-SQA-SCOTTISH QUALIFICATIONS AUTHORITY

Hanover House
24 Douglas Street
GLASGOW G2 7NG

NATIONAL CERTIFICATE MODULE DESCRIPTOR

-Module Number- **0068641** **-Session-1986-87**
-Superclass- **XQ**

-Title- **GENERAL SHIP KNOWLEDGE : SHIP CONSTRUCTION 2**

-DESCRIPTION-

Type and Purpose

A specialist module which enables the student to acquire a detailed knowledge of the construction of the major elements of a ship's structure and of the consequential overall arrangement in different ship types.

Preferred Entry Level

08640 General Ship Knowledge : Ship Construction I

Learning Outcomes

The student should:

1. know and sketch the construction in way of the upper deck and associated hatchways in ships with angular deck corners and rounded sheerstrakes;
2. know the functions of, general requirements for, and various forms of, transverse watertight bulkheads;
3. sketch the various forms of bulkhead and a hinged watertight door;
4. know the functions of, and sketch, a sternframe and a sterntube;
5. know the functions of double bottom tanks and sketch the bottom in way of the tanks;
6. know the siting of air and sounding pipes;
7. sketch the bilge and ballast piping systems;
8. know and sketch the structural compensation for panting and pounding;

9. draw well proportioned labelled diagrams to illustrate the structural cross-section of the main ship types.

Content/ Context

Corresponding to the Learning Outcomes:

1. (a) Structure above and below deck, bulwarks and rails, freeing arrangements and scuppers in ships with angular deck corners and rounded sheerstrakes, hatch coamings, covers and securing arrangements for:

   (I) hatch boards and tarpaulins;
   (ii) steel pontoons;
   (iii) large steel WT. covers;
   (iv) deep tanks;
   (v) tanker hatchways.

   (b) The cause and compensation for loss of strength at hatch openings.

2. The requirements for Type B cargo ships only in terms of number, position and heights.

3. Sketches of swedged, corrugated and plain bulkheads showing connections to adjacent plating and hinged WT. door in such a bulkhead.

4. For single screw ships only: the sternframe with propeller bossing and hull connections, water-cooled and oil lubricated sterntubes.

5. The amidships half-transverse section of a longitudinally framed double bottom in way of a plate floor and bracket floor. Bilge, duct keel and drainage arrangements.

6/7 Number, size, functions, sites and dangers associated with air and sounding pipes. The layout of bilge and ballast piping in a general cargo ship and a bulk carrier. From tanks to engine room, and within the engine room, including non-return valves, valve and sea chests and mud boxes.

8. Sketches in plan, cross-section and elevation of the arrangements to withstand panting in peak tanks, sketches in plan and cross-section of the stiffening of the bottom forward.

9. The amidships cross-section of:

   (I) a general cargo ship with one 'tween deck;

   (ii) a standard bulk carrier;

(iii) an oil tanker with a longitudinal framing system.

Suggested Learning and Teaching Approaches

Active learning and teaching approaches should be used throughout.

Films, videos, diagrams and models should be used extensively where appropriate. Ship and ship yard visits should be made whenever possible.

Films and video should be used to stimulate discussion, not simply to convey information.

Students should work individually, in pairs or in groups and, whenever possible, should be encouraged to contribute to group discussion, drawing on their own experience.

The importance of safety should be emphasised throughout.

Assessment Procedures

Learning outcomes 1 to 9 inclusive should be assessed as follows:

(I) obtaining labelled sketches from the student;

(ii) requiring the student to interpret sketches and to produce a written report on each sketch;

(iii) requiring the student to provide oral answers to questions on the sketches either produced or interpreted by him/her.

Satisfactory performance would be respectively:

(I) the production, on two occasions, of accurate sketches of each appropriate item specified in the learning outcomes or the section on content/context;

(ii) the interpretation, on two occasions, of sketches presented to him/her and the production of a written report which should include, inter alia, the name of the structure sketched, its main functions, its salient constructional features and any item(s) omitted from, or incorrectly placed within, the sketch;

(iii) the production of reasoned oral responses to questions put to him/her by the tutor. The tutor must exercise his/her professional judgement on the student's ability to communicate.

Testing should take place no later than 2/3 of the way through the module to allow time for remediation and retesting.