

Course Outline

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- Session** : Semester I, 2021/2022

Course Objectives

This module builds on DSC2006/DAO2703 Operations and Technology Management, is companion to DSC3202/DOS3702 Purchasing & Materials Management and DSC3203/DOS3703 Service Operations Management, and prepares for continuation into FSP4003 Field Service Project. Our objectives of this course are to allow the students to:

- Develop a systematic framework for analyzing the behavior of large and complex supply chain networks.
- Understand the relationship and motivations of suppliers and distributors to ensure supplies of raw materials and markets for finished goods.
- Discover the state-of-the-art technologies and approaches that reduce production, inventory and transportation costs as well as supply lead time.
- Integrate production and inventory control methods in multi-plant distribution strategies.

Prerequisites

Knowledge of basic calculus, elementary probability and the Normal Distribution.

Syllabus

Fierce competition in today's global markets has forced manufacturing enterprises to invest heavily in logistics systems. In such systems, items are produced at one or more factories,

shipped to warehouses for intermediate storage, and then shipped to retailers. Consequently, to reduce cost and improve service levels, logistics strategies must account for the interactions of the various levels in the supply chain. This, together with the changes in communications and transportation technologies, e.g., mobile communication and overnight delivery, has motivated continuous evolution in logistics systems. In recognition of these developments, the program offers a course on the design and management of the supply chain. In this course, we review state of the art planning models and practical tools for inventory control, distribution management, and multi-plant coordination.

In particular, we address issues such as:

- Optimal design of the logistics network.
- Adequate safety stock levels and the risk pooling concept.
- Cost effective distribution strategies.
- Value of information sharing.
- The effect of e-business on supply chain strategy
- Supply chain integration and coordination

Main Text

Designing and Managing the Supply Chain: Concepts Strategies and Case Studies, Simchi-Levi, Kaminsky and Simchi-Levi, 2008, Third Edition, Irwin/McGraw-Hill.

Reference Text

Supply Chain Management: Strategy, Planning, and Operation, Sunil Chopra and Peter Meindl, 2016, Sixth Edition (Global Edition), Pearson.

Evaluation

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| Class Participation | 10% |
| Individual Homework | 20% |
| Group Homework | 10% |
| Group Projects | 20% |
| Exam (closed book) | 40% |