

**Lingnan University**  
**Executive Master of Business Administration**  
MBA 560: MANAGERIAL DECISION ANALYSIS  
(Foundation course; Three credits; Thirty-two hours)  
**May 2009 • Shang Hai**

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| <b>Dates</b>   | <b>Times</b>                        | <b>Venue</b>                     |
|----------------|-------------------------------------|----------------------------------|
| May 16; May 29 | 8 : 30 – 12 : 00; 13 : 00 – 18 : 00 | Glorious Sun, Donghua University |
| May 17; May 30 | 8 : 30 – 12 : 00; 13 : 00 – 17 : 00 | Glorious Sun, Donghua University |

This course aims at providing practitioners with commonly-used qualitative and quantitative skills that are of great help to improving the operations of manufacturing and service organizations. We shall address the following three important—and interesting—topics in the field of operations and supply chain management: (1) Quality Management; (2) Production and Inventory Management; and (3) Supply Chain Management. Our teaching focuses on the *strategic (managerial)* as well as basic *mathematical* (mostly, *algebraic*) discussions on diverse problems arising from real operations. Note that some problems to be discussed in this course are also associated with other fields; for example, marketing-operations interface will be investigated. Moreover, since we, in practice, usually take advantage of computer and Internet technology to facilitate our management of complicated real systems, we shall lecture the applications of popular software such as Microsoft Excel. All EMBA students are expected to actively participate in all case studies; this does help these students understand the applications of the concepts, strategies and tools learnt from this course to any industry including various manufacturing and service companies.

#### **GENERAL COURSE DESCRIPTION**

Business organizations typically have three basic functional areas—finance, marketing and operations. Among these three functions, the operating process is a value-added one that transforms inputs into finished goods and/or delivered services. In today’s business world, the vast majority of organizations utilize high technology to efficiently manage their operations, and their decisions affect one another so that the management of relationship among these organizations becomes increasingly important. This is a main reason why these years the subject of “operations and supply chain management” has attracted great attention from practitioners and academics. To help practitioners understand important concepts, strategies and analytic tools that are needed while operating an organization in a supply chain, we design this EMBA course with a focus on four key topics that are critical to success of real operating systems.

In order to improve the competitiveness in the marketplace, each organization should first consider how to provide products and services of good quality to match customer needs. Therefore, quality management—especially, in a complicated supply chain structure—is an important issue that we cannot ignore in managing an operating system. Moreover, the practitioners need to find an optimal way to manage the production and inventory systems, so as to control the service level (delivered to customers) and the operating costs. After discussing these three topics, any business organization must identify the importance of cooperation with its supply chain partners; that is, all firms must understand how to deal with the relationship with their business partners to improve their benefits in a win-win situation. This shall be discussed in the topic of supply chain management.

### THREE SPECIFIC TOPICS

We next specify each of four topics by providing our teaching purpose and learning objects, contents to be covered, measurement method, and supporting materials.

#### Topic 1: Quality Management

1. **Purpose and objective:** superior quality can enhance a firm's reputation, increase its market share, increase the loyalty of the customers, reduce the risk of liability claims, reduce costs, and increase productivity. Therefore, an organization's reputation for superior quality can give it a competitive advantage in the marketplace, which demonstrates the importance of quality management in practice. The students are expected to understand the managerial strategies of quality control from learning this topic and be able to apply the basic analytic skills, with the help of Microsoft Excel, to quality control. The students are encouraged to actively participate in all in-class case studies and provide a well-done assignment (after-class case study).
2. **Contents:** this topic covers two major parts:
  - (a) **Total quality management:** we learn how to define “quality”; analyze the dimensions of product and service quality; link customer requirements and product design; understand total quality management—philosophy of quality management.
  - (b) **Statistical quality control.** we learn the inspection-related issues, the construction and use of control charts, and the assessment of process capability. Since this sub-topic concerns the applications of statistics in the quality control, we first, quickly, teach *basic* concepts and skills in statistics and probability theory; but, our focus is to let students understand how to read control charts and get conclusion for quality inspection.

