Course Syllabus
Supply Chain Management

March - July 2025

Term VII

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I. General Course Information

Subject:	Supply Chain Management		
Pre-requisite:	Operations Research I	**Code:**	01239
Precedent:	None	**Semester:**	2025-1
Credits:	3	**Term:**	VII
Weekly Hours:	4 hours	**Course type:**	In Person
Course Type Career	**Compulsory**: Industrial and Commercial Engineering Information Technology and Systems Engineering Administration and Finance Administration and Marketing	**Course Coordinator:**	Gareth Rees: grees@esan.edu.pe

II. Summary

This course covers theoretical and practical topics. It seeks to develop competencies in the analysis of key elements associated with the design and administration of supply chains, considering the efficient integration of suppliers, manufacturers, distributors and retail outlets.
The course focuses on the criteria and tools that students can utilize to manage costs while analyzing the relationship between supply chain and business functions. It seeks to monitor customer management and the creation of value, the integration of order processes with inventory management, warehousing systems, outsourcing and transportation (national and global) while monitoring the supply chain's performance.

III. Course Objectives

The objective of the course is to generate models and strategies for effective integration of the supply chain network to improve the competitiveness of the company. Students are asked to describe and analyze various supply chain situations from a range of strategic and operational contexts and are expected to offer improvement suggestions.

IV. Learning Results

At the end of the course, the students will be able to:

- Classify the roles and stages of supply chains and how these may improve supply chain network performance.
- Identify and describe different Supply Chain strategies to ensure optimum Supply Chain performance.
- Identify the need to measure and assess the performance of firms and their Supply Chains.
- Demonstrate a basic level of understanding of the SCOR model to interpret Supply Chain performance.
- Define and contrast the concepts of Ethical and Sustainable Supply Chains and the benefits for the organization and the needs of society of these.
- Evaluate purchasing and sourcing decisions in terms of the benefits and risks.
- Apply and calculate different demand planning techniques, manufacturing strategies, inventory control and facility management systems transportation mix strategies, and location decision-making tools in the global context of the supply chain.

- Able to function effectively as an individual, as a member or leader of diverse teams.
- Recognize the need for lifelong learning and the ability to face it in the broader context of technological change.
- Create, select, and use modern engineering and information technology techniques, skills, resources, and tools, including prediction and modeling, with an understanding of their limitations.

V. Methodology

During the development of the course, sessions will contain student presentations and discussions in multidisciplinary teams. The topics will be about theoretical aspects learned in class, where students are encouraged to use their knowledge and creativity to answer questions and solve problems with the lecturer's guidance.

Theoretical lectures will provide students with essential background knowledge that are reinforced with visual tools (videos) about relevant topics of supply chains.

The assessment is continuous and comprises the following: Four (4) quizzes on assigned academic papers, four (4) chapter quizzes on Moodle platform and two (2) practice and interpretation-based assessments. Additionally, there is one major project, which must be completed in teams of three to six students that relates to the analysis of real business supply chain situations and contexts.

Two formative assessments in this class will be completed in Learning Teams of three to five students. If you experience difficulties working with your team, you are expected to resolve them within the team if possible, first. However, if you cannot find a resolution then promptly inform your instructor for guidance if you have concerns in this area.

VI. Evaluation

The evaluation system is comprehensive and continuous. It is subdivided as follows: Permanent evaluation (70%) and final exam (30%).

The final grade (PF) will be obtained in the following way:

PF = (0,70 x PEP) + (0,30 x EF)

Where:

PF = Final Grade (PF)
PEP = Continuous Evaluation (PEP)
EF = Final Exam (EF)

The permanent evaluation results from the weighted average of the evaluations that correspond to the assessment of the student's learning process: Quizzes Presentations / Research projects / Graded Practical work and session focused on exercises. The average of these grades provides the corresponding grade.
The weights within the permanent evaluation are described in the following table:

AVERAGE PERMANENT EVALUATION (PEP) 70%		
Evaluation Type	**Description**	**Weight**
Moodle quizzes	4 online Moodle quizzes (2.5% each)	10%
Theory quizzes	4 quizzes on assigned academic papers (5% each)	20%
Graded practical	Two practical-based assessments (15% each) taken in Computer Lab	30%
Group assignments	Group Report & Presentations (15% each)	30%
Participation	Attendance, punctuality and participation	10%

VII. Programmed Content

<table>
<tr><th>WEEK</th><th>CONTENTS</th><th>ACTIVITIES / EVALUATION</th></tr>
<tr><td colspan="3">LEARNING UNIT I: INTRODUCTION TO SUPPLY CHAINS AND THEIR MANAGEMENT
LEARNING OUTCOME:
• Classify the roles and stages of supply chains and how these may improve supply chain network performance.
• Identify and describe different Supply Chain strategies to ensure optimum Supply Chain performance.
• Identify the need to measure and assess the performance of firms and their supply chains.
• Demonstrate a basic understanding of the SCOR model to interpret supply chain performance and its optimization.
ACROSS ALL LEARNING OUTCOMES:
• Able to function effectively as an individual, as a member or leader of diverse teams.
• Recognize the need for lifelong learning and the ability to face it in the broader context of technological change.</td></tr>
<tr><td rowspan="2">1°
From 17 to 22 March</td><td>1.1) What is supply chain management
1.2) Objectives of supply chain management
1.3) Supply chain stages and roles</td><td rowspan="2">Presentation: Course Methodology and Assessment Guidelines

