



Australian Government

Assessment Requirements for MEA712 Apply avionic digital design techniques

Release: 1

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Modification History

Release 1 - New unit of competency

Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- communicating, negotiating and reviewing context and parameters of the engineering design brief with stakeholders
- determining or confirming scientific principles and design techniques, WHS and regulatory requirements, and design specification requirements
- evaluating multiple solutions against design criteria, risk, sustainability and cost
- investigating life-cycle design and sustainability, technical and professional assistance required
- investigating CM and/or ILS requirements
- planning, scheduling and coordinating the avionic design task
- applying design process and scientific principles to component selection and design proposals for components and avionic digital systems
- solving problems and making decisions with systems thinking for contingencies and constraints and continuous improvement
- integrating avionic techniques, hardware, components and software into aircraft avionic digital systems
- defining designs
- specifying, documenting and applying graphical techniques, modelling, mock-up or prototyping techniques
- creating and maintaining adequate and accurate calculations and design process records
- reporting and documenting, results of investigations, application of principles and techniques, calculations, specifications, diagrams, CAD files, mock-ups or prototypes of designs.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- life-cycle design and sustainability implications of avionic digital component and system designs
- CM and ILS requirements

- design processes and techniques to investigate, synthesise and develop proposals, evaluate feasibility against design criteria, review and revise in consultation with stakeholders, model, mock-up and prototype
- systems thinking, problem solving, decision making and continuous improvement methods
- WHS and regulatory requirements, codes of practice, standards, risk management and registration requirements
- professional and licensed technical assistance for engineering specialisations
- requirement for consultation and negotiation to establish design parameters and criteria
- procedures for planning, scheduling and coordination of design
- hardware requirements of typical avionic digital component and system applications
- engineering avionic scientific principles and techniques required for digital system design tasks
- design calculations techniques
- software for product planning and design, such as CAD layout, circuit design, system software and project management
- required documentation:
 - design brief and records of negotiation
 - planning and schedule
 - calculations and diagrams documentation for checking and design records
 - specifications and graphics required to define designs
 - risk analysis report
 - design process summary report
 - life-cycle and sustainability reports
 - CM and ILS documentation
- prototyping options, including mock-ups, simulation, physical and virtual modelling, rapid prototyping.

Assessment Conditions

- 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, that is, the candidate is not in productive work, then a simulated working environment must be used that reflects realistic workplace situations and conditions.
- 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.
- Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its 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 able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessors must be satisfied that the candidate can competently and consistently:
 - communicate, negotiate and review design brief with stakeholders
 - determine or confirm scientific principles and design techniques, WHS and regulatory requirements, design specification requirements
 - evaluate multiple solutions
 - investigate life-cycle design and sustainability, technical and professional assistance required
 - plan, schedule and coordinate the design task
 - select design components using design process and scientific principles
 - integrate avionic digital techniques, hardware and software
 - solve problems and make decisions with systems thinking for contingencies and constraints and continuous improvement
 - define designs, specify and document and apply graphical techniques, modelling, mock-up or prototyping techniques
 - create and maintain adequate and accurate calculations and design process records
 - report and document results and processes.
- Assessment may be in conjunction with assessment of other units of competency where required
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>