

Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

Expected Implementation in Academic Year (New format)	AY2024-2025
Semester/Trimester/Others (specify approx. Start/End date)	Semester 2
Course Author * Faculty proposing/revising the course	Lee-Chua Lee Hong
Course Author Email	clhlee@ntu.edu.sg
Course Title	Shipping and The Environment
Course Code	MT0001
Academic Units	4
Contact Hours	52
Research Experience Components	Not Applicable

Course Requisites (if applicable)

Pre-requisites	
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	

Course Aims

To provide you with an understanding of the various operating environments in shipping. An in-depth study into the impacts of shipping and shipping related activities on the global environment, both sea and air; learning what the industry is doing and can improve further as to reduce these impacts. The course will also look into sustainability developments goals and align up with UN2030 SDGs.

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	Examine the various activities of the maritime industry and the difficulties in having to operate in the various environments. Manage the diversities and identify and correlate international operational environments.
ILO 2	Differentiate the Legal framework and the working environments in the shipping industry. Interpret the evolution of Maritime Laws and practices, the prevailing international and national environments with respect to Conventions and implementation at National Flag levels. The application of jurisdictions in dispute cases.
ILO 3	Appraise and transform Quality concepts, and the practical applications integrating with respective functions in shipping industry, with references to IMO Conventions and QHSSE environments.
ILO 4	Recognise and appraise the importance of globalization and how the scope of safety, quality and environmental changes in the context of internationalization trends.
ILO 5	Interpret the various environmental issues that the shipping industry is faced with, and the measures that have been adopted to tackle the issues; also the impact of these measures on shipping management and ship operations. The student will also associate the significance of sustainability development goals as per UN2030 and role of the Singapore government in aligning policies and initiatives to safeguarding the marine environment.

Course Content

1. Introduction to Maritime Industry environments
2. The journey of cargoes and related activities
3. International Maritime regulatory Frameworks
4. Laws of the Seas (UNCLOS) and IMO Conventions
5. Overview of Quality concepts to maritime environment
6. Quality, Health, Safety, Security and Environment (QHSSE) Management in shipping
7. International shipping Organisations and related roles I
8. International shipping Organisations and related roles II
9. Introduction to global sustainability issues and UN SDGs
10. Shipping activities and environmental impacts I
11. Shipping activities and environmental impacts II
12. Shipping activities and environmental impacts III
13. Industry practices and initiatives to Green Shipping

Reading and References (if applicable)

1. Bruce Farthing and Mark Brownrigg, Farthing on International Shipping, Fourth Edition, LLP, 2013. Guilf, D. 2009, Shipping Interdiction and the Law of the Sea, Cambridge University Press. G. Pamborides, International Shipping Law: Legislation and Enforcement, 1st edition, Springer, 1999.
2. Evans, J. R and Lindsay, W. M . 2002, The Management and Control of Quality, 5th edn, South-Western Thomson Learning, Australia.
3. Summers, D.C.S. 2005, Quality Management: Creating and Sustaining Organizational Effectiveness, Prentice Hall, Upper Saddle River, N.J.
4. Gitlow, H. S. 2005, Quality Management, McGraw-Hill Irwin.
5. Oakland, J.S. 2003, Total Quality Management: Text and Cases, Butterworth-Heinemann.
6. Chapter IX-The annex to the 1974 SOLAS Convention (1994 Amendments), Management for the Safe Operations of ship.
7. IMO Resolution A.741(18) 1993, International Safety Management.
8. IMO Resolution A.788(19) 1995, Guidelines on Implementation of the International Safety Management (ISM) Code by Administrator.
9. P.S.Szwed and R.G.Bea, Development of a Safety Management Assessment System for the International Safety Management Code.
10. Branch, Alan E. (2007) Elements of shipping (8th ed.), Routledge, London.
11. International Maritime Organization - <http://www.imo.org/>
12. <http://www.imo.org/en/OurWork/Environment/Pages/Default.aspx>
13. International Marine - <http://www.international-marine.com/marinehome.aspx>
14. Globallast Programme - <http://globallast.imo.org/>
15. PSSA Website - <https://www.imo.org/en/ourwork/environment/pages/pssas.aspx>
16. Australian Maritime Safety Agency (AMSA) <http://amsa.gov.au/>
17. US Dept of Justice - <http://www.justice.gov/enrd/vessel-pollution-enforcement>
18. Maritime and Port Authority of Singapore (MPA) <http://www.mpa.gov.sg/>
21. Admiralty Law Guide - <http://www.admiraltylawguide.com/>
22. KR-CON - <http://krcon.krs.co.kr/main.htm>
23. ABS - <http://ww2.eagle.org/en/rules-and-resources/regulatory-news.html>

