

# Open Awards Qualification Unit



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## 1 Unit Details

Unit Title:	Vessel Design and Construction
Unit Reference Number:	K/617/1466
Level:	3
Credit value:	6
GLH:	45

## 2 Learning Outcomes and Criteria

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Know about different vessel types	1.1 Describe the following Merchant Navy vessel types, commenting on key information with regards to their design and operation: <ul style="list-style-type: none"><li>a) Bulk carriers</li><li>b) Container ships</li><li>c) RORO ships and ferries</li><li>d) Crude oil tankers</li><li>e) Product tankers</li><li>f) Chemical tankers</li><li>g) Bunker ships</li><li>h) LPG/LNG tankers</li><li>i) Cruise ships</li></ul>

1.2 Describe the following Commercial Fishing vessel types, commenting on key information with regards to their design and operation:

- a) Long lining
- b) Seine Netting
- c) Pelagic trawling
- d) Demersal trawling
- e) Beam trawling
- f) Pulse trawling
- g) Scallop dredging
- h) Potting / Creeling

1.3 Describe the following Work boat vessel types, commenting on key information with regards to their design and operation:

- a) Barge
- b) Jack-up barge
- c) Crew transfer vessel
- d) Multicat
- e) Dynamic-positioning dive-support vessel
- f) Dive support vessel (air range diving)
- g) Shoal buster tug
- h) Azimuth stern drive tug
- i) Survey vessel

1.4 Describe the following Leisure vessel types, commenting on key information with regards to their design and operation:

- a) Super yacht
- b) Traditional spinnaker dinghy
- c) Asymmetric dinghy catamaran
- d) Day boat

2. Understand vessel design and construction

2.1 Define key terminology used in vessel design, stability and floatation

2.2 Explain why different boat building materials and construction techniques are used

2.3 Analyse how operational needs influence the design of vessels, including:

- a) Crew and passengers
- b) Cargo
- c) Loading and unloading
- d) Safety requirements

2.4 Describe advantages and disadvantages of different hull forms

2.5 Describe advantages and disadvantages of propulsion systems

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2.6 Explain how the boat's hull shape and optimal cruising speeds will affect fuel burnt, exhaust emission and waves created

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2.7 Describe the key principles relating to:

- a) Centre of gravity
- b) Centre of buoyancy
- c) Metacentre

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2.8 Analyse the importance of the relative positions of the centre of gravity and metacentre with regards to stable, unstable and neutral equilibrium

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2.9 For a chosen vessel, critique what makes the design of the vessel suited to its designed purpose