The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT5105
Subject Title	Managing Operations Systems
Credit Value	3
Level	5
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject introduces both the philosophy and the techniques of operations management to students. The course content is designed to help students understand the basic concepts, learn about the basic tools in operations management, understand the rationale behind the scientific methods used in daily management, and gain insights into designing and managing operations systems in practice. This subject contributes to the following Intended Learning Outcomes for the MBA programme: Programme Intended Learning Outcome #1a
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) understand the terminology and basic concepts of operations management (b) understand some basic data science and modelling approaches for operations management (c) build basic quantitative models that can be used for decision-making in operations management; be aware of the assumptions and limitations of the models (d) apply these models to solve practical management issues and develop critical and creative thinking in analyzing and solving real life problems (e) be aware of ethical issues in business
Subject Synopsis/ Indicative Syllabus	**Introduction to Operations System** Concepts, the operations functions and its relation with other business functions, particularly, the strategic importance of operations management.

	Business Process Design and Reengineering Process concepts; process design methods; process effectiveness and efficiency; business process reengineering. **Forecasting** Objective of forecasting; logic of forecasting; qualitative and quantitative methods for forecasting; measurement and monitoring of forecasting systems; use of machine learning techniques in forecasting. **Capacity Planning** Strategic capacity planning; equipment management; concept of total cost of ownership; volume analysis; breakeven models; decision tree analysis. **Service Processes and Queueing Systems** Characteristics of service processes, service system design, examples of queueing systems; performance measures; single/multiple servers models; priority rules; economic analysis. **Inventory Management** Functions and costs of inventory management; ABC analysis; economic ordering quantity model; vendor managed inventory system; inventory replenishment systems. **Quality Management, Quality Control, Just-in-Time and Lean Operations** Total quality management; quality measurement; quality cost; quality inspection; statistical quality control; Philosophy and concept of JIT systems; pull versus push production systems; lean operations. **Supply Chain Management** Concept of supply chain management; information coordination; cost and benefit of postponement; quick response; worldwide sourcing. **Project Management** Project and its working team; project break down; Gantt charts; project time and cost; critical tasks in projects, critical path method. **Sustainable and Socially Responsible Operations** Ethical issues in operation management; codes of ethics; worker safety; product safety; the environment and quality; employees' right; closing facilities; socially responsible operations. **Data-driven Operations Management** Introduction of big data concepts and applications, data-driven operational decision-making, artificial intelligence and machine learning. **Industry 4.0 and Sharing Economy** Industry 4.0; new technologies including Blockchain in operations management; features of various sharing business models; the opportunities and challenges in these new models.

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<tr><td>Teaching/Learning Methodology</td><td>Concepts and techniques will be introduced through lectures. Students are required to apply the knowledge and skills to analyse and solve various realistic operations management problems in assignments, case studies, and exams.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>1. Coursework</td><td>50 %</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>2. Examination</td><td>50 %</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td></td><td></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>
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Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
Students need to do assignment(s) and a group case study, testing whether they know how to apply the theories learnt to some real life situations. Mid-term test and examination are also required to test their understanding and familiarity with the knowledge.
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.
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<tr><td>Student Study Effort Expected</td><td>
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<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures / Tutorials</td><td>39 Hrs.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Reading and doing exercises</td><td>87 Hrs.</td></tr>
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<tr><td>Total student study effort</td><td>126 Hrs.</td></tr>
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<tr><td>Reading List and References</td><td>Books

Jacobs, F. R., and Chase, R. B., (2021), Operations and Supply Chain Management, 16th ed., McGraw-Hill.

Anupindi, R., et. al. (2012), Managing Business Process Flows – Principle of Operations Management, 3rd ed, Prentice Hall</td></tr>
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	Cachon, G. & Terwiesch, C. (2013), *Matching Supply with Demand* (3rd ed.), McGraw-Hill. Cheng, T.C.E. and Podolsky, S. (1996), *Just-in-time Manufacturing: An Introduction*, Chapman & Hall. Klassen, R. D., Menor, L. J. (2006), *Cases in Operations Management*, Sage publication, Johnston, R. (2003), *Cases in Operations Management*, Finance Times Prentice Hall. Russell R.S. and Taylor B.W., *Operations Management*, latest ed., Prentice Hall. Stevenson W.J., *Operations Management*, latest ed., McGraw Hill. ***Journals*** Management Science Journal of Operations Management Manufacturing & Service Operations Management