**Example:** Thermobec Inc.

3. **Measurement of learning outcomes:** the measurement is summarized as follows:

| Component  | Weight (in final grade) |
|--|-------------------------|
| <b>In-class case studies:</b> “Seattle Concrete Company” | 15%                     |
| <b>Assignment 1:</b> case study—“Crouse Fuse Company”    | 15%                     |

4. **Teaching and learning resources:**

- **Reference book:**

- (a) D. H. Besterfield, *et al.* “*Total Quality Management*”, 3rd Ed., Prentice Hall, 2003.
- (b) D. L. Goetsch and S. B. Davis. “*Quality Management*”, 5th Ed., Prentice Hall, 2006.
- (c) B. L. Bowerman and R. T. O’Connell. “*Business Statistics in Practice*”, 4th Edition, McGraw-Hill, 2007.
- (d) W. V. Gehrlein. “*Operations Management Cases*”, McGraw-Hill, 2005.
- (e) R. Johnston, *et al.* “*Cases in Operations Management*”, 3rd Ed., Prentice Hall, 2003.

- **Software:** Microsoft Excel.

## Topic 2: Production and Inventory Management

1. **Purpose and objective:** in today’s increasingly competitive marketplace, the push for efficient production, lower inventory, faster response to highly diverse demands, and lower transactions with information technology is relentless; the manufacturing and service organization thus have to work on the effective scheduling of production and inventory systems. This topic emphasizes master techniques in forecasting, replenishment strategies, and in the intermediate- and short-term production planning, and the (basic) analytical approaches to materials management and production planning. Students are expected to understand the process of managing inventory systems and making production and material resource scheduling.

2. **Contents:** this topic includes three major parts:

- (a) **Forecasting:** we learn the basic forecasting techniques with which we can use past data to identify the demand pattern and estimate the future demand. These basic skills include moving average, exponential smoothing (with seasonality), linear regression, etc.

Case: Noyes Rain Gear, Ltd.

- (b) **Strategic management of inventory systems:** we learn how to use our estimated information for customer demand to make optimal ordering decisions, i.e., order quantity and ordering time. We shall focus on managerial insights on the ordering processes rather than the mathematical calculation; for instance, what strategies could be used for inventory management? what functions does the inventory have in practice? How can use the “ABC approach” to manage multi-item inventory systems? What is JIT system? etc.
- (c) **Master production scheduling and material resource planning:** we learn how to make time-phased production decision and then determine the material plan to enable the master production schedule. Moreover, we shall consider the critical question: In which way our material resource planning is optimal?

Case: Susmarski Smoke Detector Co.

3. **Measurement of learning outcomes:** the measurement is summarized as follows:

| Component   | Weight (in final grade) |
|---|-------------------------|
| <b>In-class case studies</b>                                | 15%                     |
| <b>Assignment 2:</b> case study—“Freda Metal Furniture Co.” | 15%                     |

4. **Teaching and learning resources:**

- **Reference books:**

- T. Arnold, *et al.* “*Introduction to Materials Management*”, sixth edition, Prentice Hall, 2008.
- T. Arnold, *et al.* “*Introduction to Materials Management Casebook, Revised Edition*”, second edition, Prentice Hall, 2004.
- T. E. Vollmann, *et al.* “*Manufacturing Planning and Control for Supply Chain Management*”, Fifth Edition, McGraw-Hill Higher Education, 2005.
- W. V. Gehrlein. “*Operations Management Cases*”, McGraw-Hill, 2005.
- R. Johnston, *et al.* “*Cases in Operations Management*”, 3rd Ed., Prentice Hall, 2003.

- **Software:** Microsoft Excel.

### Topic 3: Supply Chain Management

*Note that our lecture for this topic shall depend on our teaching progress.*

1. **Purpose and objective:** the strategic analysis of supply chain design, planning, and operations is of increasing importance to any firm in a supply chain network. This interesting topic arises mainly because today’s companies desire to take advantage of high technology to cooperate for supply chain improvement and induce supply chain coordination under

which they are better off than without cooperation. This gives a critical question: How can firms in a supply chain develop effective strategies for such a cooperation? The students are expected to understand the commonly-used strategies in doing the business with supply chain partners, the applications of high technology in supply chain management, and the mechanisms in supply chain coordination.

