Logistics



Fundamentals of Distribution Logistics

Duration: 5 Days

Language: en

Course Code: PO1-117

Objective

Upon completion of this course, participants will be able to:

- Understand essential supply chain principles and incentives, including a comprehensive inventory management and control systems examination.
- Examine inventory control in single and multi-echelon supply chains.
- Develop a broad understanding of network design and transportation and explore solutions for common network routing problems.

Audience

This course is intended for:

- Anyone looking to understand effective distribution logistics.
- Supply Chain Managers and Supervisors responsible for distribution logistics.
- Professionals in Applied Mathematics and Statistics, Manufacturing Engineering, Operations, and Business Management.

Training Methodology

This course uses a variety of adult learning styles to aid full understanding and comprehension. Participants will review case studies to highlight key areas of importance and possible areas for faults. They will be supplied with the best tools required for learning exercises to improve their skills. Participants will analyse the examples to thoroughly understand how these skills, techniques and methods apply in the workplace.

Summary

Distribution logistics focuses on efficiently distributing and delivering finished products. It links production to the market and contributes to high customer service standards.

This course provides you with a comprehensive look at the fundamentals of distribution logistics. You will learn about the relationship between inventory and transportation costs, the role of adequate planning in reducing delivery costs, and how distribution logistics balances supplies and demands. In addition, you will explore network design and transportation principles and resolve common problems in network routing.

Course Content & Outline

Section 1: Key Supply Chain Principles

- Define what is meant by the term “logistics.”
- Describe the framework of production and distribution networks.
- Identify competition factors, cost drivers, and logistics strategies.
- Examine the role of inventory in logistics.
- Describe cycle stock.
- Explore strategies for dealing with uncertainty: setting safety stock and production planning.
- Review inventory deployment, physical flows and transportation.

Section 2: Supply Chain Incentives

- Understand the losses incurred by double marginalisation.
- Identify how to decide on price in a competitive market.
- Examine how the Newsvendor inventory problem affects decision-making.
- Explain how to decide on production and sales efforts.
- Describe how vertical integration minimises supply chain risks.

Section 3: Forecasting

- Review the principles and process of forecasting.
- Identify forecast error metrics: Mean Error, Mean Absolute Deviation, Root Mean Square Error, Mean Percentage Errors, and Theil’s U statistic.
- Classify common forecasting methods: Moving Average, Exponential Smoothing (with trend and seasonality), and Simple Linear Regression.
- Describe how to forecast new products: Delphi method, Lancaster model, Early sales model, and the Bass model.
- Identify the different forecasting method limitations and disadvantages.

Section 4: The Deterministic Model for Inventory Management

- Describe the deterministic model in the context of inventory management.
- Define and elaborate on the Economic Order Quantity (EOQ) model.
- Examine the multi-item EOQ inventory model.
- Account for the impact of non-linear costs.
- Explore variable demand with known variability.

Section 5: Stochastic Inventory Control

- Describe the aims of stochastic inventory control.
- Review the Newsvendor inventory problem.

- Examine the effects of multi-period multi-product stochastic inventory problems.
- Outline the (Q,R) inventory model.
- Describe Periodic Review (s,S) policies for joint replenishment.

Section 6: Managing Inventory in Multi-Echelon Supply Chains

- Compare Installation and Echelon Stock policies for multi-level inventory control.
- Describe the importance of supply coordination to avoid the Bullwhip effect.
- Examine arborescent supply chains.

Section 7: Network Design and Transportation

- Outline the basic structure of a distribution network.
- Describe the role of intermediate nodes.
- Examine how to reduce uncertainty with the risk pooling effect.
- Explore how to optimise transportation with transit points.
- Describe location and flow optimisation models.
- Review the characteristics of nonlinear cost network models.

Section 8: Vehicle Routing in Transportation Networks

- Identify common network routing issues.
- Describe solutions for the Symmetric Travelling Salesman Problem: Nearest-neighbour heuristic, Insertion heuristic, and Local search.
- Examine Constructive and Clustering Methods for Vehicle Routing Problems (VRP).

Certificate Description

Upon successful completion of this training course, delegates will be awarded a Holistique Training Certificate of Completion. For those who attend and complete the online training course, a Holistique Training e-Certificate will be provided.

Holistique Training Certificates are accredited by the British Assessment Council (BAC) and The CPD Certification Service (CPD), and are certified under ISO 9001, ISO 21001, and ISO 29993 standards.

CPD credits for this course are granted by our Certificates and will be reflected on the Holistique Training Certificate of Completion. In accordance with the standards of The CPD Certification Service, one CPD credit is awarded per hour of course attendance. A maximum of 50 CPD credits can be claimed for any single course we currently offer.

Categories

Procurement, Warehouse, Logistics & Supply Chain, Transport

Tags

Transportation, Logistics, Supply Chain, Distribution, Vehicle, routing, multi-echelon, Vehicle Routing Problems, VRP

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