

1. Module details**Module name****Electrical Installations - Special situations****Module duration**

40 hours

Module code

NUE404

Discipline code**2. Module purpose**

This module provides a basis for understanding special considerations needed for the safe installation and operation of equipment and wiring systems in special situations. Students will develop skills for identifying types of installation that require increased safety and care due to unusual or arduous conditions. They will use Australian and NZ Standards such as AS/NZS 3000: 2000 and other standards that may be required by a regulatory authority

3. Prerequisites

NUE402

4. Relationship to competency standards**5. Content**

1. Identification of special situations
 - Spas and saunas
 - Refrigeration room
 - Construction and demolition sites
 - Boating Marinas
 - Movable premises and caravan parks
 - Electromedical treatment areas
 - Shows and carnivals
 - Outdoor sites under heavy conditions
 - Film, video and Television sites
 - Battery installations
2. Performance requirements – protection for safety
 - Protection against
 - Direct contact
 - Indirect contact
 - Thermal effects
 - Overcurrent
 - Mechanical and electrical faults
 - Movement
 - Damage
3. Factors affecting the wiring system
 - Installation conditions
 - External influences
 - Selecting wiring systems

4. Distribution board design and cable selection
 - Special requirements
 - Circuit protection type and ratings
 - Enclosure requirements

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

Normally learning and assessment will take place in a classroom / laboratory environment.

7. Learning outcome details

Learning outcome 1

Identify special situations recognised in AS/NZS 3000: 2000 or other standards as requiring special care to maintain performance and safety.

Assessment criteria

- 1.1 List special situations that require restricted cabling methods or location of equipment
- 1.2 List standards or codes of practice that relate to specific electrical installations
- 1.3 Outline factors that preclude some types of installation methods in specific electrical installations.
- 1.4 Describe circumstances that need increased safety that arise in special situations.

Learning outcome 2

Outline performance requirements and protection methods for specific electrical installations.

Assessment criteria

- 2.1 List basic methods outlined in AS/NZS 3000: 2000 recognised as providing protection for safety.
- 2.2 Detail special requirements that may be needed to minimise electrical hazards to users of equipment in specific electrical installations.
- 2.3 Outline hazards that may arise during normal or abnormal use of equipment that may reasonable occur in practice.

Learning outcome 3

Outline considerations that will affect the choice of wiring systems for specific electrical installations.

Assessment criteria

- 3.1 Describe installation conditions that would be likely in a variety of specific electrical installations that would affect the choice of wiring system.
- 3.2 Determine the external influences such as use of special medical equipment that may effect the choice of wiring system.

Learning outcome 4	<p>3.3 Apply appropriate standards and select suitable wiring system and accessories for a range of specific electrical installations</p> <p>Determine ratings and characteristics of equipment that should be incorporated into distribution boards to provide increased controls and safety</p>
Assessment criteria	<p>4.1 Determine special requirements for control panels or switchboards at which circuits for specific electrical installations originate.</p> <p>4.2 Estimate, using appropriate standards or codes of practice, a suitable number and ratings for final subcircuits needed to provide supply to equipment and accessories in specific electrical installations.</p> <p>4.3 Outline any specific requirements for switchboard enclosures or panels that may be required by relevant standards or codes of practice</p>
8. Delivery of the module	
Delivery strategy	<p>Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective way to achieve this is by the integration of theory and practice where students learn by experimentation, research and reports. It is recommended that the learning and assessment be facilitated in a holistic manner, which may require a learning outcome sequence other than that indicated in the module.</p>
Resource requirements	<p>Resources should be sufficient for students to carry out exercises individually.</p> <p>Useful resources include:</p> <p><i>Standards Australia, Standards New Zealand, Australian/ New Zealand AS/NZS3008.1 Wiring Rules AS/NZS 3000:2000.</i></p> <p><i>Standards Australia, Standards New Zealand AS/NZS3008.1, Electrical installations. Selection of cables. Part 1.1 Cables for alternating voltages up to and including 0.6/1kV Typical Australian installation conditions</i></p> <p>Australian standards for specific electrical installations.</p> <ul style="list-style-type: none"> • AS 3001 Electrical installations Movable premises • AS 3002 Electrical installations Shows and carnivals • AS 3003 Electrical installations Patient treatment areas • AS3004 Electrical installations Marinas and pleasure craft

**Occupational health
and safety requirements**

- AS3007 Surface mines
- AS3011 part 1 and 2 Secondary batteries installed in buildings
- AS3012 Electrical installations. Construction and demolition sites
- AS4249 Electrical safety practices. Film video and television sites

Australian standards for battery installations

Petherbridge, K., Neeson, I. 1998 *Electrical Wiring Practice*.
5th Ed. McGraw Hill Sydney.

Supply Authority service rules

A safe and healthy environment will be provided for students and teachers as well as safety procedure with regard to learning / teaching activity