Australian Government

Department of Education, Employment and Workplace Relations

MEM234033A Lead engineering-related quality operations in an enterprise

Release: 1

MEM234033A Lead engineering-related quality operations in an enterprise

Modification History

Not applicable.

Unit Descriptor

This unit of competency covers the skills and knowledge required to provide a technical leadership role in the coordination of quality operations in an enterprise on an ongoing 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.

Application of the Unit

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 technical officer may provide this leadership working alone or with a team in which case other members of the team may include technicians, production personnel and engineering tradespersons.

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 enterprise 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 MEM234001A Plan and manage engineering-related projects or operations. Informal technical or engineering advice situations are covered by the unit MEM234030A Provide specialised technical and engineering guidance to other technical employees.

This unit does not supply 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 enterprise 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.

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	Set strategy for integration of quality operations with organisation, project goals and business plans	1.1	Prepare or review organisation formal policy documents and establish implications for quality operations
		1.2	Establish senior management expectations and objectives for quality department and communicate as appropriate
		1.3	Identify role of quality department in organisation, project or business plan including capability reporting, budgeting, and contribution to marketing and sales strategy and communicate to organisation, team as appropriate
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 capability studies of process or procedures, where appropriate
		3.3	Analyse data from capability studies of process or procedures, as required, and take appropriate action
		3.4	Identify key equipment, technologies procedures used and set performance input variables
		3.5	Identify current maintenance strategies, where appropriate
		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, where appropriate
		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
		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, past performance and undertake risk assessment	5.1	Ensure timely and effective communication from customer liaison of complaints, warranty claims and returns, where appropriate
		5.2	Analyse data for non-conformances to key performance input and output variables and 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 within the project, process or procedure across the organisation
		6.2	Establish short-term contingency procedures to cover non-conformances
		6.3	Allocate responsibilities to determine root cause and recommendations for corrective action, as appropriate

Required Skills and Knowledge

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

Required skills

Required skills include:

- communicating, negotiating and reviewing with stakeholders and team members throughout project and operation duration
- providing leadership in quality functions and monitoring
- providing clear vision with ability to communicate goals
- assessing internal and external customer requirements, and establishing key output requirements
- assessing equipment, technologies and procedures for impact on quality, and establishing key input requirements, including appropriateness of maintenance strategies
- assessing suitability of standard operations procedures and recommending revisions, when required

Required knowledge

Required knowledge includes:

- process, procedure quality management and improvement procedures, zero defects, six sigma or similar programs
- context of operations or project, such as 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, such as total productive maintenance (TPM) and reliability centred maintenance (RCM)
- use of employee suggestion schemes, employee involvement, quality circles, and so on
- requirements for, and functions of, technical documentation, graphics and specifications and records of meetings, communications, negotiations, decisions and agreements with stakeholders

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, plan and establish key quality input and output variables, and requirements for the project, procedure or operation • establish resources required, including labour, materials, and equipment within budgets and procedures • commence project or operation management, including establishing, where required, support team and responsibilities • overcome constraints to achievement of the quality objectives • undertake appropriate internal and external reporting • investigate and validate quality performance analysis, and manage continuous improvement • undertake customer liaison, including surveys, warranty claim analysis and returns.
Context of and specific resources for assessment	• This unit may be assessed on 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 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. 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.

Organisation formal policy documents	Organisation formal policy documents are those that have Board and/or senior management approval and include: • vision statements • organisation goals • annual reports • business plans • regulatory reports
Quality team	For this unit the term quality team means all employees, and in some cases suppliers and customers, who have a role in ensuring the quality of products and processes meet specifications. The quality team may be: • a formally designated team consisting of employees allocated full or part time to a quality role or a group of employees who have quality responsibilities as part of their normal job role
Coordination of the quality role	Coordination of the quality role includes: • aligning enterprise outputs products or services with customer requirements • identifying defective processes or procedure • establishing the engineering related key process input/output variables • establishing action plans and putting control systems in place Coordination may also include: • contributing to current or new product, process or procedure design
External customer profiles and requirements	External customer profiles and requirements may include: • analysis of customer surveys • existing profiles

	• past orders • other communication and documentation
Internal customer specifications	Internal customer specifications may include: • employee surveys • operating procedures • drawings • other documentation/records
Maintenance strategies	Maintenance strategies include: • TPM • RCM • failure modes and effects analysis (FMEA) • proactive maintenance • breakdown or corrective maintenance
Areas of responsibilities for quality team members	Responsibilities for quality team members may be allocated on a departmental or functional basis. Examples of functional responsibilities 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 Examples of functional quality responsibilities include: • production • maintenance • support services, including engineering-related quality logistics, administration and purchasing
Engineering-related quality advice on work environment	Engineering-related quality advice on work environments includes advice on: • 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	Employee feedback may include:

	• toolbox meetings, quality circles • suggestion schemes • regular meetings between quality team, supervisors and employees • production and error reports

Unit Sector(s)

Not applicable.

Custom Content Section

Not applicable.