

## 1. Work Performance Specification details

<b>Title name</b>	<b>Develop, enter and verify programs for programmable logic controllers using ladder instruction set – work performance</b>
<b>Code</b>	<b>WPEED007A</b>
<b>Training Package Title and Code</b>	Electrotechnology Training Package UEE06 Version 1
<b>Relationship to competency standard unit</b>	This work performance specification is directly aligned to competency standard unit: <b>UEENEED007A – Develop, enter and verify programs for programmable logic controllers using ladder instruction set</b>
<b>Suggested workplace duration</b>	The time taken to complete this specification will vary depending on the opportunities in the work place for learners to develop their skills and the method used to obtain evidence of competent performance.

## 2. Intention of Work Performance Specification

<b>Purpose</b>	This specification provides methods and criteria for gathering workplace evidence that demonstrates the learner has achieved the levels of performance specified in competency standard unit aligned to this specification.  Note: It should be noted that advice should be tendered to employers/learners that the currency of competence for which competence is to be attributed to a learner is to be in accord with any industry or regulatory requirements. Typically, this will require holistic assessment of high risk critical infrequently used work skills and knowledge.
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**Suggested assessment duration**

It is anticipated where evidence is obtained through formalised assessment event(s) it would normally take the assessment decision making process 4 hours to successfully complete this part.

Note: This duration includes the time taken to analyse and determine the extent of evidence presented against the work performance content areas. It does not include the necessary essential knowledge and associated skills learning specification(s) assessment that underpins work performance in this part and before competence is determined.

**Discipline**

Group D – Computerised systems units

**Sequencing**

This specification shall be undertaken in conjunction with related learning specifications that provide the essential knowledge and associated skills underpinning performance, typically delivered in an off-the-job environment.

The final assessment decision to affirm competence in the competency standard unit in relation to this specification should not be undertaken until the learner has demonstrated achievement of all prerequisite competency standard unit(s), where required, and as listed below:

Competency in this unit shall be only after all relevant competency standard units at AQF level 3 have been achieved.

**Intended use of this specification**

This Work Performance specification has been designed:

1. for learners who undertake an approved and prescribed competency development program/plan (e.g. apprenticeship, traineeship, cadetship, approved and accredited course/programs), and
2. to augment essential knowledge and associated skills (EKAS) Learning Specifications (LSs) for requisite competency standard unit(s).

**3. Work Performance Specification Content Areas****Assessment Items**

In judging work performance it is critical that a sufficient body of evidence undertaken, repeatedly and with currency, across a range of representative activities and work functions be present in order that a valid, reliable, fair and timely judgement about an individual's performance can be made.

Accordingly, in relation to this specification it is essential that an holistic approach is adopted to the gathering of evidence. The process should encompass the gathering of the following required items to assist the assessment process, and which are in accord with the Training Package Assessment Guidelines:

**1. Performance requirements:**

1a. Related to the following elements:

1. Prepare to develop enter and verify program.
2. Develop control system and enter and test program.
3. Verify, document and report programming activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

**2. Range:**

This Work Performance Specification shall be demonstrated in relation to developing, entering and verifying programs for programmable logic controllers. The program shall include at least five of the following functions/controls:

- Derived timers (off delay)
- Self resetting
- Constant duty cycle)
- Reversible counters
- Cascading timers

- Cascading counters
- Combining timers and counters
- Internal relays/flags/markers
- Latching relays (set/reset)
- Jump instructions
- Master control instructions
- Bit shift registers
- Scan time considerations
- One shot
- Retentive (power fail) functions
- Simple step sequence instructions

**3. Representative range includes the following:**

All listed tasks related to performance across a representative range of contexts from the prescribed items below :

<b>Group No</b>	<b>The minimum number of items on which skill is to be demonstrated</b>	<b>Item List</b>
A	At least five of the following	<ul style="list-style-type: none"><li>• Derived timers (off delay)</li><li>• Self resetting</li><li>• Constant duty cycle</li><li>• Reversible counters</li><li>• Cascading timers</li><li>• Cascading counters</li><li>• Combining timers and counters</li><li>• Internal relays/flag/markers</li><li>• Latching relays (set/reset)</li><li>• Jump instructions</li><li>• Master control instructions</li><li>• Bit shift registers</li><li>• Scan time considerations</li><li>• One shot</li><li>• Retentive (power fail) functions</li><li>• Simple step sequence instructions</li></ul>

**4. Techniques:**

Applying techniques, procedures, information, and resources relevant to performance.

