



Australian Government

MEM22014 Coordinate engineering-related manufacturing operations

Release: 1

MEM22014 Coordinate engineering-related manufacturing operations

Modification History

Release 1. Supersedes and is equivalent to MEM22014A Coordinate engineering-related manufacturing operations.

Application

This unit of competency defines the skills and knowledge required to coordinate and facilitate significant manufacturing operations where the coordination role involves application of engineering skills and knowledge to ensure safe, effective and efficient manufacturing. Operations may include specific engineering-related tasks, such as installation and commissioning of plant, design of equipment and major overhauls.

Where coordination skills for time-defined engineering projects are required, unit MEM22013 Coordinate engineering projects should be selected.

Where the planning, scheduling and purchasing is done in an engineering or manufacturing organisation following lean principles, appropriate competitive systems and practices units of competency should also be selected.

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

Pre-requisite Unit

MEM14091 Integrate manufacturing fundamentals into an engineering task

MEM16006 Organise and communicate information

MEM23004 Apply technical mathematics

Competency Field

Management and organisation

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. Develop the production plan	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.3 Coordinate development of, or obtain demand forecast 1.4 Participate in preparation of production plan in consultation with relevant stakeholders to meet quality, demand and delivery timelines within capacity and budget constraints 1.5 Coordinate preparation of purchasing schedules 1.6 Coordinate preparation of production schedules including allowances for scheduled maintenance and any required shutdown periods 1.7 Coordinate development of risk management and contingency procedures 1.8 Review production plan with relevant stakeholders and adjust, as necessary 1.9 Coordinate development of key performance indicators (KPIs) and monitoring procedures with relevant stakeholders 1.10 Incorporate professional and technical assistance according to operational requirements
2. Coordinate the implementation of the production plan	2.1 Allocate responsibilities for purchasing and detailed scheduling, including communication of priorities and KPIs 2.2 Coordinate materials and product flow and transfer operations to meet plan requirements including buffer and emergency stocks, warehousing, stores and logistics 2.3 Monitor quality and process control procedures 2.4 Coordinate and monitor physical, human and financial resources and budget to achieve production plan 2.5 Review and monitor information and reporting procedures to stakeholders 2.6 Address systems constraints and contingencies and adjust short-term planning and rescheduling requirements
3. Monitor operational performance	3.1 Review actual indicators against KPIs and identify issues requiring action 3.2 Review manufacturing operations against production plan and other KPIs and identify issues requiring action 3.3 Participate in continuous improvement procedures used in the organisation 3.4 Monitor preventative and breakdown maintenance and review

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	impact on operational performance 3.5 Monitor implementation of risk management procedures during non-conformances and adjust as required, in accordance with organisational procedures 3.6 Report progress against production plan in accordance with procedures 3.7 Maintain and provide records in accordance with operational requirements

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.

Work health and safety (WHS), regulatory requirements and enterprise procedures include:	• WHS acts and 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.
Relevant stakeholders include one or more of the following:	• team • organisation functional groups • support professionals and licensed technicians • customers and suppliers.
Records include one or more of the following:	• forecasts • schedules • budgets • records of operations, production quantities, quality and supply

	- performance - process, resources and budget control measures - communications - graphics - specifications - tenders - contracts - personnel - resource allocations - financial management procedures - standard operating procedures, including maintenance procedures - records of procedures and legislative compliance.
Appropriate licensed technical and professional assistance includes:	- technical support and advice relating to elements which have intrinsic dangers including one or more of the following: - 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 engineering research, calculations and technologies - professional services for: - finance, accounts and tax - insurance and legal - training and human resources.
Continuous improvement procedures include one or more of the following techniques:	- 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.
Constraints and contingencies include:	- financial, organisational, procedural or cultural constraints - physical constraints including limits to resources, site access or logistical limitations.
Software options include one or more of the following:	- enterprise resource planning (ERP) - system control data acquisition (SCADA) - spreadsheets.
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 WHS impact on employees, community and customer.
--	---

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM22014A Coordinate engineering-related manufacturing operations.

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 MEM22014 Coordinate engineering-related manufacturing operations

Modification History

Release 1. Supersedes and is equivalent to MEM22014A Coordinate engineering-related manufacturing operations.

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:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying equipment and process capacity from information supplied by designers and suppliers
- preparing production or project plan on at least two occasions in consultation with relevant stakeholders to meet work health and safety (WHS), quality, demand and delivery requirements within capacity and budget constraints
- applying procedures to ensure compliance of manufacturing operations with WHS, environmental and other regulatory requirements
- reviewing and monitoring facilities and services on at least two occasions
- maintaining records, reporting and documenting in accordance with standard operating procedures.

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:

- safe work practices and procedures
- manufacturing management systems
- relevant stakeholders
- sources of professional and technical assistance
- forecasting, scheduling and production control procedures
- production systems, including assembly and process layouts, material and product flows, automation and control systems
- WHS requirements, codes of practice, regulations, standards, regulatory requirements, risk management, current safe work method statements (SWMS), safety data sheets (SDS) and work permits
- budgeting, costing and control measures

- quality and process control measures
- asset maintenance techniques and management options
- continuous improvement procedures
- problem-solving and decision-making, systems thinking, contingency and constraints management as applied to manufacturing
- requirements for and functions of technical documentation, records, graphics and specifications
- sustainability implications of manufacturing operations, products and processes, including social, environmental, resources and economic implications
- reporting and documenting procedures used in manufacturing, including role of standard operating procedures (SOPs), engineering drawings and process control charts
- current options and trends in software
- continuous improvement processes and procedures
- lean manufacturing principles
- typical constraints
- sustainability considerations.

Assessment Conditions

- Assessors must:
 - have vocational competency in coordinating engineering-related manufacturing operations 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.
-

Links

Companion Volume implementation guides are found in VETNet -

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