

Liverpool John Moores University

Title: ENGINEERING AND MAINTENANCE
Status: Definitive
Code: **5215NAU** (126770)
Version Start Date: 01-08-2022

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

| Team | Leader |
|----------------------|--------|
| Milad Armin | Y |
| Geraint Phylip-Jones | |

Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 64
Total Learning Hours: 200 **Private Study:** 136

Delivery Options

Course typically offered: Semester 2

| Component | Contact Hours |
|-----------|---------------|
| Lecture | 56 |
| Tutorial | 4 |

Grading Basis: 50 %

Assessment Details

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|----------|-------------------|--------------------------------------|---------------|---------------|
| Exam | Exam 1 | Construction, survey and maintenance | 50 | 2 |
| Exam | Exam 2 | Marine Engineering | 50 | 2 |

Aims

To develop a sound knowledge of the structural requirements of vessels with respect to the handling and carriage of cargo, damage limitation, maintenance and preparations for surveys, and an advanced understanding of powerplant and auxilliary machinery used on ships

Learning Outcomes

After completing the module the student should be able to:

- 1 Discuss the contribution of structural features to the safety of a vessel.
- 2 Explain maintenance methods and procedures.
- 3 Assess the factors to consider in preparation for survey of vessels and their equipment.
- 4 Explain the design and operation of marine power plant.

Learning Outcomes of Assessments

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

| | | | |
|--------|---|---|---|
| Exam 1 | 1 | 2 | 3 |
| Exam 2 | 4 | | |

Outline Syllabus

International codes for the construction of ships.

Damage limitation features: Watertight bulkheads, fire division, bilge and fire fighting systems.

Strengthening for ice.

Materials: Steel, non-ferrous alloys.

Processes: Annealing, normalizing, welding, galvanizing and bonding.

Material failure.

Corrosion prevention and planned maintenance.

Preparation for survey and drydocking.

Marine power plants: Diesel, steam turbine and gas turbine.

Auxilliary machinery systems.

Steering systems: Ram and rotary.

Factors affecting fuel consumption: Fuel consumption calculation, conservation of fuel, propeller behaviour analysis (pitch and slip), ship hull form and conditions.

Learning Activities

Lectures and tutorials integrated with simulator sessions if appropriate and available.

Notes

This module will contribute to the underpinning knowledge required for progression to professional qualification.

This module is subject to component marking - a pass mark of at least 50% must be obtained in both assessment components.