



Australian Government

PMBTECH601E Develop a new product

Release: 1

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Modification History

Release 1. Unit code changed. Application changed. Elements and Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMBTECH601 Develop a new product.

Application

This unit covers the skills and knowledge required to develop a new product to meet a specified end use.

This unit applies to an advanced technologist, technical expert or those in similar roles, in a lead role, typically as part of a product design, development and implementation team. The technologist is not required to demonstrate 'hands-on' operation of equipment as part of this competency.

The unit principally refers to the development of a new product and manufacturing process using the developer's application of their significant depth and breadth of knowledge of theoretical polymers, product and processes.

No licensing or certification requirements apply to this unit of competency at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

PMBTECH502E Analyse production trials

PMBTECH505E Choose polymer materials for an application

Competency Field

Technical

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Confirm design brief of new product	1.1 Communicate with customer and other key stakeholders to agree on technical specification, aesthetic requirements, timelines, cost and other market requirements 1.2 Determine regulatory, industry code and intellectual property requirements for product

Elements Elements describe the essential outcomes.	Performance Criteria Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.3 Identify possible tooling, process and equipment needs 1.4 Develop design brief, including relevant drawings, to meet needs 1.5 Obtain approval of total design brief from all relevant persons and according to workplace authorisation procedures
2. Determine material requirements for product	2.1 Select base polymer grade or polymer blend or range of polymers or grades for evaluation 2.2 Select types of reinforcement and other additives needed to meet product requirements 2.3 Determine material testing and evaluation regime required to meet product end use requirements, including regulatory or industry code requirements 2.4 Engage with relevant personnel to arrange for compounding, testing and evaluation of trial materials 2.5 Guide materials trial process and interpret results to inform product specifications 2.6 Determine final materials specification from trial outcomes
3. Determine process requirements for product	3.1 Select production process that achieves requirements 3.2 Determine any special process or equipment required for production 3.3 Create production and assembly drawings for all components required for production 3.4 Communicate with production personnel to establish any production risks, concerns or special requirements
4. Ensure process needs for new product have been met	4.1 Liaise with relevant personnel (tool or die or mould or equipment design or procurement) to finalise process for new product 4.2 Interpret hardware specifications and ensure they are appropriate for job required 4.3 Liaise with process personnel to ensure appropriate draft procedures for new product have been developed
5. Trial new product through the production process	5.1 Design trialling procedure that delivers required information and is compliant with workplace procedures 5.2 Ensure work health and safety requirements are stringently observed during production process 5.3 Coordinate trial of new production process and resulting output

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	5.4 Guide production trial process and interpret results to assess if desired outcomes are achieved 5.5 Modify and refine process to optimise production process and outcomes of new product
6. Determine process capability	6.1 Plot statistical process control charts that demonstrate production process capability 6.2 Determine three-sigma 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 or industry code requirements 7.2 Arrange for testing and evaluation of trial product or prototype to ensure product meets requirements 7.3 Guide product trial process results and guide product trial process according to workplace procedures 7.4 Determine final product specification based on trial results, and reflect on results to make required changes to materials, process and equipment according to workplace procedures
8. Implement standard procedures for new product	8.1 Monitor initial production and adjust process, conditions and materials and adjust as required to ensure efficient and successful production processes 8.2 Ensure process specifications reflect optimised operation developed 8.3 Ensure workplace procedures are correct for new product 8.4 Ensure equipment and other hardware records are updated to reflect additions or changes 8.5 Ensure project records are complete and all required reports have been completed and submitted 8.6 Archive records according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Numeracy skills to develop and communicate product specifications including formulae, and record and analyse trial data.
- Reading skills to interpret required properties of new product and workplace procedures.
- Writing and oral communication skills to work with stakeholders on product development, and record and report on trial results and finalise new product and associated procedures.

Other foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to PMBTECH601 Develop a new product.

Links

Companion Volume implementation guides are found in VETNet –

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBTECH601E Develop a new product

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- develop at least one new product to meet specifications and customer and stakeholder needs, including the production of detail and assembly drawings of all components of the new product.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- impact of different polymer materials, their additives and the rheological, heat and other effects of processing on design of a new product
- major polymer types and common additives (including reinforcing) and their suitability for different applications
- all standard processes and their suitability for different product or market applications
- material and product testing procedures
- techniques for producing technical and engineering drawings, including CAD and freehand sketching
- the impact of the polymerisation process on the polymer process
- principles of operation of all relevant equipment and processes
- effects of variations in process, conditions and materials on optimisation and final properties of the product
- organisational procedures relevant to the work environment or job role
- hazards that may arise in the job or work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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