



Australian Government

Department of Education, Employment and Workplace Relations

UEPOPS511B Tune process plant and equipment

Release: 1

UEPOPS511B Tune process plant and equipment

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit deals with the skills and knowledge required to complete the investigation, nomination and adjustments of tuning parameters associated with generation plant, equipment and processes.

Application of the Unit

Application of the Unit 2)

This unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training.

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 and the like.

Pre-Requisites

Prerequisite Unit(s) 4)

Competencies 4.1)

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

Where pre-requisite pathways have been identified. All competencies in the Common Unit Group must be have been completed.

There are no pre-requisite units.

Literacy and numeracy skills 4.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following levels. A description of what each level entails is provided in Section 2.3.1 Language, 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 competency standard unit

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 Plan and prepare	1.1 Tuning requirements are identified from relevant personnel and documentation
	1.2 Resource and equipment requirements are identified and obtained
	1.3 Tuning program is coordinated with the appropriate personnel and plant availability, capability and limitations are identified
	1.4 Testing and monitoring equipment are connected in accordance with test requirements and plant integrity
	1.5 Plant coordinated to initial operating state ready for testing in accordance with statutory, industry and enterprise/site procedure standards
	1.6 Test procedure and recording documentation are prepared
	1.7 Test equipment is calibrated in accordance with relevant standards and/or manufacturer's procedures
	1.8 Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
2 Test plant and implement tuning	2.1 Field instrumentation and control elements checked for calibration and correct operation in accordance with enterprise and manufacturer procedures
	2.2 Testing and tuning is performed in accordance with tuning program, variations are assessed and accommodated to enable test objectives to be met
	2.3 Results are analysed with reference to desired outcomes and new settings are determined
	2.4 Accuracy of test results is assessed in analysis of test data and corrections made as required

ELEMENT	PERFORMANCE CRITERIA
3 Complete documentation	2.5 Plant is retuned to achieve desired outcomes
	3.1 All relevant records and documentation are updated and retained in accordance with enterprise/site requirements
	3.2 Nominated changes to equipment operational settings are recommended to appropriate personnel
	3.3 Implementation of recommendations are monitored to ensure combustion efficiency

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Evidence shall show that knowledge has been acquired tuning process plants and equipment.

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

The extent of the Essential Knowledge and Associated Skills required follows:

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T1 Evidence shall show that knowledge has been acquired for safe working practices of:

- Relevant environmental, occupational health and safety legislation and regulations
- Enterprise procedures
- Plant drawings and manufacturers manuals
- Introduction to and typical arrangements of power production plant
- Relevant plant and equipment, its location and operating parameters
- Valve, damper and actuator types and characteristics
- Electrical principles
- Process control principles
- Plant process control systems
- Interaction between multiple control loops
- Instrumentation principles and practices
- Instrument calibration techniques
- Enterprise recording procedures
- Plant processes and process dynamics
- Plant capability limitations
- Tuning processes and techniques
- Tuning algorithms

T2 Specific skills needed to achieve the performance criteria:

- Interpret plant drawings and manufacturers manuals
- Apply relevant statutory legislation
- Apply relevant enterprise/site safety procedures
- Apply enterprise/site emergency procedures and techniques
- Apply enterprise recording procedures
- Locate relevant plant and equipment
- Operate plant within design parameters
- Identify plant status
- Use enterprise documentation procedures
- Solve problems

REQUIRED SKILLS AND KNOWLEDGE

- Set-up and use test/tuning equipment
- Coordinate testing operations
- Communicate effectively
- Prepare engineering programmes/ procedures/reports
- Analyse test results and translate to tuning settings for optimal system response
- Apply testing and tuning techniques
- Apply data analysis techniques and tools.

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the competency standard unit and must be read in conjunction with the Performance Criteria and the range statement of the competency standard unit and the Training Package Assessment Guidelines. The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all components parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitude 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's 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 accord 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. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment. Activities associated with normal every day 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 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 pre-requisites shall 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 – UEP12". Evidence shall also 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 6) of this unit
 - Demonstrate an appropriate level of employability skills
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated performance across a representative range of contexts from the prescribed items below:
 - Knowledge and application of relevant sections of:
Occupational Health and Safety legislation; Statutory

legislation; Enterprise/site safety procedures;
Enterprise/site emergency procedures

- Planning for tuning procedures
- Tuning processes and techniques
- Testing and monitoring procedures
- Work completion procedures
- Dealing with an unplanned event by drawing on Essential Knowledge and Skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

**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 by this competency standard unit.

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions.

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work.

In addition to the resources listed above in Context of assessment', evidence should show competency working, in limited spaces, with different types of plant and equipment as well as different structural/construction types and methods and in a variety of environments.

**Method of
assessment**

9.4)

This unit shall be assessed by methods given in Section 1.3.00 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)

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied competency standard units where listed.
Nil

Range Statement

RANGE STATEMENT

10) This relates to the competency standard 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.

Generation plant to be tuned may include hydro plant, oil, gas or coal firing equipment; draft systems and associated systems; unit control equipment, turbine systems, steam and water systems; water treatment plant, dust collection plant; unit computer or distributive control systems.

Variables include age of plant, plant duty and varying ages of control equipment

Documentation may include; drawings, logic diagrams, function diagrams, plant records, testing procedures, plant notes, test equipment calibration certificates, manufacturer's operating and maintenance manuals; plant incident reports, specialist reports and manufacturer's recommendations.

Resources may include internal service groups, external specialists and specialised testing equipment.

Technical considerations may include control systems rate of change, plant overshoot/undershoot, plant capability/limitations, control system type and design.

Process considerations may include; pressure, level, flow, temperature, speed and vibration and mix.

Statutory requirements may include Occupational Health and Safety legislation, and environmental legislation.

Generic terms are used throughout this Training Package for vocational standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms are given in Section 2.1 Preliminary Information and Glossaries.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field

11)

Operations.