



Australian Government

Department of Education, Employment and Workplace Relations

MEM234030A Provide specialised technical and engineering guidance to other technical employees

Release: 1

MEM234030A Provide specialised technical and engineering guidance to other technical employees

Modification History

New unit

Unit Descriptor

This unit of competency covers the provision of technical advice, including mentoring to other technical and paraprofessional employees, usually but not always, working in the same technical field or discipline.

Application of the Unit

This unit applies across all forms of manufacturing and engineering where an individual is using their professional skills and knowledge to provide engineering and technical guidance to other technical employees within the organisation. Examples of technical guidance situations include acting as a technical resource person to other technical employees or teams, or mentoring of other technical employees because of specialised skill and knowledge.

The emphasis in this unit is on the provision of technical advice usually as part of day-to-day operations where the person is not in a formally designated managerial or leadership role. The unit assumes technical competence to Advanced Diploma of Engineering level or equivalent industrial experience.

Where formal leadership and management of engineering and related projects or operations applies see the unit MEM234001A Plan and manage engineering-related projects or operations or other subject specific engineering leadership units, such as:

- MEM234031A Manage installation, commissioning or modification of machines and equipment
- MEM234032A Manage fluid power related technologies in an enterprise
- MEM234033A Lead engineering-related quality operations in an enterprise.

This unit does not cover the giving of general advice associated with conditions of employment, such as career planning and wages.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

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

1	Respond to requests for technical advice or assistance	1.1	Confirm that request for assistance is of an engineering nature, including engineering-related outcomes required
		1.2	Identify extent of engineering information currently known
		1.3	Define issue or problem in engineering-related terms
		1.4	Identify whether request is within own discipline and skills and knowledge or should be referred to other expert technical or professional assistance
		1.5	Assist individuals or technical team to identify stakeholders to engineering issues and practice in the organisation
		1.6	Assist individuals or team to identify constraints and solution steps
		1.7	Verify solution
2	Identify other situations where current practice may be inadequate within the	2.1	Identify technical, engineering or sustainability-related risk factors in workplace
		2.2	Identifies risks associated with professional and ethical practice, occupational health and safety (OHS) and other

department or team		statutory responsibilities and liabilities
	2.3	Identify risk situations without adequate preventative and contingency planning
	2.4	Identify technical individuals or teams responsible for management of risks without adequate preventative and contingency planning
	2.5	Offer assistance and advice to resolve inadequacy

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- identifying a range of information sources to develop and strengthen present engineering knowledge of other technical employees
- proposing options to achieve engineering solutions within discipline area
- proposing means of testing, measuring and evaluating solutions that fit with organisation objectives and accepted engineering practice
- providing advice on engineering-related costs and risks
- encouraging learning and professional practice in other engineering and technical employees, including adherence to legislative and regulatory requirements and ethical, OHS and quality standards
- assisting individuals and teams in setting performance targets for engineering-related activities
- advising on budgeting and financial management of engineering activities

Required knowledge

Required knowledge includes:

- the principles of engineering as applied by designers in own area of expertise
- normal planning and scheduling approaches to engineering operations and tasks
- relationship of levels of practice in own engineering discipline, including situations where professional engineering, engineering technologist and engineering associate assistance or decision making is appropriate
- the situations where mathematics, including statistics, calculus or other advanced mathematics, must be used by to generate solutions to engineering problems, as well as situations where professional or other expert assistance should be accessed
- the structure, roles and capabilities of the engineering workforce in the organisation
- the interactions between engineering technologies and business operations, including impact of engineering on meeting client, employee, shareholder, regulatory and community expectations of the organisation
- regulatory and OHS responsibilities of technical and engineering workforce of the organisation
- administrative, human resources (HR) and other support services available to technical and engineering staff in the organisation

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.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • identify engineering-related situations that require referral to other experts • identify and establish any risks or consequences for advice offered • offer advice that takes into account the engineering operations and procedures of the organisation, the discipline area, and accepted engineering ethical practice • identify situations where modelling, calculations or other investigations should occur before advice is offered • understand and apply verification procedures to a range of engineering solutions in own area of expertise.
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 a simulated working environment 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. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. • Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of the MEM05 Metal and Engineering Training Package. • 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 include assessment of underpinning knowledge to ensure correct interpretation of guidance required and provision of appropriate advice. • 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. • Assessment may be in conjunction with assessment of other units of competency where required.
--	--

Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.
-------------------------------------	---

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.

Expert technical and professional assistance	Areas where expert technical and professional assistance may be sought include: • technical support and advice relating to elements which have intrinsic dangers, such as: • high pressure • energised fluid vessels • high temperatures and heat energy capacity • wiring or devices with high current or voltages above extra low voltage • professional support for technologies, such as: • specialist electric motor drives and controllers • specialist materials, plastics, metal alloys and nano materials • special processes, foundry, alloy welding, heat treatment, sealing and fastening • professional advice on issues that may overlap with: • finance, accounts and tax • insurance and legal • training and HR
OHS requirements, codes of practice, regulations, standards and other regulatory requirements and enterprise procedures	OHS requirements, codes of practice, regulations, standards and other regulatory requirements and enterprise procedures may include: • OHS Acts and regulations • relevant standards • industry codes of practice • risk assessments • registration requirements • safe work practices

	state and territory regulatory requirements
Legislative requirements	Legislative requirements may include: - industrial law and awards - customer protection law - restrictive trade practice - environmental protection - workers compensation - equality and antidiscrimination - contract law
Sustainability	Sustainability includes consideration of economic, social, ecological and resources implications of activities. Sustainability issues may include: - resources and energy: - sources, access, processing and consumption - food security and agriculture, health, education and shelter - land, energy and water - social and economic factors affecting design of machines and equipment - life cycle design of product (manufacture to re-manufacture or recycle) - raw material, solids and hazardous waste, and production by-products - contamination of land, air and stormwater pollutants, and discharge to sewerage - climate change
Standards and codes	Standards and codes refer to all relevant Australian and international standards and codes applicable to a particular design or engineering related task
Planning and scheduling techniques	Planning and scheduling techniques may include: - critical path or Pert network plans - Gantt charts
Software and validation techniques	Advice may need to be offered on software and validation techniques. These include: software employed for performance analysis/modelling (Underpinning program techniques and algorithms should be understood, such as the use of failure effects analysis (FEA) and numerical methods within object oriented modelling techniques) Validation techniques include:

	• comparison of traditional solutions for simple design problems with software solutions to the same design problems • review of previously implemented design challenges which were completed using the software
--	---

Unit Sector(s)

Engineering practice

Custom Content Section

Not applicable.