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REQUIRED COURSE MATERIALS:

CUSTOM TEXT: Competitive Advantage From Operations; a customized text created for Stern students including
- NYU Cases and Readings
- Harvard Cases and Readings.
This book was prepared by Pearson Custom Publishing.


COMPUTER SOFTWARE: EXCEL
MATERIALS REQUIRED


COMPUTER SOFTWARE: NYU Software Packages
- EXCEL

HARVARD CASES (Included in Custom Text)
- BENIHANA OF TOKYO
- KRISTENS COOKIE CO.
- DONNER COMPANY
- BLANCHARD IMPORTING AND DISTRIBUTING COMPANY, INC.

STANFORD CASE
- DELL DIRECT

OTHER MATERIAL (Included in Custom Text)
- TERMS USED IN OPERATIONS MANAGEMENT
- HOM INTRODUCTION
- ANALYSIS OF OPERATIONS
- FCN SECURITIES DEMO (A), (B) AND (C)
- NETWORK CASES
- WAITING LINES
- FIRST CITY NATIONAL BANK
- SOUTH TREE ELECTRONICS
- INDEPENDENT DEMAND INVENTORY SYSTEMS

THE GOAL, Second revised edition (Buy in Bookstore), Eliyahu Goldratt, North River Press, Inc. 1992
SYLLABUS

COMPETITIVE ADVANTAGE FROM OPERATIONS

MODULE 1: Introduction to Operating Systems: Process Design and Analysis

SESSION 1: INTRODUCTION — OPERATIONS AS A SOURCE OF COMPETITIVE ADVANTAGE

1. Read The Goal by E.M. Goldratt (should be completed within four weeks of start of course)
2. To be discussed in class, a systematic approach to problem solving

SESSION 2: PROCESS DESIGN

1. Read Chapter 1 in Heizer and Render (H&R)
2. Read Analysis of Operations
3. 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.
4. Homework: Answer question (d) and submit at the beginning of class. Retain a copy of homework submitted.

SESSION 3: OPERATING SYSTEMS — TYPES OF OPERATING
PROCESSES

1. Read Chapter 7, pages 231-246 in H&R.
2. Read Terms Used In Operations Management.
3. Discussion questions 2, 4, 9, 11, 12, 13, and 14 in H&R (p. 268-269)

SESSION 4: DESIGN OF GOODS AND SERVICES

1. Read Chapter 7, pages 241-249 in H&R
2. Read Chapter 5, pages 139-141 and 153-157 in H&R
3. Read Chapter 15, pages 637-639 in H&R
4. You should have finished (or almost finished) reading The Goal.

REMINDER: TERM PROJECT 1 DUE SESSION 8.
THE COMPANY MUST BE IDENTIFIED BY THE NEXT CLASS SESSION

SESSION 5: PROCESS ANALYSIS

1. Read Chapter 7, pages 251-256 in H&R.
2. Read, analyze and be prepared to discuss the Kristen’s Cookie Company case utilizing the six key questions at the end as guides.
3. Homework: What are the cycle time, throughput time, and capacity of each operation and the whole production system? Submit this analysis at the beginning of class.
4. Draw a Gantt chart for Kristen’s operation assuming orders are for two-dozen cookies.
5. Your Group must Submit the name, address, and brief (1 or 2 sentences) description of the company you are electing for your Group Term Project.

SESSION 6: THE EFFECTS OF SET-UP TIME ON CAPACITY

1. Read the Donner Company case. Use the EXCEL spreadsheets discussed in class (Donner.xls and Donner1.xls) to analyze and understand the relationships between number of orders (set-ups) in a month, order size, and capacity
2. Use the following study questions as guides in analyzing the case:
   a) Describe Donner as an operating process. To simplify this task, consider only the flow of the most important output.
   b) Assume Donner has to process 60 orders in a certain month. What is the capacity (in terms of the number of boards) of each operation and of the entire system?
c) What factors influence the capacity of the entire system? What is the current utilization of the machines?
d) What was the efficiency of Donner?
e) What are the causes of the major problems described at the end of the case? How would you propose to resolve them?

MODULE 2: Managing for Competitive Advantage:
Time-to-Market & Responsiveness

SESSION 7: TIME BASED COMPETITION

1. Read Chapter 16 in H&R. Attempt the discussion questions at the end of the chapter. These do not have to be submitted.
2. Six project management exercises have been assigned. Draw the networks for the projects described in the FCN/Securities Demo (A) exercise, and the Allied Distributing exercise.
3. Homework: Submit your network of FCN/Securities Demo (A) at the beginning of class.

SESSION 8: PROJECT MANAGEMENT

1. Read, analyze and be prepared to discuss the other four project management network cases (exercises) assigned in class: FCN (B), FCN (C), Specialty Contractors, and Aerospace Components.
2. Homework: Submit an analysis and solution to the FCN(B) case.

