



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD357C Construct jigs and fixtures

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers preparation and operations for making jigs and fixtures suitable for use in the manufacture of plastics and other polymer products, and the solving of non-routine problems.

Application of the Unit

Application of this unit

This competency applies to advanced operators who are required to apply knowledge of materials, product purpose and processes to the making of jigs and fixtures. The key factors are the production of items meeting quality standards and product requirements and the recognition and resolving of a range of routine and non-routine problems.

The operator will:

- check specifications or design for work to be done
- convert the specification or design into a plan for the jigs and fixtures
- plan the process required to make the jigs and fixtures a checking materials for conformity to job requirements assembling and preparing materials
- apply materials knowledge as required
- check finished jigs and fixtures meet specifications
- identify and minimise any hazards connected with materials and process
- solve routine and non-routine equipment and process problems, seeking guidance where necessary or appropriate
- complete logs and reports.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This competency has **no** prerequisites.

Employability Skills Information

Employability Skills

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

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
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 ELEMENT	PERFORMANCE CRITERIA Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
1. Identify the purpose of the jigs and fixtures.	1.1 Identify the purpose of the jigs and fixtures. 1.2 Identify the performance requirements of the jigs and fixtures. 1.3 Establish the service life of the jigs and fixtures. 1.4 Establish availability of sample products, prototypes or existing jigs and fixtures for the specified duty.
2. Plan construction of jigs and fixtures.	2.1 Produce a plan for the jigs and fixtures. 2.2 Have design approved as necessary. 2.3 Plan all steps of the production of the jigs and fixtures, noting check points for measurements and tests. 2.4 Locate a suitable work area.
3. Set up equipment, tools and materials.	3.1 Clear and set up work area. 3.2 Identify and locate materials for the construction of the jigs and fixtures. 3.3 Identify and locate sample products, prototypes or existing jigs and fixtures associated with the duty.
4. Construct jigs and fixtures.	4.1 Construct jigs and fixtures. 4.2 Check dimensions, structural strength and operability are to the specifications or design. 4.3 Install jigs and fixtures to the production area and recheck features to the requirements. 4.4 Modify the jigs and fixtures to suit the requirements.
5. Anticipate and solve problems.	5.1 Recognise a problem or a potential problem. 5.2 Determine problems needing priority action. 5.3 Refer problems outside area of responsibility to appropriate person, with possible causes. 5.4 Solve problems within area of responsibility. 5.5 Seek information and assistance as required to solve problems. 5.6 Follow through items initiated until final resolution has occurred.

Required Skills and Knowledge

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

Application of knowledge of the materials, equipment and process sufficient to recognise material and equipment conditions which may lead to out of specification production.

Knowledge of organization procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.

Skill to identify the range of possible product faults.

Competence includes the ability for the practical completion of the job to apply and/or explain:

- products, materials and material characteristics
- selection of materials for construction of jigs and fixtures
- steps in the construction process
- aspects of the construction to meet the dimensional and production requirements of the product
- key requirements of the product which impact on the jig and fixture construction
- quality requirements at each production stage
- safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup
- the hierarchy of control including engineering controls
- impact of variations in raw materials and equipment operation in relation to final product
- waste management and importance of non-conforming materials
- relationship between materials used and jig specification.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- interpret from production requests the correct selection and use of equipment, materials, processes and procedures
- make measurements when required and identify product out of specification
- identify and describe own role and role of others involved directly in the production process
- identify when the operator is able to rectify faults and when assistance is required
- distinguish between causes of faults.

Language, literacy and numeracy requirements

This competency requires the ability to communicate with a wide range of personnel and to interpret product specifications and mould requirements.

Numeracy is required to the level of determining required sizes and shapes of the jigs and also the relevant physical properties such as strength and rigidity.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the assessment guidelines for this training package.

Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- identify critical properties and variables in relation the jig/fixture requirements and the end product
- make adjustments as required
- identify and take appropriate action on problems and potential problems.

Consistent performance should be demonstrated. For example, look to see that:

- composites production standards are met consistently
- all safety procedures are always followed.

Assessment method and context

Assessment will occur using appropriate equipment to construct jigs and fixtures and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by using an appropriate industrial jig/fixture making situation in a work like environment
- in a situation allowing for the generation of evidence of the ability to recognise, anticipate and respond to problems
- by using a suitable simulation and/or a range of case studies/scenarios
- through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Specific resources for assessment

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method.

Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required.

Where applicable, physical resources should include equipment modified for people with disabilities.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Where reference is made to industry codes of practice and/or Australian/international standards, the latest version must be used.

Context

This competency unit includes the use of equipment and materials to construct jigs and fixtures. It includes the operation of all relevant additional equipment where that equipment is integral to the making of jigs and fixtures.

Procedures

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Tools and equipment

This competency includes use of equipment and tools such as:

- hand tools and power tools
- material loading equipment
- relevant personal protective equipment.

Hazards

Typical hazards include:

- manual handling hazards
- power and hand tools temperature hazardous materials
- manual handling hazards equipment operations.

Fault causes

Causes of faults include:

- wrong materials for the jigs and fixtures construction
- materials incorrectly used
- lack of rigidity of the jigs and fixtures
- difficulties in operation of the jigs and fixtures in the production environment
- incorrect quantity of materials.

Problems

'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems using product and process knowledge to develop solutions to problems which do not have a known solution/a solution recorded in the procedures.

Typical process and product problems may include:

- structural strength, rigidity and durability of the jigs and fixtures dimensional accuracy of the jigs and fixtures
- placement of components to allow convenient application variations in materials and/or contamination of materials.

Appropriate action for problems outside of area of responsibility may be reporting to an appropriate person.

Appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate persons/sources.

Unit Sector(s)

Not applicable.