

# GSM 430: Technology and Operations Management

*Spring 2008*

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## **Course Overview**

*Technology and Operations Management* provides a foundation for understanding the role of production and delivery capabilities in creating business value. While the disciplines of strategy and marketing deal with choosing the best approaches to the right markets (the “what”), operations focuses on developing and managing processes for serving those markets (the “how”). This course provides an in-depth introduction to the fundamentals of transforming inputs into outputs, demonstrates how companies match supply with demand, and explores the interdependence of strategies, processes, technologies, and people.

The course is organized into two modules:

- **Process Design & Analysis:** introduces core operations concepts, types of processes, and process performance characteristics
- **Operations Control and Coordination:** considers approaches to controlling, correcting, and maintaining high performance in operations systems and the central role of technology in supporting, and even driving, business strategies and organizational capabilities

## **Learning Objectives**

After completing this course, you should be able to:

- Analyze and assess the performance of production and delivery processes and operations systems
- Diagnose process problems and identify improvement opportunities
- Develop recommendations and action plans to improve business processes
- Discuss the connections between operations and other functional areas of business
- Describe how information technology enables and supports business and operations strategies

Student achievement of these objectives is assessed through the three course requirements: class participation, midterm exam; final exam.

## **Approach**

This is primarily a discussion-based course. The assigned readings from the required textbook, *Core Concepts of Operations Management*, are intended to provide necessary background and context. You may find the textbook’s companion web site useful; the link is available on WebCT. The required course packet consists of case studies and supplemental readings; we will also discuss a novel, *The Goal*.

It is important that you thoroughly analyze the cases prior to class. To help you do this, I have provided study questions and occasional problems. While I do not require that the assigned questions be completely and correctly answered prior to attending the class, I do expect you to think through and try your best to address them so that you are better prepared to follow along and contribute during class. I encourage you to discuss all case assignments in study groups.

Well-prepared students will have drawn conclusions, developed opinions, and taken a point-of-view on the situation described in the case. While you are not expected to memorize every case fact or to become an expert in the particular details of the organization, its industry, or its processes, you should have a good enough understanding of each of these elements to be able to contribute substantively to the conversation, respond to others' opinions, and answer the instructor's questions (see "Tips for TOM Case Study Preparation," attached).

### Schedule

Module	Class	Date	Topic	Case Study
Process Design & Analysis	1	17-Jan	Introduction: Operations Systems	<i>The Goal</i>
	2	18-Jan	Process Analysis I: Core Concepts	<i>Kristin's Cookie Company</i>
	3	24-Jan	Process Analysis III: Capacity	<i>Donner Company</i>
	4	25-Jan	Process Analysis IV: Information Flow	<i>Donner Company (cont')</i>
	5	31-Jan	Process Analysis V: Queue Management	<i>National Cranberry Cooperative</i>
	6	1-Feb	Process Design I: Job design	<i>Toshiba: Ome Works</i>
	7	7-Feb	Process Design II: Process Design & Performance	<i>Doré-Doré</i>
	8	8-Feb	Process Design III: Process Improvement	<i>Pharmacy Service Improvement at CVS (A)</i>
	9	14-Feb	Review	<i>N/A</i>
	10	15-Feb	Midterm Exam	<i>Global Financial Corporation</i>
Operations Control and Coordination	11	26-Feb	Quality: Products	<i>Scharffen Berger Chocolate Maker</i>
	12	4-Mar	Quality: Services	<i>The Ritz-Carlton Hotel Company</i>
	13	6-Mar	Process Control I: Statistical Process Control	<i>Deutsche Allgemeinversicherung</i>
	14	13-Mar	Process Control II: Products	<i>Toyota Motor Manufacturing</i>
	15	14-Mar	Process Control III: Services	<i>Deaconess-Glover Hospital (A)&amp;(B)</i>
	16	20-Mar	New Product Development	<i>The New Product Development Imperative</i>
	17	21-Mar	Information Technology & Operations Strategy	<i>Enabling Business Strategy With IT At The World Bank</i>
	18	27-Mar	Supply Chain Management I: Procurement & Logistics	<i>Wal-Mart's Supply Chain Practices (A)&amp;(B); The Wal-Mart Supply Chain Controversy</i>
	19	28-Mar	Supply Chain Management II: Distribution	<i>Barilla SpA (A)</i>
	20	1-Apr	Supply Chain Management III: Sustainability	<i>McDonald's Corporation: Managing a Sustainable Supply Chain</i>
	21	3-Apr	Business Process Innovation	<i>Dubai Ports Authority</i>
	22	4-Apr	E-Ops	<i>ITC eChoupal Initiative</i>
<b>FINAL EXAM</b>	23	11-Apr	Final Exam	TBA

## **Requirements**

### **Class Participation (15% first half; 30% second half)**

Students are expected to be ready to discuss the assigned case study and supplemental readings. At the beginning of each class, one student will be selected to open; a good way to prepare for these “cold calls” is to develop responses to the study questions. I recommend making bullet-point notes of your ideas, with references to the case data that support them.

