

## Liverpool John Moores University

Title: NAUTICAL TECHNOLOGY  
Status: Definitive  
Code: **6101NAU** (128068)  
Version Start Date: 01-08-2021  
  
Owning School/Faculty: Engineering  
Teaching School/Faculty: Engineering

Team	Leader
Philip Davies	Y
Alan Bury	

**Academic Level:** FHEQ6      **Credit Value:** 20      **Total Delivered Hours:** 55  
**Total Learning Hours:** 200      **Private Study:** 145

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	33
Tutorial	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	2500 word report	60	
Presentation	AS2	Poster presentation	40	

### Aims

*To provide students with the skills necessary to identify and demonstrate awareness of contemporary issues in the application of nautical technology.*

### Learning Outcomes

After completing the module the student should be able to:

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

### **Learning Outcomes of Assessments**

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

Report	1	2	4
Poster presentation	3		

### **Outline Syllabus**

*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:*

- *The legal implications of future technology.*
- *Changes to international/national standards; design, approval, installation, maintenance, reliability, and survey requirements.*
- *Data Models S100 and associated standards.*
- *Use of Database structures – managing ship operations. Data security. Data recording.*
- *eNavigation*
  - o *Developments in GNSS. Vulnerabilities in GNSS*
  - o *New technology radars. Coherent radar systems.*
  - o *ECDIS. Electronic charts, raster, ENC and SENC, ECDIS – capabilities and limitations, chart data accuracy.*
- *Marine surveying – oceanographic LIDAR, blue laser systems, the use of drones in survey work.*
- *The use of technology in maritime security. Maritime surveillance –*
- *Space-based tracking systems (AIS, LRIT, Space based AIS).*
- *Developments in marine communication systems.*
- *Autonomous and remotely controlled vessels (Maritime Autonomous Surface Ships). Artificial intelligence and augmented intelligence. Related essential technologies.*
- *Technology and the Human:*
  - o *Managing the Social impact of new technologies.*
  - o *Training requirements associated with specific equipment.*
  - o *Human factors in ship design. 'S Display'*

- o The use of simulation for training.*
- o Research in developing best training methods for use in simulation*

### **Learning Activities**

Lectures, and tutorials with access to simulation equipment when available.

### **Notes**

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.