The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT3107
Subject Title	Warehousing and Materials Management
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	A warehouse can be considered as a trans-shipment point where all goods received are despatched as quickly, effectively, and efficiently as possible. Today's warehouses and fulfilment centres are becoming key to ensuring that customer expectations of on-time, in-full, damage-free deliveries are met. This has resulted in greater investment in technology and automation with companies building warehouses and fulfilment centres closer to the point of need. Advances in warehousing tend to relate to the increased use of technology and automation, speed and accuracy, improvement performance measurement and effective management of resources. This course introduces the growing importance of warehouses in supply chains. It includes the analysis of inventory management methods to ensure that warehouses provide adequate buffer for front-line operations. It analyses the individual processes within the warehouse, outlining areas where costs can be reduced whilst productivities increase through the use of technology and improved method.
Intended Learning Outcomes	**Upon completion of the subject, students will be able to:** a) Analyse warehouse and materials management strategies, and its significance and applications in the business world, to improve customer satisfaction. b) Manage the operations of warehouse systems in the information age, and effectively utilise the concepts learnt to gain a sustainable competitive advantage of the company. **Students are expected to be able to demonstrate a range of skills to solve warehousing and materials management problems. These include:** c) Critical thinking and analysis skills that include the capability to identify assumptions, evaluate statements, detect false logic and formulate problems. d) Problem solving skills including identifying, formulating and solving warehousing and materials management problems.

	e) Communication skills include effective team playing, presentation and project management.
Subject Synopsis/ Indicative Syllabus	**Role of Warehousing in Supply Chain Management and Logistics System** Explain the role of warehousing in supply chain management and logistics system. Explain the uses and classification of warehouses. Identify the types and functions of warehouses. Discuss the supply chain trends affecting warehouses. **Inventory Management** Basic concepts of inventory. Explain the reasons for holding inventories. Discuss the types of inventories and inventories costs. Using ABC analysis to rank the most important inventory items. Using different approaches to calculate economic order quantity and total annual cost. **Warehouse Processes** Discuss the warehousing operations and processes – receiving, put-away, pick preparation, replenishment, and dispatch. Discuss the types of picking strategies. **Technologies in Warehousing Management** Describe the types of conveyors, cranes, hoists, and trucks, automatic storage and retrieval systems (AS/RS), automatic guided vehicles (AGV), self-driving vehicles (SDV), voice-directed picking (VDP), pick-to-light systems (PTL), augmented reality (AR). **Warehouse Performance Measures** Discuss why and what to measure. Discuss how to choose the right performance measures. Using benchmarking and balanced scorecard concepts in measuring warehouse performance. **Warehouse Costs** Discuss the types of warehouse costs. Understand the traditional versus activity-based costing systems. Understand the charging for shared-user warehouse services. Understand the type of logistics charging methods. **Role of the Warehouse Manager** Discuss the challenges that warehouse managers will encounter in a warehouse, including people management. How to attract and maintain warehouse employees. Describe a warehouse audit and quality systems.
Teaching/Learning Methodology	Concepts, theories and key issues will be introduced to students in lectures. Case studies will be used to illustrate some application aspects and to stimulate discussions leading to context-specific knowledge. Students are required to apply the knowledge to analyse some contemporary issues.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
Continuous Assessment	**50%**	✓	✓	✓	✓	✓	
Examination	**50%**	✓	✓	✓	✓		
Total	**100 %**						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The achievement of the two learning outcomes will be dependent on students' knowledge in conceptual theories and ability to apply certain quantitative techniques.

Since examination is effective in assessing the knowledge level in conceptual theories and continuous assessment (including assignments and projects) is effective in assessing the ability in applying techniques, both methods will be needed to assess the two outcomes of this subject.

To reflect the significant technology content in this subject, *10% (or more)* of the overall weighting of this subject is based on individual assessment concerning technology-related knowledge..

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Seminars	13 Hrs.
Other student study effort:	
▪ Preparation for lectures and seminars	45 Hrs.
▪ Preparation for assignments/projects	42 Hrs.
Total student study effort	126 Hrs.

Reading List and References

Books

Richards, G. (2018). *Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse (3rd edition)*, Kogan Page Publishers.

Murphy, P.R. and Knemeyer, A.M. (2018). *Contemporary Logistics (12th edition)*, Pearson.

Frazelle, E. (2016). *World-Class Warehousing and Material Handling (2nd edition)*, McGraw-Hill, Boston.

Example Articles

	Anthony, S.D., Cobban, P., Nair., R. and Painchaud, N. (2019). Breaking Down the Barriers to Innovation, *Harvard Business Review,* November-December. Earley, S. and Bernoff, J. (2020). Is Your Data Infrastructure Ready for AI? *Harvard Business Review,* April. Gaur, V. and Gaiha, A. (2020). Building a Transparent Supply Chain: Blockchain can Enhance Trust, Efficiency, and Speed, *Harvard Business Review*, May-June. Kress, G. and Posner, B. (2016). Internet of Things in Motion: Analytics and Transportation. *MIT Sloan Management Review*, May. McGrath, R.G. and McManus, R. (2020). Discovery-Driven Digital Transformation, *Harvard Business Review*, May-June.