Moodle Quiz N°1
Wisner et al. (2022) Ch 1.
Details on UE Virtual.
Group Project #1 set</td></tr>
<tr><td>Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 1 Págs. 1-27</td></tr>
<tr><td rowspan="2">2°
From 24 to 29 March</td><td>1.4) Supply Chain Design & Strategy
1.5) Supply Chain Integration – (Bullwhip LAB)</td><td rowspan="2">Theory Quiz N°1
Hoole (2005) 5 ways to simplify your supply chain.pdf and Wisner Ch 13
Details on UE Virtual.

Activity N° 1
The Soda/Beer game Lab</td></tr>
<tr><td>Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 1 Págs. 1-27
Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 13 Págs.559-590</td></tr>
<tr><td rowspan="2">3°
From 31 March to 5 April</td><td>1.6) Supply Chain Integration and Optimization
1.7) Understanding Supply Chain performance
1.8) The SCOR Model</td><td rowspan="2">Theory Quiz #2:
Delipinat Kocaoglu (2014) Using SCOR model to gain competitive advantage.pdf. and Wisner Ch 14</td></tr>
<tr><td>Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 13 Págs.559-590
Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 14 Págs.601-624</td></tr>
<tr><td colspan="3">LEARNING UNIT II: DEMAND FORECASTING IN THE SUPPLY CHAIN
LEARNING OUTCOME:
• Apply and calculate different demand planning techniques, manufacturing strategies, inventory control and facility management systems transportation mix strategies, and location decision-making tools in the global context of the supply chain.
• Create, select, and use modern engineering and information technology techniques, skills, resources, and tools, including prediction and modeling, with an understanding of their limitations.</td></tr>
<tr><td rowspan="2">4°
From 7 to 12 April</td><td>2.1) Demand forecasting
2.2) Types of forecasting approaches
2.3) Quantitative forecasting models (LAB Session)</td><td rowspan="2">Activity N° 2
Quantitative Forecasting Lab-Exercises

Details on UE Virtual</td></tr>
<tr><td>Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 5 Págs. 173-200</td></tr>
</table>

5° From 14 to 19 April	2.4) Forecast accuracy 2.5) Recent developments in Forecasting **Group Project #1 Presentations (2nd Session week 5)** Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 5 Págs. 173-200	**Group Project #1 due**
LEARNING UNIT III: SUPPLY ISSUES **LEARNING OUTCOME:** • Evaluate purchasing and sourcing decisions in terms of the benefits and risks. • Define and contrast the concepts of Ethical and Sustainable Supply Chains and the benefits for the organization and the needs of society		
6° From 21 to 26 April	3.1) Sourcing decisions in the supply chain 3.2) Purchasing 3.3) Outsourcing 3.4) Total Cost of Ownership 3.5) Make or Buy decisions 3.6) Supplier relationships 3.7) Managing risk and availability 3.8) Supplier selection Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 2 Págs. 41-81 Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 3 Págs. 95-119	**Theory Quiz #3:** van Hoek (2001). E-supply chains – virtually non-existing and Wisner Ch 3 Details on UE Virtual
7° From 28 April to 3 May	3.9) Ethical sourcing 3.10) Sustainable sourcing 3.11) Supplier issues in Sustainable Supply Chains Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 4 Págs.133-159	**Theory Quiz #4:** Paul, I.D., Bholeb, G.P., & Chaudharic, J.R. A review on Green Manufacturing.pdf and Wisner Chap 4 Details on UE Virtual
LEARNING UNIT IV: OPERATIONS ISSUES **LEARNING OUTCOME:** • Apply and calculate different demand planning techniques, manufacturing strategies, inventory control and facility management systems transportation mix strategies, and location decision-making tools in the global context of the supply chain. • Create, select, and use modern engineering and information technology techniques, skills, resources, and tools, including prediction and modeling, with an understanding of their limitations.		
8° From 5 to 10 May	4.1) Resource planning in the Supply Chain 4.2) Aggregate planning in the Supply chain 4.3) Basic Chase and Level strategies 4.4) Chase and Level strategies with constraints (Backorder example) Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 5th ed. Ch 6 Págs. 183-191	**Moodle Quiz N° 2:** Wisner Ch 6. Details on UE Virtual
9° From 12 to 17 May	4.5) Master Production Schedules 4.6) Available to Promise Graded Practical in **2nd Session** of Week 9 Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 5th ed. Ch 6 Págs. 183-220	**Graded Practical N° 1** Excel-based Calculation and Interpretation assessment taken in a Lab