Term Project 1: Prepare and submit (at the beginning of class) a definition of the organization you have chosen in terms of:

a) Goals of the organization
b) Product or service offered
c) Market
d) Competitive strategy
e) Customers
f) Workers

SESSION 9: THE EFFECTS OF UNCERTAINTY - WAITING LINES

1. Read Quantitative Module D in H&R on Waiting Lines and Queuing Theory.
2. Read the article Waiting Lines.
3. Prepare the sixteen discussion questions at the end of Module D in H&R (p. 823-824).

REMINDER: TERM PROJECT 2 DUE SESSION 12

SESSION 10: QUEUING THEORY IN ACTION

1. Homework: Submit the solutions to problems 1, 2, 3 and 4 in H&R (p. 824-825).
2. Read, analyze, and be prepared to discuss the First City National Bank case. The following study questions will help:
   a) Considering the data supplied for arrival and service times, how would you calculate an average arrival rate and service rate?
   b) As Mr. Craig, what characteristics of this queuing system would you be most interested in observing?
   c) What is the best number of tellers to use?
   d) Calculate the waiting time for a customer (time spent in the queue before service) and determine which of the two line configurations you would recommend? Support your result with the appropriate quantitative queuing analysis.

SESSION 11: AN INTRODUCTION TO SIMULATION

1. Read Quantitative Module F in H&R on simulation.
2. Discussion questions 1, 2, 4, 5, 7, 10, 11, 12 and 13 H&R (p. 865)
3. Prepare problem F.1 H&R (p. 866)

SESSION 12: USE OF SIMULATION AS A PROBLEM SOLVING TOOL FOR OPERATING SYSTEMS

1. Homework: Consider the First City National Bank case again. By hand, simulate and submit 25 arrivals (track them through the bank) using the interarrival time distribution and service time distribution given in the case, with three tellers, for each of the two line arrangements. Identify assumptions that are necessary?
2. Consider the First City National Bank case again. What are the advantages of using simulation to study this operation? What are the limitations?
3. Which alternative arrangement of teller lines should Mr. Craig select based on the simulations?

Term Project 2: Prepare and submit (at the beginning of class) a description of the workflow in your organization. Follow these suggested questions for your description: What are the tasks and how are they linked, ordered, etc.? What/where/when do they
receive raw materials, subassemblies, etc.? At what stage of the process are outputs produced? How does information flow? Is your organization a flow, job or project shop? Draw a process diagram. What are the measures of capacity for the organization? What is its capacity? Do you notice any activities that do not add value to the organization? (4-5 pages).

SESSION 13: REVIEW OF COURSE TO DATE

SESSION 14: MIDTERM EXAM

MODULE 3: Managing for Competitive Advantage: Quality as a Strategic Issue

SESSION 15: QUALITY — ITS DEFINITION AND BASIS FOR COMPETITION

1. Preview of the next half of the course.
2. Read Chapter 6 in H&R.
3. Discussion questions 5,19,11 and 12 H&R (p.189).

SESSION 16: QUALITY ANALYSIS, MEASUREMENT AND IMPROVEMENT

1. Review of the Mid-term exam.
2. Read the Firestone Tire case and be prepared to discuss it.
3. Prepare and Submit a Fishbone Diagram of the problem.

REMEMBER: TERM PROJECT 3 DUE SESSION 19

SESSION 17: STATISTICAL QUALITY CONTROL

Read the Supplement to Chapter 6 in H&R.

SESSION 18: QUALITY IMPROVEMENT
1. Read, analyze and be prepared to discuss the quality control issues in the South Tree Electronics case.
2. In analyzing South Tree's quality control problem the following study questions may help:
   a) Indicate on the process diagram, all current inspection points and note the accumulated cost and yield of each operation and test in the process.
   b) How many circuits must you start with to achieve the desired output level?
   c) At what yield rate would you be indifferent between continuing and discontinuing the first inspection in the process?
3. Homework: Calculate and submit the cost of a good S-39 circuit. Show all work.

MODULE 4: Managing for Competitive Advantage: Inventory Concepts and Models

SESSION 19: INVENTORY / LOGISTICS

1. Read Chapter 12 in H&R.
2. Read the article Independent Demand Inventory Systems
3. Read the Blanchard Company case.
4. How applicable is the EOQ/ELS model for Blanchard?

Term Project 3: (You may choose to do either Term Project 3 or 4.) Prepare and submit (at the beginning of class) answers to the following questions: How does quality affect your operations? Does it affect throughput, demand, facility/staff size etc.? How do you define and measure quality? How would you go about improving quality? (3-4 pages).

