



Australian Government

Department of Education, Employment and Workplace Relations

MCMT675A Facilitate the development of a new product

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency covers the knowledge and skills required to develop a new/evolutionary product within an existing range of products and encompasses design for manufacture and the facilitation of its initial production.

This unit is based on **PMBTECH601A - Develop a new product.**

Competency field

MCM Tools

Application of the competency

This competency applies to people who develop new products to meet a specified end use.

This will involve working closely with a range of management and operations personnel and requires balancing the business and technical sides of the new product and would typically be done as part of a cross functional team. This unit of competency applies to the technical expert. Critical aspects for success include:

- ensuring the technical performance meets the customer's needs
- making sure the market needs of cost, timeliness and quality are appropriately balanced
- designing a product and process which can be efficiently made by the company
- liaising with the required people to ensure tooling design and manufacture and equipment modification is correct

optimising the process for the new product at the completion of the development phase.

This competency is typically performed by high level staff, working as part of a product design, development and implementation team and taking a lead technical role.

This unit of competency assumes the knowledge component included in the following unit of competency. Evidence must be available that the specified knowledge has been acquired and is able to be applied:

MEM15.1AA - Perform basic statistical quality control or equivalent.

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Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Confirm design brief of new product in consultation with relevant people	<ul style="list-style-type: none">1.1 Communicate with customer and other key stakeholders and agree on technical specification, aesthetic requirements, timelines, cost and other market requirements1.2 Determine regulatory/industry code/intellectual property requirements for product1.3 Identify possible tooling/process/equipment needs1.4 Develop design brief, including relevant drawings, to meet needs1.5 Obtain 'sign off' on total design brief from all

- relevant persons
- 2 Determine material requirements for product
 - 2.1 Select appropriate materials/combination of materials/ components in liaison with key stakeholders
 - 2.2 Determine material/component testing and evaluation regime required to meet product end use requirements, including regulatory /industry code requirements
 - 2.3 Arrange for, testing and evaluation of trial materials/ components
 - 2.4 Guide material trial process and interpret material trial results
 - 2.5 Determine final materials/components specifications and details of value chain
 - 3 Determine process requirements for product
 - 3.1 Select appropriate process to make product in liaison with key stakeholders and based on relevant factors
 - 3.2 Determine any special process/equipment requirements for this product
 - 3.3 Communicate with production personnel to determine their concerns and/or training or other needs
 - 3.4 Adjust the design as required to satisfy customer and production needs
 - 4 Ensure process needs for new product have been met
 - 4.1 Liaise with equipment design/procurement personnel
 - 4.2 Interpret hardware specifications and ensure they are appropriate for the job required
 - 4.3 Liaise with process personnel to ensure appropriate draft procedures for new product have been developed
 - 4.4 Validate product cost and design meets objectives
 - 5 Trial new product through the process
 - 5.1 Design trialing procedure to deliver required information
 - 5.2 Liaise with relevant stakeholders

- 5.3 Ensure health safety and environment (HSE) requirements are stringently observed
- 5.4 Coordinate the trialing of the new product
- 5.5 Interpret product trial results and guide product trial process
- 5.6 Tune process to optimise production of new product
- 6 Determine process capability
 - 6.1 Plot appropriate statistical process control charts
 - 6.2 Determine confidence limits
 - 6.3 Compare confidence limits with product specification
- 7 Coordinate product trials
 - 7.1 Determine product testing and evaluation regime required to meet end use requirements, including regulatory/industry code requirements
 - 7.2 Arrange for testing and evaluation of trial product/prototype
 - 7.3 Interpret product trial results and guide product trial process
 - 7.4 Determine final product specification in liaison with key stakeholders
 - 7.5 Make required changes to materials, process and equipment
- 8 Implement standard procedures for new product
 - 8.1 Monitor initial production and, in liaison with appropriate team members, adjust process, conditions and materials to ensure the product and process outcomes conform to requirements
 - 8.2 Ensure process specifications are updated and reflect the optimised operation developed
 - 8.3 Ensure standard operating procedures are correct for the new product
 - 8.4 Ensure equipment and other hardware records are updated to reflect additions/changes
 - 8.5 Ensure project records are complete and all required reports have been completed and

submitted

8.6 Archive records according to company procedure

Required Skills and Knowledge

Not applicable.

