

1. Module details**Module name****Electrical Fundamentals****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 18 – 20 hours.

Module code

NUE006

Discipline code**2. Module purpose**

The purpose of this module is to introduce the skills, knowledge and attitude to perform and interpret basic electrical measurement using a multi-meter.

3. Prerequisites

NBB18

4. Relationship to competency standards

There are no Competency Standards specifically developed for the Television Antenna Installation Industry. The Traineeship, however, provides some knowledge and skills supporting the following standards:

Electrical Contracting Industry Award Standards:

Electrical Stream Units: 3.1, 3.2, 4.1, 4.2, 4.3, 5.1 - 5.7, 5.9, 5.10

Electronic Stream Units: 3.1, 3.2, 3.3, 4.1, 4.2, 5.1 - 5.8

Instrumentation Units: 5.1 - 5.8

5. Content**Definitions of current, voltage, resistance and power****The basic Utilities and Light Manufacturing Industry****Training Board waveshape and simple parameters:**

Period, frequency, amplitude

Basic electrical components

Colour codes, power ratings, values

Ohm's law and basic calculations

Simple series and parallel circuits

AC and DC power generation**Multi-meters****Measuring simple circuits****Safety requirements**

6. Assessment strategy

Assessment methods

Short answer questions and/or multi-choice questions, practical exercises.

Conditions of assessment

Students will be provided with electronic components, circuit boards to construct circuits, a selection of common electronic components, DC low voltage power supplies and calculators.

7. Learning outcome details

Learning outcome 1

Use simple AC and DC electronic circuits to describe voltage, current and resistance.

Assessment criteria

- 1.1 Describe and understand electrical principles in relation to:
- AC and DC power generation
 - relevant components
 - Ohm's law
 - safety requirements.

Learning outcome 2

Carry out Measurements on AC and DC electronic circuits.

Assessment criteria

- 2.1 Demonstrate the use of a multi-meter to measure, current, voltage and resistance in an AC and DC electronic circuit.
- 2.2 Interpret measurements from a multi-meter.

8. Delivery of the module

Delivery strategy

It is expected that the module be delivered off-the-job. Learning outcomes 1 and 2 should be highly integrated. Give constant examples of where these calculations and measurements are carried out not only in Television Antenna Installation but in a variety of other contexts.

Resource requirements

A selection of basic components
Low voltage power supplies
Proto boards (for building simple circuits)
Industry standards multi-meters (digital and analog)
Calculators
Teachers/Trainers Qualifications and Experience - It is expected that all teachers/trainers in both on or off-the-job contexts will have at least completed an approved course of training equivalent to Workplace Trainer Competency standards, Category 2.
Teachers should have a content qualification equal to or higher than the content being delivered and 5 years recent, relevant industry experience.

Occupational health and safety requirements

Students must be made aware of relevant workplace health and safety issues in all situations and are required to demonstrate safe working practices at all times.