

**SCM 524**  
**Strategic Process Analysis and Improvement**  
Fall 2017, On-line

Instructor: Professor Meltem Denizel  
Office: 3452 Gerdin Business Building  
Office Hours: By appointment  
Telephone: 515-294-8372 (office)  
E-mail: mdenizel@iastate.edu

**COURSE DESCRIPTION**

As companies struggle to increase their productivity, effective use of process analysis and improvement tools become critical. Both manufacturing and service delivery processes obey some basic and similar principles. Mastery of these principles lead to significant increases in the efficiency of several process performance measures such as capacity and throughput rates. Meanwhile increased customization needs of the customers mandate process flexibility to produce different product types simultaneously without losing efficiency. Achieving a balance between flexibility and efficiency without quality losses and increased costs is a major challenge. Managers must understand the principles that govern the process flows to achieve and sustain competitiveness.

**LEARNING OBJECTIVES**

By the end of this course, students will:

1. Have developed a fundamental understanding of the principles that govern the flow of material through a manufacturing facility
2. Be able to correctly construct and use common tools for process analysis and improvement
3. Be able to analyze business processes for improvement potential
4. Be able to effectively communicate improvement recommendations in writing.

**REQUIRED READING MATERIALS**

Stonehaven Case: Available from the University Book Store, telephone # (515) 294-5684, or electronically from the publisher at the following link:

<https://hbr.org/product/stonehaven-inc/696048-PDF-ENG>

Learning to See: Mike Rother and John Shook, Lean Enterprise Institute, (ISBN # 978-0-9667843-0-5). (Book available through the ISU bookstore, Amazon, Barnes and Noble, etc.)

**OPTIONAL READING MATERIALS**

Although the following sources are optional, I strongly urge you to have them and do the assigned readings as suggested on the course schedule at the end of this document.

Process Analysis: Roy D. Shapiro, Editor; Harvard Business Publishing, Core Curriculum Readings  
**Publication Date:** Sep 10, 2013, **Product #:** 8007-HTM-ENG **Length:** 26 p.

Managing Quality with Process Control: Roy D. Shapiro, Editor; Harvard Business Publishing, Core Curriculum Readings, **Publication Date:** Sep 12, 2013, **Product #:** 8020-HTM-ENG **Length:** 33 p.

## **COURSE CONDUCT**

This is an on-line course and course delivery is through on-line videos posted on Blackboard. The videos have been developed in a modular fashion as outlined later in this syllabus. I will also post the Power Point slides for the topics I discuss, additional readings and the assignments on Blackboard.

It is your responsibility to follow the course by watching the videos, studying the power point slides together with the reading materials, and completing the assignments in a timely manner.

### **Announcements**

Announcements will either be posted on Blackboard when needed and/or emailed to you directly through Blackboard. Please make certain to check them regularly as they will contain any important information about upcoming assignments or class concerns.

### **Discussion Forums**

Discussion forums will be used regularly throughout the class to answer or discuss questions that the class as a whole is struggling with. I will let you know when the discussion forums will be used.

## **ASSIGNMENTS AND EXAMS**

### **Assignments**

The assignments in this course are designed to help each student learn and understand the material so this knowledge can be used to solve real world problems and manage real world systems.

There are four individual assignments to help each student develop their own individual analytical and writing abilities. While you may discuss the assignments with other students, each student must turn in his or her own answers to the assignments.

There are two group assignments. These assignments are more complex than the individual assignments and will likely require more discussion to answer the questions asked. Groups will be established by the instructor and will typically consist of two or three members. Each member of the group will complete an anonymous online evaluation of the participation and contribution of their group members after each assignment on a form provided by the instructor. The average evaluation for each group member will be used to determine the individuals score on the group assignment.

All individual and group assignments will be assigned electronically and submitted using Blackboard. All assignments are due by 11:59 PM central time on the day they are due. Blackboard will be set up to prevent any assignment from being submitted after this time. Assignments not submitted by the due date/time will not be accepted. If you are concerned with Blackboard's reliability, save a copy of the screen capture of the submission confirmation page as proof of your submission.

### **Exams**

In addition to the homework assignments, there will be one midterm and one final exam. Each exam must be completed within 36 hours of releasing the exam. These exams will be timed and must be completed during a single session which will be limited to 3 hours.

Examinations are to be taken without collaboration of other students or individuals. Your examination responses must be submitted via Blackboard as a PDF file. Students are free to write their responses by hand, *providing the writing is legible!* If I cannot read your writing, you will receive zero points for the answer. Late exams will not be accepted unless there are mitigating circumstances **and** I have given permission prior the student starting the exam.

