Commission, and this standard for electrical components symbols.
- IEEE- Institute of Electrical and Electronics Engineers.

5. Alternating Current (AC) and Direct Current (DC) circuits are to be analysed.

6. Performance of all elements in this unit standard must comply with industry standards.

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

- Labour Act, No. 11, 2007.
- Electricity Act, No. 4, 2007
- Regulations relating to the Health and Safety of employees at work, 1997
- 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: Analyse AC and DC electrical circuits

Range

The calculations include application of electrical circuit laws and theorems e.g. Ohms law, Kirchhoff's law, Thevenin's, Norton's, Superposition and Maximum power transfer theorems.

Parameters to be calculated include but are not limited to voltage, current, capacitance, inductance, impedance, admittance, power, power factor, AC waveform parameters (frequency, amplitude, period, peak to peak values, R.M.S values) and energy.

Performance Criteria

- 1.1 Instrument are selected and used as per job requirement
- 1.2 Electrical circuit parameters are calculated using electrical laws and theorems.
- 1.3 Measurements and/or calculations are performed for functionality of electrical circuits.
- 1.4 Measurement and/or calculated results are recorded in SI units and interpreted.
- 1.5 Electrical circuits are sketched, labelled and captioned with symbols in accordance with IEEE/IEC standards.
- 1.6 Electrical circuits are captured in simulation software and simulated.
- 1.7 Measurement, calculation and simulation results are recoded in SI units and interpreted.

Registration Data

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