

**Course outline: 321 AS Standards G103A**  
**UEENEEG103A - Install low voltage wiring and accessories**

<b>Qualification:</b>	Certificate III in Electrotechnology Electrician - UEE30811
<b>Applicable to:</b>	Learners, industry/employers, governments, community and Global Energy Training Solutions as the provider
<b>Unit of competency:</b>	Accessible from: <a href="http://training.gov.au/Training/Details/UEENEEG103A">http://training.gov.au/Training/Details/UEENEEG103A</a>
<b>Related policies:</b>	<p>Policy &amp; Procedure 1 – Enrolment Policy</p> <p>Policy &amp; Procedure 2 – Credit Transfer &amp; Recognition of Prior Learning</p> <p>Policy &amp; Procedure 3 – Learner Support</p> <p>Policy &amp; Procedure 4 – Assessment</p> <p>Policy &amp; Procedure 5 – Academic Misconduct</p> <p>Policy &amp; Procedure 6 – Alcohol &amp; Other Drugs</p> <p>Policy &amp; Procedure 7 – Access, Equity &amp; Diversity</p> <p>Policy &amp; Procedure 8 – Vulnerable People</p> <p>Policy &amp; Procedure 9 – Work, Health &amp; Safety</p> <p>Policy &amp; Procedure 10 – Incident, Injury &amp; Rehabilitation</p> <p>Policy &amp; Procedure 11 – Competency, &amp; Qualification Assessment Decisions</p> <p>Policy &amp; Procedure 12 – Complaints &amp; Appeals</p> <p>Policy &amp; Procedure 13 – Privacy</p> <p>Policy &amp; Procedure 14 – Fees</p> <p>Policy &amp; Procedure 15 – Industry &amp; Employer Engagement</p> <p>Policy &amp; Procedure 16 – Trainers &amp; Assessors</p> <p>Policy &amp; Procedure 17 – Administration &amp; Other Staff</p> <p>Policy &amp; Procedure 18 – Quality Assurance</p> <p>Policy &amp; Procedure 19 – Business &amp; Financial Risk Management</p> <p>Policy &amp; Procedure 20 – Changes to Qualifications or Business</p> <p>Policy &amp; Procedure 21 – Conflict of Interest</p> <p>Policy &amp; Procedure 22 – Records Management</p> <p>Policy &amp; Procedure 23 – Marketing &amp; Advertising</p>
<b>Monitor and review:</b>	Policy & Procedure 18 – Quality Assurance
<b>Responsibility:</b>	Ben Murphy – as Proprietor
<b>Questions/queries:</b>	Feedback and suggestions welcomed: <a href="mailto:office@gets.com.au">office@gets.com.au</a> (+61) 02 6262 0077

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### 1. Material requirements

- AS/NZS 3000:2007 incorporating amendment 1 and 2
- Scientific calculator, ruler, pens and pencils
- Note book
- Hand tools
- Covered footwear
- Internet access (provided)

### 2. Session summaries

Day 1	
Required Skills and Knowledge	<p>T1 Standards, codes and requirements applicable to the installation of wiring systems encompassing:</p> <ul style="list-style-type: none"> <li>• Cables and methods of mechanical protection and support</li> <li>• Protection against and from other services.</li> <li>• Prohibited cable locations</li> <li>• Building codes affecting the installation of cables in buildings, structures and premises (limitation on penetration of structural elements, maintenance of fire protection integrity, and wiring above suspected ceilings)</li> <li>• Issues affecting electrical installations in heritage buildings and premises (limitation on penetration of structural and finished elements, accessing cable routes, types and colour of exposed accessories).</li> </ul> <p>T2 Use of other installation standards called up by the Wiring Rules for special situations encompassing:</p> <ul style="list-style-type: none"> <li>• standards that apply to Electromedical treatment areas.</li> <li>• additional requirements for construction and demolition sites.</li> <li>• Relocatable installations and their site supply</li> <li>• additional requirements for caravan park.</li> <li>• additional requirements for marinas and pleasure craft at low voltage.</li> <li>• additional requirements for shows and carnivals.</li> </ul> <p>T3 Hazardous areas encompassing:</p> <ul style="list-style-type: none"> <li>• Conditions that apply in an areas that require them to be classified as a ‘Hazardous area’.</li> <li>• Responsibility for classifying a hazardous area</li> <li>• Awareness of standards called up by the Wiring Rules for selection of equipment and installations in Hazardous areas. (AS/NZS 3000 requirements for hazardous areas).</li> </ul> <p>T4 Requirement for the installation of cables and accessories in damp situations and ELV</p>

