

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT3024
Subject Title	Cargo Operations and Management
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Role and Purposes	This subject introduces students to the technical, operational and regulatory knowledge concerning the safe and efficient transport of seaborne cargoes (Outcome 4). It develops students' capabilities in the management of cargo handling and transport planning (Outcome 10). It contributes to the safety and efficiency of ship management and cargo operations (Outcome 11).
Subject Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> a. Prepare cargo handling and storage plans; b. Supervise loading and unloading of seaborne cargoes; c. Design and plan cargo transport and handling schemes; d. Apply the principles and safe practices for arranging stowage and securing of cargoes; e. Recommend cargo plans for special cargoes and dangerous goods; and f. Apply technical knowledge regarding inspections of cargo equipment and prevention of pollution to the marine environment from ships and of threats to occupational safety. <p>Studying this subject will also help develop students' skills in critical problem solving (Outcome 3). It helps develop their ability in pursuing life-long learning, and helps promote students' global outlook.</p>
Subject Synopsis/ Indicative Syllabus	<p><i>Shipboard Cargo Handling</i></p> <p>Handling of break bulk cargo; Handling of solid bulk and liquid bulk cargo; Cargo loading, stowage, securing and discharge; Vehicles on Ro-Ro vessels; Basic principles for container stowage, packing, lashing and securing; Lashing and securing of deck cargoes; Methods of packing and securing of cargoes; Forces acting on cargo during transport.</p>

	<p><i>Cargo Handling Equipment</i> Type and care of shipboard handling and securing equipment; Loading and unloading equipment for dry and liquid bulk cargoes; Equipment for handling pallets and containers; Survey, inspection and certification of cargo equipment.</p> <p><i>Regulations</i> Regulations for the transport of dangerous goods; Packing, handling, stowage, segregation and securing of dangerous goods; Terminal arrangement, layout of quays and transit sheds; Handling and storage of packaged dangerous goods in port areas; Safe packing and securing of cargo in freight containers and vehicles; Marking, labelling and placarding of cargo; Consequences and responsibilities of cargo problems; Choice of Cargo Transport Units (CTU) type.</p> <p><i>Contemporary and Ethical issues</i> Container operations and trends; pollution prevention and environmental protections; maritime occupational health and safety; code of safe practice.</p>																																						
<p>Teaching/Learning Methodology</p>	<p>Lectures are to introduce the concepts of the covered topics, and to elaborate areas of importance and difficulty, providing a framework to focus on text reading and the corresponding tutorials. Tutorials after each lecture are to encourage students to apply the knowledge they learn through various activities, including discussions, case studies, and / or presentations. Group work may be used to motivate peer learning among students (Outcome 3).</p>																																						
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1" data-bbox="533 1077 1485 1476"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th>f</th> </tr> </thead> <tbody> <tr> <td>Coursework</td> <td>50%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> <td></td> </tr> <tr> <td>Examination</td> <td>50%</td> <td></td> <td></td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Total</td> <td>100 %</td> <td colspan="6"></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Through quiz and/or assignment, students can better understand the concepts applied to the trade situations, and clarify the concepts of cargo handling. Through group work, each small group of students is required to undertake a topic of interest in the handling of marine cargo, with due regard to the observance of the rules and regulations as required by international/national practices of safe handling of seaborne cargoes by sea carriers. The aforementioned assessment methods can be designed to facilitate measurement of learning outcomes (b), (c) and (e).</p> <p>Written examination can allow students to demonstrate their abilities of understanding the principles of designing/planning cargo operation matters and correctly applying relevant knowledge in execution of cargo plans, inspection of</p>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)						a	b	c	d	e	f	Coursework	50%	✓	✓	✓		✓		Examination	50%			✓	✓	✓	✓	Total	100 %						
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	<p>cargo equipment, and prevention of pollution/threats to safety. Written examination can be designed to measure the learning outcomes (a), (d), and (f).</p> <p><i>To pass this subject, students are required to obtain Grade D or above in BOTH the Continuous Assessment and Exam components.</i></p>	
Student Study Effort Expected	Class contact:	
	Lecture	26 Hrs.
	Tutorial	13 Hrs.
	Other student study effort:	
	Reading	48 Hrs.
	Discussion	40 Hrs.
	Total student study effort	127 Hrs.
Reading List and References	<p><u>Essential Textbook</u></p> <p>House, D. J. (2005). <i>Cargo Work for Maritime Operation</i>. London: Butterworth-Heinemann.</p> <p><u>Recommended Textbook</u></p> <p>ICS/OCIMF (2006). <i>International Safety Guide for Oil Tankers and Terminals</i>. London: Witherby</p> <p>Isbester, J. (2010). <i>Bulk Carrier Practice</i>. London: Nautical Institute</p> <p>Knott, J.R. (2002). <i>Lashing and Securing of Deck Cargoes</i>. London: Nautical Institute</p> <p>Morgan, N. (Ed.) (latest edition). <i>The Marine Technology Reference Book</i>. Butter worth Scientific</p> <p>Strauch, W., Wild, Y. and Scharnow, R. (2008). <i>Container Handbook</i>. Marine and Loss Prevention Dept. of GDV</p> <p>Swadi, D. (2009). <i>Cargo Notes</i>, Edinburgh: Witherby Seamanship International</p> <p>Thomas, R.E. (2010). <i>Thomas' Stowage: The Properties and Stowage of Cargoes</i>. Glasgow: Brown, Son & Ferguson</p> <p><u>Supplementary References</u></p> <p>Borgman, B., Van Asperen, E. and Dekker, R. (2010). <i>Online Rules for Container Stacking</i>. OR Spectrum, 32, 687-716</p> <p>Dekker, R., Voogd, P. and Van Asperen, E. (2006). <i>Advanced Methods for Container Stacking</i>. In: Kim, K. H. & Günther, H.O. (Ed.). <i>Container Terminals and Cargo Systems: Design, Operations Management and Logistics Control Issues</i>, pp. 131-154. New York: Springer.</p> <p>Derrett, D.R. (2006). <i>Ship Stability for Masters and Mates</i>. London: Heinemann</p> <p>ILO Code of Practice, <i>Safety and Health in Dock Work</i> (latest edition). Geneva, ILO office</p>	

