

Liverpool John Moores University

Title: Ship Stability and Construction
Status: Definitive
Code: **5532ALAM** (123839)
Version Start Date: 01-08-2019

Owning School/Faculty: Engineering
Teaching School/Faculty: Malaysian Maritime Academy

| Team | Leader |
|---------------|--------|
| Barbara Kelly | Y |

Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 168
Total Learning Hours: 200 **Private Study:** 32

Delivery Options

Course typically offered: Non Standard Year Long

| Component | Contact Hours |
|-----------|---------------|
| Lecture | 99 |
| Tutorial | 64 |

Grading Basis: 40 %

Assessment Details

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|----------|-------------------|---------------------------------|---------------|---------------|
| Exam | AS1 | Examination | 40 | 2.5 |
| Report | AS2 | Loading Plan Maximum 1000 words | 10 | |
| Exam | AS3 | Examination | 50 | 2.5 |

Aims

To assess the operational practices required for the safe and efficient loading of ships.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate knowledge of the theories and factors affecting stability and trim, at moderate and large angles of heel, as applicable to merchant ship management.
- 2 Assess stability factors relating to individual ship type.
- 3 Demonstrate an understanding of the design, construction and maintenance of ships.

Learning Outcomes of Assessments

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

| | | | |
|--------|---|---|---|
| Exam | 1 | 2 | |
| Report | 1 | | |
| Exam | 1 | 2 | 3 |

Outline Syllabus

Draught, Trim and Stability

Compliance with the Minimum Freeboard Requirements of the Load Line Regulations

Approximate Calculation of Areas and Volumes

Effects of Density, Simplified Stability Data, Trim and List

Recommendation on Intact Stability for Passenger and Cargo Ships under 100 Metres in Length

Rolling of Ships, Dry-docking and Grounding

Theories Affecting Trim and Stability

Responsibilities under the International Conventions and Codes

Stability at Moderate and Large Angles of Heel, Dynamical Stability

Approximate GM by Means of Rolling Period Tests

Effect of flooding on Transverse Stability and Trim

Shear Force, Bending Moments and Torsional Stress

Knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits

Use of Automatic Data Based (ADB) Equipment

Intact Stability Requirements for the Carriage of Grain

Ship Building Materials, Welding, Bulkheads

Watertight and Weather tight Doors

Corrosion and its Prevention, Surveys and Dry Docking

Learning Activities

Classroom based lectures and tutorials including the use of appropriate software based programmes where possible.

Notes

This module contributes to the knowledge required for a professional qualification for the Merchant Navy.