

Liverpool John Moores University

Title: NAVIGATION TECHNOLOGY
Status: Definitive
Code: **6100NAU** (121786)
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
Philip Davies	Y

Academic Level: FHEQ6
Credit Value: 20
Total Delivered Hours: 62
Total Learning Hours: 200
Private Study: 138

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	48
Tutorial	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	70	2
Report	AS2	2000 word report	30	

Aims

To provide a detailed appreciation of the applications of modern technology to marine navigation.

Learning Outcomes

After completing the module the student should be able to:

- 1 Appraise merits and limitations of different position fixing systems.
- 2 Appraise the merits and limitations of integrated bridge concepts.
- 3 Identify and evaluate recent developments in tracking technology and the benefits and limitations when used as a collision avoidance or position fixing aid.
- 4 Analyse effect of developments in different navigation systems.

Learning Outcomes of Assessments

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

Examination	1	2	3
2000 word report	4		

Outline Syllabus

Automatic Identification Systems (AIS),LRIT, Voyage Data Recorders (VDR and SVDR)

Developments in GNSS. GPS, Glonass, Compass, Galileo and Augmentation Systems (SBAS, DGPS)

Application of radar technology: Scanners, collision avoidance (application to collision regulations), ARPA, Target Tracking, benefits and limitations, and navigation (parallel indexing, maps). Traditional & New technology radars.

Electronic charts, raster, vector, ECDIS, capabilities and limitations, chart data, accuracy.

Integrated navigation systems, capabilities and limitations, NMEA standards.

Expert systems: Use in navigational areas.

Autonomous ships

Developments in marine communications systems, GMDSS,

Training requirements associated with specific equipment. Human factors on ship's bridge.

Learning Activities

Lectures, tutorials and laboratory demonstrations. Practical exercises using the Navigation Systems Simulator and Equipment.

Notes

Provides a detailed appreciation of the applications of modern technology to marine navigation.