



Australian Government

MEM22013A Coordinate engineering projects

Release: 1

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Modification History

Release 1 - New unit. Replaces MEM22004A, but not equivalent.

Unit Descriptor

This unit of competency covers the coordination of engineering projects within project plans and budgets. It includes monitoring and maintaining the project implementation plan, performance analysis and use of project management software.

Application of the Unit

This unit applies to people with significant coordination and facilitation responsibilities for engineering or related projects. The projects will usually have fixed term or purpose and involve specific engineering-related tasks, such as installation and commissioning of plant, design of equipment or major overhauls.

The coordination role covered by the unit includes monitoring of engineering and other technical performance parameters against the project plan as well as monitoring of other project parameters that impact on engineering and technical compliance of the project. These include finance, accounting, budgeting and control, resourcing, tenders, contracts, work health and safety (WHS), risk management, human resources, and legal and regulatory requirements.

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	Review and confirm parameters of delegated project	1.1	Review designs, drawings, standards and established implementation plan and schedule to establish scope of the engineering project
		1.2	Review budget and control measures for delegated project
		1.3	Review project management structure, functional team relationships, communications and reporting lines
		1.4	Review materials, logistics and services procurement requirements
		1.5	Review the need for appropriate technical and professional assistance
		1.6	Review physical resources requirements
		1.7	Review human resources and skills development requirements
		1.8	Review compliance requirements for project, including WHS requirements, codes of practice, regulations, standards, legal and other regulatory requirements, and enterprise procedures

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| 2 | Coordinate implementation of delegated project | <ul style="list-style-type: none">2.1 Assign and obtain team agreement to plans, communication arrangements, responsibilities, schedules and requirements2.2 Establish liaison arrangements with other functional groups2.3 Ensure efficient and documented arrangements for requests for further information (RFIs) from designers and other experts2.4 Confirm internal and external reporting requirements, including content, schedule and sign-off arrangements2.5 Confirm suppliers, contractors and delivery schedules, and any installation requirements2.6 Coordinate actions to overcome constraints and contingencies, including coordination with stakeholders and adjustments, if necessary, to plans and schedules2.7 Coordinate and monitor specialist and technical support services to meet schedules, budgets and performance requirements2.8 Maintain and monitor records of project tasks for accountability against objectives, schedule and budget2.9 Apply principles of continuous improvement to implementation2.10 Implement project management, resources control and budgeting software, when required |
| 3 | Report on outcomes | <ul style="list-style-type: none">3.1 Record progress in accordance with procedures3.2 Supervise the completion of project, including sign-off and completion of required documentation of the project |

Required Skills and Knowledge

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

Required skills

Required skills include:

- coordinating technically complex engineering-related projects
- project management skills, including using resources control and budgeting software, as required
- reviewing, confirming and establishing parameters for project objectives, project plan, budget and scheduling related to tasks
- communicating, negotiating and reviewing with stakeholders throughout project duration
- coordinating and monitoring task schedules and resources; addressing contingencies and constraints, continuous improvement, problem solving and decision making; and adjusting short-term planning and rescheduling, as necessary
- implementing systems thinking and concurrent engineering, as appropriate
- project planning and scheduling, including:
 - working within or establishing a project management structure
 - establishing functional team relationships, communications and reporting lines
 - ensuring compliance with business plans, financial objectives, budgets and customer brief
 - incorporating WHS and other regulatory requirements
- establishing accountabilities and responsibilities (including recording and reporting) for:
 - scheduling and implementation of project tasks
 - physical and financial resources and budget
 - the use of professional services and contractors
 - maintaining records of trades and industry contacts and sources of expert advice
 - records of procedures and regulatory compliance
 - personal and team skills development
 - maintaining task schedules, Gantt charts and other planning tools and resources
 - procedures for addressing contingencies and constraints, continuous improvement, problem solving and decision making, and adjusting short-term planning and rescheduling as necessary
 - organisational procedures for compliance with WHS, codes of practice, and other legislative requirements, environmental and social obligations, and ethical practice
 - risk management procedures