10° From 19 to 24 May	4.4) Materials Requirements Planning 4.5) Bill of materials and Net requirements 4.6) Warehouse / Distribution facilities 4.7) Warehouse Centralization / Square Root Rule Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 5th ed. Ch 6 Págs. 183-220	
11° From 26 to 31 May	4.11) Warehouse Management Systems (Warehouse LAB) 4.12) Managing Inventories 4.13) ABC Control method 4.14) ABC Inventory Matrix Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 9 Págs. 401-408	**Activity N° 3** Warehouse Management LAB simulation (FabLab) **Moodle Quiz N° 3** Wisner Ch 7. Details on UE Virtual.
12° From 2 to 7 June	4.15) Inventory Management (ABC Inventory LAB) 4.16) Economic Order Quality Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 7 Págs. 271-307	**Activity N° 4** ABC Inventory control LAB Simulation (FabLab) **Group Project #2 set**
13° From 9 to 14 June	4.17) Safety Inventory 4.18) Statistical reorder point 4.19) Probabilistic Safety Stock Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 7 Págs. 271-307	
LEARNING UNIT V DISTRIBUTION ISSUES **LEARNING OUTCOME:** • Apply and calculate different demand planning techniques, manufacturing strategies, inventory control and facility management systems transportation mix strategies, and location decision-making tools in the global context of the supply chain. • Create, select, and use modern engineering and information technology techniques, skills, resources, and tools, including prediction and modeling, with an understanding of their limitations.		
13° From 9 to 14 June	5.1) Facility location 5.2) Location factors 5.3) Location decisions Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 11 Págs. 467-495	**Moodle Quiz N° 4** Wisner Ch 11. Details on UE Virtual.
14° From 16 to 21 June	5.4) Transportation in the supply chain 5.5) Transportation types and attributes 5.6) Global Logistics Graded Practical in **2nd Session** of Week 14 Wisner/Tan/Leong. Principles of Supply Chain Management: A Balanced Approach 6th ed. Ch 9 Págs. 381-423	**Graded Practical N° 2** Excel-based Integrated Calculation and Interpretation assessment conducted in Lab
15° From 23 to 28 June	**Group Project #2 Presentations** **Invited Speaker:** "Supply Chain Management in Action" presentation by AJE Group	**Group Project #2 Due:** Upload presentation and report to UE Virtual on day of presentation
16° From 30 June to 5 July	**FINAL EXAM**	

VIII. Bibliography

Required Reading:

Selected Chapters

- Wisner,JD., Tan, K-C., & Leong, GK. (2022) **Principles of Supply Chain Management**, (6th Edition), Mason, OH: South-Western - Cengage Learning.

Complimentary Readings for Theory Quizzes:

- Hoole, R. (2005). Five ways to simplify your supply chain. *Supply Chain Management: An International Journal (10)*1, 3-6, https://doi.org/10.1108/13598540510578306
- Van Hoek, R. (2001). E-supply chains – virtually non-existing, *Supply Chain Management: An International Journal (6)*1, 21-28, https://doi.org/10.1108/13598540110694653
- Delipinar, G. E., & Kocaoglu, B. (2016). Using SCOR model to gain competitive advantage: A literature review. *Procedia-Social and Behavioral Sciences 229*, 398-406. http://creativecommons.org/licenses/by-nc-nd/4.0/
- Paul, I.D., Bholeb, G.P., & Chaudharic, J.R. A review on Green Manufacturing: It's important, methodology and its application. *Procedia Materials Science* 6, 1644 – 1649. https://doi.org/10.1016/j.mspro.2014.07.149

Research Ethics:

PLEASE NOTE:
While you may use and cite non-academic resources such as Wikipedia when working on assignments, you should not rely on them exclusively. Most of your theory-based sources should be peer-reviewed academic journals or chapter readings. Further, remember that you are responsible for the accuracy of any facts you present in your assignments and therefore should confirm the information you find from non-academic sources through further verification.

The use of AI for producing assignments will be verified through the Turnitin portal. This portal detects AI production and if AI work is detected at high levels, the submission will come under greater scrutiny. Use good AI ethics by declaring the use of AI in your projects by using an AI declaration stating how AI supported the production of your assignment, e.g., for basic research, finding sources, outlining or formatting and translation.
DO NOT rely on AI to provide your answers and reproduce these as your work.

IX. Lab Support

There are a number of Laboratory-Practical sessions for the course:

- A Bullwhip online simulation conducted in a computer lab,
- Quantitative forecasting models using MSExcel conducted in a computer lab.
- There are 2 Graded Practical Assessments scheduled to be taken in a computer lab in weeks 9 and Week 14.
- Warehouse management and Inventory control simulations in the FabLab Warehouse LAB in weeks 11 and 12.

X. Instructors

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