My practice is to record a participation grade for each student after every class. I expect that students will make one or two solid contributions in each class, and doing so typically earns a B+ for that session. Anything less means a lower grade, and significantly more (3+ comments) typically means a higher one. Keep in mind that this is a rough explanation of my process; in practice, the grading isn't as mechanical. For example, a single comment might contribute so much to the conversation that I would give it an A. I neither require nor accept written work from students who miss class. Absences in excess of 10% of the sessions (i.e., more than 2) during the entire semester will negatively affect a student's grade.

The characteristics of class participation I evaluate include: frequency; quality of comment (e.g., supported by case facts, application of outside knowledge, synthesis of data, building on previous comments, insight, etc.); and pattern of participation (e.g., range of kinds of comments; depth, expansiveness, and thoroughness of remarks). I invite you to complete and turn in to me a midterm self-assessment of your class participation, which I will review and return with my feedback as well as your grade for the first half of the semester. The behaviors listed on the assessment form (included below) provide a good indication of what I'm looking for. Also, remember that effective class participation draws on skills that can be learned and honed through practice. For this reason, when determining class participation grades for the second half I especially take notice of improvement over the course of the semester. I encourage you to see me early on if you're having trouble participating so we can develop a strategy for your success.

### **WebCT Participation**

Contributions to the course's WebCT discussion board will also be considered part of class participation – but not as a substitute for class attendance and for no more than 10% of the class participation grade. Students should use the discussion board to elaborate on a comment they made during class, to address a comment made by a classmate or the instructor, to share an illustrative anecdote from their own experiences, or to share any number of other kinds of opinions, ideas, and insights. I'll evaluate postings in terms of relevance (i.e., clear link to class discussion or course material), quality (e.g., as reflected by feedback in subsequent messages), usefulness (e.g., identifying a current article of interest or upcoming speaker/event), and general value as an example of knowledge-sharing.

### **Midterm Exam (20%)**

An in-class exam will take place on February 15. The purpose of the mid-term exam is for students to demonstrate their mastery of core process analysis concepts. Class notes and other materials are permitted. More details will be provided as the exam approaches.

### **Final Exam (35%)**

The final exam consists of essay-type question(s) based on a case study distributed at the end of the last class. The exam is due by 5 PM on Friday, April 11. The purpose of the final exam is for you to demonstrate in writing what

you have learned about analyzing operations issues and proposing action plans to address them. Class notes and other materials are permitted; however, students are not permitted to discuss the case or exam questions with anyone except the instructor until after they have completed their exam. Grading criteria include completeness (was the question answered?); quality, accuracy, and depth of analysis; structure of argument; sufficiency of evidence to support argument; and clarity, conciseness, and professionalism of writing. Administrative details will be provided as the exam approaches.

In accordance with SOM policy, exams must be taken when scheduled except in cases of serious health issues or family emergencies; any rescheduled exam will be administered subsequent to the date of the original exam.

### **Lessons Learned Journal (optional, not graded)**

I strongly recommend that you maintain a journal of lessons learned, take-aways, general principles, implications for action, and/or any other synthesis of key points from the material we cover. The purpose is for you to look beyond the detail of what is covered in class and to make connections to your own experiences, responsibilities, and achievements; that is, to apply what you are learning in this course in some specific context (e.g., at work, as a customer, as a leader). I recommend you take some time both before and after each class to reflect on the major issues and themes being addressed. You needn't feel compelled to be unique or deeply insightful (although both are certainly encouraged), but neither should you be satisfied with trite or overly-general observations. As a rule of thumb, you might ask yourself whether a classmate, co-worker, or supervisor would regard your ideas as relevant, valuable and useful. Time permitting, I'll set aside a portion at the end of each class and encourage you to share entries from your journal. Alternatively, the WebCT bulletin board category "Lessons Learned" is another place to share your entries with the class.

### ***Evaluation and Grading***

Course grades will be determined by the weighted average of the listed requirements:

Class Participation: First ½	15%
Class Participation: Second ½	30%
Midterm Exam	20%
Final Exam	35%
	100%

Using the SOM letter grade system, the criteria for determining grades are:

- A Outstanding performance in which the student's classroom and written work has been consistently excellent. A=4.0 (3.75-4.00)
- A- Superior performance in which the student's classroom and written work has been consistently very strong. A-= 3.67 (3.5-3.74)
- B+ Very good performance in which the student's classroom and written work has demonstrated mastery of course material. B+= 3.33 (3.25-3.49)
- B Good performance in which the student's classroom and written work has demonstrated competency in handling course material. B= 3.0 (3.0-3.24)
- B- Minimally acceptable performance, which has been deficient in some respects. B-= 2.76 (2.75-2.99)

- C Marginal performance, which has been deficient in many respects. C= 2.0 (2.00-2.74)
- F Performance has not met minimal standards of the course. No credit is given. F= 0 (0.00-1.99)

Note: The ranges provided relate each point value to a letter grade. For the purpose of course grade calculation, the single numerical equivalent is used.

