

(12/21/08)

**BA 380N: OPERATIONS MANAGEMENT**

Texas MBA at Houston

Cohort 2

Spring 2010 Semester

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**COURSE DESCRIPTION**

Operations Management (OM) involves the systematic planning, design, operation, control, and improvement of businesses processes. Managing operations is vital to every organization, for it is only through the effective and efficient utilization of resources that an organization can be successful in the long run. This is especially true today, when we see that significant competitive advantages accrue to those firms that manage their operations effectively (as exemplified by several American and Japanese companies).

This course is conceptually structured in two sections:

**Section I: Process Analysis, Process Cost Structure, Projects, and Uncertainty**

In this section, we focus on developing skills in detailed analysis of processes and process cost structures. We follow up with an introduction to project management. Throughout we address uncertainty in its various manifestations: process, inventory and project. This toolkit will be central to dealing with the more strategic concepts introduced in the second section of the course.

**Section 2: Some Essential Topics in OM**

In this section, we study a number of topics in OM including statistical process control, Toyota Production System, and supply chain management. The primary learning method in this section is case analysis. We also study strategies for improving the competitiveness of a firm by focusing on its fundamental business processes.

**COURSE LEARNING OBJECTIVES**

In this course, we present several analytical techniques – such as risk pooling, waiting line analysis, and network diagramming – which will aid you in managing processes in the real world. However, when analytical tools are not available, we will seek a careful understanding and clear articulation of the situation at hand, identification of the options and strategies available, and analysis of the tradeoffs involved in choosing from among the various options. At the end of this course, you should have:

gained an improved understanding of

- how every organization uses processes to transform inputs into goods and services

- the importance of careful design, operation, and improvement of business processes
- the competitive potential of sound operations management

and acquired the skills to

- analyze any manufacturing or service process to uncover improvement opportunities
- recommend process improvement along the dimensions of efficiency, quality, and speed

## **TEACHING/LEARNING METHODOLOGY**

This course is a mixture of lectures, case discussions and problem solving. The readings for the class consist of some cases and articles, some learning notes we have written to help clarify a few of the more difficult concepts that we cover, and the following books:

*Matching Supply with Demand* (hereafter denoted by *MSWD*) by Cachon and Terwiesch (This is the text for the course. But we shall use this more as a reference. Please read the assigned sections of this text somewhat lightly at first. Go back for a re-read as you deem useful after we discuss the topic in class.)

*Critical Chain* by E. Goldratt (We shall discuss this book in class on January 15. Please read this book before then)

*The Goal: A Process of Ongoing Improvement* by E. Goldratt and J. Cox (We shall discuss this ‘novel’ in class on February 12. Please read this book before then).

In preparing for case discussions, you are strongly encouraged to work with others in the class. Suggested questions to help you prepare for case discussions are provided in the syllabus. These questions should serve only as a starting point.

Homework is assigned to help you validate your understanding of the material prior to the final exam. The purpose of homework assignments is to reinforce learning and promote class preparedness; thus you are free to work with others in the class in solving these problems. But the answer that you turn in must be your work product. Effort and completeness are the primary criteria for homework credit.

You and we will work together to create the best learning environment that we can. In the spirit of continuous improvement, we will ask for written feedback at the end of the semester – however, your informal feedback is also critical. Please let us know throughout the semester, individually or collectively, if there is anything we can do to make this class better for you.

## **PERFORMANCE EVALUATION**

The final grade in this class will be based on your demonstrated performance as follows:

Homework	20 %
Class Participation	20 %
Group Case Report (Due on Saturday, February 27)	20 %
Final Exam (Saturday, April 3, 9:30 am – 1:30 pm)	40 %
Total	100%

The (MBA Policy Committee) recommended grade point average for this course is 3.4 plus/minus 0.1, which translates roughly as follows: 40-50% A/A-; 40-50% B+/B/B-; and 5-10% below B-.

## **McCombs Classroom Professionalism Policy**

The highest professional standards are expected of all members of the McCombs community. The collective class reputation and the value of the Texas MBA experience hinges on this.

Faculty are expected to be professional and prepared to deliver value for each and every class session. Students are expected to be professional in all respects.

