هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TPG-153

Course Specification

(Postgraduate)

Course Title: SUPPLY CHAIN ENGINEERING	
Course Code: SCM 521	
Program: EXECUTIVE MASTER IN SUPPLY CHAIN MANAGEMENT	
Department: MANAGEMENT	
College: COLLEGE OF BUSINESS	
Institution: AL YAMAMAH UNIVERSITY	
Version: 1	
Last Revision Date: 18/03/2025	

Table of Contents

A. General information about the course:

1. Course Identification:

1. Credit hours: 3					
(3, 1, 0)					
2. Course type					
A.	☒ University	☐College	☐Department	☐Track	
B.	☒ Required		☐ Elective		
3. Level/year at which this course is offered: (Level 2/1st year)					
4. Course general Description:					
This course provides a comprehensive understanding of supply chain engineering principles, focusing on designing, optimizing, and managing supply chain systems using analytical models and engineering techniques. Students will learn how to apply mathematical modeling, simulation, and decision-support tools to enhance efficiency and resilience in global supply chains.					
5. Pre-requirements for this course (if any)**:**					
SCM 513 (Management Techniques for Supply Chains)					
6. Pre-requirements for this course (if any)**:**					
Not Applicable					
7. Course Main Objective(s):					
The course aims at helping students develop the ability to understand several engineering techniques in designing and operating supply chains. Students learn how to utilize those methodologies in optimizing supply chain decision variables, including logistics network configuration, production plans, transportation and warehousing decisions. By the end of the course, students should be able to: 1. Understand and apply engineering principles to supply chain design and optimization. 2. Develop mathematical models for supply chain planning, forecasting, and inventory management. 3. Utilize operations research techniques to solve complex supply chain problems. 4. Analyze logistics network design for cost-effectiveness and responsiveness. 5. Optimize transportation, warehousing, and distribution strategies.					

2. Teaching Mode: (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hrs. per week	75%
2	Distance-Learning	0 hrs. per week	0%
3	E-learning	1 hrs. per week	25%

3. Contact Hours: (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	3
2.	Tutorials	1
3.	Field assignments	0
4.	Others (Seminars)	1
	Total (per week)	5

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	Acquire and understand specialized knowledge covering supply chain engineering techniques	CLO1 Knowledge and understanding (K3)	Student-Centric: Discussion, Analysis, Abstraction, and Seminars.	Mid-terms, Quizzes, and Final exam
2.0	**Skills**			
2.1	Apply knowledge and skills in developing supply chain optimization models	CLO2 Cognitive Skill (S1)	Student-Centric: Discussion, Data Analysis, and Problem solving.	Mid-terms, Quizzes, and Final exam
2.2	Process data quantitatively to evaluate supply chain models	CLO3 Communication and ICT Skills (S3)	Student-Centric: Discussion, Data Analysis, and Problem solving.	Mid-terms, Quizzes, and Final exam
3.0	**Values, autonomy, and responsibility**			
3.1	Implement project activities related to supply chain design and operation	CLO4 Autonomy and Responsibility (V2)	Student-Centric: Discussion, Data Analysis, Problem solving , and Seminars.	Presentations and Group-work Project

C. Course Content:

No	List of Topics	Contact Hours
1	Topic 1: Introduction to supply chain engineering	03
2	Topic 2: Warehouse design, automation, and digital transformation	09
3	Topic 3: Advanced warehouse management systems (WMS)	06
4	Topic 4: Inventory placement strategies, and fulfillment optimization	06
5	Topic 5: Working capital management and service level trade-offs	06
6	Topic 6:strategic decisions to enhance warehousing efficiency	06
7	Topic 7: Case Studies: cases on warehousing within the KSA	09
	Total	**45**

D. Students Assessment Activities:

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	2 Quizzes after Weeks 5, and 12	20%
2.	Mid-terms	9th Week	20%
3.	Presentations/Group Project/Case Studies	13th Week onwards	20%
4.	Final exam	15th week	40%

*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	**Ravindran, A., Warsing, Jr., Griffin, P. (2023).** *Supply Chain Engineering: Models and Applications. CRC Press.* ISBN: 9781032254753 https://www.routledge.com/Supply-Chain-Engineering-Models-and-Applications/Ravindran-WarsingJr-Griffin/p/book/9781032254753 **Shapiro, J.F. (2009).** *Modeling the Supply Chain. 2nd Edition, Cengage Learning, Duxbury, MA.* ISBN: 9788131501566 https://www.cengage.co.in/book-list/print/modeling-the-supply-chain-pv
Supportive References	**Mark S. Daskin (2013).** *Network and Discrete Location: Models, Algorithms, and Applications, Second Edition. John Wiley & Sons, Inc..* ISBN: 9781118537015 https://onlinelibrary.wiley.com/doi/book/10.1002/9781118537015
Electronic Materials	Related research papers and case studies.
Other Learning	**Industry Reports**

Materials	**1. McKinsey & Company (2022).** *Optimizing health system supply chain performance.* https://www.mckinsey.com/industries/healthcare/our-insights/optimizing-health-system-supply-chain-performance

2. Educational and Research Facilities and Equipment Required:

Items	Resources
Facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms
Technology equipment (Projector, smart board, software)	Projector, smart board, software
Other equipment (Depending on the nature of the specialty)	To be requested as per need

F. Assessment of Course Quality:

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect method (Course evaluation survey)
Effectiveness of students assessment	Program Leaders, Peer Reviewer	Direct and Indirect method (Course results and survey)
Quality of learning resources	Faculty and Students	Indirect method (Resources evaluation survey)
The extent to which CLOs have been achieved	Faculty and Students	Direct method (Course results) Indirect method(Course evaluation survey)
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data:

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	