



Australian Government

Assessment Requirements for MEA702 Produce avionics engineering related graphics

Release: 2

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Modification History

Release 2. Equivalent to MEA702 Produce avionics engineering related graphics with amended prerequisite codes.

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:

- reviewing avionic engineering applications for required features, functions and context of avionic engineering graphics
- developing orthographic, isometric and other 3-D graphical representations and techniques for mechanical, fluid, electrical and electronic system representation
- representing avionic components and systems using sketching and computer graphics with regard to the following systems:
 - electrical
 - instrument
 - radio
 - automatic flight and automatic engine control
 - data communications
- representing avionic components and features using a comprehensive range of standard conventions and graphical techniques
- representing a range of avionic systems using standard graphical representations for wiring, circuit and schematic diagrams
- engaging appropriate technical and professional assistance for advice as required
- reporting results of review and the application of graphics techniques and providing documentation, images and files according to job, regulatory and enterprise procedures.
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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:

- uses for graphics, such as:
 - design specifications
 - avionic maintenance procedures
 - modification orders and instructions
 - technical specifications and descriptions

- physical arrangement of mechanical, fluid, electrical and electronic systems and components
- diagrammatic layouts of electrical and electronic circuits
- avionic system schematic diagrams
- graphical representation techniques
- role of WHS and regulatory requirements, codes of practice, risk assessment and registration requirements relevant to avionic applications
- availability and features of standards related to avionic systems and component, design, maintenance and modification
- typical criteria for avionic designs
- sketching techniques
- orthographic and 3-D representations
- hole basis, shaft basis and keyway tolerances and fits
- dimensioning conventions
- representing avionic components and systems using sketching and computer graphics
- standard conventions and graphical techniques as specified in standards, such as those listed in the Range of Conditions:
 - hole basis, shaft basis and keyway tolerances and fits
 - dimensioning, tolerancing for limits and fits
 - surface finish
 - weld symbols
 - webs, cross sections and cutting planes
 - chain drives, gear sets, pulley and belt drives
 - threads, fasteners and springs
 - shafts, keyways and splines
 - structural sections
 - surface finishes and welds
 - webs, cross sections, cutting planes
 - electric motors and electrically operated fluid power actuators
 - electrical, electronic, electro fluid (hydraulic and pneumatic) controls
 - electrical and electronic circuit components
- representations of avionic systems and components, including:
 - construction of artwork for printed circuit boards
 - aircraft electrical power generation and distribution
 - control and indication for mechanical, fluid power and flight control systems
 - aircraft instrument systems
 - radio communication and navigation
 - pulse
 - automatic flight and automatic engine control
 - data communications, including in-flight entertainment
- current and traditional methods of documentation generation and control:

- computer library files compared to the use of reference charts and catalogue information
- generation of orthogonal images from models
- manual drawing
- future developments in graphics and related engineering software
- worksite procedures and regulatory requirements for the processing and filing of graphics, specifications and operating and maintenance instructions/manuals, including CM and ILS requirements.

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 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 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:
 - review features, functions and context of avionic engineering graphics
 - develop orthographic, isometric and other 3-D graphical representations and techniques for mechanical, fluid, electrical and electronic system representation
 - represent avionic components and assemblies using sketching and computer graphics
 - represent avionic components and features using a comprehensive range of standard conventions and graphical techniques
 - represent a range of avionic systems using standard graphical representations for wiring diagrams and system schematic diagrams
 - engage appropriate licensed technical and professional assistance for advice as required
 - report results of review and the application of graphics techniques and provide documentation, images and files.
- 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>