

**MGSC 395**  
**OPERATIONS MANAGEMENT**  
**Spring 2008**

*Course Syllabus*

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Instructor: Professor Anand Nair  
Class Time: Tuesday/Thursday, 2:00pm – 3:15pm  
Class Room: BA 701  
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Office Hours: Wednesdays, 2:00pm – 4:00pm (or other times by appointment)

**COURSE MATERIALS**

**Required Text Books**

Textbook: Krajewski, Lee, Ritzman, Larry, and Malhotra, Manoj. *Operations Management: Processes and Value Chains*, 8<sup>th</sup> edition, Prentice Hall, 2007. (ISBN: 0-13-187294-X).

Novel: Goldratt, E. and Cox, J., 2004. *The Goal: A Process of Ongoing Improvement*. 3<sup>rd</sup> Revised Edition, North River Press, Inc., Croton-on-Hudson: NY.

**Other Material**

Handouts and other print material will be distributed from time to time to support the class instruction, especially for technical topics.

**COURSE DESCRIPTION AND THEMES**

Global supply chain and operations management (GSCOM) entails the development of an operations and supply chain strategy to translate overall business plans into operational outcomes. It spans all core transformational processes that create the products and services needed to implement the operations and supply chain strategy.

This survey course in operations management introduces students to the strategic and operational dimensions of the GSCOM field. Course objectives are accomplished through topics that span the following four themes and their corresponding goals:

**Theme 1: GSCOM Strategies and Capabilities as the Missing Link between Overall Business and Marketing Strategies, and Actual Performance**

Goal 1.1: Understand the role of GSCOM strategies as facilitators and drivers of overall business and marketing strategies for manufacturing and service firm.

Goal 1.2: Learn about careers utilizing GSCOM competencies in various types of organizations (manufacturing firms, banks and financial institutions, healthcare and insurance, retail, non-profit and government sector)

**Theme 2: Business Processes Perspective of GSCOM and related Tools and Programs**

Goal 2.1: To understand the linkage between processes and business performance, and various programs (TQM, Reengineering, Lean, Six-Sigma) that can be used for analyzing and improving business processes.

Goal 2.2: To learn to apply operations/process analysis and improvement techniques such as service systems design (queuing), project management, bottleneck scheduling (constraint management), and process layout configurations.

**Theme 3: Planning and Management of Intra- and Inter-Organizational Operations as Extended Value Chain Management**

Goal 3.1: To understand the concepts of supply chain management as extended to managing operations between organizations in the domestic and global context.

Goal 3.2: To understand the critical elements of value chain management such as forecasting, facility location, capacity planning, inventory management, and sales and operations planning.

Goal 3.3: To understand the application of analytical techniques like linear programming, make-buy analysis, and preference matrix to operations and supply chain planning.

**Theme 4: Synergistic Impact of GSCOM Competencies on Other Functional Areas**

Goal 4.1: To learn how operations management decisions relate to the ability of firms to fulfill marketing promises and deliver customer-based performance.

Goal 4.2: To learn how various GSCOM process and decision-analysis tools and techniques enhance professional competitiveness of other functional managers and help them in their roles and responsibilities (e.g., LP in portfolio analyses, market research, or staffing; project management in market launches, promotions, or auditing assignments; Six-Sigma in accounts receivables process or loan approval process).

## SUMMARY OF COURSE COMPONENTS AND GRADING

Component	Date or Due Date	Weight (% of course grade)
Exam 1	February 14, 2008	30%
Exam 2	March 20, 2008	30%
Exam 3	May 3, 2008 (Saturday) Time 9:00 AM – 11:00 AM	30%
Homework Assignments	Due Dates Listed in the Detailed Course Outline	10%

### HOMEWORK ASSIGNMENTS

Homeworks will be assigned based on technical topics covered in the class. Some of these assignments will be graded, while others will be given for practice. Solutions to the practice problems will be provided. Some of the graded assignments will require use of the POM for Windows software or Microsoft Excel. You are allowed to drop one homework grade.