SESSION 20: THE ROLE OF INVENTORY - THE TRADITIONAL VIEW

1. Read, analyze and be prepared to discuss the Blanchard Company case using the following study guide questions:
   a) Determine which costs should be included to perform EOQ/ELS calculations.
   b) What are the assumptions of EOQ/ELS model that Blanchard has?
   c) Briefly describe the inventory system designed by Bob and Elliot.
   d) Evaluate this system by identifying the major advantages and disadvantages.
   e) What is Blanchard's shortage costs for its products?
2. Homework: Answer and submit questions (c) and (d) above.

REMEMBER: TERM PROJECT 4 DUE SESSION 23

SESSION 21: INVENTORY MANAGEMENT AND ITS OPERATIONAL
IMPLICATIONS

1. Read Chapter 11 and the Supplement to Chapter 11 in H&R.
2. Read and be prepared to discuss the Dell Direct case.
3. Answer the following questions?
   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 22: INVENTORY IN ACTION: THE BEER GAME

THIS CLASS WILL MEET IN KMC 11-185, BE ON TIME !!

SESSION 23: JUST-IN TIME and LEAN PRODUCTION

1. Debrief of the Beer Game
2. Read the Supplement to Chapter 12 in H&R on Just-in-Time systems.
3. Discussion questions 1,4,5,6,8,9 and 10 H&R (p.532).

Term Project 4: Prepare and submit (at the beginning of class) answers to the following questions: Can your product or service be inventoried? How does your organization handle inventory? What policy does it use for replenishment? How would you implement a "Just-in-Time" philosophy in your environment?

MODULE 5: Allocating Resources for Strategic Capacity Planning

SESSION 24: THE BASIC LINEAR PROGRAMMING (LP) PROBLEM

1. Read Quantitative Module B: Linear Programming in H&R (pages 739-760). You may do the first reading for a quick overview.
2. Read (more carefully) pages 739-743, again.
3. Homework: Submit discussion questions 1,2,3,7,8 and 9 H&R (p.764).
5. Be sure you get the handout with five extra problems.

SESSION 25: SOLUTION TECHNIQUES: GRAPHICAL METHOD AND ENUMERATING THE CORNER POINTS

1. Read pages 743-749 in Quantitative Module B (H&R).
2. Homework: Solve and submit problems 1-5 on the Hand-out Sheet using (a) Graphical and (b) Enumerating the Corner Points methods.

SESSION 26: LP SOLUTION (LINDO OR EXCEL INTERPRETATION)

1. Solve problems 1-5 on the Hand-out Sheet using LINDO or EXCEL method.
2. Solve Problem B.1 and B.2 on page 764, using this method.
3. Interpretation of the results

SESSION 27: USING THE LP MODEL

1. Read pages 749-760 in Quantitative Module B (H&R).
2. Read, analyze, and be prepared to discuss the Otto Development Corporation case.

SESSION 28: REVIEW OF COURSE TO DATE

Note: This is a Wednesday Session

SPECIAL SESSION

Final Project Report

(Time and Room to be discussed in class)

Please submit the Final Project Report of the Term Project at this all-day session. The final report consists of the three earlier reports plus a 2-3 page executive summary. In the executive summary, list your conclusions and recommendations to management and discuss possible implementation. You may want to consider the comments you have received on earlier reports.

Prepare a 15-minute PowerPoint presentation to be given to the entire class.

FINAL EXAMINATION T.B.A.

GRADING

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<th>Component</th>
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<tbody>
<tr>
<td>Class Participation, Attendance</td>
<td>10%</td>
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<tr>
<td>Mid-Term Examination (Open book)</td>
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<td>Final Examination (Open book)</td>
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<tr>
<td>Short Reports, Term Project (Group work)</td>
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TERM PROJECT
Groups of students (maximum 5) will be formed to undertake a term project as part of the course requirements. Your group will choose a local operation to study (preferably, select an operation that is not located between 8th Street and Houston Street). Examples are: a branch of a bank, green-grocery, super market, restaurant, auto-body shop, record store, drug store, copy shop, etc.
At four times during the course, you will be asked to submit a short report that describes and analyzes a different aspect of the operating system of the company that you have selected. You must submit the first two reports, and you have a choice of doing either the third or fourth report. Your responses in these short papers will form the basis of the final term project that will be handed-in at the end of the semester.

HOMEWORK
You will be assigned homework on a class-to-class basis for each topic. The homeworks are due on the dates (sessions) where the assignments appear in the syllabus. Only homeworks that are specifically designated as SUBMIT are to be handed-in at the beginning of class. Keep a copy of all homework submitted for reference during class. When discussion questions are involved, please answer briefly (two or three sentences). Homework will be graded, and will not be accepted late. They must be prepared individually in order to receive credit.

QUIZZES
A quiz might be given in any class in which a case is to be discussed. The quiz will relate to facts given in the case and study questions asked in the syllabus.

HOW TO PREPARE FOR CLASS DISCUSSIONS
Please read the cases carefully. Use the study questions supplied in the syllabus as a guide. Be prepared to be called-upon to present the facts of the case, or to carry out the analysis indicated by the study questions.