### **The Texas MBA classroom experience is enhanced when:**

- **Students arrive on time.** On time arrival ensures that classes are able to start and finish at the scheduled time. On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- **Students display their name cards.** This permits fellow students and faculty to learn names, enhancing opportunities for community building and evaluation of in-class contributions.
- **Students minimize unscheduled personal breaks.** The learning environment improves when disruptions are limited.
- **Students are fully prepared for each class.** Much of the learning in the Texas MBA program takes place during classroom discussions. When students are not prepared they cannot contribute to the overall learning process. This affects not only the individual, but their peers who count on them, as well.
- **Students respect the views and opinions of their colleagues.** Disagreement and debate are encouraged. Intolerance for the views of others is unacceptable.
- **Students do not speak unless they are speaking to the entire class.** Unless otherwise instructed by the instructor, please do not engage in private conversations, however short or innocuous, while the class is in progress. They are disruptive and discourteous to the speaker. Raise your hand if you have a question or comment.
- **Laptops are closed and put away.** When students are surfing the web, responding to e-mail, instant messaging each other, and otherwise not devoting their full attention to the topic at hand they are doing themselves and their peers a major disservice. Those around them face additional distraction. Fellow students cannot benefit from the insights of the students who are not engaged. Faculty office hours are spent going over class material with students who chose not to pay attention, rather than truly adding value by helping students who want a better understanding of the material or want to explore the issues in more depth. Students with real needs may not be able to obtain adequate help if faculty time is spent repeating what was said in class. There are often cases where learning is enhanced by the use of laptops in class. Faculty will let you know when it is appropriate to use them. In such cases, professional behavior is exhibited when misuse does not take place.
- **Phones and wireless devices are turned off.** We've all heard the annoying ringing in the middle of a meeting. Not only is it not professional, it cuts off the flow of discussion when the search for the offender begins. When a true need to communicate with someone outside of class exists (e.g., for some medical need) please inform the professor prior to class.

Remember, you are competing for the best faculty McCombs has to offer. Your professionalism and activity in class contributes to your success in attracting the best faculty to this program.

### **Academic Dishonesty**

We have no tolerance for acts of academic dishonesty. Such acts damage the reputation of the school and the degree and demean the honest efforts of the majority of students. The minimum penalty for an act of academic dishonesty will be a zero for that assignment or exam.

The responsibilities for both students and faculty with regard to the Honor System are described on <http://mba.mcombs.utexas.edu/students/academics/honor/index.asp> and on the final pages of this syllabus. As the instructors for this course, we agree to observe all the faculty responsibilities described therein. During Orientation, you signed the Honor Code Pledge. In doing so, you agreed to observe all of the student responsibilities of the Honor Code. If the application of the Honor System to this class and its assignments is unclear in any way, it is your responsibility to ask us for clarification.

As specific guidance for this course,

- (1) Do not use any materials (packet of overheads, homework, course notes, handouts, exams, homework solutions, case summaries) from previous semesters or from other sections of the course being offered in this semester unless the same has been made available by us to every one of your fellow students in this class.
- (2) Homework assignments are to be turned in individually but we encourage you to work together with others in the class in solving these assignments. Note that the *writing* of these assignments that you turn in must be your work product. No Xerox copies or cutting and pasting the work of others please.
- (3) The group case report should be prepared without any help from outside your group.
- (4) The final exam is strictly an individual assignment.
- (5) Group study for learning the course material is encouraged. Group preparation for case discussions and the final examination is acceptable and encouraged.

### **Students with Disabilities**

Upon request, the University of Texas at Austin provides appropriate academic accommodations (SSD) is housed in the Office of the Dean of Students, located on the fourth floor for qualified students with disabilities. Services for Students with Disabilities floor of the Student Services Building. Information on how to register, downloadable forms, including guidelines for documentation, accommodation request letters, and releases of information are available online at <http://deanofstudents.utexas.edu/ssd/index.php>. Please do not hesitate to contact SSD at (512) 471-6259, VP: (512) 232-2937 or via e-mail if you have any questions.

