

Liverpool John Moores University

Title: MARINE DESIGN AND TECHNOLOGY
Status: Definitive
Code: **5070ENG** (115890)
Version Start Date: 01-08-2018

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

Team	Leader
Geraint Phylip-Jones	Y

Academic Level: FHEQ5
Credit Value: 20
Total Delivered Hours: 82
Total Learning Hours: 200
Private Study: 118

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	42
Off Site	16
Tutorial	21

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	60	3
Report	AS2	Written Assignment	20	
Report	AS3	Written Assignment	15	
Presentation	AS4	Presentation	5	

Aims

To provide a comprehensive introduction to Marine Engineering and Naval Architecture, the module will concentrate on main propulsion systems, auxiliary systems, ship stability and hull strength and performance.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate knowledge of ship construction, naval architecture and the ship design process.
- 2 Demonstrate knowledge of key problems in the marine environment caused by corrosion.
- 3 Calculate the stability and construct KB, KM and hydrostatic curves
- 4 Understand trim, list and heel and how redistributing the ships load can correct associated problems.
- 5 Demonstrate knowledge of the different types of marine propulsion plants (power plant) and their application to specific vessels
- 6 Sketch and describe the operation of major auxiliary equipment and systems
- 7 Develop a detailed P&ID of a typical marine fluid system
- 8 Select and match propulsion diesel engine and propeller

Learning Outcomes of Assessments

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

EXAM	1	3	4	5	6	7	8
Written Assignment	5	6					
Written Assignment	2						
Presentation	2						

Outline Syllabus

Discuss and identify different ships types and identify key features.

Discuss the fundamentals of ship construction, naval architecture and basic ship performance theory.

Determine ship stability and hydrostatic curves.

Determine ship's stability data and particulars.

Perform ships powering calculations.

Discuss types of main propulsion machinery and their application to different types of vessels.

Discuss auxiliary machinery such as generators, boilers, steering gear, refrigeration, and sewerage treatment etc.

Discuss auxiliary systems such as sea water cooling, fuel oil, lubricating oil, fire extinguishing and fire detection etc.

Develop a P&ID of a typical marine fluid system, pump selection.

Match main propulsion plant and propeller to meet vessels operational requirements.

Learning Activities

Lectures, tutorials, laboratory sessions and ship visits

Notes

This module will provide a good grounding for those students wishing to pursue a career in the following marine related disciplines or industries: Marine engineering operations, Marine engineering design, Marine superintendent, Surveying and Shipbuilding.