



Australian Government

Assessment Requirements for MEM14085 Apply mechanical engineering analysis techniques

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM14085A Apply mechanical engineering analysis techniques.

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
- communicating, negotiating and reviewing analysis brief and specification requirements with stakeholders
- determining or confirming relevant scientific principles and analysis techniques
- determining or confirming work health and safety (WHS) and regulatory requirements
- evaluating multiple solutions
- investigating life cycle analysis and sustainability on at least two occasions
- defining, planning, scheduling and coordinating the analysis task
- solving problems and making decisions with systems thinking for contingencies and constraints and continuous improvement
- specifying, documenting and applying analysis techniques
- creating and maintaining adequate and accurate calculations and analysis process records
- reporting and documenting results on at least two occasions.

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 and use of personal protective equipment (PPE)
- reasons for mechanical engineering-related analysis
- planning processes for mechanical engineering related analysis
- implications of life cycle design, fitness for purpose evaluation and sustainability for mechanical analysis process
- mechanical engineering-related analysis processes and techniques to investigate, synthesise and develop proposals, evaluate feasibility against analysis criteria, and review and revise in consultation with stakeholders and team or support functional group

- common model, mock-up and prototyping techniques relevant to mechanical engineering
- systems thinking, problem-solving, decision-making and continuous improvement methods
- WHS, regulatory, codes of practice, standards, risk management and registration requirements
- sources of professional and technical assistance
- procedures for planning, scheduling and coordination of analysis
- hardware requirements of typical applications
- engineering scientific principles required for design analysis:
 - mechanical
 - fluid power
 - fluid dynamics
 - thermodynamics
 - electrical fundamentals
 - engineering materials, properties and processes
- mechanical analysis calculation techniques
- software for product planning and analysis including CAD, stress analysis and mould design, and project management
- documentation and required information
- prototyping options, including mock-ups, physical and virtual modelling, and rapid prototyping.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying mechanical engineering analysis techniques 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>