

## Nautical Technology

### Module Information

2022.01, Approved

#### Summary Information

Module Code	6101NAU
Formal Module Title	Nautical Technology
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

#### Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

#### Learning Methods

Learning Method Type	Hours
Lecture	33
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 students with the skills necessary to identify and demonstrate awareness of contemporary issues in the application of nautical technology.
------	---

**After completing the module the student should be able to:**

## Learning Outcomes

Code	Number	Description
MLO1	1	Identify and evaluate recent and future developments in maritime technology systems.
MLO2	2	Appraise the merits and limitations of different nautical technology.
MLO3	3	Appraise and engage in critical discourse on current nautical technology related affairs.
MLO4	4	Analyse the effect of developments in different nautical technology on the broader maritime industry.

## Module Content

Outline Syllabus	<p>The syllabus may vary from year to year as it is dependent on issues selected for study/analysis at the beginning of the module. It will however be drawn from a range of contemporary issues relevant to nautical technology. Indicative examples of topics to be covered include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• The legal implications of future technology.</li> <li>• Changes to international/national standards; design, approval, installation, maintenance, reliability, and survey requirements.</li> <li>• Data Models S100 and associated standards.</li> <li>• Use of Database structures – managing ship operations. Data security. Data recording.</li> <li>• eNavigation</li> <li>• Developments in GNSS. Vulnerabilities in GNSS</li> <li>• New technology radars. Coherent radar systems.</li> <li>• ECDIS. Electronic charts, raster, ENC and SENC, ECDIS – capabilities and limitations, chart data accuracy.</li> <li>• Marine surveying – oceanographic LIDAR, blue laser systems, the use of drones in survey work.</li> <li>• The use of technology in maritime security. Maritime surveillance → Space-based tracking systems (AIS, LRIT, Space based AIS).</li> <li>• Developments in marine communication systems.</li> <li>• Autonomous and remotely controlled vessels (Maritime Autonomous Surface Ships). Artificial intelligence and augmented intelligence. Related essential technologies.</li> <li>• Technology and the Human: <ul style="list-style-type: none"> <li>o Managing the Social impact of new technologies.</li> <li>o Training requirements associated with specific equipment.</li> <li>o Human factors in ship design. 'S Display'</li> <li>o The use of simulation for training.</li> <li>o Research in developing best training methods for use in simulation</li> </ul> </li> </ul>
Module Overview	This module will provide you with the skills necessary to identify and demonstrate awareness of contemporary issues in the application of nautical technology.
Additional Information	The module provides students with an appreciation of the applications of modern technology within the maritime sector. It allows students to engage with a range of contemporary issues affecting the industry and stimulates related academic debate.

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Report	60	0	MLO1, MLO2, MLO4
Presentation	Poster presentation	40	0	MLO3

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Philip Davies	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
--------------	--------------------------	-----------