

## 1. Module details

**Module name**

**Cable Jointing 4 – HV Paper/Lead**

**Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 54 - 60 hours.

**Module code**

NUE316

**Discipline code**

0703130

## 2. Module purpose

This module is designed to supply the knowledge and skills required by electricity supply industry workers to joint de-energised high voltage paper/lead cables.

The experience gained is in the correct procedures and practices involved in preparing for and carrying out installation and maintenance of de-energised high voltage paper/lead cables.

High voltage paper/lead straight and tee joints with stress control and paper lead to XLPE cable transition. Pole top and substation/switchgear termination and conduct of HV testing procedure.

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

## 3. Prerequisites

NUE207 Powerline Safety Practices  
NE175 Workshop Practices.

## 4. Relationship to competency standards

This module addresses Unit UETTDRCJ03A Install and maintain de-energised HV underground paper insulated cables of the ESI National Competency Standards for Transmission and Distribution.

## 5. Content

**Cable types and construction**

**Safety aspects relating to lead covered paper insulated cables (PLY)**

**Tools and equipment relating to jointing paper lead cables**

**Plumbing techniques**

**High voltage joints (PLY)**  
straight through  
tee joint

stress control  
PLY to XPLE transition

**High voltage terminations (PLY)**

pole top terminations  
substation/switchgear terminations

**Repairs to cables**

types of damage  
repairs to sheath  
repairs to cores

**HV test procedures**

phase identification  
HV insulation resistance test

## 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

**Prepare and joint high voltage lead sheathed, paper insulated cables.**

### Assessment criteria

- 1.1 List and identify the various common high voltage lead covered, paper insulated cables.
- 1.2 Describe the structure of high voltage PLY cables.
- 1.3 Identify and interpret all technical drawings required to joint high voltage lead sheathed, paper insulated cables.
- 1.4 Identify methods of jointing high voltage lead sheathed, paper insulated cables.
- 1.5 Prepare tools, equipment and cable for jointing.
- 1.6 Joint high voltage lead sheathed, paper insulated cables.

### Learning outcome 2

**Prepare and install a transition joint between XPLE and lead sheathed, paper insulated cables.**

### Assessment criteria

- 2.1 Identify and interpret all technical drawings required to install a transition joint between XPLE and lead sheathed, paper insulated cables.
- 2.2 Prepare tools, equipment and cable for jointing.
- 2.3 Install a transition joint between XPLE and lead sheathed, paper insulated cables.

### Learning outcome 3

**Conduct high voltage lead sheathed paper insulated cable test procedures.**

### Assessment criteria

- 3.1 Test instruments for cable test.
- 3.2 Test high voltage underground cables upon completion of joint/termination/fault repair.

## 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  
*WorkCover NSW, WorkCover Code of Practice - Low Voltage Electrical Work Local electricity distributor and authority regulations, or State/Territory equivalent*  
Where this module is used in an approved Traineeship or Apprenticeship program learners should be advised to obtain, where available, respective EE-Oz Training Standards<sup>1</sup> **User Guides** (these outline in detail what training and work performance the Learner is required to undertake for the program).

### 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.

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<sup>1</sup> EE-Oz Training Standards is an ANTA declared Industry Skills Council for the ElectroComms and EnergyUtilities Industry