2. **Contents:** we shall particularly discuss a variety of strategies that were used in real supply chain operations.

(a) **Introduction to supply chain management:** we discuss the following important questions: (a) what is supply chain management? (b) what is the difference between supply chain management and logistics? (c) why is supply chain management important in today's business world? (d) what are key issues in supply chain management?

(b) **Strategic alliance and supply chain integration:** we identify the importance of supply chain integration, discuss the practical strategies, and learn commonly-used supply chain contracts. Under an effective contract supply chain coordination should be achieved.

Case: Audio Duplication Services, Inc. (ADS)

(c) **Marketing-operations interface in supply chain management:** we learn the impacts of marketing-related strategies on improving supply chain performance. Our discussions mainly concern (a) pricing and revenue management, (b) procurement and outsourcing strategies, and (c) customer value and supply chain management.

Case: Dell

(d) **Information technology for supply chain management:** we learn how information technology shapes today's business pattern, and evaluate the value of information for supply chain coordination.

Case: Amazon.com.

3. **Teaching and learning resources:** the study on this topic needs the following reference books:

(a) D. Simchi-Levi, P. Kaminsky and E. Simchi-Levi. "*Designing and Managing the Supply Chain: Concepts, Strategies & Case Studies*" 3rd Edition, McGraw-Hill Higher Education, 2008.

(b) S. Chopra and P. Meindl. "*Supply Chain Management: Strategy, Planning & Operations*", Pearson, 2007.

(c) G. Cachon and C. Terwiesch. "*Matching Supply with Demand: An Introduction to Operations Management*", McGraw-Hill, 2006.

**GRADING SYSTEM**

| COMPONENT   | WEIGHT                        |
|---|-------------------------------|
| <b>In-Class Group Case Studies</b><br>(e.g., attendance, responses to questions, etc.)                            | 30%<br>(Each topic: 15%)      |
| <b>Two Assignments (After-Class Group Case Studies)</b><br>(Group case reports and <i>possible</i> presentations) | 30%<br>(Each assignment: 15%) |
| <b>Individual Case Study</b><br>(Case: Meditech Surgical)   | 10%                           |
| <b>Final Exam (1.5 hrs.)</b><br>(The exam shall take place on May 30.)  | 30%                           |

**COURSE SCHEDULE**

| DATE   | TOPIC   | NOTES  |
|--|---|--|
| <b>May 16, 2009</b><br>(Saturday)  | <b>Topic 1: Quality Management</b><br>1.1 Total quality management.<br>1.2 Statistical quality control.   | 1. Lecture;<br>2. In-class case studies.<br>3. Tutorial ( <i>tentative</i> )   |
| <b>May 17, 2009</b><br>(Sunday)  | <b>Topic 2: Production and Inventory Management</b><br>2.1 Forecasting;<br>2.2 Strategic Management of Inventory Systems.   | 1. Lecture;<br>2. In-class case studies.<br>3. Tutorial ( <i>tentative</i> )   |
| <b>May 29, 2009</b><br>(Friday)  | <b>Topic 2: Production and Inventory Management</b><br>2.3 Master Production Scheduling and Material Resource Planning.   | 1. Lecture;<br>2. In-class case studies.<br>3. Tutorial ( <i>tentative</i> )   |
| <b>May 30, 2009</b><br>(Saturday)  | <b>Topic 3: Supply Chain Management</b><br>3.1 Introduction to supply chain management;<br>3.2 Strategic alliance and supply chain integration with contracts;<br>3.3 Marketing-operations interface in supply chain management.<br>3.4 Information technology for supply chain management. | 1. Lecture;<br>2. In-class case studies.<br>3. Tutorial ( <i>tentative</i> )<br>4. Final Exam.<br>Note that my lecture for this topic may be shortened if we don't have sufficient time. |
| Final exam <i>would</i> take place in the last class; the exam information is to be announced. |   |  |