

Liverpool John Moores University

Title: SHIP CONSTRUCTION & STABILITY
Status: Definitive
Code: **4020MAR** (105582)
Version Start Date: 01-08-2016

Owning School/Faculty: Maritime and Mechanical Engineering
Teaching School/Faculty: Maritime and Mechanical Engineering

Team	Leader
Farhan Saeed	Y

Academic Level: FHEQ4 **Credit Value:** 12 **Total Delivered Hours:** 44
Total Learning Hours: 120 **Private Study:** 76

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	36
Tutorial	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Time Constrained (3 hours) on Stability	50	
Essay	AS2	Construction & Stress	50	

Aims

To provide detailed knowledge at Level 1 in ship construction and ship stability which is required by an Officer of the Watch

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify the significant features of the structure of a ship
- 2 Recognise the salient features of a range of ship types
- 3 Describe ship stresses and ship stress calculating equipment
- 4 Apply the basic principles of hydrostatics to loadline calculations
- 5 Apply the principles of statical stability to interpret GZ curves
- 6 Apply the principles of transverse stability to list calculations
- 7 Apply the principles of longitudinal stability to draught calculations

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

CW	4	5	6	7
CW	1	2	3	

Outline Syllabus

Significant features of the structure of a ship.
Ship terminology. Structural heavy weather damage.
Framing systems.
Structural arrangements; Bulkheads, Hatches,
Water and weather tightness.
The function and structure of tanks; double bottoms, sides, wings and peaks.
Air and sounding pipes, bilge and ballast piping systems.
Salient features of a range of ship types.
Ship stresses and ship stress calculating equipment.
Arrangements to resist for pounding and panting
The cause and regions affected by forces exerted on a ship.
Variation in the sheer and bending stress.

The principles of Hydrostatics.
Waterline length, breadth, draught, LBP, AW, CW, CB, and freeboard.
Loadline Calculations.
Use of Hydrometer
Use of Displacement, Deadweight and TPC Tables
Interpret Load Line and draught mark
Statical Stability.
Interpret GZ curves
Angle of Loll
Transverse Stability
Changes in stability during voyage
Free Surface.
Introduction to Longitudinal Stability.

Learning Activities

Lectures, documentary videos and specific software packages to facilitate learning

Notes

Provides an appreciation of ship construction and stability at Officer of the Watch level.