



Australian Government

**Assessment Requirements for MARL020
Apply advanced principles of marine
mechanics**

Release: 1

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Modification History

Not applicable.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- applying relevant work health and safety/occupational health and safety (WHS/OHS) requirements and work practices
- assessing own work outcomes and maintaining knowledge of current codes, standards, regulations and industry practices
- identifying and applying relevant mathematical formulas and techniques to solve advanced problems related to marine mechanics
- identifying and interpreting numerical and graphical information, and performing complex mathematical calculations such as determining hoop stresses in rotating rings and stresses in compound bars
- identifying, collating and processing information required to perform complex calculations related to marine mechanics
- imparting knowledge and ideas through verbal, written and visual means
- reading and interpreting written information needed to perform complex calculations in marine mechanics
- solving problems using appropriate laws and principles
- using calculators to perform accurate, reliable and complex mathematical calculations.

Knowledge Evidence

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

- advanced principles of marine mechanics
- angular and linear motion
- Bows notation
- centre of gravity
- conservation of energy theorem
- factor of safety

- force
- inertia force
- joint efficiency factor
- laws of friction
- laws of motion
- momentum
- nature and laws of friction
- polygon of forces
- pressure vessels
- reactions
- simple harmonic motion
- stress and strain
- thin cylinder theory
- turning moment
- vector diagrams
- WHS/OHS requirements and work practices.

Assessment Conditions

Assessors must satisfy National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) assessor requirements.

Assessment must satisfy the National Vocational Education and Training Regulator (NVR)/Australian Quality Training Framework (AQTF) 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.

Assessment must occur in workplace operational situations or where these are not available, in simulated workplace operational situations or an industry-approved marine operations site that replicates workplace conditions where advanced principles of marine mechanics can be applied

Resources for assessment include access to:

- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals
- diagrams, specifications and other information required for performing advance calculations related to marine mechanics
- relevant regulatory and equipment documentation that impacts on work activities
- technical reference library with current publications on advanced marine mechanics
- tools, equipment, materials and personal protective equipment currently used in industry.

Performance should be demonstrated consistently over time and in a suitable range of contexts.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2>