Open Awards Qualification Unit

This unit forms part of a regulated qualification.

1 Unit Details

Unit Title:	Vessel Types and Design
Unit Reference Number:	L/618/7076
Level:	3
Credit Value:	5
Minimum GLH:	38

2 Learning Outcomes and Criteria

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Know about different types of vessel	1.1 Describe the following vessel types: a) Bulk carrier b) Container c) RORO d) Crude oil tankers e) Product and Chemical tankers f) Passenger g) Special purpose h) Fishing i) Workboats j) Leisure
	1.2 Compare the operation of **two** vessel types from those listed in 1.1
2. Understand vessel design and construction	2.1 Define key terminology used in vessel design and stability
	2.2 Explain the different boat building materials and construction techniques

	2.3	Evaluate how advances in technology such as: a) power sources b) propulsion systems c) hull shape and d) operation are leading to more efficient vessels
	2.4	Explain, in the context of cargo stowage or weight on deck, the importance of the relative positions of the centre of gravity and metacentre
	2.5	Evaluate one vessel type in terms of design and construction
3. Understand the lifecycle of a ship	3.1	Outline the stages in the building of a new ship
	3.2	Explain typical inspection regimes for ships
	3.3	Explain warm lay-up, cold lay-up, vessel sale and ship demolition

Learning Outcome 1 - Indicative Content	
AC 1.1	Learners need to be able to recognise the diversity of vessel types. Learners should know the meanings of terms such as geared, and the descriptions of commercial vessels by size such as Handysize all the way up to triple E and Valemax For the work boats you should include different types of barge (Bunker, commercial inland water way, box hold, pontoon and split hopper), Jack up barge, crew transfer vessel, multicat, dive vessels, tugs, salvage and survey and research vessels. For the leisure vessels: super yacht, racing yacht, cruising yacht, sailing dinghy.
AC 1.2	Learners will need to pick **two** of the vessels that they have given a brief overview in 1.1 and go into greater depth, for example covering voyage patterns, port requirements, how the vessel interacts with other craft, key features of its design and any limitations on its operations.
Learning Outcome 2 - Indicative Content	
AC 2.1	Learners need to consider the centre of gravity, centre of buoyancy metacentre, stable and unstable equilibrium, and an outline of the components and key dimension of a cargo ship.
AC 2.3	Learners should be considering: the reduction of pollution, more efficient use of fuel sources, reduction in the environmental impact of wave creation, as well as more efficient business. For the vessel operation routing decisions could include things such as making better use of natural forces or avoiding rough water particularly for smaller vessels.
Learning Outcome 3 - Indicative Content	
AC 3.1	Learners should be considering: the advantages and disadvantages of a standardised ship. Tendering for the design and construction of the ship. The design phase using CAD and tank testing. Construction and prefabrication of parts. Launching and outfitting. Finally sea trials and delivery.
AC 3.2	Learning should cover Classification Society surveys and flag state surveys including: a) safety equipment surveys b) oil pollution prevention survey c) air pollution prevention surveys. Learners should be aware of the harmonisation of flag and Classification Society surveys and production of a checklists which show which items need checking weekly, monthly, six monthly

	all the way up to 5 yearly. Including: a) 5 yearly dry dock surveys b) safety construction surveys c) load line surveys d) audits required for the ISM code e) safety management system. Tutors/Assessors should contextualise learning. For example, if learners could be working in a predominantly fishing industry based then this would be the context for learning/assessing. **NB** If this were the case the following may be useful. https://www.gov.uk/guidance/fishing-vessel-classification-registration-and-inspection