

**MGSC 495 – SUPPLY CHAIN PLANNING AND EXECUTION**  
Spring 2008

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**Course Material**

- Arnold and Chapman, *Introduction to Materials Management*, (5<sup>th</sup> edition), Prentice Hall, 2004
- Rother and Shook, *Learning to See; value stream mapping to create value and eliminate muda*, The Lean Enterprise Institute, 2003. Available for \$50 at <http://www.lean.org>. (Used later in the course.)
- (Optional) Registration, study material, and exam on *Basics of Supply Chain Management* at <http://www.apics.org/certification/CPIM>

**Course Objectives**

Firms win in the marketplace by being better than the competitor. For manufacturing and distribution firms, that means providing better products and service at a lower product and asset cost. In short, it means operating a better supply chain. This is where the planning and execution approach play a key role: strategic focus, facility capability, output levels, delivery commitments, inventory positioning, product scheduling and vendor management. *All are a coordinated set of activities structured by the coordination approach.* Well-managed activities result in timely and reliable deliveries, lower cost, lower asset investment, and a successful business. Poorly done activities result in business jeopardy.

The objective of this course is to provide a working knowledge of how progressive firms are planning and executing material flow. Based on this class, you should be able to fluently discuss this subject with a manager from any business line function: systems and operating policies with Manufacturing, deliveries and inventory with Marketing, cost/revenue effects with Finance, and how they link for business-wide performance.

In particular, you should know the following:

1. Manufacturing Resource Planning systems – The structure and application of hierarchical planning and control using *MRP II* system logic, including its function within an *Enterprise Resource Planning (ERP)* system.
2. Lean Systems – The structure and application of lean systems flow, including skill with *value stream mapping* and other forms of *Just-in-time* control systems.
3. Policies – The set of decisions that control planning system dynamics and their effect on the business enterprise.
4. Supply Chain coordination – The inter-firm coordination problem and the kinds of techniques being used to overcome the difficulties.

This course describes both *the problem* of establishing supply rates and product delivery that match demand and *effective management approaches* for resolving the problem. While specific techniques are discussed in some detail, the focus of this course is on management perspectives and policies. Both are reviewed and the decisions demonstrated through a hands-on computer exercise, *ITEC*, and through the lean systems application of *Value Stream Mapping*.

### **Course Grade**

The course grade will be developed from the following:

- |                                      |   |
|--------------------------------------|---|
| 1. Exam 1                            | 20%   |
| 2. Exam 2                            | 25%   |
| 3. Final Exam                        | 25% (may be replaced by APICS <i>Basics</i> exam) |
| 4. Itec Team Reports                 | 15%   |
| 5. Value stream mapping Team Reports | 10%   |
| 6. Class work                        | 5%  |

The class will be organized into teams for the Itec simulation. The grade will be based on demonstrated mastery of principles as reflected in actual performance and reports. (Team members will evaluate each member's contribution.) Teams will also be organized and reports submitted for a Value Stream Mapping case. Some homework will be collected, but part of classroom performance will be based on class participation.

The final exam may be replaced by the successful completion of the entry-level exam for the APICS *Certification in Production and Inventory Management (CPIM)* designation. "APICS" is the Society for Operations Management. The entry-level exam is entitled, *Basics of Supply Chain Management*, and is one of five exams for the certification. For this course, the optional registration, scheduling, and accomplishment of the *Basics* exam are the responsibility of the student and must be completed *and* reported by the scheduled time of the final exam. The *Basics* exam is a computer-based, multi-choice test and may be taken at a Midlands Tech (Harbison campus) and other southeastern locations. The CPIM certification is highly respected in industry and consulting (and is an excellent resume line item). Membership forms, exam registration, and program information are available from APICS at their web site (<http://www.apics.org>). *Apply for student membership no later than Spring break.* Reference books for CPIM are available.