### **Honor Code Purpose**

Academic honor, trust and integrity are fundamental to The University of Texas at Austin McCombs School of Business community. They contribute directly to the quality of your education and reach far beyond the campus to your overall standing within the business community. The University of Texas at Austin McCombs School of Business Honor System promotes academic honor, trust and integrity throughout the Graduate School of Business. The Honor System relies upon The University of Texas Student Standards of Conduct (Chapter 11 of the Institutional Rules on Student Service and Activities) for enforcement, but promotes ideals that are higher than merely enforceable standards. Every student is responsible for understanding and abiding by the provisions of the Honor System and the University of Texas Student Standards of Conduct. The University expects all students to obey the law, show respect for other members of the university community, perform contractual obligations, maintain absolute integrity and the highest standard of individual honor in scholastic work, and observe the highest standards of conduct. Ignorance of the Honor System or The University of Texas Student Standards of Conduct is not an acceptable excuse for violations under any circumstances.

The effectiveness of the Honor System results solely from the wholehearted and uncompromising support of each member of the Graduate School of Business community. Each member must abide by the Honor System and must be intolerant of any violations. The system is only as effective as you make it.

### **Faculty Involvement in the Honor System**

The University of Texas at Austin McCombs School of Business Faculty's commitment to the Honor System is critical to its success. It is imperative that faculty make their expectations clear to all students. They must also respond to accusations of cheating or other misconduct by students in a timely, discrete and fair manner. We urge faculty members to promote awareness of the importance of integrity through in-class discussions and assignments throughout the semester.

### **Expectations Under the Honor System**

#### **Standards**

If a student is uncertain about the standards of conduct in a particular setting, he or she should ask the relevant faculty member for clarification to ensure his or her conduct falls within the expected scope of honor, trust and integrity as promoted by the Honor System. This applies to all tests, papers and group and individual work. Questions about appropriate behavior during the job search should be addressed to a professional member of the Career Services Office. Below are some of the specific examples of violations of the Honor System.

#### **Lying**

Lying is any deliberate attempt to deceive another by stating an untruth, or by any direct form of communication to include the telling of a partial truth. Lying includes the use or omission of any information with the intent to deceive or mislead. Examples of lying include, but are not limited to, providing a false excuse for why a test was missed or presenting false information to a recruiter.

#### **Stealing**

Stealing is wrongfully taking, obtaining, withholding, defacing or destroying any person's money, personal property, article or service, under any circumstances. Examples of stealing include, but are not limited to, removing course material from the library or hiding it from others, removing material from another person's mail folder, securing for one's self unattended items such as calculators, books, book bags or other personal property. Another form of stealing is the duplication of copyrighted material beyond the reasonable bounds of "fair use." Defacing (e.g., "marking up" or highlighting) library books is also considered stealing, because, through a willful act, the value of another's property is decreased. (See the appendix for a detailed explanation of "fair use.")

#### **Cheating**

Cheating is wrongfully and unfairly acting out of self-interest for personal gain by seeking or accepting an unauthorized advantage over one's peers. Examples include, but are not limited to, obtaining questions or answers to tests or quizzes, and getting assistance on case write-ups or other projects beyond what is authorized by the assigning instructor. It is also cheating to accept the benefit(s) of another person's theft(s) even if not actively sought. For instance, if one continues to be attentive to an overhead conversation about a test or case write-up even if initial exposure to such information was accidental and beyond the control of the student in question, one is also cheating. If a student overhears a conversation or any information that any faculty member might reasonably wish to withhold from the student, the student should inform the faculty member(s) of the information and circumstance under which it was overheard.

### **Actions Required for Responding to Suspected and Known Violations**

As stated, everyone must abide by the Honor System and be intolerant of violations. If you suspect a violation has occurred, you should first speak to the suspected violator in an attempt to determine if an infraction has taken place. If, after doing so, you still believe that a violation has occurred, you must tell the suspected violator that he or she must report himself or herself to the course professor or Associate Dean of the Graduate School of Business. If the individual fails to report himself or herself within 48 hours, it then becomes your obligation to report the infraction to the course professor or the Associate Dean of the Graduate School of Business. Remember that although you are not required by regulation to take any action, our Honor System is only as effective as you make it. If you remain silent when you suspect or know of a violation, you are approving of such dishonorable conduct as the community standard. You are thereby precipitating a repetition of such violations.

