



Australian Government

MEM23119 Evaluate continuous improvement processes

Release: 1

MEM23119 Evaluate continuous improvement processes

Modification History

Release 1. Supersedes and is equivalent to MEM23119A Evaluate continuous improvement processes.

Application

This unit of competency defines the skills and knowledge required to evaluate continuous improvement processes for production, engineering and associated services. It requires the evaluation of improvement processes, and the efficiency and effectiveness of their response, to continuous feedback from customers and other sources along with consideration of the effect of improvements or change on entire systems.

It applies to production and engineering activities where continuous improvements including those to product, process or service, efficiency or competitiveness, is required. It is suitable for people working as service providers, supervisors or technicians and those pursuing manufacturing, engineering or related technical qualifications and careers.

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

Pre-requisite Unit

MEM23118 Apply production and service control techniques

MEM30012 Apply mathematical techniques in a manufacturing engineering or related environment

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. Establish scope of continuous improvement evaluation	1.1 Identify industrial and market context for continuous improvement 1.2 Identify features, functions and measurable parameters of products, processes, systems or services, assets and operations subject to continuous improvement 1.3 Assess software techniques required for continuous improvement

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.4 Review sustainability implications of evaluation task 1.5 Identify stakeholders in continuous improvement processes and appropriate licensed technical and professional assistance to be consulted on the tasks 1.6 Determine compliance requirements of relevant work health and safety (WHS) and regulatory requirements, codes of practice, standards and risk assessment procedures
2. Prepare for evaluation	2.1 Identify appropriate measurement, data gathering, software and other analysis methods to be used for evaluation 2.2 Identify performance criteria or indices 2.3 Identify existing process capability, evaluation, control and run charts and sampling procedures 2.4 Identify existing qualitative continuous improvement processes
3. Evaluate organisation continuous improvement processes	3.1 Evaluate manual and automatic methods for measurement of parameters of products or services 3.2 Evaluate data gathering, analysis and performance indices 3.3 Evaluate software techniques for performance analysis and visual display generation 3.4 Evaluate quantitative and qualitative continuous improvement processes 3.5 Apply systems thinking, constraint and contingency management, problem-solving and decision-making to evaluation tasks 3.6 Evaluate sustainability implications of improvements
4. Report results	4.1 Record results of continuous improvement evaluation, and the identified principles and techniques 4.2 Provide documentation including reports, data, graphics, flow charts and performance indices

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.	
Features, functions and measurable parameters of products, processes, systems or services, assets and operations subject to continuous improvement include:	• sustainability • software • product manufacturability • process design • process control • equipment and tooling • material and product flow • plant layout and transfer operations • standard operating procedures (SOPs) • maintenance • lean systems • labour and skills distribution • information flow • value chain • sales, marketing and planning • management.
Sustainability includes:	• meeting all regulatory requirements • conforming to all industry covenants, protocols and best practice guides • minimising ecological and environmental footprint of process, plant and product • maximising economic benefit of process plant and product to the organisation and the community • minimising the negative work health and safety (WHS) impact on employees, community and customer.
WHS, regulatory requirements and organisational procedures include:	• WHS acts, regulations and relevant standards • codes of practice from Australian and overseas engineering and technical associations and societies • risk assessments • registration requirements • safe work practices • state and territory regulatory requirements.
Continuous improvement processes relate to:	• plant • products

	• production processes • systems and services including: • design • development • implementation or manufacture • commissioning • operation or delivery • maintenance.
Continuous improvement processes include:	• balanced scorecard • current and future state mapping • measuring performance against benchmarks • process improvement, problem solving and decision making • data management, generation, recording, analysing, storing and use of software • training for improvement systems participation • technical training • qualitative improvement processes including: • toolbox meetings • suggestion schemes • mentoring • changes in work organisation, responsibilities and recruitment.
Constraints and contingencies include:	• financial • organisational • procedural • cultural • physical (resource, access and logistical limitations).

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23119A Evaluate continuous improvement processes.

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 MEM23119 Evaluate continuous improvement processes

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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:

- determining measurable and controllable parameters of product or service and their suitability in continuous improvement processes
- identifying work health and safety (WHS), regulatory requirements, risk management and related organisational procedures
- evaluating manual and automatic methods for measurement and data gathering, including analysis and performance indices, software analysis and visual display
- evaluating qualitative continuous improvement processes
- evaluating sustainability implications of improvements
- measuring and gathering data, recording and analysing for trends and improvements on at least two occasions
- evaluating continuous improvement, systems thinking, constraint and contingency management and lean systems requirements on at least two occasions
- producing and interpreting charts used in production and service control including Ishikawa 'Fishbone' diagrams, histograms, Pareto analysis, flowcharts, scatter plots, control charts and check sheets on at least two occasions
- reporting and documenting processes and results of evaluation.

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:

- features, functions and measurable parameters of products, processes, systems and services subject to improvement processes
- economic, social and sustainability implications of products, processes, systems, services and implications of improvement processes
- continuous improvement processes
- continuous improvement drivers and mechanisms including:
 - market competitiveness
 - maintenance of a technological edge

- customer expectations
- constraints and contingencies
- WHS requirements, codes of practice, regulatory requirements, and standard problem-solving and decision-making techniques:
 - brainstorming
 - current and future state mapping
 - seven tools of quality:
 - Ishikawa 'Fishbone' diagrams
 - histograms
 - Pareto analysis
 - flowcharts
 - scatter plots
 - control charts
 - check sheet
- data, performance metrics, graphics and visual indicators
- software options including:
 - budgeting, financial and business planning performance metrics analysers and graphics generators
 - maintenance downtime and cost data generators
 - supervisory control and data acquisition (SCADA), distributed control systems (DCS), enterprise resource planning (ERP) and materials resource planning (MRP) system data generators
 - performance data analysis and graphics generators
- statistical process control (SPC) techniques
- qualitative improvement techniques.
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Assessment Conditions

- Assessors must:
 - have vocational competency in evaluating continuous improvement processes 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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