## **Course Philosophy**

In preparing for an active role in business, I believe you have not accomplished enough if you only merely master static facts and techniques. You must also be confident and conversant in their use. Confidence comes from discussion and experience, both you can acquire in class and on project teams. Thus in the “class work” part of the grade, class discussions are very important. I believe it is essential for each individual to fully use his or her initiative and verbal skill to point out questions or insights. If you find you are not able to participate in class the way you would like and are concerned about your grade, see me. If necessary, we will arrange a special project or paper for you.

## **What's Expected**

1. Preparation – Reading and assignments prepared *before every class*.
2. Class participation – Answers, reservations, questions and observations about the material
3. Team participation – Active cooperative participation in the team projects.
4. Initiative – Your initiative if you don't understand the material. I will help if you ask.

Planning is vital to firms in a supply chain. Let's use this time to ensure that you do have a working knowledge.



## MGSC 495 SCHEDULE – Spring 2008

Version 1/12/08

Week	Chapter and Topic	Class Activity	Study Assignment	Submitted Assignments <sup>1</sup>
1. 1/14	Course introduction; Ch. 1 Introduction	Text intro	Ch. 1: read	Picture (I)
2. 1/21	<b>MLK Day (no class)</b> Ch. 2 Production Planning (PP)	PP lecture	Ch. 1: 3,5; Ch. 2: read	
3. 1/28	Ch. 2 PP (continued); Ch. 3 Master Production Schedule (MPS)	PP problems MPS lecture	Ch. 2: 2,4,9,10,15,18 Ch. 3: read	
4. 2/4	Ch. 3 MPS (cont'd); Ch. 4 Material Requirements Planning (MRP)	MPS problems MRP lecture	Ch. 3: 1,3,6,7 Ch. 4: read	MPS exercise (I)
5. 2/11	<b>EXAM 1 (Monday);</b> Ch. 4 MRP (cont'd)	<b>Covers Ch 1-3</b> MRP problems	Ch. 4: 2,3,6,11	
6. 2/18	Ch. 4 MRP (cont'd); Ch. 5 Capacity Management	MRP problems Capacity lecture	Ch. 4: 14,17,18 Ch. 5: read	MRP exercise (I)
7. 2/25	ITEC intro & trial decision <i>ITEC team activity</i>	Itec lecture & lab Trial decision	Itec case: read	Trial run Wed(T)
8. 3/3	<i>ITEC team activity</i> Ch. 5 Capacity (cont'd)	Decision #1 CRP lecture	Ch. 5: 1,2,3,6,10, 11,13,15, 16	#1 due Wed (T)
3/10	<b>Spring Break</b>			
9. 3/17	Ch. 15 Just in Time (JIT) <b>EXAM 2 (Wednesday)</b>	JIT lecture <b>Covers Ch. 4-5 + Itec case/software</b>	Ch. 15: read	
10. 3/24	<i>ITEC team activity</i> ; Ch. 15 JIT (continued)	Team planning JIT Problems	Decision 2 Ch. 15: Questions 1,5,9, 10,11,12; Problems 1,3,4,5	#2 due Wed (T)
11. 3/31	Pull control VSM I – Value stream Mapping	Exercise VSM I lecture	Part I: read	#3 due Wed (T)
12. 4/7	VSM II – Current state VSM III – Lean principles	VSM II lecture VSM III lecture	Part II: read Part III: read	#4 due Wed (T)
13. 4/14	(Open) VSM IV – Future state;	VSM IV lecture	Part IV: read	Itec final report due Wed (T)
14. 4/21	Supply Chain Bullwhip Effect Supply Chain Management (SCM) coordination	Beer game lab SCM lecture	See SCM handout	Pencil Push (A) due Mon (T)

<sup>1</sup> I = Individual assignment; T = team assignment

Week	Chapter and Topic	Class Activity	Study Assignment	Submitted Assignments <sup>1</sup>
15. 4/28 <i>Mon only</i>	Enterprise Resource Planning	Lecture		Pencil Push (B) due Mon (T)
5/5	<b>FINAL EXAM ( Monday, May 5 at 2 pm)</b>	<b>Comprehensive exam (with emphasis on Ch. 15, VSM, SCM, ERP, and Itec applications).</b> <i>This exam may be replaced by successful APICS Basics of Supply Chain Management exam</i>		