

Liverpool John Moores University

Title: SHIP CONSTRUCTION & MARINE ENGINEERING
Status: Definitive
Code: **4012MAR** (105574)
Version Start Date: 01-08-2016

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

Team	Leader
Geraint Phylip-Jones	Y

Academic Level: FHEQ4 **Credit Value:** 12 **Total Delivered Hours:** 40
Total Learning Hours: 120 **Private Study:** 80

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	34
Tutorial	6

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Coursework	50	
Essay	AS2	Coursework	50	

Aims

The module aims to provide an understanding of the design and operating principles of both marine power plants and the ships structure. This includes the function of a vessel's auxiliary machinery, the application of machinery control systems to be found in modern merchant vessels, knowledge and applicability of different ship structures and safe management of ship stresses.

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify the significant features of a ship's structure.
- 2 Recognise the structural features of a range of ship types.
- 3 Identify different ship stresses and use ship stress calculating equipment on IT facilities
- 4 Describe the operating principles of marine power plants
- 5 Describe the function and operation of a vessel's auxiliary machinery
- 6 Use engineering terms and describe the concepts of control systems

Learning Outcomes of Assessments

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

CW	1	2	3
CW	4	5	6

Outline Syllabus

Significant features of a ship's structure

Ship terminology. Salient features of a range of ship types, Ship stresses and ship stress calculating equipment, The cause and regions affected by forces exerted on a ship, Sheer stress and bending moments. Calculations using box shaped vessels.

Marine power plants

Diesel propulsion and associated systems; steam turbine and associated plant (eg boiler and turbine operations, etc.); gas turbine and associated plant; critical aspects and operational limitations of each type of power plant. Gear boxes, thrust block, shaft bearings, sealing arrangements; Propeller pitch and slip; fuel consumption calculations; conservation of fuel

Auxiliary machinery

Support systems: auxiliary boilers; distillation systems; refrigeration; air conditioning; ventilation; sewage; oily water; waste; electrical power; stabilisers, steering and manoeuvring systems: thrusters

Control systems

Marine engineering terms: principles of control systems; data loggers, mimic diagrams, analogue and digital displays; shipboard applications of control systems, bridge control: plant monitoring, alarm systems, unattended machinery spaces (UMS); integrated bridge systems

Learning Activities

Lectures and tutorials

Notes

This module provides students with STCW Deck Officer knowledge on ship structures and marine engineering..