### GRADING SCALE

A = 90 or higher      B+ = 87-89.99      B = 80-86.99      C+ = 77-79.99  
C = 70-76.99      D+ = 67-69.99      D = 60-66.99      F = under 60

Note that this scale may change depending on class performance.

### CLASS ATTENDANCE

Attendance is expected for every class session. In this course, it is very difficult to understand the technical topics without attendance, and class absences will be directly reflected in your grades. If you have attended a class and need additional help in understanding the topic, or if you have an excused absence, I can explain it to you during my office hours. You will be responsible for understanding the material covered in the class during any unexcused absence.

### MAKEUP POLICY, CLASS CONDUCT AND ETHICAL STANDARDS

Exams in this course cannot be made up. A no-show on the assigned exam date will automatically result in a zero grade for that exam. The only exception is for medical reasons that can be verified by a doctor's note. If you are representing USC in an athletic competition, you need to get in touch with me **before** the exam for possible make-up arrangements. I reserve the right to conduct the make-up exam as an additional, comprehensive exam during finals week.

Organizations and managers are coming under an increasing scrutiny in terms of their professional and business ethics and social responsibility. Students must view their

academic work as a preparation for meeting these ethical standards in their current/future careers. I expect all students to adhere to the highest ethical standards. You will thus have the responsibility to observe and follow the requirements of the Code of Conduct for University of South Carolina. If anyone chooses to act in an unethical manner (e.g., plagiarism, cheating on exams, etc.), there will be a substantial impact on the grade for that component of the course. **For example, along with other penalties that may be assessed, cheating on an exam will automatically result in a grade of zero for that exam.**

In general, help the class move forward with your active attention, questions, and comments. Specifically, keep class conduct appropriate; *be courteous and respectful to everyone in terms of* (1) being respectful of what others say, (2) listening quietly when others speak, (3) avoiding disruptive departures or activity, and (4) ensuring beepers and cell phones are off.

Importantly, all students are expected to adhere to the USC Rules of Academic Responsibility: *It is the responsibility of every student at the University of South Carolina to adhere steadfastly to truthfulness and to avoid dishonesty, fraud, or deceit of any type in connection with any academic program. Any student who violates this rule or who knowingly assists another to violate this rule shall be subject to discipline.*

## **SCHEDULE**

The rest of the syllabus gives a tentative schedule that is divided into four different segments. Please note that Chapter 16 (Short Term Scheduling) from the main text book will not be covered.

There are six graded homework assignments (four of which involve the use of POM for Windows software) – these will be explained and distributed after the related topic has been covered in class. There are several other homework assignments that will not be graded. Solutions to these will be provided to you to facilitate your preparation for the exams.

It is important that you keep up to date with the class schedule, while remembering that sometimes we may be somewhat ahead (or behind) the schedule as provided below.

