



Australian Government

Department of Education, Employment and Workplace Relations

AUMGTM3005 Read and interpret engineering drawings and job specifications

Release: 1

AUMGTM3005 Read and interpret engineering drawings and job specifications

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the application of the required skills and knowledge to read and interpret engineering drawings and job specifications/sheets and determine processes and materials lists required for production. 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	This unit applies to the automotive and related component manufacturing environment and involves application of skills and knowledge at a specialist level. These skills and knowledge are 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. Read and interpret engineering drawings	1.1. Symbols, codes, legends and diagrammatic representations are correctly recognised 1.2. Product/system/component/item represented is correctly identified 1.3. Information represented is correctly understood
2. Determine processes to be used and prepare materials lists from engineering drawings	2.1. Processes to be used are identified 2.2. Material requirements are identified 2.3. Work orders for production are initiated in accordance with company procedures
3. Read and interpret job specification and work orders	3.1. Materials and process requirements are identified and prepared for production 3.2. Specific customer/job requirements are identified 3.3. Job requirements are clarified with appropriate personnel

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 clarify job requirements with appropriate personnel
- apply teamwork to a range of situations, including the preparation of materials and process requirements
- 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 engineering drawings are correctly interpreted
- 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 regulations and enterprise policies and procedures needed to carry out work in a manner which ensures the safety of people, equipment and the environment. The specific regulations will vary according to the area of operation.
- enterprise technical work documentation covering procedures, specifications, schedules and work plans or equivalent
- enterprise quality system documentation covering instructions, procedures, performance indicators and review processes or equivalent
- enterprise cost minimisation/waste avoidance policies, procedures and practices
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols
- problem identification and resolution techniques
- measuring procedures - use of rulers / tapes / squares
- reading and Interpreting basic drawings/job specifications and company work orders
- product manufacturer engineering drawing standards and practices
- manufacture and assembly processes
- company policies and procedures - paper based / electronic.

Evidence Guide

EVIDENCE GUIDE	
<p>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.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Evidence of the following is essential:</p> <ul style="list-style-type: none"> • compliance with relevant legislative, regulations, standards, codes of practice and establish safe practices and enterprise policies and procedures for managing personal work priorities • maintaining a working knowledge of current work systems and practices • 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: <ul style="list-style-type: none"> • achieving production goals • achieving work quality goals • responding positively to changing work requirements • contributing effectively to cost reduction initiatives • effectively applying problem solving techniques • modify activities to cater for variations in workplace context and environment • establish and quantify design requirements • determine suitable production methods, materials and processes • identify design constraints • produce concept sketches and evaluate feasibility. • modify and document designs - paper based / electronic • read and Interpret engineering drawings/job specifications • establish job processes and material requirements.
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p>

EVIDENCE GUIDE

- assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace 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.

<p><i>Legislative requirements</i> and procedures may include:</p>	<p>Applicable legislation, regulations and codes of practice, including those related to:</p> <ul style="list-style-type: none"> • anti-discrimination • award and enterprise agreements • confidentiality and privacy • duty of care • employee relations • environment protection • equal opportunity • industrial relations • relevant industry codes of practice.
<p><i>OHS requirements</i> may include:</p>	<p>Legislation and regulations, organisational safety policies and procedures and may include: the use of personal protective equipment and clothing, rescue services, fire fighting organisation and equipment, first aid equipment, hazard and risk control and elimination, systems covering the use of hazardous materials and substances and manual handling procedures including lifting and carrying.</p>
<p><i>Organisation requirements</i> may include:</p>	<ul style="list-style-type: none"> • 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.

RANGE STATEMENT	
<i>Job context</i> may include:	<ul style="list-style-type: none"> • Work areas including: • body construction, aluminium die casting, iron foundry operations, engine machining, spray painting, automotive plastics, stamping & press operations, fabrication hardware, trim manufacture, vehicle assembly, warehousing, engine assembly, seat frame manufacture <p>Processes including:</p> <ul style="list-style-type: none"> • welding sub-assemblies, fitting hang-on components, fittings dies to die boxes, pouring aluminium, machining parts, application of paint, cutting blanks, assembly of components to form sub-assemblies, fitting parts to bodies, assembly of parts, parts picking and replenishment.
<i>Appropriate personnel</i> may include:	<ul style="list-style-type: none"> • clients and managers • supervisors • suppliers • team leaders • team members.
<i>Work quality goals</i> may include:	those established within a quality system and may include identification, minimisation and elimination of defects, product/component specifications, tolerances, inspection systems, packaging specifications and non-conforming parts or products.
<i>Changed work requirements</i> may include:	<ul style="list-style-type: none"> • interruptions to parts supply/quality • line speed • personnel absences and the needing to fill production line gaps.
<i>Cost reduction initiatives</i> may include:	<ul style="list-style-type: none"> • continuous improvement programs • cost benchmarks • power conservation • productivity achievement • waste avoidance.
<i>Sources of information</i> may include:	<ul style="list-style-type: none"> • customer requirements • industry/workplace codes of practice • manufacturer specifications • organisational operating procedures • OHS legislation.
<i>Resources</i> may include:	<ul style="list-style-type: none"> • plant • tooling and equipment to be designed (as per company installation) • documentation and reporting systems (as per company requirements) - written / electronic, drawing equipment - manual, graphics

RANGE STATEMENT

	<ul style="list-style-type: none">• CAD system• access to professional staff• qualified workplace assessor• workplace or simulated workplace.
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Unit Sector(s)

Unit sector	Technical - Manufacture
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Competency field

Competency field	Manufacturing - Bus, Truck and Trailer
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Co-requisite units

Not applicable.