



**Australian Government**

**Assessment Requirements for MARM011  
Calculate, assess and report on vessel trim  
and stability**

**Release: 1**

# Assessment Requirements for MARM011 Calculate, assess and report on vessel trim and stability

## 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 and performance criteria.

Analysing, planning and assessing trim and stability should be conducted for at least five different vessels varying in size and operational limits and include:

- accessing and interpret a variety of information
- analysing information and data
- anticipating and solving problems that may occur in calculations
- applying relevant work health and safety/occupational health and safety (WHS/OHS) requirements and work practices
- calculating trim and stability using statutory formula and criteria
- carrying out and reporting on at least three inclining experiments and three lightship measurements
- carrying out a range of different stability tests and assessments
- collating and preparing required documentation
- collecting and accurately interpreting valid and reliable data and/or regulations
- developing effective planning documents
- ensuring behaviour reflects relevant current legislative and regulatory requirements
- identifying and correcting causes of erratic or excessive deviation in mass movements during an inclining experiment
- identifying gaps in data and sourcing additional information
- identifying hazards, assessing risks, and developing and implementing risk treatment options
- liaising with relevant people to obtain information
- reading and accurately interpreting vessel specifications and design drawings
- relating effectively to people from a range of social, cultural and ethnic backgrounds
- resolving conflict and negotiating effectively
- selecting and using appropriate equipment
- undertaking ballast management
- undertaking research
- using calculation and stability software.

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## 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:

- application of vessel construction principles and stability assessments applicable to a wide range of operational contexts
- calculations and formulas related to determining vessel trim and stability
- cargo loading and impact on stability
- configuration and subdivision requirements of a typical vessel including:
  - collision bulkhead
  - down flooding
  - deck edge immersion
  - freeboard and bulkhead deck
  - watertight compartments
  - weather tight compartments
  - vessel bulkhead
- correct identification and use of equipment and data required for stability tests and calculations
- damage control measures designed to maintain, stabilise or restore hull watertight integrity
- definition of intact stability
- distribution of load on a vessel
- implications and management of free surface effect
- information and data requirements, and statutory documents such as stability book, safety management plans, certificate of operation, vessel history
- naval architectural theory to the level necessary to carry out stability assessments for a range of domestic commercial vessels surveyor is intending to survey
- procedures for:
  - carrying out an inclining experiment
  - determining weights to be added or subtracted from calculated displacement to determine lightship displacement
  - maintaining vessel security and stability
  - measuring draughts and or freeboard to determine displacement of a vessel i.e. carrying out a lightship measurement
- recordkeeping requirements
- regulatory requirements for:
  - calculating vessel stability
  - surveying vessels
  - vessel compliance to trim and stability
- requirements for conducting a load line survey
- risk management
- safety management procedures and precautions when determining vessel trim and stability

- simplified stability criteria as outlined in NSCV Part C6A and C6C
- survey report requirements
- theories relating to damage stability and precautions to be taken to ensure down-flooding or progressive flooding does not occur
- typical problems and solutions related to vessel trim and stability
- types of simplified stability tests
- WHS/OHS legislation, policies and procedures.

## 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 calculating, assessing and reporting on vessel trim and stability can be conducted

Resources for assessment include access to:

- relevant documentation including workplace procedures, regulations, codes of practice and operation manuals
- tools, equipment, materials and personal protective equipment currently used in industry to assess a vessels trim and intact stability.

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>