



Australian Government

Assessment Requirements for MEM14090 Integrate mechatronic fundamentals into an engineering task

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM14090A Integrate mechatronic fundamentals into an engineering task.

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, cooperating and negotiating with stakeholders to achieve integration task
- determining task parameters and context and work health and safety (WHS) regulatory and risk management requirements
- identifying and investigating required mechatronic fundamentals
- evaluating task requirements, principles, techniques, typical applications and software
- selecting and using software and graphics for required analysis and graphics
- planning the task
- integrating mechatronic fundamentals to achieve task objectives on at least two occasions
- reviewing sustainability implications, functions and features for the engineering task
- 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
 - WHS and regulatory requirements, codes of practice, and risk minimisation and registration requirements
 - programmable machines, controllers and mechatronic devices
 - automated systems
 - mechatronic fundamentals, includes:
 - mathematics
 - material properties
 - mechanics
 - electrical and electronic fundamentals
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- fundamentals of controller programming, interfacing and signal conditioning, and which depending on the application also include the following:
 - chemistry
 - light, sound and electromagnetic effects
 - thermodynamics and heating, ventilation and air conditioning
 - fluid mechanics
 - fluid power
 - supervisory control and data acquisition systems (SCADA) and distributed control systems (DCS)
 - computing
 - graphics, including computer-aided design (CAD) and drafting systems
 - sources of professional and technical assistance
 - methods and processes for shaping, cutting, joining and coating of metal and other materials
 - functions and features of machines, controllers and mechatronic devices and automated systems
 - current options and trends in software including circuit and system layout and simulation
 - continuous improvement processes and procedures
 - constraints on the integration of mechatronic fundamentals into an engineering task
 - sustainability considerations
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Assessment Conditions

- Assessors must:
 - have vocational competency in integrating mechatronic fundamentals into an engineering task 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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Links

Companion Volume implementation guides are found in VETNet -

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