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 requirements

There should be evidence of successfully designed products.

Specific evidence requirements

What critical aspects of evidence are required to demonstrate competency in this unit?

The critical aspect for this unit of competency is the ability to apply a thorough understanding of materials and components, their grades and properties and the effects of processing to a new situation and use this understanding to predict likely solutions to the new product design specification challenge. This understanding of material/component and process interactions should also be able to be applied in interpreting data and making adjustments to materials/components and process to achieve the desired outcomes.

Language, literacy and numeracy requirements:

This unit requires high levels of numeracy and literacy with the ability to write and interpret technical specifications and reports. Advanced numeracy allowing the calculation and interpretation of statistics, product formulae and process conditions is also required.

In what context should assessment occur?

Competence in this unit may be assessed:

- by observation of an actual product development project where the assessee takes a lead technical role

- by use of a suitable product development project where arrangements are made to also assess the implementation aspects.

The development must be of a product which is new to the organisation and not just a modification of an existing product. It is possible that a major redesign of an existing product may encompass all the aspects of a new product design to an appropriate breadth and depth. Where the only available product design projects are the major redesign of an existing project, normally several such projects will be required to match the breadth and depth of skills which can be demonstrated by the development of a totally new product.

In all cases it is expected that practical assessment will be supported by targeted questioning to assess the underpinning knowledge and theoretical assessment will be supported by appropriate practical/simulation or similar assessment.

Are there any other units which could or should be assessed with this unit or which relate directly to this unit?

This unit may be assessed with other relevant units.

What method of assessment should apply?

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the elements, performance criteria, skills and knowledge. A holistic approach should be taken to the assessment.

Assessors should gather sufficient, fair, valid, reliable, authentic and current evidence from a range of sources. Sources of evidence may include direct observation, reports from supervisors, peers and colleagues, project work, samples, organisation records and questioning. Assessment should not require language, literacy or numeracy skills beyond those required for the unit.

The assessee will have access to all techniques, procedures, information, resources and aids which would normally be available in the workplace.

The method of assessment should be discussed and agreed with the assessee prior to the commencement of the assessment.

What evidence is required for demonstration of consistent performance?

Evidence from one major product design or a number of product improvements should be available.

What skills and knowledge are needed to achieve the performance criteria?

Knowledge and understanding of the materials, equipment and process sufficient to choose an appropriate combination of materials and process to achieve the end use function of the product.

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

Competence includes the ability for the practical completion of the job to:

select and justify the selection of:

type of material/material specification

appropriate process for a range of product/market applications

material and product testing procedures

apply theoretical principles to predict:

properties of product based on materials selected

effects of processes and processing on the final properties of the product

mathematically determine:

product cost estimates

interpret and make recommendations based on:

field test results

market analysis data

trailing data.

What are the specific resource requirements for this unit?

Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of 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.

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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. **Bold italicised** wording in the Performance Criteria is detailed below. 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.

This competency unit is for the design of a new product 'from scratch'. It assumes an understanding of the operation of all relevant equipment and processes but does not necessarily require them to be used personally.

The competency assumes a working knowledge of all main processes and materials so that an informed choice can be made between them.

All operations are performed in accordance with standard procedures and policies.

Tools and equipment

This unit of competency includes tools and equipment such as:

- understanding of use of all standard processing equipment
- relevant personal protective equipment.

Typical regulatory requirements

Typical regulatory requirements include:

- Occupational Health and Safety (OHS)
- environmental regulations
- structural codes
- product/industry specific requirements.

Typical problems

Typical problems include:

- defining product end use requirements in terms meaningful to the product design and manufacture
- matching suitable materials and processes to the product needs and company expertise and facilities
- matching (and improving) process capability to product tolerances.

Relevant factors

Relevant factors may include:

- type of material
- dimensional precision of product
- length of run/number of products
- required aesthetics
- size and complexity of product
- available capital funding
- process equipment available
- HSE.

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Unit Sector(s)

Not applicable.