### **The Honor Pledge**

The University of Texas at Austin McCombs School of Business requires each enrolled student to adopt the Honor System. The Honor Pledge best describes the conduct promoted by the Honor System. It is as follows:

"I affirm that I belong to the honorable community of The University of Texas at Austin Graduate School of Business. I will not lie, cheat or steal, nor will I tolerate those who do."

"I pledge my full support to the Honor System. I agree to be bound at all times by the Honor System and understand that any violation may result in my dismissal from the Graduate School of Business."

## COURSE OUTLINE (Cohort 2)

### **BLOCK 1            OPERATIONAL EXCELLENCE**

(Saturday, January 9, 10:15-12:00)

Britt Freund

Topics:            Taking a Process Viewpoint  
Service Operations

Preparation:    *MSWD* Chapter 1: Introduction  
“Deep Change” by M. Hammer  
Benihana of Tokyo Case  
Nation’s Restaurant News, 16 February 2004  
Nation’s Restaurant News, 2 August 2004

Homework Due: None

Exercises/Cases: Benihana of Tokyo

### **BLOCK 2            UNDERSTANDING PROCESSES**

(Saturday, January 9, 13:00-14:45)

Britt Freund

Topics:            The Process Flow Diagram  
Terminology

Preparation:    *MSWD* Chapter 3: Understanding the Supply Process...  
*MSWD* Chapter 4: Estimating and Reducing Labor Costs

Homework Due: None

Exercises/Cases: None

### **BLOCK 3            INVENTORY**

(Saturday, January 9, 15:15-17:00)

Britt Freund

Topics:            Role of Inventory  
Inventory Buildup

Preparation:    *MSWD* Chapter 2: The Process View of the Organization

Homework Due: None

Exercises/Cases: None

### **OPTIONAL HOMEWORK REVIEW SESSION**

(Saturday, January 9, 17:15-18:15)

### **BLOCK 4            COST STRUCTURE**

(Friday, January 15, 16:00-17:45)

Britt Freund

Topics:            Key Financial Relationships

Sensitivity of Profit to Volume  
Arbitrage Opportunities  
Pricing and Outsourcing Decisions

Preparation: MSWD Chapter 5: The Link between Operations and Finance

Homework Due: HW #1 – Process Analysis  
HW #2 – Inventory Buildup

Exercises/Cases: MD Anderson Blood Clinic

## **BLOCK 5 UNDERSTANDING PROJECTS**

(Friday, January 15, 18:15-20:00)

Britt Freund

Topics: Projects as a Type of Process  
Projects, Programs, and Portfolios  
Scheduling Activities – CPM  
Resource Considerations  
Critical Chain

Preparation: POM Chapter 3: Project Management  
“Projects, Programme or Portfolio – What’s in a Word?” by P. Simon  
“Critical Chain” by E. Goldratt

Homework Due: None

Exercises/Cases: None

## **BLOCK 6 DEALING WITH UNCERTAINTY**

(Saturday, January 16, 08:00-09:45)

Britt Freund

Topics: Attitudes towards Risk and Uncertainty  
Estimating Variability  
Understanding the Range Estimate  
Establishing a Point Estimate

Preparation: None

Homework Due: None

Exercises/Cases: None

## **OPTIONAL HOMEWORK REVIEW SESSION**

(Saturday, January 16, 17:15-18:15)

## **BLOCK 7 PROCESS UNCERTAINTY**

(Saturday, January 30, 10:15-12:00)

Britt Freund

Topics: Arrival/Service Time Variability  
Simple Queueing Models

Risk Pooling  
The Generalized Tradeoff

Preparation: MSWD Chapter 7: Variability... Waiting Time Problems  
MSWD Chapter 8: Variability... Throughput Losses

Homework Due: None

Exercises/Cases: HW #3 – Cost Structure  
HW #4 – Project Planning

## **BLOCK 8 INVENTORY UNCERTAINTY**

(Saturday, January 30, 13:00-14:45)

