



Australian Government

Assessment Requirements for UETDRIS027

Diagnose and resolve faults in transmission systems

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 4.0.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two (2) separate occasions and include:

- applying relevant legislation, regulations, standards, codes of practice and organisational workplace requirements including:
 - work health and safety (WHS)/occupational health and safety (OHS) requirements
- identifying hazards, assessing risks, and identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- dealing with an unplanned event on at least one (1) occasion
- obtaining and signing work permits in accordance with workplace requirements
- completing relevant work records, reports and documentation
- diagnosing and resolving faults in transmission primary and secondary systems, including:
 - interpreting system alarms and protection operations
 - applying logical diagnostic methods
 - using fault scenarios to test the source of system faults
 - recording information from control room and relevant personnel
 - identifying faults and assigning personnel in accordance with individual skills and competencies
 - considering the impact of outages on the network
 - resolving system faults
 - verifying that the system operates within parameters
 - documenting fault rectification.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- relevant legislation, regulations, standards, codes of practice and organisational workplace requirements including WHS/OHS requirements

- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of plant, tools and equipment
- application, purpose and types of permits
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident
- workplace records, reports and documentation
- manuals, diagrams and drawings
- overview of distribution networks
- overview of transmission primary system, including:
 - lines
 - buses
 - transformers
 - converters
 - cables
 - circuit breaker configurations
- operating parameters of circuit breakers and switches, including:
 - principles of operation
 - voltage and current range
 - breaking capacity
- protection schemes
- nomenclature and nameplates
- high pressure air systems, and air storage and handling processes
- direct current (d.c.) auxiliary systems
- SF6 conditioning, storage and handling system
- spring charging mechanisms
- generation types and fundamentals of operation
- generator connection to transmission and distribution networks.
- principles of high voltage (HV) alternating current (a.c.) and d.c. transmission, including:
 - tower types and configurations
 - insulator types
 - types of conductors
 - line ratings
 - conductor terminations
 - harmonic filters
 - protection
- types of isolators
- control of voltage
- voltage collapse and system black, including:
 - under frequency trip
 - automatic load shedding

- manual load shedding
- voltage control devices, including:
 - voltage regulators applied to generators and synchronous phase modifiers
 - electromagnetic voltage regulators
 - series and parallel capacitors
 - on-load tap changer (OLTC) transformers
 - static var compensation (SVC)
- overview of transmission secondary systems, including:
 - control and supervisory systems
 - protection schemes
- overview of the transmission communication systems, including:
 - telephone
 - power line carrier
 - dedicated cable
 - micro-wave links
 - fibre optics
- transient voltage levels in power systems, including:
 - switching
 - lightning
 - surge diverters
 - shield wires
 - insulation grading
 - corona discharge
- impact of natural disasters
- faults related to deteriorating components.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so.

Where this is not appropriate, assessment must occur in simulated conditions involving realistic and authentic activities that replicate operational workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>