ILO Convention No.152, *Occupational Safety and Health (Dock Work) Convention*

IMO, *IMO/ILO/UN ECE Guideline for Packing of Cargo Transport Unites* (latest edition). London: International Maritime Organization

IMO, *International Maritime Dangerous Goods Code (IMDG Code)* (latest edition). London: International Maritime Organization

IMO, *International Maritime Dangerous Goods Code Supplement* (latest edition). London: International Maritime Organization

IMO, *International Code for the Safe Carriage of Grain in Bulk* (latest edition). London: International Maritime Organization

IMO, *International Maritime Solid Bulk Cargoes Code (IMSBC Code)* (latest edition). London: International Maritime Organization

IMO, *Code of Safe Practice for Ships Carrying Timber Deck Cargo* (latest edition). London: International Maritime Organization

IMO, *Code of Practice for the Safe Loading and Unloading of Bulk Carriers* (latest edition). London: International Maritime Organization

IMO, *International Convention for the Safe Containers* (latest edition). London: International Maritime Organization

IMO, *Code of Safe Practice for Cargo Stowage and Securing* (latest edition). London: International Maritime Organization

IMO, *Crude Oil Washing System* (latest edition). London: International Maritime Organization

IMO. *International Convention for the Prevention of Pollution from Ships, 1973/78 (MARPOL)*. London: International Maritime Organization

Recommended periodicals and magazines

Maritime Policy & Management

Online magazine: Tanker Operator. <http://www.tankeroperator.com>

Seaview (Journal of the Institute of Seatransport)