هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification

(Bachelor)

Course Title:	Supply Chain Analysis
Course Code:	INE 5352
Program:	Bachelor of Industrial Engineering
Department:	Industrial Engineering
College:	Engineering
Institution:	King Khalid University
Version:	2
Last Revision Date:	17-12-2025

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☐Required		☒ Elective		
3. Level/year at which this course is offered: (9/5)					
4. Course general Description:					
The aim of the course is to introduce the students to supply chain analysis for better decision making for material planning a product distribution. The inward and outward supply chain management pose lot of challenges for better planning hence the students will learn how Supply Chain Analysis will help in such conditions.					
5. Pre-requirements for this course (if any)**:**					
INE 4351					
6. Co-requisites for this course (if any)**:**					
NIL					
7. Course Main Objective(s):					
CLO 1. Articulate the philosophy and approach in data-driven Supply Chain Management. CLO 2. Understand the important role of change management, develop key skills to implement new business solutions and processes. CLO 3. Explain the key principles of Supply Chain Planning, and a typical end-to-end planning process flow CLO 4. Perform inventory optimization by identifying the main inputs that affect the inventory level, perform inventory optimization, and set inventory targets CLO 5. Evaluate a variety of business constraints and inputs in Supply Planning, and develop a realistic constrained model to optimize Master Production Schedule CLO 6. Assess various cost drivers for supply chain network, and develop a realistic model to optimize supply chain network to minimize the total delivered costs					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100
2	E-learning		
3	Hybrid • Traditional classroom		

No	Mode of Instruction	Contact Hours	Percentage
	• E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	NIL
3.	Field	NIL
4.	Tutorial	30
5.	Others (specify)	NIL
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Define types of supply chains with and examples	K1	Lectures and tutorials	Assignments Midterm Exam Final Exam
1.2	Define Types of supply chains with examples, Evolution of SCM concepts, Supply chain performance, Strategic Fit	K3		
1.3	Identify the Drivers of Supply Chain Performance – key decision areas	K4		

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	– External Drivers of Change.			
2.0	**Skills**			
2.1	Apply the basic principles of Supply contracts – centralized vs. decentralized system. Supply chain strategy: achieving strategic fit	S1	Lectures and tutorials	Assignments Midterm Exam Final Exam
2.2	Implement the various design options for distribution networks. (network design decisions – Framework)	S3		
2.5	Apply and adapt detailed report on SC planning and design using a case study	S6		
3.0	**Values, autonomy, and responsibility**			
3.1	Recognize ethical and professional integrity in supply chain analysis	V1	Lectures and tutorials	Assignments Midterm Exam Final Exam
3.2	Communicate effectively within	V4	Teamwork	Assignments

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	a team to perform the assigned task (Homework/Group Project)			

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction, Types of supply chains with and examples, Evolution of SCM concepts, Supply chain performance, Strategic Fit, Drivers of Supply Chain Performance – key decision areas – External Drivers of Change. Supply contracts – centralized vs. decentralized system	10
2.	Supply chain strategy: achieving strategic fit (Zara, Dell); dual sourcing; network design, Supply chain risk sharing contracts, Supply chain risk pooling: centralization, postponement, Omni channel	8
3.	Need for distribution network design- Factors affecting, Design options for distribution network. Network design decisions - Framework, factors influencing, Models of facility location and capacity allocation. Role of Transportation in supply chain, modes of transportation Modal Selection, Classification of carriers, Carrier Selection, Transportation Execution and Control. Food Mile Concept., design options.	10
4.	Supply chain risk hedging, Supply chain coordination: sales & operations planning (S&OP), Supply chain coordination: bullwhip effect, Global supply chain: buy-sell, turnkey, transfer price and tax	6
5.	Forecasting in supply chain- Methods, Approach, Errors. Aggregate planning in supply chain- Problem, Strategies, and Implementation. Predictable variability in supply chain, Managing supply and demand. Distribution strategies-direct shipment, traditional warehousing, cross docking, inventory	8

	pooling, transshipment, choosing appropriate strategy, Milk Run Model.	
6.	Purchasing Vs Procurement Vs Strategic Sourcing, Item procurement importance matrix, Strategic Sourcing Methodology, Managing sourcing and procurement process, Supplier selection and evaluation, Bullwhip effect and its management, Economies of scale in supply chain- Cycle inventory, Estimation, Quantity discounts, Multiechelon cycle inventory. Uncertainty in supply chain- Safety inventory, Determination of appropriate level, Impact on uncertainty.	8
7.	Information in supply chain, Role of Information technology, IT framework in supply chain, Supplier and Customer relationship management. Role of e-business in supply chain, e-sourcing and e-procurement. Technology drivers in supply chain - Risk management	10
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	6 to 8 Assignments	2, 3, 4, 5, 6, 7, 8, 9	10
2.	Quiz 1	7	10
3.	Quiz 2	12	10
4.	2 Mid Term Exam	5, 10	30
5.	Final Exam	16	40
...			100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Supply Chain and Logistics Management Made Easy: Methods and Applications for Planning, Operations,

	Integration, Control and Improvement, and Network Design, by Paul A. Myerson (Author), Pearson FT Press; 1 Edition (May 10, 2015).
Supportive References	Truckload Transportation: Economics, Pricing & Analysis by Leo J. Lazarus, Monument Press,2010.
Electronic Materials	The International Journal of Logistics Management, Emerald International Journal of Logistics Systems and Management, Inder science
Other Learning Materials	YouTube videos

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms
Technology equipment (projector, smart board, software)	projector
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect (Questionnaire)
Effectiveness of Students' assessment	Faculty	Direct
Quality of learning resources	Program Leaders	Direct
The extent to which CLOs have been achieved	Faculty	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**REVIEWED BY CURRICULUM COMMITTEE APPROVED BY QUALITY COMMITTEE**
REFERENCE NO.	**9-6-47**
DATE	**25/06/1447**