Australian Government

Department of Education, Employment and Workplace Relations

MEM22001A Perform engineering activities

Release: 1

MEM22001A Perform engineering activities

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the performance of technical aspects of engineering work in accordance with established engineering principles and practices.

Application of the Unit

Application of the unit	This unit applies to technical activities carried out within a range of engineering disciplines. It incorporates the personal and technical requirements to perform engineering activities where outcomes and performance measures are negotiated with appropriate personnel, technical experts and specialists. This unit only has application in qualifications that are not points based. **Band**: **0** **Unit Weight**: **0**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM16006A	Organise and communicate information

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 performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and implement engineering practices	1.1. Engineering practices applicable to engineering activities are identified. 1.2. Factors, conditions and contexts integral to effective engineering practice are researched and evaluated. 1.3. The application of management practices and regulatory/legal systems to engineering practice is researched and evaluated. 1.4. Elements of engineering practices are incorporated into engineering activities.
2. Negotiate, document and monitor outcomes and performance measures	2.1. Technical experts and specialists are consulted as required. 2.2. Engineering options are evaluated and ranked. 2.3. Performance measures for processes and outcomes are negotiated with stakeholders and documented.
3. Negotiate, develop and document work instructions	3.1. Work instructions are negotiated and documented with taskforce.
4. Perform hazard and risk analysis	4.1. Hazards and risks associated with project are analysed.
5. Monitor progress, respond appropriately	5.1. Progress is monitored and responded to in cooperation and consultation with stakeholders and taskforce.
6. Conclude engineering activities appropriately	6.1. Engineering activities are concluded in accordance with workplace and legislative requirements.
7. Evaluate career options and develop career development strategy	7.1. Career options are developed based on current engineering activities. 7.2. A portfolio or CV of current engineering activities that is also a framework for future engineering activities is developed.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

REQUIRED SKILLS AND KNOWLEDGE

Required skills

Look for evidence that confirms skills in:

- research and evaluation
- review and maintenance of academic development, work experience, ethical practice, indemnity, negotiation, consultation and human relations with respect to the practice of engineering
- consultation with technical experts and specialists
- evaluation and ranking of engineering options for particular applications
- designing and planning documentation for particular applications
- documenting work instructions
- implementing occupational health and safety and environmental regulations, codes of practice and statutory requirements
- identifying and analysing hazards and risks
- monitoring and consultation with stakeholders and taskforce
- research and evaluation of engineering career options based on current engineering activities

Required knowledge

Look for evidence that confirms knowledge of:

- political, social and environmental context and possible range of particular engineering activities
- the effect of government policy on industrial education and training, immigration for industrial labour/ skills, globalisation, the quality movement, JIT and competitive or lean manufacturing on a range of applications using jobbing, batch, mass or continuous production
- the significance, need for continual review and maintenance of academic development, work experience, ethical practice, indemnity, negotiation, consultation and human relations with respect to the practice of engineering
- the significance and applicability of strategic industrial management, financial management, workteams, supervision and control, industrial relations, OHS&E, enterprise based agreements, chemical registers, noise abatement, industrial law to particular industrial applications and work environments
- the application and affect of elements of engineering practice on particular engineering activities
- methods for evaluation and ranking of engineering options including the use of decision making and problem solving tools (eg. Kepler Trebor method)
- the significance of documented processes and outcomes performance measures in the context of client requirements, industrial, social, political and economic environments
- documented work instructions in the context of the objectives of the engineering activity

REQUIRED SKILLS AND KNOWLEDGE
• negotiating principles • risk assessment tools such as "risk matrix' and "Monte Carlo" risk assessment • the significance of statutory requirements disaster management strategies • long term environmental and sustainability issues associated with the engineering activity • documentation and conclusion procedures • relevance of current engineering activities to future career options • the value of a portfolio in contributing to future career options in engineering

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, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	A person who demonstrates competency in this unit must be able to perform engineering activities within one or more specified engineering disciplines. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.
Context of and specific resources for assessment	This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing engineering activities or other units requiring the exercise of the skills and knowledge covered by this unit.
Method of assessment	Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

EVIDENCE GUIDE	
Guidance information for assessment	

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, if used in the performance criteria, is detailed below. 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) may also be included.	
Factors, **conditions and contexts**	• Academic development, work experience, ethical practices, indemnity, negotiation, consultation and human relations • Applicable local, regional, national and international economic, political and social contexts
Management practices	Strategic industrial management, financial management, workteams, supervision and control.
Regulatory/legal systems	Industrial relations, OHS&E, enterprise based agreements, chemical registers, noise abatement, industrial law to particular industrial applications and work environments

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	Management and organisation