Britt Freund

Topics: Inventory Review Policies  
Newsvendor Model  
Service Level  
Assortment Decisions

Preparation: A Note on Inventory Control Systems  
MSWD Chapter 11: ... The Newsvendor Model  
Retail Inventory and Shelf-Space Allocation

Homework Due: None

Exercises/Cases: None

## **BLOCK 9 PROJECT UNCERTAINTY**

(Saturday, January 30, 15:15-17:00)

Britt Freund

Topics: PERT Scheduling  
Impact on Cost and Schedule  
Project Buffers  
Contingency Budgets

Preparation: None

Homework Due: None

Exercises/Cases: None

## **OPTIONAL HOMEWORK REVIEW SESSION**

(Saturday, January 30, 17:15-18:15)

Note - there would be three homeworks due the next class weekend:

- Homework 5 – Process Planning
- Homework 6 – Inventory Policies
- Homework 7 – Cost and Schedule Estimation

## **BLOCK 10 OPERATIONAL EXCELLENCE**

(Friday, February 12, 16:00-17:45)

Rayan Bagchi

Topics: Strategic Fit  
Key Financial Relationships  
Utilization and Turnaround Time  
SWA as a Flexible Manufacturer

Preparation: 1. Southwest Airlines in Baltimore case  
2. Southwest Airlines in Baltimore (Supplement) case  
3. *The Goal* by E. Goldratt and J. Cox

Case Questions:

1. How does Southwest Airlines (SWA) compete? What are its advantages relative to other airlines? What are its disadvantages? (Section 5.4 of Cachon & Terwiesch is a useful resource.)
2. SWA's operations strategy has been likened to that of a flexible manufacturer. Explain.
3. Evaluate the plane turnaround process at Baltimore (resource utilization, capacity, bottlenecks, information flows, etc.). How is the process working?
4. Why is the operational performance at Baltimore eroding?

Homework Due: HW #5 (Process Planning)  
HW #6 (Inventory Policies)  
HW #7 (Cost and Schedule Estimation)

Exercises/Cases: Southwest Airlines in Baltimore case  
Southwest Airlines in Baltimore (Supplement) case

## **BLOCK 11 OPERATIONAL EXCELLENCE (continuation of BLOCK 10); THEORY OF CONSTRAINTS**

(Friday, February 12, 18:15-20:00)

Rayan Bagchi

Topics: Same as for BLOCK 10  
Lessons from *The Goal*

Preparation: 1. Southwest Airlines in Baltimore case  
2. Southwest Airlines in Baltimore (Supplement) case  
3. *The Goal* by E. Goldratt and J. Cox

Case Questions: Same as for BLOCK 10

Questions for *The Goal*:

1. What is the marginal value of time at bottlenecks? At non-bottlenecks?
2. What is the importance of statistical fluctuations and dependent events? How do you justify Jonah's wisdom: "Balance flow, not capacity."? Why have Herbie in the front?
3. How does batch (process and transfer) size affect WIP and lead times?
4. Explain the limitations of traditional cost accounting information.

Homework Due: None

Exercises/Cases: Southwest Airlines in Baltimore case  
Southwest Airlines in Baltimore (Supplement) case

## **BLOCK 12 COMPETING ON TIME**

(Saturday, February 13, 08:00-09:45)

Rayan Bagchi

Topics: Analysis and Design of Queueing Systems  
Economics of Waiting

Preparation: 1. MSWD Chapter 7: Waiting Time Problems  
2. Manzana Insurance case

Case Questions:

1. What is the major competitive threat faced by Fruitvale?
2. What bottlenecks are revealed by the utilization analysis shown below?
3. It is commonly believed at Fruitvale that RUNs are the most profitable jobs? Is this belief justified?
4. Consider how TAT (turnaround time) is calculated (page 6 and Exhibit 3). Is this correct?
5. Make a few recommendations to improve Fruitvale's performance.

