REVISED COURSE CONTENT

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>2020/21</th>
<th>Semester</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Coordinator</td>
<td>Chiu Sai Hoi, Benson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>MT4101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Title</td>
<td>Intermodal Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-requisites</td>
<td>Nil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No of AUs</td>
<td>3 AU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact Hours</td>
<td>Lecture: 26 hr ; Tutorial: 13 hr ; Lab: 0 hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proposal Date</td>
<td>June 2020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 able to gain the basic knowledge and skills of the key intermodal transportation modes and related business considerations to deal with the key challenges faced by commercial intermodal transportation managers and contribute towards successful operations of the system.

Intended Learning Outcomes (ILO)
After successfully completing the course, you should be able to:

1. Describe the fundamental concepts of intermodal transportation system and its connections to operations and governance
2. Identify and discuss what are the different intermodal facilities corresponding to the various intermodal transportation modes
3. Identify and explain the various components in each of the respective intermodal transportation modes
4. Analyse, compare and propose suitable strategies and suggest pros & cons for the use of respective intermodal transportation modes
5. Discuss how product characteristics and operating conditions will affect operating costs and freight rates
6. Evaluate quantitatively different parameters and variables to achieve optimal objectives and contribute towards successful operations
7. Describe and analyse all the current issues and challenges that the system is facing

Course Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Lecture (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction to the development and foundations of intermodal transportation</td>
<td>2</td>
</tr>
<tr>
<td>2. ‘Hardware’ side of intermodal transportation – intermodal terminals and</td>
<td>4</td>
</tr>
</tbody>
</table>
intermodal equipment

3. Various intermodal transportation modes – intermodal transportation by air, water and land (rail and truck) 6

4. Intermodal transport in logistics management 2

5. Freight transport economics and business considerations 2

6. Intermodal operations management and planning 4

7. Various issues in intermodal transportation – security, technology, environmental, container management, future of intermodal transportation 6

Assessment (includes both continuous and summative assessment)

<table>
<thead>
<tr>
<th>Component</th>
<th>Course LO Tested</th>
<th>Related Programme LO or Graduate Attributes</th>
<th>Weighting</th>
<th>Team/ Individual</th>
<th>Assessment rubrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Final Examination</td>
<td>1-7</td>
<td>A-H, L</td>
<td>60%</td>
<td>Individual</td>
<td></td>
</tr>
<tr>
<td>2. Continuous assessment – Quiz 1</td>
<td>1-4</td>
<td>A-D, F-H, L</td>
<td>20%</td>
<td>Individual</td>
<td></td>
</tr>
<tr>
<td>3. Continuous assessment – Quiz 2</td>
<td>1, 3-6</td>
<td>A-H, L</td>
<td>20%</td>
<td>Individual</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Programme Learning Outcomes

✓ **Competency**

A. Develop an overall awareness of maritime activities, port and shipping industry and their association with economy and trade.

B. Describe and apply concepts and theories in sub-fields as contributing to the maritime industry and integrate various related themes, skills and knowledge

C. Understand and manage the maritime environment

D. Apply related information pertaining to procedures, operations and management of maritime entities and operational issues in the maritime industry

E. Capture and analyse market data using analytical tools, conduct related research in the maritime arena, as well as design, develop and execute maritime projects

F. Engage in lifelong learning in preparation for current and future vocations and career options in the maritime environment.

✓ **Creativity**

G. Approach and solve basic maritime problems, through both strategic and research methods, and put theoretical knowledge into practical applications in related industries

H. Develop maritime related risk management strategies.
✓ **Communications**
   I. Communicate shipping and maritime management in policy, strategy, and prevailing issues and requirements in an organization and to achieve good teamwork.
   J. Write professional reports and conduct public speaking confidently

✓ **Character**
   K. Recognise the importance of a strong and just leadership, comply to ethical standards, and uphold highest standards of integrity as a professional

✓ **Civic Mindedness**
   L. Integrate all related skills and knowledge into the industry and exercise due diligence as a highly responsible professional, contributing towards nation and the society.