**5. To requirements:**

To requirements means, conformance of equipment and procedures, and their outcomes to such. It includes statutory obligations and regulations and standards called-up by legislation or regulations.

Typically requirements include but are not limited to:

- statutory acts and regulations, including any licensing or registration arrangements
- codes of practice
- industry guidelines and standards
- standards called-up in specifications be they Australian/New Zealand or International
- work permits, isolation orders, job safety analysis
- job specifications
- procedures and work instructions
- quality assurance systems
- manufacturers' specifications
- maintenance manuals, schedules and specifications/standards
- sustainable energy principles and practices
- transport documentation
- skills enabling employment
- drawings and/or circuit/cable schedules
- design specifications
- customer/client requirements and specifications
- specified essential knowledge and associated skills (EKAS) (specified in units' Required Skills and Knowledge) section of the competency standard unit
- responding to an unplanned event by drawing on essential knowledge and associated skills to

- provide appropriate solutions
- National and State guidelines, policies and imperatives relating to the environment

**6. Autonomous:**

Autonomous means as that defined by the Australian Qualifications Framework (AQF). That is the level of autonomy demonstrated relative to this specification, as it applies to competency standard unit

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**7. Supervision:**

Supervision means the level and pattern of control exercised over a learner (e.g. apprentices, trainees, cadets) in work when allocating work to be performed. Evidence is to confirm that supervision has been applied consistent with the industry policy. A copy of the respective industry supervision policy is available on the EE-Oz Training Standards website - Policies: [www.ee-oz.com.au](http://www.ee-oz.com.au).

**8. Mentor:**

Mentor means a competent person so appointed in the workplace with a minimum of two years experience.

The Mentor is not the assessor, but is a person who assists the learners develop their on-job skills and knowledge.

**9. Judgments:**

In making a final judgement about a learner's competence the RTO must make sure that such judgement should be made on sufficient evidence being presented. This evidence should be from a number of quantitative and qualitative events showing the development of competent work performance by the learner, and be in accord with any competency development plan.

**4. Assessment strategy****Assessment methods**

Evaluation of progress towards competence shall be progressive, reflecting a holistic approach for purpose and the outcomes intended in this specification.

To assure content reliability, assessment should be cumulative and progressive and in accordance with the industry preferred *Competency Development Learning and Assessment Policy Guide*<sup>1</sup>. The evaluation of the learner undertaking work place development should be in accord with the industry approved competency development policy and profile, and in particular assure:

1. The learner is periodically demonstrating development towards the outcome of the competency standard unit using an industry approved method
2. The learner is showing evidence of skill development through the reporting of daily activities in the workplace against the relevant aspects of the competency standard unit as detailed above in section 3 Work Performance Specification Content Areas or an industry approved workplace reporting mechanism, e.g. Profiling
3. The learner's development is periodically reviewed to evaluate if the learner is progressing satisfactorily towards the industry approved competency development profile
4. Areas requiring further attention are identified and confirmed, and strategies (activities) devised to address issues raised in 3.
5. The learner's competency development plan is reviewed and adjusted if required to include strategies devised in 4.
6. The learner undertakes revised development activities, where if necessary

Evidence of competent performance may be gathered from real work activities for each of the methods of work applied, which are recorded by the use of work reports. This is recorded in a manner approved by the Industry and include data entry in the industry approved Profiling system, logbooks, or portfolios, and also, where required for regulated purposes an approved Skills Passport. The learner's immediate *mentor* shall confirm the accuracy of the evidence the learner records. The *mentor* must be competent in the respective area.

As well, evidence in competency development may be obtained through simulated relevant work activities where safe working practices are necessary in providing the learner with the initial work experience.

Where appropriate, a separate **transcript of endorsement** is to be issued by the RTO, for the respective

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<sup>1</sup> A copy of the guide is available at the following web link: [www.ee-oz.com.au](http://www.ee-oz.com.au)

**Conditions of assessment**

endorsed work outcome identified in the competency standard unit, for which competency is to be achieved in by the learner.

A specific formal assessment decision is to be made by a qualified RTO assessor following the completion of all the necessary off-and-on the job training including any verification test, where applicable.

Evidence of competent performance can be gathered from the workplace or a simulated work environment. A simulated environment would necessarily include all relevant hardware, equipment, methods, systems, test equipment, and plant similar to those encountered in a real workplace. As well as the generic aspects of competency, assessment should take into account variations between particular sectors of the industry in terms of regional hardware and equipment application and different enterprise applications.

The use of any simulation activity is to be consistent with the industry simulation policy. This would be followed by real work place activities. A copy of the respective industry simulation policy is available on the EE-Oz Training Standards website - Policies: [www.ee-oz.com.au](http://www.ee-oz.com.au).

