



Australian Government

Department of Education, Employment and Workplace Relations

UEENEEC005B Estimate electrotechnology projects

Release: 2

UEENEEC005B Estimate electrotechnology projects

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers estimate material and labour costs for competitive quotation/tenders for work exceeding \$20k. It encompasses reading and understanding job specifications, material take-offs, determining labour and site requirements, costing and documenting.

Application of the Unit

Application of the Unit 2)

This unit is suitable for competency development employment-based programs incorporated in approved contracts of training. It applies to any formal recognition for this standard at the aligned AQF 5 level or higher.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit do not require a licence to practise in the workplace. However, practice in this unit is subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Pre-Requisites

Prerequisite Unit(s) 4)

Competencies 4.1)

There are no prerequisite competencies for this unit.

Literacy and numeracy skills 4.2)

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 5 Writing 5 Numeracy 5

Employability Skills Information

Employability Skills 5)

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a unit of competency

Performance criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Ascertain the extent of the project.	1.1 OHS procedures for a given work area are identified, obtained and understood.
	1.2 Established OHS risk control measures and procedures are followed.
	1.3 The extent of the project is established from design brief, specification and/or other relevant documentation and from discussions with appropriate person(s).
	1.4 A date by which the estimate is to be completed is determined from design brief, specification and/or other relevant documentation and from discussions with appropriate person(s).
	1.5 Activities are planned to meet scheduled timeframe in consultation with others involved in the work.
2 Estimate project.	2.1 Material take-offs are performed accurately and checked against job specifications.
	2.2 Materials, labour and other costs are determined from industry standard labour rates, enterprise costing arrangements and /or material suppliers.
	2.3 Sources and availability of materials and human resources needed for the project are established in accordance with organisation policies and procedures.
	2.4 Estimates are checked and revised where necessary, for accuracy in costing and against job specification, in consultation with appropriate person(s).
	2.5 Solutions to unplanned events are implemented consistent with enterprise policy.
3 Document and submit quotation.	3.1 Project estimates are documented in accordance with established policies and procedures.
	3.2 Quotation is forwarded to appropriate person(s) for inclusion in a submission within the specified

ELEMENT

PERFORMANCE CRITERIA

timeframe.

- 3.3 Quotation documentation is filed in accordance with established policies and procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence must show that knowledge has been acquired of safe working practices and estimating electrotechnology projects.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-EC005B

Electrotechnology projects estimation

Evidence shall show an understanding of estimating electrotechnology projects to an extent indicated by the following aspects:

T1. Estimating electrotechnology projects encompassing:

- Documents used in estimating
- Resources to be quantified and costed
- Material take-off methods
- Costing:
 - resource (labour, plant, equipment and materials)
 - contingency
 - money
 - margins
- Labour rates method of costing
- Life cycle costing analysis
- Documenting estimations and costing.
- Evaluating estimates and costs

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit. It must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of this unit and performed in accordance with the Assessment

EVIDENCE GUIDE

Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

9.2)

Before the critical aspects of evidence are considered all prerequisites must be met.

Evidence for competence in this unit shall be considered holistically. Each Element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. Evidence shall also

EVIDENCE GUIDE

comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the performance criteria and range statement
 - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
 - Demonstrate an appropriate level of skills enabling employment
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, polices and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Estimate electrotechnology projects as described in 8) including:
 - A Ascertaining the extent of the project accurately.
 - B Planning estimation work effectively.
 - C Estimating the job competitively.
 - D Checking the estimates accurately.
 - E Documenting the estimates clearly.
 - F Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in a holistic assessment with the above listed items

EVIDENCE GUIDE

Context of and specific resources for assessment

9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed in this unit.

These should be used in the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment it must ensure that the conditions for assessment are authentic and as far as possible reproduce and replicate the workplace and is consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to estimating electrotechnology projects.

Method of assessment

9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units

9.5)

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed:

UEENEE001B Use basic computer applications relevant to a workplace

Range Statement

RANGE STATEMENT

10) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit must be demonstrated in relation to estimating at least two electrotechnology projects for a competitive quotation/tender. The value of the jobs shall exceeding \$20k and may apply to any of the following electrotechnology disciplines.

- Automation technologies
- Computers
- Data Communications
- Electrical
- Electrical Machines
- Electronics
- Fire Protection
- Instrumentation
- Refrigeration and Air Conditioning
- Renewable/sustainable energy, and
- Security technology

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not Applicable

Competency Field

Competency Field **11)**
Commercial