Australian Government

Assessment Requirements for MARL046 Carry out engineering calculations

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the MAR Maritime Training Package.

Performance Evidence

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

- calculating:
  - area and circumference of a circle
  - consumption of fuel and lubricating oil for a particular voyage, using quantity in litres and mass in tonnes and specified regular shaped tanks
  - distances covered
  - hourly fuel and lubricating oil consumption
  - mechanical advantage, load, force and moments
  - remaining steaming times and engine performance
  - specific fuel consumption, power, speed and range
  - stress, strain and safe working load (SWL)
  - tank capacities and pumping capacities for tank filling and emptying
  - velocity ratio and efficiency of simple machines
  - volume and capacity of regular shaped tanks
- calculations fuel consumption and storage:
  - using calibration tables to measure quantities in tanks
  - using relative density/specific gravity to convert quantity in litres and volume to mass
- converting:
  - fractions to decimals
  - units to multiples of base units.

Knowledge Evidence

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

- area and circumference of a circle
- calibration tables
- common International System of Units (SI), such as kilogram, tonne, Newton, Newton metre, Pascal, joule, watt and metre

- relationship between theoretical vessel speed, propeller pitch and revolutions per minute (r.p.m.)
- terminology of:
  - material technology
  - simple levers
- volumes of regular shaped tanks
- work health and safety (WHS)/occupational health and safety (OHS) requirements and work practices.

Assessment Conditions

Assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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.

Practical assessment must occur in a workplace, or realistic simulated workplace, under the normal range of workplace conditions.

Simulations and scenarios may be used where situations cannot be provided in the workplace or may occur only rarely, in particular for situations relating to emergency procedures and adverse weather conditions where assessment would be unsafe, impractical or may lead to environmental damage.

Resources for assessment must include access to:

- applicable documentation, such as legislation, regulations, codes of practice, workplace procedures and operational manuals
- tools, equipment, machinery, materials and personal protective equipment (PPE) currently used in industry.

Links

Companion Volume implementation guide can be found in VetNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=772efb7b-4cce-47fe-9bbd-ee3b1d1eb4c2