

**1. Module details****Module name****Pole and Line Inspection****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**

NUE211

**Discipline code**

07031

**2. Module purpose**

This module is designed to supply the knowledge and skills required by electricity supply industry workers to inspect poles and overhead lines.

The experience gained is in the correct procedures and practices involved in preparing for and carrying out pole inspections, ground line inspections and overhead line inspections.

Assess the condition of timber poles, concrete, steel and composite structures, and transport and handling of chemicals used to treat timber poles. Inspection and assessment of pole tops and overhead line associated hardware and accessories including underground cable terminations. Record keeping of related pole and overhead line inspections.

All procedures and practices comply in accordance with electricity supply industry standards, Supply Authority regulations, relevant Australian standards, enterprise conditions and OH&S regulations.

**3. Prerequisites**

NUE207 Powerline Safety Practices.

**4. Relationship to competency standards**

This module addresses Unit 2.6, 3.17 and 3.3 of the E.S.I. National Competency Standards for Overhead Line Work and Cable Jointing and Unit 5.3 of the Electrical Contracting Industry Award Standards (Volume 8) and other units which refer to pre-climbing inspections of poles

**5. Content****Pole inspection**

safety and precautions

regulations

electrical precautions

the nature of wood

tree growth

Australian standards

timber faults

pole identification

dry rot and its prevention

wet rot

fungi/and the effects and indications of fungal decay

termites and borers  
treatment of subterranean termite infestation

**Ground line Inspection**

statutory obligations  
ground line inspection procedures  
assessment of poles  
regulations  
poles and hardware  
construction types  
treatment types  
application of chemicals  
transportation of chemicals,  
practices for the safe handling of pesticides  
recording techniques  
marking suspect and condemned poles  
numbering systems  
recording construction details  
recording ground line maintenance details  
new technology  
types of testing  
drilling  
sonic testers  
Shigometer  
CAT scanner  
proof load tester  
benefits of system maintenance  
practical maintenance and repairs  
use of chemicals

**Overhead line inspection**

regulations, codes  
guidelines and agreements  
methods  
use of aircraft/vehicles/on foot  
the visual pole top inspection  
pole top deterioration  
concrete poles

**6. Assessment strategy**

**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**

**Identify characteristics of wood used for structures within the electrical distribution system and describe the factors that affect their condition.**

**Assessment criteria**

- 1.1 Describe the relationship between timber and water.
- 1.2 Identify types of timber used and the faults that occur within timber that influence the integrity of the structure.
- 1.3 Recognise the presence of fungal activity and its effects on timber structures.
- 1.4 Recognise the presence of termite and borer activity and their effect on timber structures.
- 1.5 Recognise the presence of dry rot and its effects on timber structures.

**Learning outcome 2**

**Transport and handle chemicals used to treat wood poles used within the electrical distribution system.**

**Assessment criteria**

- 2.1 Identify the chemicals used to treat wood poles.
- 2.2 Describe the regulations and procedures to be followed to handle apply and transport chemicals safely.
- 2.3 Apply chemicals to wood poles.

**Learning outcome 3**

**Identify deterioration problems associated with concrete, steel and composite structures used within the electrical distribution system.**

**Assessment criteria**

- 3.1 Describe the relationship between steel, concrete and water.
- 3.2 Describe the procedures used to prevent and repair the deterioration that occurs to steel, concrete and composite structures.
- 3.3 Inspect concrete, composite and steel structures for evidence of deterioration.

**Learning outcome 4**

**Perform ground line inspection on electrical distribution structures.**

**Assessment criteria**

- 4.1 State industry policy and regulations with regard to routine ground-line pole inspection.
- 4.2 Specify the requirements for pole inspection on electrical distribution structures.
- 4.3 Describe the operation of various pieces of equipment used during the test/inspection of electrical distribution structures.
- 4.4 Operate various inspection/testing devices.
- 4.5 Record and interpret recorded data related to ground-line inspection.

**Learning outcome 5**

**Perform and interpret recorded data related to ground-line inspections.**

**Assessment criteria**

- 5.1 State industry policy and regulations with regard to routine overhead line inspection.
- 5.2 Specify the methods and requirements for overhead line inspection on electrical distribution structures.
- 5.3 State the clearances required for overhead conductors, cables and structures.
- 5.4 Describe the operation of various pieces of equipment used during the inspection of overhead assets on electrical distribution structures.
- 5.5 Operate various inspection devices.
- 5.6 Record and interpret recorded data related to overhead line inspections.

**Learning outcome 6**

**Perform line inspection on underground cables in the electrical distribution system.**

**Assessment criteria**

- 6.1 State industry policy and regulations with regard to routine line inspection of underground cable terminations.
- 6.2 Specify the methods and requirements for line inspection on underground cable terminations.

**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**

Relevant Australian standards  
Enterprise work manuals and standing instructions  
Relevant manufacturers' equipment/component 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 must be emphasised.