Note: The above listing comprises the foundational readings for the course and more up-to-date relevant readings will be provided when they become available.

Planned Schedule

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
1	Introduction to Maritime Industry environments 1. Ship management and core functions 2. Maritime Clusters and industry players 3. Bunkering activities 4. Safety of Navigation and maritime perils	1	In-person	Lectures & Tutorial	Lecture Materials
2	The journey of cargoes and related activities 1. History of shipping 2. Seaborne trades and cargoes 3. Safe cargo loading, Plimsoll Line (Loadlines) 4. Vessel types and their applications	1, 5	In-person	Lectures & Tutorial	Lecture Materials
3	International Maritime regulatory Frameworks 1. Key International maritime Conventions (SOLAS, MARPOL, STCW, MLC etc) 2. Ractification and entry into force 3. Role of Flag, Coastal and Port states 4. MOUs on port state control matters 5. Significance of International standards 6. Merchant Shipping Acts (MSC), MEPC	2, 3, 4	In-person	Lectures & Tutorial	Lecture Materials

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
4	Laws of the Seas (UNCLOS) and IMO Conventions 1. Evolution of modern shipping laws 2. Legal Framework, jurisdictions (inland, territorial, EEZ, high seas) and rights of passage	1, 2, 3	In-person	Lectures & Tutorial	Lecture Materials
5	Overview of Quality concepts to maritime environment 1. Basic concept of Quality 2. Quality assurance in shipping 3. Standards as applicable (ISO9001, ISO14001 etc) 4. Meeting customers' needs (terminals etc), SIREs	1, 2, 3, 4	In-person	Lectures & Tutorial	Lecture Materials
6	Quality, Health, Safety, Security and Environment (QHSSE) Management in shipping – in depth study 1. ISM and SMS, SIRE 2. ISPS 3. OHSA 4. MLC	2, 3, 4	In-person	Lectures & Tutorial	Lecture Materials
7	International shipping Organisations and related roles 1. IMO, development of regulations and international standards 2. OCIMF and INTERTANKO in tanker industry 3. ICS, UNCTAD, ILO, ISC	1, 2, 3, 5	In-person	Lectures & Tutorial	Lecture Materials

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
8	International shipping Organisations and related roles II 1. BIMCO , Baltic Exchange , SGX 2. Seafarers unions , ITF 3. Professional bodies (RINA , UKNI , IMARest) 4. Classification Societies and IACS	1, 2, 3, 5	In-person	Lectures & Tutorial	Lecture Materials
9	Introduction to global sustainability issues and UN SDGs 1. Goals on sustainable maritime areas 2. Goals on sustainable energy 3. Maritime's roles in meeting and promoting SDGs 4. Energy renewal initiatives	1, 4, 5	In-person	Lectures & Tutorial	Lecture Materials
10	Shipping activities and environmental impacts I 1. General overview on shipping activities as impacting 2. Chemicals and hazardous materials (HAZMAT) 3. Acid Rain	1, 4, 5	In-person	Lectures & Tutorial	Lecture Materials
11	Shipping activities and environmental impacts II 1. Emissions in shipping and port operations 2. Halons and Ozone layers 3. Ballast water pollution and management	1, 2, 4, 5	In-person	Lectures & Tutorial	Lecture Materials

