Australian Government

Assessment Requirements for MARL016 Apply intermediate principles of marine mechanics

Release: 1

Assessment Requirements for MARL016 Apply intermediate principles of marine mechanics

Modification History

Release 1. New unit of competency.

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 basic problems related to marine mechanics
- identifying and interpreting numerical and graphical information, and performing mathematical calculations to solve problems related to fluids and stresses
- identifying, collating and processing information required to perform basic calculations related to marine mechanics
- imparting knowledge and ideas through verbal, written and visual means
- reading and interpreting written information needed to perform basic calculations in marine mechanics
- solving problems using appropriate laws and principles
- using calculators to perform 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:

- basic principles of marine mechanics
- beam theory
- conservation of energy theorem
- factor of safety
- fluids
- forces:
  - balanced and unbalanced forces
  - centre of gravity
  - conditions for equilibrium
  - coplanar
  - definitions of matter, mass, weight, force, density and relative density
  - forces
  - moments of couples
  - parallelogram and triangle of forces
  - pressure
  - scalar and vector quantities
  - vector representation of forces
- joint efficiency factor
- laws of:
  - friction
  - motion
  - momentum
  - motion:
  - action and reaction
  - force, velocity and acceleration
  - linear and angular motion
  - momentum
  - Newton's laws of motion
- pressure vessels
- principle of moments
- principles of dynamics
- relationship between torque and power
- stress and strain:
  - direct stress and strain
  - Hooke's law
  - load extension graphs
  - modulus of elasticity
  - shear stress and strain
- thin cylinder theory
- 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 intermediate principles of marine mechanics can be applied.

Resources for assessment include access to:

- applicable and relevant documentation including workplace procedures, regulations, codes of practice and operation manuals
- appropriate range of relevant operational situations in the workplace
- diagrams, specifications and other information required for performing calculations related to marine mechanics
- technical reference library with current publications on marine mechanics
- tools, equipment 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