**Resource requirements**

Resources should be sufficient for participants to carry out activities, from which evidence may be gathered, on an individual basis. This will include access to and use of requisite equipment, hardware, systems and related tools, plant and testing equipment, standards, methods, and related documents that are necessary to perform the activities required in a normal work place or simulated situation.

Where this work performance specification is used in an approved traineeship, apprenticeship or cadetship program learners should be advised to obtain, where available, respective EE-Oz<sup>2</sup> *User Guides* (these detail what training and work performance the learner is required to undertake for the program).

**Occupational health and safety requirements**

A safe and healthy environment will be provided for participants and assessors as well as safety procedure with regard to assessment activity.

**Conditions of Assessment - OHS:**

The development and assessment of workplace competency development is to be arranged in a manner, which ensures appropriate control measures of safety and regulatory requirements are in place and observed. The assessment should be in accord with the industry preferred *Competency Development Learning and Assessment Policy Guide - OHS Conditions of Assessment* guide. A copy of the guide is available at the following web link: [www.ee-oz.com.au](http://www.ee-oz.com.au), which includes links to all relevant OHS

<sup>2</sup> EE-Oz – is ElectroComms and EnergyUtilities Industry Skills Council Ltd trading as EE-Oz Training Standards.

authorities.

## 5. Maintenance Strategy

### WPSs - Development and Maintenance

### NETAG, ESI-NTAG and NGTG role

EE-Oz Training Standards key advisory bodies to the Industry Sector Councils for Electrotechnology/Communications, Electricity, and Gas.

They are NETAG<sup>3</sup>, ESI-NTAG<sup>4</sup> and NGTG<sup>5</sup>.

Each is responsible for supporting development, aligning, amending, and approving the EKAS LSs and Work Performance Specifications (WPSs) for the specific sector.

Note: Their respective specific roles and responsibilities are further clarified in the EKAS LS and WPS *Competency Development Learning and Assessment Policy Guide*<sup>6</sup>. The Guide is to be used in concert with this document.

<sup>3</sup> NETAG – is the pre-eminent Electrotechnology and Communications RTO network consultative body comprising all State/Territory ITAB Executive Officers and State/Territory ETAG representatives nominated by the State/Territory ITABs from Registered Training Organisations (RTOs) servicing the industry across Australia and is chaired by the EE-Oz Training Standards. It is responsible for providing advice to the Electrotechnology Competency Advisory Council (NECAC) on matters related to technical training and learning strategies/specifications. NETAG meets formally at least twice annually to review Electrotechnology Training Package training and assessment issues. The State/Territory ETAG members are comprised of RTO practitioners and managers in the respective State/Territory. The NETAG also has established a host of discipline based Training Advisory Committees (TACs) to assist it in its deliberations on discipline and technical specific matters, and membership is open to all practitioners and interested technical operatives. Formal protocols on membership have been established for each committee.

<sup>4</sup> ESI-NTAG – Electricity Supply Industry - National Training Advisory Group is the pre-eminent body for the ESI - Transmission, Distribution and Rail Training Package. It is responsible for providing advice to the EE-Oz Training Standards on matters related to technical training and learning strategies/specifications for the ESI. The ESI-NTAG meets formally at least twice annually to review Transmission, Distribution and Rail Training Package training and assessment issues and its members are comprised of employer and employee representative bodies, RTO practitioners and managers in the respective State/Territory, Regulators, all State/Territory ITAB Executive Officers, and STA representatives. Membership is open to all technical practitioners, interested technical operatives, and stakeholders across Australia and New Zealand. Formal protocols on membership have been established and any one interested should contact EE-Oz Training Standards.

<sup>5</sup> NGTG – National Gas industry Training Group is the pre-eminent body for the Gas industry Training Package. It is responsible for providing advice to the EE-Oz Training Standards on matters related to technical training and learning strategies/specifications for the Gas industry. The NGTG meets formally at least twice annually to review Gas industry Training Package training and assessment issues and its members are comprised of employer and employee representative bodies, RTO practitioners and managers in the respective State/Territory, Regulators, all State/Territory ITAB Executive Officers, and STA representatives. Membership is open to all technical practitioners, interested technical operatives, and stakeholders across Australia and New Zealand. Formal protocols on membership have been established. Those interested should contact EE-Oz.

<sup>6</sup> *Competency Development Learning and Assessment Policy Guide* -- A copy of the guide is available at the following web link: [www.ee-oz.com.au](http://www.ee-oz.com.au).

