

Liverpool John Moores University

Title: Marine Electrical Systems
Status: Definitive
Code: **5120MECH** (125068)
Version Start Date: 01-08-2018

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

Team	Leader
Michael Shaw	Y

Academic Level: FHEQ5 **Credit Value:** 10 **Total Delivered Hours:** 35
Total Learning Hours: 100 **Private Study:** 65

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	22
Tutorial	11

Grading Basis: 40 %

Assessment Details

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

Aims

The aim of this module is to provide a comprehensive introduction to Marine Electrical Engineering, the module will concentrate on the principles, construction and operation of ac and dc motors and generators, and associated distribution and protection systems.

Learning Outcomes

After completing the module the student should be able to:

- 1 Explain the principles of magnetism and electromagnetism, induction and solve related problems
- 2 Demonstrate knowledge of principles and application of dc, ac motors and generators and solve related problems
- 3 Discuss typical arrangements of marine dc and ac distribution systems and solve related problems

Learning Outcomes of Assessments

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

Examination	1	2	3
Portfolio	1	2	3

Outline Syllabus

AC waveform, phasor diagrams and power factor

Single phase and three phase ac circuits

Principles of electromagnetic induction

AC and DC Motors

- *Type*
- *Construction*
- *Operation*
- *Application*

AC generators

- *Type*
- *Construction and operation*
- *Load/speed control*
- *Excitation*
- *Protection*
- *Synchronising*

Switch boards and breakers

Distribution arrangements of marine dc and ac systems

Transformers

Learning Activities

A series of lectures and tutorials.

Notes

The module is designed to give Marine Engineering students a comprehensive understanding of electrical equipment and systems heavily utilised in the marine engineering sector.