Liverpool John Moores University

Title:	Navigation Technology
Status:	Definitive
Code:	**6001NAU** (116855)
Version Start Date:	01-08-2019
Owning School/Faculty:	Maritime and Mechanical Engineering
Teaching School/Faculty:	Maritime and Mechanical Engineering

Team	Leader
Philip Davies	Y
Barbara Kelly	

Academic Level:	FHEQ6	**Credit Value:**	24	**Total Delivered Hours:**	72
Total Learning Hours:	240	**Private Study:**	168		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	45
Practical	12
Tutorial	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Examination	70	3
Essay	Essay	Essay	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
Essay	4		

Outline Syllabus

Aotumatic Idenitification Systems (AIS), Voyage Data Recorders (VDR and SVDR)
Developments in GNSS. GPS, Glonass, Compass, Gallileo 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).
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.
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. The assignment will be a report on a relevant topic chosen by the student and approved by the module leader.