

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

Course Overview

Expected Implementation in Academic Year (New format)	AY2025-2026
Semester/Trimester/Others (specify approx. Start/End date)	Semester 1
Course Author * Faculty proposing/revising the course	Lee-Chua Lee Hong
Course Author Email	clhlee@ntu.edu.sg
Course Title	Intermodal Transportation
Course Code	MT4101
Academic Units	3
Contact Hours	39
Research Experience Components	Not Applicable

Course Requisites (if applicable)

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

Course Aims

The main objective of the course is to provide students with an understanding of the development and characteristics of intermodal transportation as well as the associated commercial and environmental issues.

At the end of the course, you should be equipped with the managerial insights and skills that will contribute towards addressing the key challenges faced by commercial intermodal transportation managers in achieving successful systemic operations.

Course's Intended Learning Outcomes (ILOs)

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

ILO 1	Explain the fundamental concepts of intermodal transportation systems and their relationship to operations and governance, highlighting key principles and interrelations.
ILO 2	Analyse how product characteristics and operating conditions affect operating costs and freight rates.
ILO 3	Perform quantitative evaluation of planning parameters and variables for achieving objectives and contributing to successful operations
ILO 4	Analyse, compare and propose appropriate strategies for freight transportation, considering their respective advantages and disadvantages, and offering informed recommendations.
ILO 5	Identify and discuss the intermodal facilities and equipment corresponding to the different intermodal transportation modes, understanding their unique characteristics, infrastructure, and operational requirements.
ILO 6	Recognise and describe the essential hardware and managerial components crucial to the effective functioning of intermodal transportation modes, emphasizing their roles and interdependencies.
ILO 7	Describe and analyse the current issues and challenges encountered in freight transport systems.

Course Content

- 1 Introduction to intermodal transportation
- 2 Role of intermodal transport in logistics management
- 3 Freight transport economics and business considerations
- 4 Intermodal planning and compatibility
- 5 Development and foundations of Intermodal transportation system
- 6 Intermodal facilities – terminals and equipment
- 7 Intermodal transportation by water, land & air
- 8 Issues in intermodal transportation – security, technology, environmental, container management, future of intermodal transportation, etc.

Reading and References (if applicable)

Readings are revised year to year to keep up with the latest development in the subject. Other more classic readings are mostly from the following books:

1. J. Coyle, C. Langley, Robert A. Novack, Brian Gibson. 2016. Supply Chain Management: A Logistics Perspective. 10th Edition, Cengage Learning.
2. Sunil Chopra and Peter Meindl. (2019). Supply Chain Management, 7th Edition, Prentice Hall.
3. David, L. F. (2005). Intermodal freight transport. Elsevier Butterworth-Heinemann.
4. Ronald H. Ballou (2003). Business Logistics: Supply Chain Management, 5th edition, Prentice Hall.

Planned Schedule

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
1	Introduction to intermodal transportation	1	In-person	Tutorial and lectures	Lecture materials
2	Role of intermodal transport in logistics management	1, 4	In-person	Tutorial and lectures	Lecture materials
3	Freight transport economics and business considerations	1, 2, 4	In-person	Tutorial and lectures	Lecture materials
4	Intermodal planning and compatibility	1- 4	In-person	Tutorial and lectures	Lecture materials
5	Intermodal planning and compatibility	1 - 4	In-person	Tutorial and lectures	Lecture materials
6	Development and foundations of Intermodal transportation system	1, 5	In-person	Tutorial and lectures	Lecture materials
7	Intermodal facilities – terminals and equipment	5	In-person	Tutorial and lectures	Lecture materials
8	Intermodal transportation by water, land and air	4 - 6	In-person	Tutorial and lectures	Lecture materials
9	Intermodal transportation by water, land and air	4 - 6	In-person	Tutorial and lectures	Lecture materials
10	Intermodal transportation by water, land and air	4 - 6	In-person	Tutorial and lectures	Lecture materials

Week or Session	Topics or Themes	ILO	Delivery Mode	Activities	Readings
11	Issues in intermodal transportation – security, technology, environmental, container management, future of intermodal transportation, etc.	7	In-person	Tutorial and lectures	Lecture materials
12	Issues in intermodal transportation – security, technology, environmental, container management, future of intermodal transportation, etc.	7	In-person	Tutorial and lectures	Lecture materials
13	Issues in intermodal transportation – security, technology, environmental, container management, future of intermodal transportation, etc.	7	In-person	Tutorial and lectures	Lecture materials

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Lectures	This provides you with the needed background for outcomes (1) to (7) and to allow you to apply principles, methodologies and considerations related to strategy planning, implementation and operational management in intermodal transportation.
Tutorials	Comprises a mix of qualitative and quantitative questions. Most of the qualitative questions are open-ended case questions where quantitative questions aim to provide practices for practical data-based analysis for you. The tutorials offer you with opportunities to analyse practical problems that address outcomes (1) to (7).

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	Continuous Assessment (CA): Test/Quiz(Quiz 1)	1-4	A-H	20		Individual	Analytic	Multistructural
2	Continuous Assessment (CA): Test/Quiz(Quiz 2)	4-7	A-H	20		Individual	Analytic	Multistructural
3	Summative Assessment (EXAM): Final exam(Final Examination)	1-7	A-H	60		Individual	Holistic	Relational

Description of Assessment Components (if applicable)

Both CA 1 & CA 2 : Physical quiz session would be conducted

Final Exam : Physical written exam would be conducted in an exam hall.

Formative Feedback

The lectures shall be interactive where you (students) inputs are highly encouraged in the process.

Instructors will take questions during and at end of lectures and provide on-the-spot clarifications. You (students) can also confer with instructors at tutorials/discussions, at appointed consultations or via email.

You (students) are assessed on the two continuous assessments and a final examination. Feedbacks for continuous assessments will be provided upon the completion of grading.

NTU Graduate Attributes/Competency Mapping

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

Attributes/Competency	Level
Critical Thinking	Basic
Systems Thinking	Intermediate

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)

Students are expected to take responsibility to follow up with course notes, assignments and course related announcements. You are also expected to participate in class discussions and submit the project report before the stipulated deadline.

Policy (Absenteeism)

Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class activities.

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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