## DETAILED COURSE OUTLINE AND SCHEDULE

Topic	Homework
<b>PART 1 : COURSE INTRODUCTION</b>	
<b>CHAPTERS 1 &amp; 2: Operations as a Competitive Weapon and Operations Strategy</b>	
<b>January 15 &amp; 17</b>	
INTRODUCTION <ul style="list-style-type: none"> <li>• Course syllabus and policies</li> <li>• Operations definition and perspective</li> <li>• <b>Video:</b> Operations management</li> </ul> OPERATIONS AS A COMPETITIVE WEAPON <ul style="list-style-type: none"> <li>• <b>Read</b> Ch. 1</li> <li>• <b>Read</b> Ch. 2, pp 44-56, 61-63 (skip new service or product development)</li> <li>• <b>Video:</b> Managerial Challenge; operations as a Competitive Weapon at Starwood, p. 19</li> </ul>	Start reading <i>The Goal</i> for discussions on February 12 <sup>th</sup> (Note: There will be a short quiz on <i>The Goal</i> on February 12 <sup>th</sup> )  <b>Problems:</b> 1, 3, 4 in Ch. 1 (Not Graded)
<b>PART 2: GSCOM PROCESS PERSPECTIVE</b>	
<b>CHAPTER 3: Project Management</b>	
<b>January 22 &amp; January 24</b>	
PROJECT MANAGEMENT <ul style="list-style-type: none"> <li>• <b>Read</b> chapter 3, pp, 68-87, 97-100</li> <li>• <b>Read</b> project management note<sup>1</sup> (optional)</li> <li>• <b>View</b> project management tutorial<sup>1</sup> (optional)</li> </ul>	<b>Project Crashing (Graded)</b> <i>Assigned on: Jan. 24</i> <i>Due on: Jan. 29</i>
<b>CHAPTER 4: Process Strategy</b>	
<b>January 29</b>	
<ul style="list-style-type: none"> <li>• <b>Read</b> Ch. 4</li> <li>• <b>Video:</b> King Sooper's Bakery</li> </ul>	Problems 3, 4 in Ch. 4 (Not Graded)
<b>CHAPTER 8: Process Layout Analysis</b>	
<b>January 31 &amp; February 5</b>	
<ul style="list-style-type: none"> <li>• <b>Read</b> Ch.8</li> <li>• <b>Read</b> line balancing note<sup>1</sup> (optional)</li> <li>• <b>View</b> line balancing tutorial<sup>1</sup> (optional)</li> </ul>	<b>Line Balancing Using POM for Windows (Graded)</b> <i>Assigned on: Feb. 5</i> <i>Due on: Feb. 7</i>  Problems 1, 3 in Ch. 8 (Not Graded)
<b>SUPPLEMENT C: Service Systems Design Using Queuing</b>	
<b>February 5 &amp; 7</b>	
<ul style="list-style-type: none"> <li>• <b>Read</b> Supplement C</li> <li>• <b>Read</b> waiting line note<sup>1</sup> (optional)</li> <li>• <b>View</b> waiting line tutorial<sup>1</sup> (optional)</li> </ul>	<b>Waiting Line Analysis using POM for Windows (Graded)</b> <i>Assigned on: Feb. 7</i> <i>Due on: Feb. 12</i>
<b>THE GOAL: Discussion</b>	
<b>February 12</b>	

<sup>1</sup> POM for Windows note and tutorial are available on course Blackboard site.

<b>EXAM 1</b>		
<b>February 14</b>		
<u><b>Major Problems: Chapter 3 and Chapter 8 (~40%)</b></u>		
<u><b>TF/MC Questions : Chapters 1, 2, 3, 4, 8, Supplement C, The Goal (~60%)</b></u>		
<b>CHAPTERS 5 AND 6: Process Analysis And Quality</b>		
<b>February 19, 21 &amp; 26</b>		
<ul style="list-style-type: none"> <li>• <b>Read</b> Ch. 5, pp 150-161</li> <li>• <b>Video:</b> Process Analysis at Starwood</li> <li>• <b>Discuss:</b> Managerial Challenge pp. 162-163</li> <li>• <b>Read</b> Chapter 6, pp. 220-236</li> <li>• <b>Video:</b> Process Performance and Quality at Starwood</li> </ul>		<p><b>Problems:</b> 3, 5, 11, 22, 23 in Chapter 5 (Not Graded)</p> <p><b>Problems:</b> 1, 4, 5, 7, 9, 13, 14 in Chapter 6 (Not Graded)</p>
<b>CHAPTER 7; Supplements A, E: Capacity Planning, Resource Allocation</b>		
<b>February 28 &amp; March 4</b>		
<ul style="list-style-type: none"> <li>• <b>Read</b> Chapter 7, pp 252-262, 265-275</li> <li>• <b>Read</b> Supplement A, pp. 25-29, 36-37 (break-even)</li> <li>• <b>Read</b> Supplement E, pp. 599-602, 608-609 (scan pp. 602-607)</li> <li>• <b>Read</b> note (optional)</li> <li>• <b>View</b> tutorial (optional)</li> </ul>		<p><b>Bottleneck Identification (Graded)</b> <i>Assigned on: February 28</i> <i>Due on: March 4</i></p> <p><b>Capacity Planning using POM for Windows (Graded)</b> <i>Assigned on: March 4</i> <i>Due on: March 6</i></p> <p><b>Problems:</b> 1, 3, 6, 9 in Chapter 7 (Not Graded)</p> <p><b>Problems</b> 1, 2ab, 7 in Supplement A (Not Graded)</p>
<b>CHAPTER 9: Lean Systems</b>		
<b>March 6 &amp; 18</b>		
<ul style="list-style-type: none"> <li>• <b>Read</b> Ch. 9</li> <li>• <b>Videos:</b> Toast Kaizen; Setup reduction</li> <li>• <b>Class simulation:</b> Lean airplane construction</li> </ul>		<b>Problems:</b> 2, 3, 6, 7 in Ch. 9 (Not Graded)
<b>EXAM 2</b>		
<b>March 20</b>		
<u><b>Major Problems: Chapters 5, 6, 7 Supp A, Supp E (~75%)</b></u>		
<u><b>TF/MC Questions, Small Problems: Chapters 5, 6, 7, 9 (~25%)</b></u>		
<b>PART 3: SUPPLY CHAIN AND VALUE CHAIN MANAGEMENT</b>		
<b>CHAPTER 12: Inventory Management</b>		
<b>March 25 &amp; March 27</b>		
<ul style="list-style-type: none"> <li>• <b>Read:</b> Ch. 12, pp. 460-480; pp. 484-489</li> </ul>		<p><b>Inventory Management Problem (Graded)</b> <i>Assigned on: March 27</i> <i>Due on: April 1</i></p> <p><b>Problems:</b> 3, 4, 6, 8, 10, 11, 13, 16,</p>

