Competitive Advantage from Operations
Course Syllabus B01.2314.0U1 (Summer 05)
(Subject to Minor Revisions)

COURSE DESCRIPTION:
This course serves as an introduction to Operations Management. The coverage of the discipline is very selective: We concentrate on a small number of powerful themes that have emerged recently as the central building blocks of world-class operations. We also present a sample of operations management tools and techniques that have been proved extremely useful over the years. The topics are equally relevant in the manufacturing and service sectors.

The course format is very intense. We will meet on three consecutive weeks in August: Thursdays 11, 18, and 25 from (6-9PM), Tuesdays 16, 23, and 30 (6-9PM), and Sundays 14, 21, and 28 (9AM-4PM). Attendance in all sessions is required for full credit. If you have to miss up to one session (3 hours), please notify the instructor in advance. Projects and exams will be due September 06, 2005.

INSTRUCTOR: René Caldentey, Room KMC 8-77, (212) 998-0298
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TEACHING ASSISTANT: T.B.A.

MEETINGS: Tuesdays/Thursdays, 06:00PM – 9:00PM
Sundays, 9:00AM – 4:00PM
Room T.B.A.

TEXT:
Please read at your convenience, but at the very latest by the end of the first week of class.

Other Operations Management References (Optional):

COMPUTER SOFTWARE: EXCEL
Module I: Introduction to Operating Systems: Process Design and Analysis

Session 1: Aug. 11, Production Processes and Process Design

Case assignment:
- Benihana of Tokyo, W. Sasser and J. Klug, Harvard Business School (1998). Read, analyze, and be prepared to discuss the Benihana of Tokyo case. Use the following study questions as an aid in analyzing the case
  a) Describe Benihana as an operating system. (Draw a process flow diagram.) List the relevant inputs, process, and output elements in three columns.
  b) How does the operating system support the Benihana concept?
  c) Which parameters of the operating system influence the throughput of a Benihana Restaurant?
  d) How does the cost structure of a Benihana restaurant compare with that of a typical American restaurant? How does Benihana get its competitive advantage?
  e) What is the proper relationship between the number of tables in the dining room and number of seats in the bar? Assume they want the average customer to stay 24 minutes in the bar.

Homework#1: (Due at the beginning of the class)
Answer questions b) and d) and submit at the beginning of class. Justify your answers.

Session 2: Aug. 14 (AM), Design of Operating Processes
- Types of Operating Processes
- Design of Goods and Services

Session 3: Aug. 14 (PM), Process Flow Analysis I
- Flow Diagram
- Capacity, Throughput Time, Cycle Time
- Gantt Chart
- Bottleneck
- Factors that Affect Throughput and the Bottleneck
  - Order Size
  - Resources (Labor, Supplies)
  - Set-up Time
- Multi Product Analysis

Case assignment:
- Kristen's Cookie Company, Roger Bohn, Harvard Business School (1990). Read, analyze, and be prepared to discuss the Kristen's Cookie Company case, utilizing the six key questions at the end as guides.

Session 4: Aug. 16, Optimal Resource Allocation
- Linear Programming
- Models and Applications
- Sensitivity Analysis and Shadow Prices
Module II: Managing for Competitive Advantage

Session 5: Aug. 18, *Time-to-Market & Responsiveness*
- Project Management
- CPM & PERT
- Crashing the project

Session 6: Aug. 21 (AM), *Quality as a Strategic Issue*
- Quality – Its Definition and Basis for Competition
- Quality Analysis, Measurement and Improvement

Case assignment:
- *Ford-Firestone Case*, Michael Pinedo, Sridhar Seshadri and Eitan Zemel, Stern School of Business, New York University (2001). Read, analyze, and be prepared to discuss the Ford-Firestone case. Use the following study questions as an aid in analyzing the case
  - Is the situation serious? At what point in time? How did it happen? Who is responsible?
  - How companies react to the problem? Could it have been prevented?
  - How can we know if a rollover is caused by a defective tire?
  - When the manufacturer is the responsible for a tire failure?

Session 7: Aug. 21 (PM), *Process Improvement and Statistical Quality Control*
- Continuous improvement & Six Sigma
- Control Charts

Case assignment:
- Read, analyze and be prepared to discuss the quality control issues in the South Tree Electronics case. In analyzing South Tree's quality control problem the following study questions may help:
  - Indicate on the process diagram, all current inspection points and note the accumulated cost and yield of each operation and test in the process.
  - How many circuits must you start with to achieve the desired output level?
  - At what yield rate would you be indifferent between continuing and discontinuing the first inspection in the process?

Session 8: Aug. 23, *The Effects of Uncertainty–Waiting Lines & Queueing Theory*
- Characteristics of a Waiting-Line System
  - Arrival, Waiting Line, Service Characteristics
  - Measuring the Queue’s Performance
  - Queuing Costs
- Psychology of Queues
**Module III:** Supply Chain Management

**Session 9:** Aug. 25, *Inventory Concepts and Models*
- Importance of Inventory
- Inventory Measures
- EOQ and Periodic Review Models

Case assignment:
- Read, analyze and be prepared to discuss Read Hewlett-Packard Company Case. Use the following study questions as an aid in analyzing the case.
  - What is causing the inventory crisis?
  - What changes in the SC and its management would be necessary to implement the generic European product option?
  - How would different alternatives available to Brent affect the SC? What would you recommend?

**Session 10:** Aug. 28 (AM), *Inventory in Action*
- Stochastic Inventory Management
- Newsboy Model
- The Beer Game

Case assignment:
Read and be prepared to discuss the *L.L. Bean, Inc.* case

**Session 11:** Aug. 28 (PM), *Supply Chain Management*

Case assignment:
Read and be prepared to discuss the *Dell Direct* case.
What are the operational factors that contribute to Dell’s competitive advantage?
In your opinion, what should Dell do to keep their competitive advantage?

**Session 12:** Aug. 30, *Class Review and Wrap-Up*

**Grades:**

- Class Participation: 20%
- Homeworks: 40%
- Final Exam: 40% (Take-home exam due Tuesday September 06)