### **Other Matters**

I'll do my best so that class will start and end on time, and I ask for your help in making that happen. To assist me in evaluating class participation—and in learning your names!—I ask each student to sit in the same seat for at least the first four weeks of class and to use her name card.

Class attendance is required, and my teaching plan will sometimes include the participation of specific students. As a courtesy, please notify me by telephone or e-mail in advance of any anticipated absence.

### **Special Notes**

By faculty agreement, the following paragraphs appear in all SOM syllabi.

*SOM Mission:* The mission of the Simmons School of Management is to educate women for power and principled leadership. We are committed to the advancement of knowledge and practice in management through excellence in education and research. Our academic programs offer rigorous, applied, management education designed for women. We focus on leadership, and our programs integrate the strategic, functional, and behavioral aspects of management. SOM students gain the knowledge, analytical skills, and confidence that they need to manage successfully in dynamic and global environments. We are invested in our students' success and support them as they launch, advance, and change their careers.

*Honor Code:* Simmons School of Management graduate students are governed by the Graduate Honor Code. By submitting a paper or other deliverable, you are asserting that you have complied with both the spirit and letter of this Honor Code. (The Honor Code is described in Section H of the Academic Policy manual that you received in your Foundations packet. Additional copies are available in the MBA Office.)

*Students Needing Special Accommodation:* Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning, and psychiatric disabilities. If you have a disability and anticipate that you will need a reasonable accommodation in this class, it is important that you contact the Center For Academic Excellence early in the semester. Call x. 2474, or stop by the center in the Palace Road building, Suite 304A. Students with disabilities receiving accommodations are also encouraged to contact their instructor within the first week or two of the semester to discuss their individual needs for accommodations.

### ***Tips for TOM Case Study Preparation***

1. Answer the study questions. They are intended to guide and focus your preparation.
2. It is important to understand some basic information about the company/organization we'll be discussing. Although the cases present varying amounts of information on the following topics, you may find it helpful to consider them:
  - a. What is the industry and what are its key characteristics? (e.g., current trends, dominant technologies, customer profiles)
  - b. What is this company's strategy (i.e., How is it competing in its industry? What is its target market?)
  - c. What are the main characteristics of the processes by which the company produces and delivers its products and/or services? ( e.g., labor intensive vs. capital intensive; high volume vs. low volume; standardized vs. customized)
  - d. Assess the company's performance – financially, operationally, etc.
3. Examine the performance of its operations system. Tools for process analysis include:
  - Create a process flow diagram (e.g., useful for identifying bottlenecks), including the flows of both physical goods and information.
  - Calculate one or more of the following:
    - Throughput time
    - Capacity
    - Cycle time or output rate
    - Labor utilization
    - Machine utilization
    - Work-in-process inventory
4. What problems does the company face and what are the causes? Or, if the company is performing well, what is the source of its success?
5. What can the company do to solve its problems? Alternatively, how can the company improve its operations performance?
  - a. Consider any proposed solutions mentioned in the case. What are the costs? What are the expected benefits? Do you support those solutions?
  - b. What would you propose as an action plan to improve the performance of the company's operations? Good action plans include short and long term steps, an analysis of the costs and benefits of the recommendations (may include break-even analysis, pay back period, ROI, etc.), and a description of implementation issues that should be kept in mind.

**NAME:**

**Class Participation Self-Evaluation**

Rating	On a scale of 1 to 7 (with 7 being the highest), rate yourself on each of the following criteria
	I have participated regularly, contributing to the discussion in nearly every class.
	I am well prepared for every class: I have analyzed the cases and other readings closely, understand the company's operations, and have given my best effort to answer all the study questions completely.
	I have used, addressed, or explained the core operations concepts when speaking in class.
	Even when I have nothing substantive to add verbally, I stay engaged in the discussion, actively listening and following the flow of ideas.
	I share examples from my own experience where relevant.
	The verbal contributions I make are supported by case facts and/or analysis, are substantive and relevant, or otherwise add insights to the discussion.
	My comments add something new to the discussion and are not a reiteration of a point that has already been made.
	My questions clarify understanding, reinforce learning, resolve contradictions or otherwise make a positive contribution.
	My comments are clear and to the point, not rambling.
	I build on, synthesize, challenge, or otherwise recognize the comments of others when speaking.
	I arrive on time and have not missed any classes.

**What aspect of class participation will you work on improving during the remainder of the course?**

**Additional Comments:** Please help me understand and/or interpret the ratings you have given yourself in class participation. If there are other things you would like to say about your participation, please include them. (continue on back if necessary)