		19, 24 in Ch. 12 (Not Graded)
<b>CHAPTER 10: Supply Chain Strategy</b>		
<b>April 1 &amp; 3</b>		
<ul style="list-style-type: none"> <li>• Read Ch. 10</li> <li>• Read articles: <ul style="list-style-type: none"> <li>○ “What is the right supply chain for your product,” Marshall L. Fisher, <i>Harvard Business Review</i>, March-April, 1997, 105-116.</li> <li>○ “The Triple-A Supply Chain,” Hau L. Lee, <i>Harvard Business Review</i>, October 2004, 102-112.</li> </ul> </li> <li>• Video: Supply Chain Strategy at Starwood</li> </ul>		<b>Problems:</b> 1,2, 8 in Ch. 10 (Not Graded)
<b>CHAPTER 11: Facility Location</b>		
<b>April 8</b>		
<ul style="list-style-type: none"> <li>• Read Ch. 11</li> <li>• Read Supplement A, Preference Matrix</li> <li>• Video Geographical Information Systems</li> </ul>		<b>Problems:</b> 12, 14 in Supplement A  <b>Problems:</b> 12a in Chapter 11
<b>CHAPTER 13: Forecasting</b>		
<b>April 10 &amp; 15</b>		
<ul style="list-style-type: none"> <li>• Read Ch. 13, pp. 520-538, 541-549</li> </ul>		<b>Time-Series Forecasting in POM for Windows (Graded)</b> <i>Assigned on: April 15</i> <i>Due on: April 17</i>  <b>Problems</b> 2abc, 3, 4abc in Ch. 13 (Not Graded)
<b>CHAPTER 14: Sales &amp; Operations Planning</b>		
<b>April 17</b>		
<ul style="list-style-type: none"> <li>• Read Ch. 14, pp 566-583</li> </ul>		<b>Problems:</b> 2, 3, 4, in Ch. 14 (Not Graded)
<b>CHAPTER 15: Resource Planning</b>		
<b>April 22 &amp; 24</b>		
<ul style="list-style-type: none"> <li>Read Ch. 15, pp. 622-630, 636-650 (skip MPS)</li> </ul>		<b>Problems</b> 1, 2, 3, 14, 17, 19, 20, 21 in Ch. 15 (Not Graded)
<b>EXAM 3</b>  <b>May 3: 9:00am – 11:00am</b>  <u>Major Problems:</u> Chapters 11, 12, 13, 14 (~50%) <u>TF/MC Questions and Small Problems:</u> Chapters 10, 11, 12, 13, 14, 15 (~50%)		