DSC 4211A  Seminars in Operations & Supply Chain Management
Coordination and Flexibility in Supply Chain Management

Lecturer : Dr. Chou Cheng-Feng, Mabel (Course Coordinator)
Session : Semester II, 2009/2010

Objectives of the Module

This module is an advanced level course on operations and supply chain management. We will focus on two of the important topics in operations and supply chain management: coordination and flexibility. Our objective is to provide our students further understanding on these three selected topics by discussing a variety of related issues and modeling/analysis tools. The students should have taken DSC2006 Operations Management and DSC3201 Supply Chain Management (or similar courses) before taking this course so that they have a general understanding of the problems, issues, and basic modeling tools in operations and supply chain management.

In this course, we not only aim to introduce the students a variety of recent developments and business insights in these two topics, but also want to teach the students how to conduct analysis to gain these insights. A lot of modeling/analysis tools discussed in this course will be quantitative based. In particular, the students should be prepared to apply mathematics concepts such as probability and calculus throughout the semester. In addition, it will be helpful if the students have taken DSC2003 Management Science.

The first part of this course is to expose students to a variety of modeling tools available for their analysis. In the second part of this course, we will cover articles from the academic literature on coordination and flexibility issues in operations and supply chain management. The focus will be on articles that offer management insights and/or present novel and applicable algorithmic ideas for new supply chain models. Supplementary readings will be used to enhance the understanding of the issues involved.

Syllabus

1) Production and Inventory Management:
   - How to manage production schedule and inventory in a deterministic environment
   - How to manage production schedule and inventory in a stochastic environment
2) Coordination in Supply Chains:
   Understanding interactions between stages in a supply chain, double marginalization and contracts for supply chain coordination, strategic alliances and incentive alignment, channels of distribution, coordinating distribution strategies, pricing/promotions.

3) Flexibility in Supply Chains:
Exploring good flexibility structure and the impact of flexibility in operations and supply chain management

Pre-requisites
DSC2006 Operations Management; DSC3201 Supply Chain Management; Knowledge of calculus and probability

Grading Policy
The students will be graded based on the following:
- Class participation (20%)
- Periodic homework assignments (20%)
- Technical paper presentation (30%)
- Project (30%)

References
David Simchi-Levi, S. David Wu, and Z. Max Shen (Eds.)
Handbook of Quantitative Supply Chain Analysis: Modeling in the E-Business Era
2004 Kluwer Academic Publishers