Australian Government

Department of Education, Employment and Workplace Relations

AUM5005A Develop conceptual models and prototypes

Revision Number: 1

AUM5005A Develop conceptual models and prototypes

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the application of the required skills and knowledge to develop and trial conceptual models and prototypes in the course of the design, development and production of motor vehicles. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

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.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	Nil	Nil
	Nil	Nil

Employability Skills Information

Employability skills	This unit contains Employability Skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Determine model/prototype requirements	1.1. Applicable ***organisation requirements*** relevant to the ***development of conceptual models and prototypes*** are verified and complied with throughout the work activity 1.2. ***Instructions*** and plans are read and interpreted to identify processes and materials to complete work tasks 1.3. Requirements of the client for the development of, or modifications to a conceptual ***model***/***prototype*** are assessed/rechecked in consultation with relevant stakeholders 1.4. Approval is sought for the proposed development of, or modifications to a conceptual model/prototype
2. Plan model/prototype-making activities	2.1. Steps involved in the development/modification of the model/prototype are identified in consultation with designated personnel 2.2. Inventory of required equipment, parts and components is established, including an assessment of their availability or the need to either manufacture or purchase them 2.3. Fabrication/machining processes and instructions are determined and clarified with participating departments/sections/areas 2.4. Timetable, resource requirements, personnel and purchase/supply schedule for the development or modifications to the model are confirmed in consultation with relevant personnel 2.5. The approved plan is communicated to all relevant personnel
3. Prepare tools and equipment	3.1. Required tools and equipment to construct or modify the model are selected 3.2. Necessary materials and components are obtained in accordance with design requirements 3.3. Tools and equipment are prepared for use
4. Produce conceptual model/prototype	4.1. Concept is drafted and dimensions established including any required process allowances 4.2. Model/prototype is constructed to design requirements 4.3. Model/prototype is fabricated to meet design

ELEMENT	PERFORMANCE CRITERIA
	requirements 4.4. Model/prototype is discussed with designated design engineering and/or other personnel and suitably modified as required 4.5. Surfaces are prepared and painted as required
5. Test and modify model/prototype	5.1. Model/prototype is checked against project objectives and/or specifications and/or company standards 5.2. Model/prototype is tested and checked in accordance with specifications 5.3. Test results are analysed and appropriate action taken to modify the model/prototype, if necessary
6. Document design and testing details	6.1. Outcomes of development process and associated testing are documented 6.2. Model/prototype and associated documentation are referred to relevant stakeholders

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- speak clearly and directly in order to develop project plans in consultation with relevant stakeholders
- apply teamwork to a range of situations, including the construction of models/prototypes
- 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 models/prototypes are checked and tested in accordance with specifications and company standards
- 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
- methods for determining model/prototype requirements and producing models
- operation of systems and components
- operation and selection of computer hardware and software applications/systems
- evaluation techniques
- types of tools and equipment and procedures for their safe use, operation and maintenance
- established communication channels and protocols
- 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 developing conceptual models and prototypes • 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: • developing conceptual models that satisfy customer requirements • achieving work quality goals • accurate documentation of the prototype development process • 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

EVIDENCE GUIDE	
	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.	
Organisation requirements may include:	• access and equity principles and practices • environmental management (waste disposal, recycling and re-use guidelines) • emergency and evacuation procedures • equipment use procedures • ethical standards • legal obligations • maintenance and storage procedures • OHS requirements • organisational and site guidelines • policies and procedures relating to own role and responsibility • procedural manuals • quality assurance guidelines • quality and continuous improvement processes and standards • recording and reporting guidelines.
Developing conceptual models and prototypes may include:	developing and trialling conceptual models and prototypes, in consultation with professional and other relevant personnel, to aid the design, development and production of motor vehicles.
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.
Model*/*prototype may include:	• models/prototypes formed using metal, plastics, clay, fibre glass, wood, foam, or other suitable material. Shaping may then be

RANGE STATEMENT	
	achieved through the development and use of moulds, templates, carving and computerised shaping equipment on these materials. The emphasis here is to produce a model/prototype that is suitable for the purpose for which it is being designed, not on its detailed construction.

Unit Sector(s)

Unit sector	Automotive Manufacturing

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Competency field

Competency field	Passenger Motor Vehicle

Co-requisite units

Co-requisite units		
	Nil	Nil
	Nil	Nil