The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ISE5775
Subject Title	Supply Chain Digitisation and Data Analytics
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	None but some preliminary reading of supply chain digitisation and data analytics would be beneficial.
Objectives	1. To develop learners skills in building correlations between the data to generate descriptive, predictive, diagnostic and prescriptive analytical models. 2. To enable learners to enhance overall supply chain performance and the management of value creation through data driven decision making.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: a. Demonstrate comprehension of technologies shaping supply chain digitisation, including but not limited to blockchain, artificial intelligence, machine learning, and the Internet of Things (IoT). b. Align digital strategies with organisational goals, manage change effectively, and foster innovation within the supply chain context. c. Evaluate the choice of analytical tools depending on the specific needs and scale of the complexity of supply chain analytics tasks. d. Apply data analytics techniques to solve complex supply chain challenges to enhance operational efficiency, mitigate risks, and capitalize on emerging opportunities. e. Present and communicate complex data insights and analytical findings and suggest actionable recommendations to diverse stakeholders in a supply chain.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ. 1. Introduction to data analytics in the supply chain 2. Data collection and preparation 3. Data visualization and exploratory data analysis 4. Data analytics (Diagnostic, Predictive, Prescriptive) 5. Machine learning and artificial intelligence 6. Supply chain optimization and decision-making 7. Tools and software 8. Case studies and projects

Teaching/Learning Methodology

(Note 3)

Lectures and case studies are used to deliver various topics in this subject. Students will be given a case study with a data set and asked to develop a predictive model and visualise the analysis and results by using the tools and techniques that are taught in this module. Thus, the case study integrates the topics covered in lectures and thus demonstrates how the various techniques are inter-related and how they apply in real life situations.

Alignment between Teaching/Learning Methodologies and ILOs:

Teaching/Learning Methodologies	Intended Subject Learning Outcomes to be assessed				
	a	d	c	d	e
Lecture	✓	✓	✓	✓	✓
Case Study	✓	✓	✓	✓	✓

Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. In-module Case Studies	25%	✓	✓	✓	✓	✓	
2. Post-Module Written Assignment	75%	✓	✓	✓	✓	✓	
Total	100%						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes (ILO's):

The case study will cover most topics taught in the subject which will therefore embrace all the learning outcomes. The post-module assignment requires students to apply what they have learnt in the subject to their own work environment. These will embrace the ILO's albeit in different work situations.

Student Study Effort Expected

Class contact:	
▪ Lectures	24 Hrs.
▪ Case Study	6 Hrs.
Other student study effort:	
▪ Assessment	60 Hrs.
▪ Private Study	60 Hrs.
Total student study effort	150 Hrs.

Reading List and References

1. Robertson, P. W. (2020). Supply chain analytics: using data to optimise supply chain processes. Routledge.

	2. Vandeput, N. (2021). Data science for supply chain forecasting. Walter de Gruyter GmbH & Co KG. 3. Tipi, N. (2021). Supply chain analytics and modelling: Quantitative tools and applications. Kogan Page Publishers. 4. Rahimi, I., Gandomi, A. H., Fong, S. J., & Ülkü, M. A. (Eds.). (2020). Big data analytics in supply chain management: Theory and applications. CRC Press.

Note 1: Intended Learning Outcomes
Intended learning outcomes should state what students should be able to do or attain upon subject completion. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/Indicative Syllabus
The syllabus should adequately address the intended learning outcomes. At the same time, overcrowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology
This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method
This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method is intended to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.