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
12	Shipping activities and environmental impacts III 1. Oil Pollutions 2. Pollution from garbage and sewage 3. Ship breaking and recycling	1, 2, 4, 5	In-person	Lectures & Tutorial	Lecture Materials
13	Industry practices and initiatives to Green Shipping 1. Alternative fuels and energy efficiency 2. Prevailing measures in place 3. Initiatives in line with technologies 4. Actions and position of Singapore as a Maritime nation	1, 3, 4, 5	In-person	Lectures & Tutorial	Lecture Materials

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Lecture	Lesson topics delivered in series as to share, and focus on the concepts, as well as the application to the essentials in project management.
Tutorials	Teamwork shall be included, whereby you will take different approaches in underrating levels to apply concepts by way of case studies. Strong interaction and participation in challenging concepts and achieving practical applications in the related industry.

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Description of Assessment Component	Team/Individual	Rubrics	Level of Understanding
1	Summative Assessment (EXAM): Final exam(Final Examination)	1,2,3,4,5	A,B,C,D,E,F,G,H,I	60		Individual	Holistic	Relational
2	Continuous Assessment (CA): Test/Quiz(Quiz)	3,4,5	A,B,C,G,H,J	20		Individual	Analytic	Multistructural
3	Continuous Assessment (CA): Test/Quiz(Quiz)	3,4,5	D,E,F,G,H, I, K,L	20		Individual	Analytic	Multistructural

Description of Assessment Components (if applicable)

1. Exam: It would be a physical in-person exam, it will cover all the topics taught in the entire semester of this course
2. CA 1: This will be a physical in-person quiz session, it will cover all the topics taught in the first half of the semester
3. CA 2: This will be a physical in-person quiz session, it will cover all the topics taught in the second half of the semester

Formative Feedback

The lectures shall be interactive, and your inputs highly encouraged in the process. Case studies shall be deployed in the tutorials, in order to guide on the realities and practical approach through concepts as captured in lectures.

Quiz and case study aimed to provide regular feedback to you pertaining to level of understanding in concepts and principles. Answers and sample solutions provided to allow you to assess understanding, along with measures to arrest weaknesses promptly.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
Adaptability	Basic
Care for Environment	Intermediate
Care for Society	Intermediate
Global Perspective	Basic

Course Policy

Policy (Academic Integrity)

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values. As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. On the use of technological tools (such as Generative AI tools), different courses / assignments have different intended learning outcomes. Students should refer to the specific assignment instructions on their use and requirements and/or consult your instructors on how you can use these tools to help your learning. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Policy (General)

As a student of the course, you are required to abide by both the University Code of Conduct and the Student Code of Conduct. The Codes provide information on the responsibilities of all NTU students, as well as examples of misconduct and details about how students can report suspected misconduct. The University also has the Student Mental Health Policy. The Policy states the University's commitment to providing a supportive environment for the holistic development of students, including the improvement of mental health and wellbeing. These policies and codes concerning students can be found in the following link: <http://www.ntu.edu.sg/SAO/Pages/Policies-concerning-students.aspx>

Policy (Absenteeism)

Attendance :

Though there is no mandatory attendance requirement, you are expected to place all lectures and tutorials on utmost top priority. There shall be no make-up class to effect.

Punctuality:

You are expected to be On Time for classes, as late arrivals are disruptive to class activities. Likewise that all assignments to be submitted within dateline.

Participation:

You are encourage to stay active and participate well in class, without hesitation to raise questions when in any doubt.

Policy (Others, if applicable)

This course will adopt NTU's policy on the use of AI for take-home assignments and reports, and project reports and presentation slides. More details could be found via the link [https://entuedu.sharepoint.com/sites/Student/dept/ctlp/SitePages/Exploring-the-Impact-of-Generative-Artificial-Intelligence-\(GAI\)-Tools-on-Education.aspx#1-proper-citations-and-acknowledgements](https://entuedu.sharepoint.com/sites/Student/dept/ctlp/SitePages/Exploring-the-Impact-of-Generative-Artificial-Intelligence-(GAI)-Tools-on-Education.aspx#1-proper-citations-and-acknowledgements)

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