<b>MANZANA INSURANCE - Utilization Analysis (1991, 120 days, 450 minutes per day)</b>					
<b>Service Time Means: (From Exhibit 4)</b>	<b>RUNs</b>	<b>RAPs</b>	<b>RAINs</b>	<b>RERUNs</b>	<b>Average Policy</b>
<b>DC</b>	<b>68.5 mins.</b>	<b>50.0</b>	<b>43.5</b>	<b>28.0</b>	<b>40.97</b>
<b>UT</b>	<b>43.6</b>	<b>38.0</b>	<b>22.6</b>	<b>18.7</b>	<b>28.4<sup>1</sup></b>
<b>RT</b>	<b>75.5</b>	<b>64.7</b>	<b>65.5</b>	<b>75.5</b>	<b>70.39</b>
<b>PW</b>	<b>71.0</b>	<b>#N/A</b>	<b>54.0</b>	<b>50.1</b>	<b>54.78</b>
<b>Arrivals (Total): (From Exhibit 7)</b>	<b>350</b>	<b>1798</b>	<b>451</b>	<b>2081</b>	<b>4680</b>
<b>Arrivals Percentage: (From Exhibit 7)</b>					
<b>Territory 1</b>	<b>46.3</b>	<b>42.3</b>	<b>43.5</b>	<b>30.6</b>	
<b>Territory 2</b>	<b>28.6</b>	<b>28.5</b>	<b>27.7</b>	<b>40.3</b>	
<b>Territory 3</b>	<b>25.1</b>	<b>29.2</b>	<b>28.8</b>	<b>29.1</b>	
<b>(Total)</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Utilizations (%):</b>	<b>RUNs</b>	<b>RAPs</b>	<b>RAINs</b>	<b>RERUNs</b>	<b>Total</b>
<b>DC (4)</b>	<b>11.1<sup>2</sup></b>	<b>41.6</b>	<b>9.1</b>	<b>27.0</b>	<b>88.8</b>
<b>UT1</b>	<b>13.1</b>	<b>53.5</b>	<b>8.2</b>	<b>22.1</b>	<b>96.9</b>
<b>UT2</b>	<b>08.1</b>	<b>36.1</b>	<b>5.2</b>	<b>29.0</b>	<b>78.4</b>
<b>UT3</b>	<b>07.1</b>	<b>36.9</b>	<b>5.4</b>	<b>21.0</b>	<b>70.4</b>
<b>RT (8)</b>	<b>06.1</b>	<b>26.9</b>	<b>6.8</b>	<b>36.4</b>	<b>76.2</b>
<b>PW (5)</b>	<b>09.2</b>	<b>07.1<sup>3</sup></b>	<b>9.0</b>	<b>38.6</b>	<b>63.9</b>
<sup>1</sup> $[(43.6)(350)+(38.0)(1798)+(22.6)(451)+(18.7)(2081)]/4680 = 28.4$ ; <sup>2</sup> $[(68.5)(350)/(4)(120)(450)] = 0.111$ <sup>3</sup> 15% RAPs turned into RUNs; assumes mean service time of 71.0 mins.					

Assignment Due: None

Exercises/Cases: Manzana Insurance case

## **BLOCK 13      STATISTICAL PROCESS CONTROL**

(Saturday, February 27, 10:15-12:00)

Rayan Bagchi

Topics:            Process Control  
                         Process Capability  
                         Six Sigma Quality

Preparation:        1. A Note on Statistical Process Control  
                         2. *MSWD* Chapter 9: Quality Management....Six-Sigma Capability  
                         3. Quality Wireless (A) case  
                         4. Quality Wireless (B) case

Case Questions:

1. What fraction of the days in 2003-2004 failed to meet the targeted hold time of 110 seconds? Given that the daily average hold time was normally distributed with a mean of 99.67 and a standard deviation of 24.24, what fraction of days would you expect the call center to fail to meet the targeted hold time of 110 seconds?
2. What fraction of the days in April 2005 failed to meet the targeted hold time of 110 seconds? Given that the daily average hold time after process improvements was normally distributed with a mean of 79.50 and a standard deviation of 16.86, what fraction of days would you expect the call center to fail to meet the targeted hold time of 110 seconds?
3. Based on the performance in April 2005, do you think that the performance of the call center has improved?
4. If we assume that the call center performance during the month of September is continuing at the improved level with a mean of 79.50 and a standard deviation of 16.86, what is the probability of observing ten days that average 86.6 or more? What is the probability of observing ten days that average 74.4 or less?
5. What do you think of Jackson's management approach?
6. What should you do if you were in Jackson's position?