**Formative feedback**

The lectures shall be interactive where your (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 two quizzes and a final exams. Feedbacks for both the quizzes will be provided upon the completion of marking and grading where grades will also be informed.

**Learning and Teaching approach**

<table>
<thead>
<tr>
<th>Approach</th>
<th>How does this approach support students in achieving the learning outcomes?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>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.</td>
</tr>
<tr>
<td>Tutorials</td>
<td>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).</td>
</tr>
</tbody>
</table>

**Reading and References**

*List of references used in the course:*
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:


Course Policies and Student Responsibilities

(1) General
You 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.

(2) 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.

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. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Course Instructors

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Office Location</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Teo Chee Chong</td>
<td>N1-01a-09</td>
<td>6790 4887</td>
<td><a href="mailto:Teocc@ntu.edu.sg">Teocc@ntu.edu.sg</a></td>
</tr>
<tr>
<td>Mr Chiu Sai Hoi, Benson</td>
<td>N1-01b-44</td>
<td>6790 5273</td>
<td><a href="mailto:Bensonchiu@ntu.edu.sg">Bensonchiu@ntu.edu.sg</a></td>
</tr>
<tr>
<td>Week</td>
<td>Topic</td>
<td>Course LO</td>
<td>Readings/ Activities</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to intermodal transportation</td>
<td>1</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>2</td>
<td>Development and foundations of Intermodal transportation system</td>
<td>1</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>3</td>
<td>Intermodal facilities – intermodal terminals and intermodal equipment</td>
<td>2</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>4</td>
<td>Intermodal transportation by water</td>
<td>1-4</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>5</td>
<td>Intermodal transportation by land – including rail and truck</td>
<td>1-4</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>6</td>
<td>Role of intermodal transport in logistics management</td>
<td>1, 4-5</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>7</td>
<td>Quiz 1 + Freight transport economics and business considerations</td>
<td>4-5</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>8</td>
<td>Intermodal planning – intermodal compatibility</td>
<td>5-6</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>9</td>
<td>Other considerations in intermodal compatibility</td>
<td>5-6</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>10</td>
<td>Intermodal transportation by air</td>
<td>1-4</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>11</td>
<td>Quiz 2 + Issues in intermodal transportation – security and technology I</td>
<td>7</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>12</td>
<td>Issues in intermodal transportation – security and technology II</td>
<td>7</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>13</td>
<td>Issues in intermodal transportation – others, e.g. environmental, container management, future of intermodal transportation, etc.</td>
<td>7</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>Week</td>
<td>Topic</td>
<td>Course LO</td>
<td>Readings/ Activities</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------</td>
<td>----------------------</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to intermodal transportation</td>
<td>1</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>2</td>
<td>Development and foundations of Intermodal transportation system</td>
<td>1</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>3</td>
<td>Intermodal facilities – intermodal terminals and intermodal equipment</td>
<td>2</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>4</td>
<td>Intermodal transportation by water</td>
<td>1-4</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>5</td>
<td>Intermodal transportation by land – including rail and truck</td>
<td>1-4</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>6</td>
<td>Role of intermodal transport in logistics management</td>
<td>1, 4-5</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>7</td>
<td>Quiz 1 + Freight transport economics and business considerations</td>
<td>4-5</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>8</td>
<td>Intermodal planning – intermodal compatibility</td>
<td>5-6</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>9</td>
<td>Other considerations in intermodal compatibility</td>
<td>5-6</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>10</td>
<td>Intermodal transportation by air</td>
<td>1-4</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>11</td>
<td>Quiz 2 + Issues in intermodal transportation – security and technology I</td>
<td>7</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>12</td>
<td>Issues in intermodal transportation – security and technology II</td>
<td>7</td>
<td>Tutorial and lectures</td>
</tr>
<tr>
<td>13</td>
<td>Issues in intermodal transportation – others, e.g. environmental, container management, future of intermodal transportation, etc.</td>
<td>7</td>
<td>Tutorial and lectures</td>
</tr>
</tbody>
</table>