SYE4007: ELOGISTICS AND SUPPLY CHAIN MANAGEMENT

Effective Term Semester A 2024/25

Part I Course Overview

Course Title eLogistics and Supply Chain Management

Subject Code SYE - Systems Engineering Course Number 4007

Academic Unit Systems Engineering (SYE)

College/School College of Engineering (EG)

Course Duration One Semester

Credit Units

3

Level B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction English

Medium of Assessment English

Prerequisites MA1201 Calculus and Basic Linear Algebra II or MA1301 Enhanced Calculus and Linear Algebra II

Precursors Nil

Equivalent Courses ADSE4007 eLogistics and Supply Chain Management

Exclusive Courses

Nil

Part II Course Details

Abstract

In this course, the students will learn the basic concepts of eLogistics and supply chain management, including e-Business, purchasing, supplier management, inventory control, materials planning, materials transportation and distribution, application of big data, and the general aspects of reversed logistics.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	describe the activities involved and key decisions made in combining various firms in electronic business to make a final product and delivering to a customer	20	x	x	
2	apply analytical methods for making decisions for managing inventories and transporting materials in a logistics network	30		x	
3	describe the impact of material sourcing and information sharing policies of a firm on the performance of a logistics network	30	x	x	
4	identify trends and issues in reverse logistics and global logistics	20	х	Х	

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Learning through teaching is primarily based on lectures. Mini- lectures and small-group exercises will be used to facilitate conceptual understanding of logistics problems and methodologies in e- Business.	1, 2, 3, 4	39 hours/semester
2	Online Tutorial	Class exercises and assignments will be discussed.	1, 2, 3, 4	13 hours/semester

Learning and Teaching Activities (LTAs)

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid-Term Test	1, 2	10	
2	Individual Assignments	1, 2, 3, 4	20	
3	Group Project	2, 3, 4	20	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

For a student to pass the course, at least 30% of the maximum mark for the examination should be obtained.

Assessment Rubrics (AR)

Assessment Task

Mid Term Test

Criterion

It is to assess students understanding of basic concepts in logistics and numerical calculation of logistics solutions.

Excellent (A+, A, A-)

High

Good (B+, B, B-) Significant

Fair (C+, C, C-) Moderate

Marginal (D) Basic

Failure (F) Not even reaching marginal levels

Assessment Task

Individual Assignments

Criterion

It is related to students' ability to understand concepts and theories taught in class.

Excellent (A+, A, A-)

High

Good (B+, B, B-) Significant

Fair (C+, C, C-) Moderate

Marginal (D)

Basic

Failure (F) Not even reaching marginal levels

Assessment Task

Group Project

Criterion

ABILITY to identify novel applications of state-of-the-art data analytics tools in supply chain systems.

Excellent (A+, A, A-)

High

Good (B+, B, B-) Significant

Fair (C+, C, C-) Moderate

Marginal (D) Basic

Failure (F) Not even reaching marginal levels

Assessment Task

Examination

Criterion

Examination questions are designed to assess students' level of achievement of the intended learning outcomes, with balanced emphasis placed on conceptual understanding of logistics problems, applications of the various logistics management methods, and numerical calculation of logistics solutions.

Excellent (A+, A, A-)

High

Good (B+, B, B-) Significant

Fair (C+, C, C-) Moderate

Marginal (D) Basic

Failure (F)

Not even reaching marginal levels

Additional Information for AR

Examination, test, and assignment will be numerically marked.

Part III Other Information

Keyword Syllabus

- · The Functions of eLogistics and Supply Chain Management in e-Business
- · Principles of electronic Purchasing and Purchase Order Processing
- · Contract Administration
- · Advanced Methods for Demand Forecasting (such as ARIMA, LASSO techniques, Spatial-temporal time series analysis, artificial neural networks, etc.)
- · Advanced Methods for Materials and Inventory Management (such as probabilistic inventory control)
- · Electronic Data Interchange (EDI) and the application in e-Business
- · Transportation, mathematical programs for optimizing transportation and network flow cost
- · Application of Big Data
- · Reversed Logistics, quantitative models for reversed logistics
- · Bullwhip effect, square root law for bullwhip effect

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

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1	SUNIL CHOPRA & PETER MEINDL, Supply Chain Management, 4th Edn., Pearson Education, 2010.
2	SIMCHI-LEVI, KAMINSKY & SIMCHI-LEVI, Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies, 3rd Edn., McGraw-Hill, 2009.
3	EDWARD ALLEN SILVER, DAVID F. PYKE & REIN PETERSON, Inventory Management and Production Planning and Scheduling, 3rd Edn., Wiley, 1998.
4	DAVID J. BLOOMBERG, STEPHEN LEMAY & JOE B. HANNA, Logistics, Prentice-Hall, Inc., 2002.
5	DONALD J. BOWERSOX, DAVID J. CLOSS & M. BIXBY COOPER, Supply Chain Logistics Management, McGraw-Hill Book Companies Inc., 2003.
6	Moritz Fleischmann, Quantitative Models for Reverse Logistics, Spinger, Berlin, 2001
7	SHERRY R. GORDON, Supplier Evaluation and Performance Excellence: A Guide to Meaningful Metrics and Successful Results, J. Ross Publishing, 2008.
8	JAMES A. TOMPKINS, Facilities planning, 4th Edn, John Wiley & Sons, 2010
9	GARY P. SCHNEIDER, E-business, 9th Edn., Course Technology/Cengage Learning, 2011.
10	LEE IN, Electronic Commerce Management for Business Activities and Global Enterprises : Competitive Advantages, IGI Global, 2012
11	DAVE CHAFFEY, Digital Business and E-Commerce Management, 7th Edn, Tanya Hemphill, 2019