Homework Due:    HW #8  
                         HW #9

Assignment Due:  Group Case Report

Exercises/Cases:  Quality Wireless (A) case  
                         Quality Wireless (B) case

## **BLOCK 14      TOYOTA PRODUCTION SYSTEM**

(Saturday, February 27, 13:00-14:45)

Rayan Bagchi

Topics:            Push and Pull Systems  
                         Just-in-Time and Jidoka  
                         Linking Production and Quality  
                         Cost of Supplier Unquality

- Preparation:           1. MSWD Chapter 10: Lean Operations  
                                  2. Toyota Motor Manufacturing case

Case Questions:

1. Assembly comprises 769 team members, which means 385 per shift covering 353 stations. What does this say about the scale of ‘non-essential’ work? For example, the scale of rework operations?
2. The length of a station is 5.7 meters (Exhibit 6). Given that the cycle time is 57 seconds, what is the speed of the assembly line (in miles per hour)?
3. What is the capacity of the assembly line (cars per day; cars per week; and cars per year) assuming 100% line utilization? How many fewer cars are produced per shift if the run ratio is 95%? How many fewer cars are produced per shift if the run ratio is 85%?
4. This question is designed to estimate how much time KFS has to assemble a seat. Of the 353 stations, at least 314 (353 minus 39 in Groups 2 and 3 in Exhibit 6) are between the end of the paint line and the first seat installation station. What is the corresponding throughput time? After subtracting the time a seat spends: traveling on TMM’s overhead seat conveyor line (about 250 meters), waiting on TMM’s staging line, traveling in the truck, and waiting on KFS’s staging line, you get the time KFS has to assemble a seat. What is the time?
5. “Of all TPS components perhaps the one receiving most notoriety has been workers’ “ability” to stop the line.” What is the cost of stopping the line for one cycle? For five minutes? For half-an-hour?
6. What are the key operational principles of the Toyota Production System (TPS)? Be sure to understand not only the terms, but their fundamental purpose as well.
7. Doug has to balance the costs of following TPS against the costs of deviating from TPS. Discuss this tradeoff.
8. What can Doug do to address the seat quality problem?
9. Who is minding quality at Toyota and who is minding productivity?
10. How do “Push” and “Pull” coexist at Toyota?

- Assignment Due:       None  
Exercises/Cases:      Toyota Motor Manufacturing case

**BLOCK 15           TOYOTA PRODUCTION SYSTEM (continuation of BLOCK 14)**

(Saturday, February 27, 15:15-17:00)

Rayan Bagchi

Topics:                    Same as for BLOCK 14

Preparation:             Same as for BLOCK 14

Case Questions:         Same as for BLOCK 14

## **BLOCK 16      SUPPLY CHAIN MANAGEMENT**

(Friday, March 5, 16:00-17:45)

Rayan Bagchi

Topics:            Bullwhip Effect  
                  Global Sourcing  
                  Speculative vs. Reactive Capacity  
                  Inventory, Capacity and Information as Substitutes

Preparation:    1. *MSWD* Chapter 12: Reactive Capacity  
                  2. *MSWD* Chapter 16: Supply Chain Coordination  
                  3. Sport Obermeyer case

Case Questions:

1. Retailers, designers, sewing factories, fabric dyers/printers, and manufacturers of zippers, buttons and labels are a few of the many players comprising Obermeyer's globally dispersed supply chain for skiwear. How would you characterize the role played by Sport Obermeyer in this supply chain? The role played by Obersport? What are the critical capabilities of Sport Obermeyer? Of Obersport?

2. Wally Obermeyer has hired you as a consultant to advise him on production planning decisions for the Obermeyer product line. As you know, one of the major challenges Wally faces each year is deciding which items to order in November, and which ones to defer till the Las Vegas show. Understand that an item could be ordered in November and again after the Las Vegas show. However, capacity constraints limit Wally's options. Wally wants your help with the sample problem (page 8) and refers you to Exhibit 10. Devise some criteria (based on the information in Exhibit 10) that allow Wally to rank styles by risk and thus to determine which styles should be produced early. What are some of these criteria? To be specific, consider the Isis and Entice styles (Exhibit 10). Which one of these two styles is less risky for early production using non-reactive capacity, and why?

