

MODULE EA104 – Electrical Quoting, Estimating and Tendering

MODULE DETAILS

Name Electrical Quoting, Estimating and Tendering

Nominal Duration 40 Hours

Codes

AQF Levels Level 5

Discipline Code

MODULE PURPOSE

The aim of this module is to provide the learner with the knowledge and practical experience for estimating, project control, and preparation of contract documentation.

PREREQUISITES

Competencies or modules required for entry into this module:

- EA 103 (proposed) Small Electrical Business and the Law.

RELATIONSHIP TO COMPETENCY STANDARDS

Supports NES619 Apply electrotechnology contracting business practices

Supports NES620 Apply electrotechnology contracting technical operations practices

CONTENT

In achieving the learning outcomes, the following topics should be addressed:

1. Tender documentation
 - 1.1 Project drawings
 - 1.2 Specifications
 - 1.3 Other tender documentation
2. Estimating
 - 2.1 Tools of estimating
 - 2.2 Methods of extracting, recording, compiling and calculating data
 - 2.3 Comparison of methods
 - 2.4 Factors and conditions affecting estimating outcomes
3. Project Management
 - 3.1 Charting and scheduling
 - 3.2 Activities and documentation associated with projects

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ASSESSMENT STRATEGY

Assessment Method

Multi-choice test
 Written Short answers
 Matching Answers
 Assignment
 Project

Wherever possible the assessment instruments must focus on assessing application rather than assessing knowledge eg. In lieu of asking a learner to “**State**” information, the learner should be asked to display **where, how, and why** that information is used.

Holistic testing by testing a number of assessment criteria together within one or more sizeable tests is the preferred method. This assessment may be achieved by utilising simulated project work or actual project work in progress.

Conditions of Assessment

Appropriate facilities will be provided.

LEARNING OUTCOME DETAILS

Learning Outcome 1 Interpret project drawings, symbols, specifications, and other associated documentation.

Assessment Criteria

- 1.1 Identify and describe the purpose of a selected range of Project Drawings.
- 1.2 Explain the purpose and application of scales for a given selection of project drawings.
- 1.3 Identify and outline the function of selected symbols commonly used in a diverse range of project drawings relevant to on site contracting industries.
- 1.4 Explain elements of specifications.
- 1.5 Extract, and analyse information gained from project drawings and specifications.
- 1.6 Compare information gained from project drawings and specifications for the purpose of identifying irregularities and differences.
- 1.7 Identify, and interpret discrete sections of supplied documentation, including tender proposals, addenda, manuals, and manufacturers’ equipment specifications.

Learning Outcome 2 Prepare estimates, tender submissions and quotations.

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Assessment Criteria	<ul style="list-style-type: none"> 2.1 Identify the necessary tools used in estimating, and explains their use. 2.2 Differentiate between the terms tender, estimate, and quotation. 2.3 Compare basic differences between historical, schedule of rates, unit rate, bill of quantity, and quantity estimating methods. 2.4 Explain the terms labour unit, task factor, and job factor. 2.5 Record and tabulate all material quantities from given project drawings and specifications using a variety of methods. 2.6 Estimate, and record all labour units for material quantities and other allowances from given project drawings and specifications, including where necessary, appropriate task and job factors. 2.7 Analyse commercial considerations affecting the difference between cost price and submitted price. 2.8 Complete and amend standard tender and quotation forms to suit selected projects.
Learning Outcome 3	Prepare a project plan for a diverse range of given projects.
Assessment Criteria	<ul style="list-style-type: none"> 3.1 Determine the sequence and time allocations of site activities from information supplied. 3.2 Prepare progress schedules and charts and other forms of documentation for building projects, to control both human and physical resources. 3.3 Prepare estimates of labour numbers, and match labour requirements to prescribed job descriptions and competency levels for given projects. 3.4 Prepare progressive material schedules.
Learning Outcome 4	Evaluate the labour costs and profit margins associated with a small electrical contracting operation.
Assessment Criteria	<ul style="list-style-type: none"> 4.1 Determine the direct cost of labour for given award conditions. 4.2 Identify the particular overheads associated with the employment of labour and or self-employment. 4.3 Discuss the factors influencing the realistic utilisation of labour. 4.4 Determine hourly charge-out rates for different given business styles and structures. 4.5 Discuss the commercial considerations involved in determining the profit margins as applied to the final hourly charge-out rate.

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DELIVERY OF THE MODULE

Delivery Strategy

This module provides for delivery by off-the-job training in a variety of modes.

Strategies should be selected to reflect the nature of the learning outcomes and the needs of the learner.

SUGGESTED MODES with Adult Learning Focus

- Distance education
- Self pacing
- Open learning
- Full or part-time
- Off-the-job training supported by project work

SUGGESTED STRATAGIES

- Individual research
- Individual activities
- Open discussion
- Group discussion
- Group activities
- Demonstration
- Guest speaker
- Relevant Computer Software
- CAL and CML
- Analysis of case studies
- Application to own business situation

Some areas of content may be common to more than one learning outcome and therefore integration may be appropriate. It is expected that learners will undertake private research to assist in the achievement of competency.

Resource Requirements

The following minimum human and physical resources must be available for the delivery of this module:

HUMAN RESOURCES

Those chosen to be involved in the instructional process must possess the following pre-service and/or in-service competencies and knowledge:

Pre-service - content related

possess competencies and knowledge relevant to the module which are at a level equivalent to or higher than the module of instruction to be presented.

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Pre-service - experience

possess a level of varied and relevant application such as would be attained in five years of quality industry experience and which is commensurate with the module taught;

Pre-service - instructional

possess competencies and knowledge relating to the development, presentation, assessment and evaluation of the module;

In-service

maintain and enhance professional competencies and knowledge relevant to both the content of the module being presented and the methodologies of preparation and assessment of material for this module.

PHYSICAL RESOURCES

The learner will be provided with:

- access to a library of relevant reference material.

The learner will provide:

- nil.

Workplace Health and Safety Requirements

Learners must be made aware of relevant workplace health and safety issues in all situations and are required to demonstrate safe working practices at all times.

The work area must comply with current workplace health and safety legislation.