

1. Module details**Module name****Cables and Plugs - High Voltage****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 - 40 hours.

Module code

NUE654

Discipline code

0703110

2. Module purpose

This module provides knowledge and skills for the adaptation and connection of flexible (tailing) cables to (flameproof) plug/receptacle combinations at voltages up to 3.3kV.

3. Prerequisites

NUE057 Applied Electricity 5.
NE174 Electrical Wiring and Equipment 3.

4. Relationship to competency standards

This module provides part of the underpinning knowledge and skills in the 'Evidence Guide' of specific units of competency in the National Electrotechnology Training Package and provides similar support, where mapped, to equivalent units in the National Metals and Engineering Competency Standards. For details refer to the module to unit maps, available from NUEITAB.

5. Content**Cable types and construction**

Essential requirements of AS/NZS1802 and AS2802: definitions; cable types and construction; cable voltage ratings; cable designations and applications

Plug and receptacle arrangements

Restrained plugs and receptacles

Definitions

Colour coding

Marking

Current ratings

Voltage ratings

Plug/receptacle dimensions/configurations

Cable glands

Terminals

Earthing

Phase barriers

Operating and retaining device

Explosion protection features

Factors that may void explosion protection features

	<p>Connection techniques Correct cable stripping and connection Sleeving Integrity of explosion protection features Testing and commissioning</p>
6. Assessment strategy	
Assessment methods	Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.
Conditions of assessment	Learning and assessment will take place in an environment that is conducive to a learner's development.
7. Learning outcome details	
Learning outcome 1	Describe the essential features of flexible cables for use at high voltage.
Assessment criteria	<p>1.1 State key definitions related to reeling and trailing cables.</p> <p>1.2 Describe the various cable types and their construction.</p> <p>1.3 Identify voltage ratings of cables.</p> <p>1.4 State applications for each type of cable.</p>
Learning outcome 2	Describe the features of restrained plug and receptacle arrangements.
Assessment criteria	<p>2.1 State key definitions related to plug and receptacle arrangements.</p> <p>2.2 Describe colour codings and markings for plugs/receptacles.</p> <p>2.3 Identify plugs for various currents and voltage ratings.</p> <p>2.4 Describe the cable gland assemblies for plugs.</p> <p>2.5 Explain the explosion protection features of flameproof plugs/receptacles.</p> <p>2.6 Describe the factors that may void the explosion protection features of plug/receptacles.</p>

Learning outcome 3

Correctly connect a flexible cable to a flameproof plug.

Assessment criteria

- 3.1 Correctly strip the cable so as not to void flameproof protection.
- 3.2 Properly connect cable and install phase barriers.
- 3.3 Assemble cable, plug and gland assemblies maintaining the integrity of the flameproof explosion protection features.
- 3.4 Apply relevant tests to guarantee compliance with standards.

8. Delivery of the module

Delivery strategy

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective method to achieve this is by integration of theory and practice where students learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require learning outcome sequence other than that indicated in the module.

Resource requirements

Resources should be sufficient for students to carry-out learning activities on an individual basis. This could include:

- Suitable workshops/laboratories
- Suitable tools and equipment.

Occupational health and safety requirements

A safe and healthy environment will be provided for students and teachers as well as the particular safety procedures followed as part of the learning / teaching activity and content.