



Australian Government

MEM234039 Provide technical support for prototyping in large engineering and fabrication projects

Release: 1

MEM234039 Provide technical support for prototyping in large engineering and fabrication projects

Modification History

Release 1. New unit.

Application

This unit of competency defines the skills and knowledge required to provide technical support during the prototyping stage of large engineering projects. The scope of the technical support during prototyping may include contributing to supervising the prototyping of processes and designs, contributing to the design of modifications, scheduling calculations and testing, supervising other employees, and acting as a technical support person in multidisciplinary teams.

This unit does not cover integration of spatial scans and models with configuration management procedures. Where this skill is required, unit MEM234036 Apply configuration management procedures in engineering project management and its prerequisites should be selected.

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
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Review prototyping schedule requirements	1.1 Review prototyping schedule for timelines, milestones, and inter-relationships between prototyping activities 1.2 Identify area allocations for prototyping activities and flow of work 1.3 Identify own area of responsibility in terms of process, area, prototyping objectives and work team 1.4 Develop a schedule for own and team prototyping responsibilities

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
2. Provide systems technical support to prototyping team	2.1 Identify features and controls for project enterprise resource planning (ERP) system 2.2 Interpret design and scheduling information for other employees 2.3 Provide support to employees interacting with the ERP system and other IT systems during prototyping 2.4 Ensure data related to required prototyping activities is correctly captured and entered into ERP and other systems
3. Monitor materials used during area or team prototyping activities	3.1 Check received materials meet design and prototyping schedule specifications 3.2 Ensure data related to material faults and other non-conformances is captured and reported 3.3 Assist in identifying root cause of non-conformances 3.4 Assess performance of materials during prototyping and suggest specification variations where appropriate 3.5 Participate in capability studies of suppliers during prototyping
4. Monitor and support prototyping work processes	4.1 Review allocated prototyping activities for suitability to area allocation and schedule 4.2 Calculate materials, required employee hours, machines and machine hours for allocated prototyping work processes 4.3 Ensure calculations are consistent with broader prototyping plan and schedule 4.4 Monitor prototyping work against allocated hours 4.5 Monitor workflow and transfer operations and report any space or area conflicts or bottlenecks 4.6 Identify any design, process and scheduling changes for later engineering and/or fabrication stages

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.

Area allocation (called layout for some projects) refers to the location in three dimensions for prototyping activities in either a workshop or exterior yard on the engineering and/or fabrication project site for one or more of the following functions:	• assembly area • welding and fabrication • electrical and other services • materials receiving • stores • cranes and other materials handling equipment • administration • employee facilities • other facilities not mentioned above depending on the stage of construction.
--	--

Unit Mapping Information

No equivalent unit

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 MEM234039 Provide technical support for prototyping in large engineering and fabrication projects

Modification History

Release 1. New unit.

Performance Evidence

There must be evidence the candidate has demonstrated the ability to:

- identify typical commands and features of ERP systems
- interrogate design information from CAD/CAM and other systems
- interpret design information according to own technical specialisation (mechanical, electrical, electronic etc,) and communicate relevant design information to other prototyping employees including:
 - assisting employees with correct engineering and/or fabrication project nomenclature
 - classifying tasks and components and components to align with design and schedule nomenclature
- identify suppliers for prototyping materials and services including:
 - matching each supplier to design specifications
 - identifying delivery date and time in prototyping master schedule
 - identifying supplier specification or delivery non-conformances and communicating non-conformance according to standard operating procedures
- analyse a site and/or work area and determine any constraints to the prototyping process
- analyse prescribed work tasks or processes and calculate required machine and employee hours
- identify nonconformances in standard materials and processes used in engineering and/or fabrication and determine the root cause.

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

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- work characteristics for large engineering and/or fabrication projects including:
 - the concept of work in place i.e. work is conducted around the object or artifact being fabricated rather than being transferred along a production line
 - stages and transfers being few and large
 - design being more iterative and able to occur along the value chain
 - prototyping covering more than design verification

- the difference between single fabrication and modular construction methods for large fabrication projects
- for modular construction, the relationship of each module stage to the next, including the design, prototyping and final assembly and commissioning stages
- the role as the interpreter between design information and skills and work methods used by major trades and the trade requirement for detailed drawings
- ERP systems and their use
- project scheduling processes and concepts including master schedules vs. sub-schedules, charting including Gantt charts, and schedule variations.
-

Assessment Conditions

- Assessors must:
 - have vocational competency in technical support in large engineering and fabrication prototyping projects 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.
- There must be suitable access to an operating plant or equipment that allows for appropriate and realistic simulation and documentation including relevant workplace procedures, industry codes and standards.
- 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>