

### Summary Information

Module Code	5110MECH
Formal Module Title	Marine Design and Technology
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

### Learning Methods

Learning Method Type	Hours
Lecture	22
Online	22
Tutorial	22

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

### Aims and Outcomes

Aims	To provide a comprehensive introduction to Marine Engineering, Naval Architecture and Ship Construction, the module will concentrate on main and auxiliary propulsion systems, ship stability and construction features.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Apply design methodology utilising suitable software to analyse marine components and systems
MLO2	2	Debate the application of different types of ship propulsion plant and identify the advantages and disadvantages of alternative propulsion systems.
MLO3	3	Predict ship heel, list, trim and powering resistance.
MLO4	4	Discuss and illustrate significant features of ship construction

### Module Content

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, sewerage treatment. Auxiliary systems including sea water/freshwater cooling, fuel oil, lubricating oil, fire extinguishing and detection. System Design; P&ID's of a typical marine fluid system, pump specification and selection. Ship stability and Naval Architecture; Ship stability - heel, list and trim Ship resistance and powering Ship Construction; Discuss and identify different ship types and identify significant features. Water and weather tightness. Structural terminology for different framing systems, bulkheads and Hatches. The function and structure of tanks; double bottoms, sides, wings and peaks.
Module Overview	This module will provide a comprehensive introduction to Marine Engineering, Naval Architecture and Ship Construction. The module will concentrate on main and auxiliary propulsion systems, ship stability and construction features.
Additional Information	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.

### Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	60	2	MLO2, MLO3, MLO4
Portfolio	Portfolio	40	0	MLO1, MLO2, MLO3, MLO4

### Module Contacts

#### Module Leader

Contact Name	Applies to all offerings	Offerings
Eddie Blanco Davis	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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