Required knowledge

Required knowledge includes:

- engineering and technology knowledge appropriate to the project
- context of project, including:
 - customer-supplier relationships
 - regulatory requirements and environment
 - materials resourcing and labour and skills supply arrangements
 - market and competitive environment
- human resources and skills development procedures and options for skill needs typical of engineering projects
- typical budget and control measures for engineering-related projects, including:
 - audit
 - tenders
 - contracts
 - schedules
 - budget categories and items:
 - personnel
 - materials
 - equipment procurement and maintenance
 - contractors
 - logistics
 - security
- requirements for and functions of technical documentation, graphics and specifications, meeting procedures, records and minute taking
- WHS Acts and regulations relevant to engineering projects
- risk management procedures, isolation and notification procedures in the event of irregularities or accident
- systems thinking, contingency and constraints management
- conflict resolution, problem solving and decision making

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.

Overview of assessment	A person who demonstrates competency in this unit must be able to coordinate an engineering project This includes working individually and as part of a team and recognising and complying with normal control procedures on engineering projects.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • review, confirm and establish project objectives, plans and schedules • identify technical and engineering requirements of project from drawings, customer briefs, contracts and other appropriate sources • identify and manage stakeholders, including customers, suppliers, contractors and regulatory agencies • manage for contingencies and non-conformances • cooperate, communicate and negotiate effectively with stakeholders.
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, 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 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 not only able 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.

Personal responsibilities	Personal responsibilities within the project may be defined by: • role specification and delegations • workplace agreement or Award • negotiation with clients and/or supervisors • contracts • legal or regulatory obligations • professional and ethical considerations • agreed operational or project requirements
Systems thinking	Systems thinking refers to the conduct of engineering work in a manner that demonstrates knowledge of how the interaction of different technical systems on equipment, machinery or structures, as well as the skills and techniques of personnel, combine to perform or support engineering-related operations, processes or projects. It embraces determining or establishing how the function of each technical system or component, as well as the skills and techniques of personnel, effects or potentially may effect, outcomes. Systems should be interpreted broadly within the context of the organisation and depending on the project or operation can include equipment, related facilities, material, software, internal services and personnel, and other organisations in the value chain
WHS, regulatory	WHS, regulatory requirements and enterprise procedures may

requirements and enterprise procedures	include: • WHS Acts and regulations • relevant standards • codes of practice from Australian and overseas engineering and technical associations and societies • environmental protection and planning law • risk assessments • registration requirements • safe work practices • state and territory regulatory requirements
Stakeholders	Relevant stakeholders may include: • teams • contractors • support professionals and teams • technicians • functional groups • customers • suppliers
Records of project	Records of project may include: • tenders and contracts • schedules • personnel • resource allocations and financial management procedures • standard operating procedures, including maintenance procedures • WHS committee minutes and action • risk management and mitigation • documentation and records of current safe work methods statements (SWMS), material safety data sheets (MSDS), work permits, standards and codes of practice • audits • meetings and communications • graphics and specifications
Continuous improvement implementation	Continuous improvement implementation may relate to: • plant, products, processes, systems or services, including design, development, implementation or manufacture, commissioning, operation or delivery and maintenance. It may include techniques, such as: • 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
Appropriate technical and professional assistance	Appropriate technical and professional assistance may include: • technical support and advice relating to elements which have intrinsic dangers • professional and technical support for specific technologies and equipment • professional services for: • finance, accounts and tax • insurance and legal, • training and human resources
Constraints and contingencies	Constraints and contingencies may be: • financial, organisational, procedural or culture constraints • physical constraints, such as limits to resources, limits to site access or logistical limitations

Unit Sector(s)

Competency field

Unit sector Management and organisation

Custom Content Section

Not applicable.