



Australian Government

Assessment Requirements for UETDRIS004 Develop low voltage switching schedule

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 2.0.

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 separate occasions and include:

- applying relevant work health and safety (WHS) occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- obtaining all the following:
 - approvals/clearances
 - access authorities
- completing the following:
 - development of low voltage (LV) switching schedule to enterprise requirements
- completing all the following:
 - planning of loading of network components, including standby generation
 - evaluating load parameters and effects on system, including paralleling and off-loading
 - identifying unexpected sources of energisation, e.g., generators, uninterruptible power supply (UPS) and solar
 - implementing earthing procedures to reduce induced voltages
 - authorising issuance of work-permits
- dealing with unplanned events on at least one (1) occasion.

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:

- electrical equipment fundamentals used in the powerline industry encompassing:
 - legislation, standards, codes, supply authority regulations and specific enterprise regulations pertaining to the use and care of electrical equipment - high voltage (HV) and LV equipment
 - characteristics, capabilities and application of powerline electrical equipment
 - safety precautions with regards to using electrical equipment

- techniques in pre-use inspection on the serviceability of electrical equipment
- techniques in the general maintenance, care and storage of electrical equipment
- identifying hazards, and assessing and controlling risks associated with the use of electrical equipment
- installation of switchgear and associated equipment encompassing:
 - types and function of various switchgear - 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 of switchgear, installation procedures, earthing requirements and techniques
 - types of equipment - transformers, reactors, regulators, capacitors, relays, surge arrestors, fault indicators and mobile generators
 - installation procedures for switchgear and equipment - standards, codes, legislation, supply authority regulations and/or enterprise requirements, assembly and erecting procedures, earthing requirements and techniques, and pole mounted locations
 - maintenance procedures for switchgear and equipment - diagnosing and rectifying faults according to electricity supply industry (ESI) standards and procedures
 - testing and commissioning - ESI standards and procedures
- LV switching principles encompassing:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to switching of LV to a given schedule
 - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of electrical apparatus; use, characteristics and capabilities of specialised tools and testing equipment; and LV network interconnectors source of possible back-feed
 - LV switching techniques - identifying hazards, assessing and controlling risks associated with LV switching operations, electrical access permit(s), operational procedures and earthing procedures
 - personnel protective equipment (PPE) for LV switching
- LV system switching principles, including switching authorisation procedures, encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to system switching
 - requirements for the use of manuals, system diagrams/plans and drawings
 - types and characteristics of LV systems and equipment to be switched
 - procedures for obtaining correct LV switching authorisation - identification of WHS/OHS hazards, assessing and controlling risks, safety procedures and precautions, safe approach distances, responsibilities and protocols, identifying switching resources, procedures for obtaining electrical access permits authorities, requirements for team switching and procedures for coordination of operations
 - techniques in LV system switching - isolation procedures and proving dead, earthing procedures, pre-switching checks, switching operational procedures, emergency fault procedures and energisation procedures
- LV overhead and substation switching principles encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements

applicable to LV overhead and substation switching

- requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of LV electrical equipment to be switched; use, characteristics and capabilities of specialised tools and testing equipment; and role and responsibilities of the LV switching operator
- operational forms, access authorities and hazard/risk assessments associated with HV switching - types of operational forms, access authorities and hazard/risk assessments; purpose and procedure for operational forms, access authorities and hazard/risk assessments
- use and operation of equipment associated with LV overhead and substation equipment - test instruments, sticks, interrupters and arc stranglers
- LV switchgear – types, categories, application and operating capabilities
- operation of LV overhead switching or indicating devices - fuses, disconnect fuses, load switching, underslung links, air-break switches, disconnects, live line clamps, phasing sticks and phasing tester
- operation of protection systems and substation equipment - fault levels and settings; types and applications, protection systems and substation equipment fault levels and settings; types and applications
- restrictions pertaining to LV switching equipment
- procedures for the isolation of LV distributions main and working earths
- earthing LV electrical apparatus practices and procedures for access authority issuing
- LV switching techniques
- operate switching apparatus - identifying hazards, assessing and controlling risks associated with LV switchgear operation, systematic and defensive techniques, mobile radio procedures and double isolation procedures
- preparation of a LV switching instruction encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements applicable to switching sheet schedules
 - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of LV electrical equipment to be switched; isolation points and earthing; and responsibilities of the switching operator
 - techniques in writing switching schedules - sequence of switching operations, isolation procedures, earthing procedures and switching completion notification procedures
- enterprise-specific policies and procedure instructions encompassing:
 - responsibilities and duty of care of employer and employee relationship
 - methods of obtaining the up-to-date information on enterprise policies and procedures
 - rules and regulations
 - induction into workplace - location of work area and storage area, timetable, uniform, personal wellbeing, housekeeping rules, emergency procedures and evacuation procedures
 - techniques when dealing with others - working in teams, customer relation, and complaint and issues procedures
 - overview of enterprise professional development - fire-fighting procedures, fatigue

- management, and training and competency development - understanding and promotion
- enterprise-specific WHS/OHS instructions encompassing:
 - standards, codes, legislation, supply authority regulations and specific enterprise regulations pertaining to WHS/OHS policies and procedures
 - methods of obtaining the up-to-date information on enterprise WHS/OHS policies and procedures
 - specific enterprise PPE - type and application; where and when to be used; method of replacement; responsibility of maintenance, including cleaning, inspection and testing; and emergency response, rescue, evacuation and first aid procedures
 - personal wellbeing – hygiene, fatigue/stress management and drugs/alcohol
 - WHS/OHS training - induction training, specific hazard training, specific task or equipment training, emergency and evacuation training, and training as part of broader programs, such as equipment operation
 - WHS/OHS records - audits; inspection reports; workplace health and environmental monitoring records; training and instruction records; manufacturer and supplier information, such as material safety data sheets (MSDS); registers; maintenance reports; workers compensation and rehabilitation records; and first aid/medical records
- enterprise-specific technical drawings and documents encompassing:
 - types and application of enterprise-specific drawings and documents - electrical and electronic drawings, mechanical drawings, project charts, schedules, graphs, technical manuals and catalogues
 - instructions/worksheets - types and application of enterprise-specific symbols and diagrams
 - title box - description of parts and version control.

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:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, 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>