	<p>installations encompassing:</p> <ul style="list-style-type: none"> <li>• restricted zones around baths, showers, fixed water containers, pools, sauna heaters and fountains/water features for given installations.</li> <li>• selecting equipment suitable for installation in given damp situations.</li> <li>• voltage range that defines extra-low voltage.</li> <li>• 'Separated extra-low voltage (SELV) system' and a 'Protected extra-low voltage (PELV) system'.</li> <li>• AS/NZS 3000 requirements for selecting extra-low voltage systems and devices for a range of installations and conditions.</li> </ul>
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<b>Day 2</b>	
Required Skills and Knowledge	<p>T5    Aerial cabling encompassing:</p> <ul style="list-style-type: none"> <li>• Describe the types of aerial cabling.</li> <li>• State the AS/NZS 3000 and local supply authority requirements for aerial cabling.</li> <li>• Termination of aerial cables in accordance with AS/NZS 3000 and local requirements.</li> <li>• installation of consumers mains for connection via overhead consumers terminals in accordance with AS/NZS 3000 and local requirements.</li> <li>• Testing of installed cables compliance with Australian Standards</li> </ul> <p>T6    Underground cabling encompassing:</p> <ul style="list-style-type: none"> <li>• Describe permissible underground cabling systems.</li> <li>• Identify other underground services.</li> <li>• State the AS/NZS 3000 and local supply authority requirements for underground cabling.</li> <li>• List the advantages and disadvantages of underground wiring systems</li> <li>• selection of underground consumers mains in accordance with AS/NZS 3000 and local requirements</li> </ul> <p>T7    Techniques for installing cables and wiring systems encompassing:</p> <ul style="list-style-type: none"> <li>• Typical cable routes through buildings, structures and premises.</li> <li>• Application of wiring accessories</li> <li>• Drawing-in, placing and fixing of cables</li> <li>• Cable and conductor terminations</li> <li>• Maintaining fire rating integrity.</li> <li>• Inspecting and testing installed and terminated cables to ensure they comply with continuity and insulation resistance and are safe to connect to the supply.</li> </ul>

### 3. Elements and Performance Criteria

Elements and Performance Criteria require practice and demonstration in the work place.

Element	Performance Criteria	Work Performance
1:Prepare to install wiring and accessories.	1.1 OHS procedures for a given work area are identified, obtained and understood.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.2 Health and safety risks are identified and established risk control measures and procedures in preparation for the work are followed.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.3 Safety hazards that have not previously been identified are noted and established risk control measures are implemented.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.4 Installation of wiring is prepared in consultation with other affected by the work and sequenced appropriately.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.5 The nature and location of the work is determined from documentation or other appropriate person to establish the scope of work to be undertaken.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.6 Cable routes are planned within the constraints of the building structure, significant and requirements.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.7 Material needed for the installation work is obtained in accordance with established procedures and checked against job requirements.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.8 Tools, equipment and testing devices needed to for the installation work are obtained in accordance with established procedures and checked for correct operation and safety.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	1.9 Preparatory work is checked to ensure no damage has occurred and complies with requirements.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
2:Install wiring and accessories.	2.1 OHS risk control measures and procedures for carrying out the work are followed.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.2 The need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.3 Circuits/machines/plant are checked as being isolated where necessary in strict accordance OHS requirements and procedures.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.4 Wiring and accessories are installed to comply with technical standards and job specifications and requirements with sufficient excess to affect terminations.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.5 Accessories are installed straight and square in the required locations and within acceptable tolerances.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.6 Cables and conductors are terminated at accessories in accordance with manufacture's specifications and regulatory requirements.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed

	2.7	Ongoing compliance and safety inspection of installed wiring systems and testing of installed circuits is undertaken.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.8	Defects revealed through on-going compliance and safety inspection and tests are rectified.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.9	Cable installation and termination is carried out efficiently without unnecessary waste of materials or damage to apparatus, circuits or the surrounding environment and using sustainable energy practices.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	2.10	Unexpected situations are dealt with safely and with the approval of an authorised person.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
3:Completion and report installation activities.	3.1	OHS work completion risk control measures and procedures are followed.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	3.2	Work site is cleaned and made safe in accordance with established procedures.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed
	3.3	'As-installed' cables/wiring and accessories is documented and an appropriate person or persons notified in accordance with established procedures.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Needs improvement <input type="checkbox"/> Not performed

#### 4. Assessments

Assessment	When	Satisfactory mark/outcome
Theory assessment 1	Day 2	70%
Practical assessment 1	Day 2	100%
Workplace Observation	After theory and practical assessments	Must be valid, sufficient, authentic and current
Employer Competency report		
Structured workplace experience interview		
Note: Once all theory, practical and on-site assessments are complete, competency assessment decisions can be made in conjunction with the learner, employer and registered training organisation.		

#### 5. Version control

Version	Date of release	Author	Authorised by	Position	Rational for change
V1	5/10/2015	Ben Murphy	Ben Murphy	Proprietor	Initial release
V2	7/2/2017	Ben Murphy	Ben Murphy	Proprietor	Added Elements and Performance Criteria