Obermeyer's ability to fine-tune supply of each style is constrained by minimum order (production lot-size) quantities. How does the attractiveness/riskiness) of a style for early production depend on the minimum order size? Consider the Isis style (Exhibit 10) and the following minimum order size scenarios: (i) 500 units; (ii) 1200 units; and (iii) 800 units. Does the fact that the minimum order size is 500 units (rather than 1200 or 800 units) help you at all in deciding whether to order Isis in November?

3. A number of factors constrain Obermeyer's ability to produce so as to match supply and demand. These include: (1) minimum production lot-size constraints; (2) limited reactive capacity in the sewing plants; (3) raw material lead times; and (4) the time at which retailer demand is made available to Obermeyer. Based on your understanding of the course cases and other class material throughout the semester, discuss how Obermeyer should address these factors so as to improve its ability to produce what the market wants? Specifically, how can Obermeyer increase its reactive capacity without necessarily hiring more people, working longer hours or buying new equipment?

Homework Due: HW #10 (Statistical Process Control)

Exercises/Cases: Sport Obermeyer case

**BLOCK 17      SUPPLY CHAIN MANAGEMENT (continuation of BLOCK 16)**

(Friday, March 5, 18:15-20:00)

Rayan Bagchi

Topics:                      Same as for BLOCK 16

Preparation:                Same as for BLOCK 16

Case Questions:            Same as for BLOCK 16

**BLOCK 18      OPERATIONAL EXCELLENCE**

(Saturday, March 6, 08:00-09:45)

Rayan Bagchi

Topics:      Strategic Fit  
                  Operational Focus

Preparation:      1. Shouldice Hospital case

Case Questions:

1. How good is the Shouldice Hospital (profitability, cost, speed, quality)?
2. What is Shouldice's service concept?
3. What is Shouldice's target market (both external /customer and internal/employee market segments)?
4. What is Shouldice's operating strategy?
5. How does Shouldice's design of facilities support its operating strategy?

Exercises/Cases:    Shouldice Hospital case

**BLOCK 19      REVIEW**

(Friday, April 2, 8:30-10:30 pm)

Rayan Bagchi

**EXAM**

(Saturday, April 3, 9:30-1:30 pm)

Rayan Bagchi

**HEMBA BA 380N Operations Management Spring 2010 Course Outline**  
**Cohort 2**  
**Bagchi & Freund**

Block	Day	Date	Time	Topic	Case/Book	Assignment
1	S	1/9	am	Operational Excellence	Benihana	
2	S	1/9	pm	Understanding Processes		
3	S	1/9	pm	Inventory		
4	F	1/15	pm	Cost Structure		HW #1, #2
5	F	1/15	pm	Understanding Projects	<i>Critical Chain</i>	
6	S	1/16	am	Dealing with Uncertainty		
7	S	1/30	am	Process Uncertainty		HW #3, #4
8	S	1/30	pm	Inventory Uncertainty		
9	S	1/30	pm	Project Uncertainty		
10	F	2/12	pm	Operational Excellence	Southwest Sothwest, Supplement <i>The Goal</i>	HW #5, #6, #7
11	F	2/12	pm	Operational Excellence Theory of Constraints	Southwest Southwest, Supplement	
12	S	2/13	am	Competing on Time	Manzana	
13	S	2/27	am	Statistical Process Control	Quality Wireless (A) Quality wireless (B)	Gr. Case Rep. HW #8, #9
14	S	2/27	pm	Toyota Production System	Toyota	
15	S	2/27	pm	Toyota Production System	Toyota	
16	F	3/5	pm	Supply Chain Management	Sport Obermeyer	HW #10
17	F	3/5	pm	Supply Chain Management	Sport Obermeyer	
18	S	3/6	am	Operational Excellence	Shouldice	
19	F	4/2	pm	Review (8:30-10:30 pm)		
Exam, Saturday, April 3, 9:30 am – 1:30 pm						