

1. Module details**Module name****Switchgear and Equipment Installation****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

NUE221

Discipline code

0703130

2. Module purpose

This module is designed to supply the knowledge and skills required by electricity supply industry workers to install electrical switchgear and equipment.

The experience gained is in the correct procedure and practices involved in preparing for and carrying out installation and maintenance of electrical switchgear and equipment to plans, drawings and specifications.

Correctly position and maintain pole mounted switchgear and electrical equipment, carry out testing and commissioning procedures for switchgear and equipment.

All procedures and practices comply in accordance with electricity Supply Industry Standards, Supply Authority regulations, relevant Australian Standards and OH&S regulations.

3. Prerequisites

NUE207 Powerline Safety Practices.

NE175 Workshop Practices.

NE160 Electrical Principles 1.

NUE236 Rigging (Basic).

4. Relationship to competency standards

This module addresses Units 2.13 and 3.8 of the E.S.I. National Competency Standards for Overhead Line Work and Cable Jointing and partially addresses Unit 5.2 and 5.5 of the Electrical Contracting Industry Award Standard (Volume 8).

5. Content**6. Assessment strategy**

Switchgear
 sectionalisers
 reclosers
 drop-out fuses
 disconnectors
 isolators
 air-break switches
 gas-filled switches
 vacuum type
 links
 fuses

oil disconnectors,
 fuse switches
 circuit breakers
 operating characteristics, advantages and disadvantages of
 different types switchgear
 installation procedures
 earthing requirements & techniques

Equipment

transformers
 reactors
 regulators
 capacitors
 relays
 surge arrestors
 fault indicators
 mobile generators
 installation procedures
 earthing requirements and techniques

Assessment methods

Short answer questions (written, oral or graphic or computer based).
 Suitable practical exercises which assess the skills required of each learning outcome.

Conditions of assessment

Theory room for written tests together with practical field observation.

7. Learning outcome details

Learning outcome 1

Plan for the installation and maintenance of electrical equipment.

Assessment criteria

- 1.1 Obtain and analyse information on system diagrams/plans to ensure the installation and maintenance of electrical equipment can be completed in accordance with electricity supply industry standards.
- 1.2 Identify and interpret all construction drawings required to complete the task in accordance with electricity supply industry standards.
- 1.3 Identify the resources required, including personnel, plant, equipment, tools and transport to ensure the task can be completed in accordance with electricity supply industry standards and procedures.

Learning outcome 2	Position, connect and/or maintain pole mounted switchgear.
Assessment criteria	<p>2.1 Identify types of pole mounted switchgear and explain their function.</p> <p>2.2 Assemble and erect pole mounted switchgear.</p> <p>2.3 Diagnose the maintenance requirement/s of pole mounted switchgear in accordance with electricity supply industry standards and procedures.</p> <p>2.4 Maintain switchgear in accordance with electricity supply industry standards and procedures.</p>
Learning outcome 3	Position, connect and/or maintain electrical equipment.
Assessment criteria	<p>3.1 Identify types of electrical equipment and explain their function.</p> <p>3.2 Assemble and erect electrical equipment.</p> <p>3.3 Diagnose the maintenance requirement/s of electrical equipment in accordance with electricity supply industry procedures.</p> <p>3.4 Maintain electrical equipment in accordance with electricity supply industry standards and procedures.</p>
Learning outcome 4	Test and commission electrical switch gear/equipment.
Assessment criteria	<p>4.1 Identify the methods of testing and commissioning electrical switch gear/equipment in accordance with electricity supply industry procedures.</p> <p>4.2 Test and commission electrical switch gear/equipment in accordance with electricity supply industry procedures.</p> <p>4.3 Interpret test results to ensure electrical switch gear/equipment functions in accordance with electricity supply industry specifications.</p>

8. Delivery of the module

Delivery strategy

Delivery strategies must be suitable for both theoretical and/or practical learning and module purpose. It is recommended that learning and assessment be facilitated in a holistic manner which may require a learning sequence other than indicated in the body of this module descriptor.

Resource requirements

Enterprise construction manuals
Relevant Australian standards
Enterprise work manuals and standing instructions
Relevant manufacturers' equipment manuals

Occupational health and safety requirements

Students should be made aware of Occupational Health and Safety issues in all situations and be expected to demonstrate safe working practices at all times. Electrical safety should be emphasised.