

## Liverpool John Moores University

Title: Marine Design  
Status: Definitive  
Code: **5122MECH** (125070)  
Version Start Date: 01-08-2018

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

Team	Leader
Allan Carrier	Y

**Academic Level:** FHEQ5  
**Credit Value:** 20  
**Total Delivered Hours:** 72  
**Total Learning Hours:** 200  
**Private Study:** 128

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	44
Off Site	4
Tutorial	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS2	Examination	60	2
Portfolio	AS1	Portfolio	40	

### Aims

*To provide a comprehensive introduction to Marine Engineering, the module will concentrate on main and auxiliary propulsion systems, their safe and efficient operation, and the maintenance requirements for these.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Apply design methodology utilising suitable simulation software to analyse marine components and systems.
- 2 Evaluate the application of different types of ship propulsion plants, and identify the advantages and disadvantages of alternative propulsion systems.
- 3 Review and summarise operational and maintenance requirements related to marine engineering systems.
- 4 Discuss and illustrate significant features of the main propulsion machinery, the machinery layout, and the auxiliary systems installed onboard.

### **Learning Outcomes of Assessments**

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

Examination	2	3	4
Portfolio	1	3	4

### **Outline Syllabus**

*Marine Systems and Components;*

*Complete reverse engineering design process of marine auxiliary systems and components.*

*Generate component images using appropriate software for illustration of system operating philosophy.*

*Marine Engineering Knowledge;*

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

*Auxiliary machinery including boilers, steering gear, refrigeration, emissions control, sewage treatment.*

*Auxiliary systems including sea water/freshwater cooling, fuel oil, lubricating oil, fire extinguishing and detection.*

*Materials and corrosion protection.*

*System Design;*

*P&ID's of a typical marine fluid system, pump specification and selection.*

*Marine System Software Simulation;*

*Re-emphasise learning outcomes and the design process of main propulsion and auxiliary systems, with the aid of the engine simulator resource, underlining system operation and layout aspects.*

### **Learning Activities**

A combination of lectures and tutorials supported by a ship visit.

## **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 Superintendence, Surveying and Shipbuilding.