



Australian Government

MEM234033 Lead engineering-related quality operations in an organisation

Release: 1

MEM234033 Lead engineering-related quality operations in an organisation

Modification History

Release 1. Supersedes and is equivalent to MEM234033A Lead engineering-related quality operations in an enterprise.

Application

This unit of competency defines the skills and knowledge required to provide a technical leadership role in the coordination of quality operations in an organisation on an ongoing operational or project basis.

It includes knowledge of relevant regulations, interpreting internal or external client brief, liaison with designers and other professional and technical specialists, and ensuring that organisation members are aware of technical and performance requirements.

This unit applies to a Principal Technical Officer or equivalent who is providing high-level technical leadership in the coordination of engineering-related quality operations and quality-related projects across all forms of manufacturing and engineering including small run/single lot production.

The leadership situations covered by this unit include quality project or quality operations responsibilities that require significant understanding of the technologies, procedures and equipment used in the organisation and the skills and capabilities required by the quality team in order to be effective.

The unit complements the more general technical leadership and management skills found in unit MEM234001 Plan and manage engineering-related projects or operations. Informal technical or engineering advice situations are covered by the unit MEM234030 Provide specialised technical and engineering guidance to other technical employees.

This unit does not reflect engineering and mathematical skills and knowledge required for quality-related tasks. The required engineering and mathematical skills will depend on the particular processes and technologies used in the organisation and will normally be covered through the combined skill and knowledge of the team. However, the unit presumes engineering skill and knowledge to at least Advanced Diploma level.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Engineering science

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Set strategy for integration of quality operations	1.1 Prepare or review organisation formal policy documents and establish implications for quality operations 1.2 Establish and communicate senior management expectations and objectives for quality department 1.3 Identify role of quality department in relation to capability reporting, budgeting, and contribution to marketing and sales strategy, and communicate relevant information to organisation and/or team
2. Set key performance output variables	2.1 Liaise with sales and marketing staff to identify external customer profiles and requirements 2.2 Review internal customer specifications 2.3 Set and manage required key performance output variables 2.4 Recommend any required changes to key performance output variables
3. Set key performance input variables	3.1 Analyse drawings, specifications, procedures and regulatory requirements for project, product or process 3.2 Set parameters for any required capability studies of process or procedures 3.3 Analyse data from capability studies of process or procedures and take appropriate action 3.4 Identify key equipment, technologies procedures used and set performance input variables 3.5 Identify current maintenance strategies that impact performance 3.6 Identify risks, vulnerabilities and critical control points 3.7 Recommend any required changes to maintenance strategies in order to maintain quality performance
4. Implement quality operations	4.1 Communicate key performance input and output variables to team 4.2 Ensure key performance input and output variables are communicated to appropriate departments, including purchasing, logistics and dealer liaison, or directly along the value stream 4.3 Allocate quality-related responsibilities to quality team 4.4 Identify or set budget and other resources required for quality operation

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	4.5 Establish reporting processes for quality team operations 4.6 Establish and monitor data collection procedures including integration with process control 4.7 Identify and eliminate root causes of defective processes or procedures in participation with the processing departments and quality team 4.8 Provide advice on work environments to enable employees to be responsible for quality of their own work 4.9 Establish regular employee feedback on quality operations
5. Evaluate present and past performance and undertake risk assessment	5.1 Ensure timely and effective communication from customer liaison about service and quality issues 5.2 Analyse data for non-conformances to key performance input and output variables, establish root causes and recommend actions to be taken in conjunction with quality team 5.3 Analyse risks to quality from supplier or distributor failure 5.4 Identify performance levels required to maintain regulatory and commercial contractual compliance 5.5 Communicate data throughout the organisation to assist in future improvements
6. Establish procedures for engineering-related quality non-conformances	6.1 Establish reporting procedures for quality non-conformances 6.2 Establish short-term contingency procedures to cover non-conformances 6.3 Allocate responsibilities to determine root cause and recommendations for corrective action based on nature of the issue identified

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Organisation formal policy documents include:	• vision statements • organisation goals • annual reports • business plans • regulatory reports.
Quality team includes:	• all employees, and in some cases suppliers and customers, who have a role in ensuring the quality of products and processes meet specifications • a formally designated team consisting of employees allocated full or part time to a quality role • a group of employees who have quality responsibilities as part of their normal job role.
Coordination of the quality role includes:	• aligning organisation outputs products or services with customer requirements • identifying defective processes or procedure • establishing the engineering related key process input/output (I/O) variables • establishing action plans and putting control systems in place • contributing to current or new product, process or procedure design.
External customer profiles and requirements include: :	• analysis of customer surveys • existing profiles • past orders.
Internal customer specifications include:	• employee surveys • operating procedures • drawings.
Maintenance strategies include:	• total productive maintenance (TPM) • reliability-centred maintenance (RCM) • failure modes and effects analysis (FMEA) • proactive maintenance • breakdown or corrective maintenance.
Areas of responsibilities for quality team members include:	• statistical data collection and analysis • non-conformances • managing quality performance of new products or processes

	• customer liaison, including surveys, warranty claim analysis and returns • contributing to design processes to ensure quality objectives are taken into account • production • maintenance • support services including engineering-related quality logistics, administration and purchasing.
Engineering-related quality advice on work environment includes:	• skills development needed to enable employees to achieve quality targets • workstation design, including jigs and fixtures • equipment operation and machine and tool setting specifications • plant layout • inspection procedures • standardisation of processes.
Employee feedback includes	• toolbox meetings • quality circles • suggestion schemes • regular meetings between quality team, supervisors and employees • production and error reports.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM234033A Lead engineering-related quality operations in an enterprise.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM234033 Lead engineering-related quality operations in an organisation

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- identifying, planning and establishing key quality input and output variables, and requirements
- establishing resources required including labour, materials, and equipment within budgets and procedures
- commencing project or operation management including establishing required support team and responsibilities
- overcoming constraints to achievement of the quality objectives on at least two occasions
- undertaking appropriate internal and external reporting
- investigating and validating quality performance analysis and managing continuous improvement on at least two occasions
- undertaking customer liaison including surveys, warranty claim analysis and returns
- communicating, negotiating and reviewing with stakeholders and team members throughout project or operation duration.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- quality management and improvement procedures and programs including zero defects and six sigma
- formal policy documents
- structure, responsibilities and coordination of a quality team
- customer-related quality considerations
- context of operations or project, competitive pressures or markets, customer-supplier relationships, regulatory and industrial environment, resourcing and labour issues
- statistical process control (SPC) techniques
- problem-solving, root cause identification and elimination techniques
- benchmarking and role in setting quality-related performance indicators

- conducting customer surveys to establish key quality issues
- liaison with customers on warranty claims and legal obligations
- maintenance strategies and implications for quality systems, including total productive maintenance (TPM) and reliability-centred maintenance (RCM)
- use of employee suggestion schemes, employee involvement and quality circles
- requirements for, and functions of:
 - technical documentation
 - graphics and specifications
 - records of meetings
 - communications, negotiations, decisions and agreements with stakeholders.
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Assessment Conditions

- Assessors must:
 - have vocational competency in leading engineering-related quality operations in an organisation at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the Standards for Registered Training Organisations 2015 or its replacement and comply with the National Vocational Education and Training Regulator Act 2011, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
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