



Australian Government

Department of Education, Employment and Workplace Relations

AUMFTM5002 Create new product designs

Release: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the application of the required skills and knowledge to create new designs within the plant, tooling, equipment or systems required in the overall design, development and production of motor vehicles. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	The unit applies to the automotive and related component manufacturing environment and involves application of skills and knowledge to be used within the scope of the person's job and authority.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains Employability Skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Establish design requirements	1.1. Instructions and plans are read and interpreted to identify processes and materials to complete work tasks 1.2. Information is assembled 1.3. Information gathered is analysed to develop key requirements needed in new design 1.4. Requirements of new design are documented
2. Identify constraints	2.1. Constraints on design concepts are identified and documented 2.2. Suitable strategies are developed to address identified constraints on designs
3. Create design concept	3.1. Initial design concept based on identified design requirements and constraints is created 3.2. Function, physical requirements and impact of the design concept are reviewed in conjunction with relevant stakeholders 3.3. Modifications to the initial design concept are made in accordance with feedback provided by relevant stakeholders
4. Produce design concept	4.1. Sketches are prepared to illustrate and explain proposed design concept(s) 4.2. Concept sketches are reviewed in consultation with relevant stakeholders and suitable changes made in accordance with a critical evaluation of the proposed design
5. Quantify design concept	5.1. Critical dimensions and data of the design concept are identified and quantified 5.2. Drawings are prepared to required accuracy to enable suitable manufacturing methods to be identified and evaluated 5.3. Draft product specifications are prepared in accordance with company procedures
6. Determine suitable methods, materials and processes	6.1. Components and sub-assemblies are drawn in accordance with design requirements 6.2. Suitable manufacturing methods are identified for the production of components and sub-assemblies to meet design requirements 6.3. Identified manufacturing methods for components and sub-assemblies are evaluated in conjunction with engineering staff 6.4. Suitable assembly and finishing methods for the purpose product design are identified and evaluated
7. Evaluate feasibility	7.1. Proposed design and the manufacturing processes are evaluated against the design requirements in conjunction

ELEMENT	PERFORMANCE CRITERIA
	with relevant stakeholders 7.2. Suitable trials and tests of the design are devised and conducted in conjunction with relevant stakeholders
8. Modify design	8.1. Product design is modified if necessary, based on the outcomes of the feasibility evaluations and trials 8.2. Further tests are conducted to confirm the suitability of the modified design against the identified design requirements 8.3. Outcomes of the modifications and testing of the new design concept are documented
9. Document design	9.1. All documentation requirements for the proposed new product design and associated manufacturing processes are identified 9.2. Design documentation is processed for approval 9.3. Design documentation is stored and distributed

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- speak clearly and directly in order to consult with relevant stakeholders
- apply teamwork to a range of situations, particularly the trialling of designs to evaluate feasibility
- solve problems particularly in teams in order to meet performance indicators
- show initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- access, interpret and apply information on relevant organisation policies, procedures and instructions, particularly to ensure designs are documented and processed according to organisation requirements
- manage time when planning, preparing and organising work priorities
- take responsibility for organising own work priorities.

Required knowledge

- relevant Occupational Health and Safety and Environmental legislation, regulations, standards and codes of practice and organisation policies and procedures needed to carry out work in a manner which ensures the safety of people, equipment and the environment.
- product development/engineering area involving the mechanical, electrical and fabrication functions
- operation of systems and components
- operation of computers
- operation and selection of computer hardware and software applications/systems
- types of tools and equipment and procedures for their safe use, operation and maintenance
- established communication channels and protocols
- methods of interpreting and applying quality standards
- procedures for the recording, reporting and maintenance of workplace records and information.

Evidence Guide

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

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

Evidence of the following is essential:

- compliance with relevant legislation, regulations, standards, codes of practice and established safe practices and organisation policies and procedures for creating new product designs
- working and communicating effectively and positively with others involved in the work
- applying, within authority, the requirements of the job or work role in relation to:
- producing accepted designs
- achieving work quality goals
- completing work area housekeeping requirements including the documentation of project activity and process outcomes

Context of and specific resources for assessment

- assessment of the competency should take place in a safe working environment in a passenger motor vehicle manufacturing plant or simulated environment using tools/equipment/machinery required for the production process without undue disruption to the production process
- assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- assessment methods must confirm consistency and accuracy of performance (over time and in a range of organisation relevant contexts) together with application of underpinning knowledge
- assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application
- assessment may be applied under project related conditions (real or simulated) and require evidence of process
- assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.

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. 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.

Instructions may include:	- workplace procedures relating to the use and operation of tools and equipment - departmental requirements - Workplace instructions, including job sheets, plans, specifications, drawings and designs - workplace procedures relating to reporting and communications - manufacturers' instructions for the use of equipment and materials.
Materials may include:	- metals - plastics - fibre glass - wood - foam - clay - other such materials used in the formation of product designs
Information may include:	- customer needs - competitor products - fashion trends - safety needs - relevant government policies - company production capability.
Constraints may include:	- market price - size - production capability - product complexity, etc.

Unit Sector(s)

Unit sector	Technical - Manufacture
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Competency field

Competency field	Manufacturing - Passenger Motor Vehicle
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Co-requisite units

Not applicable.