## **OTHER COURSE POLICIES**

### **Deadlines and Make-up Assignments**

This is **not** a self-paced course. Work will be assigned on a weekly basis and it is important that students maintain the proper pace in this course. For that reason, deadlines are firm and will **not** be extended except in extreme situations. If you have an extenuating circumstance, please contact me by email before the assignment is due to make alternate arrangements. Note that it is your responsibility to check Blackboard for corrections or updates to the syllabus. Any changes will be posted in Blackboard.

### **Copyrighted Material**

The material in this course cannot be shared with other individuals, posted online for others to see or use, etc., without the express permission of the instructor of the course. Any violation of this will result in a failing grade for the course and punishment to the extent allowed by law.

### **Academic Dishonesty/Student Conduct**

In accordance with Iowa State University's academic dishonesty policy (See *Iowa State University Bulletin*), you must not engage in or tolerate academic dishonesty. This includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be investigated and where warranted, result in disciplinary action which can affect your academic standing in the College and the University.

### **Special Needs**

Please let me know if you have adaptive software and/or hardware to assist you with taking this course, or if you have any special needs I should be aware of. If you anticipate needing any type of accommodation or have questions about the access provided, please contact the Disability Resources Office (Student Services Building, Room 1076) in advance of your participation. You can also email [disabilityresources@iastate.edu](mailto:disabilityresources@iastate.edu) or call (515) 294-7220 for assistance. Additional information can be found at <http://www.sdr.dso.iastate.edu/>

## **GRADING**

The students' final grade for the course is determined by the total points obtained on the assignments and the exams. The following points are allocated to each category.

<u>Graded Item</u>	<u>Total Points</u>
2 Group Assignments @ 15 points each	30 points
4 Individual Assignments @ 5 points each	20 points
1 Midterm Exam @ 20 points	20 points
1 Final Exam @ 30 points	25 points
Discussion Board Participation	5 points
<u>Total</u>	<u>100 points</u>

### **Rubrics**

It is expected that all assignments will be done in a professional manner based on the requirements of the assignments. All assignments will be rigorously graded using a rubric. The rubrics are attached to each assignment and can be viewed by the student. Please see them for grading criteria for each assignment.

### **Accessing Grades Online**

You can view your grades by selecting the My Grades option in the course navigation links in Blackboard. Please check your grades regularly to make certain that I have received all your assignments. If you have a question about a grade, email me. Please do not post your personal concerns in a discussion forum.

## TENTATIVE COURSE SCHEDULE

	<b>Topic</b>	<b>Readings</b>	<b>Homework</b>
Week 1 Aug. 21	<ul style="list-style-type: none"> <li>• Course introduction</li> <li>• Process Definition and Illustrations</li> <li>• Simple process flows</li> </ul>	<ul style="list-style-type: none"> <li>• Reading 1: Process Definition and Illustration</li> <li>• Process Analysis HBS Note 8007 Section 1, 2.1</li> <li>• Individual assignment #1</li> </ul>	<ul style="list-style-type: none"> <li>• Answer the questions at the end of Reading 1 for Discussion board</li> </ul>
Week 2 Aug. 28	<ul style="list-style-type: none"> <li>• Key Concepts</li> <li>• Process Flowcharting</li> <li>• Gantt Charts</li> </ul>	<ul style="list-style-type: none"> <li>• Reading 2: Simple Process Analysis and Behavior</li> <li>• Process Analysis HBS Note 8007 Section 2.2, 2.3</li> </ul>	<ul style="list-style-type: none"> <li>• Individual assignment #1 (Due by 11:59 PM CST, Aug 28)</li> </ul>
Week 3 Sept. 4	<ul style="list-style-type: none"> <li>• Factory physics</li> <li>• Little's law and system analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Reading 3: A 3_Stage Process</li> <li>• Stonehaven case</li> <li>• Individual assignment #2</li> </ul>	
Week 4 Sept. 11	<ul style="list-style-type: none"> <li>• Process types and layouts</li> <li>• Assembly lines</li> </ul>	<ul style="list-style-type: none"> <li>• Group Assignment #1</li> <li>• Process Analysis HBS Note 8007 Section 2.4 and 2.5</li> </ul>	<ul style="list-style-type: none"> <li>• Individual assignment #2 (Due by 11:59 PM CST, Sept 11)</li> </ul>
Week 5 Sept. 18	<ul style="list-style-type: none"> <li>• Stonehaven Case</li> </ul>		Group assignment #1 and online peer evaluation (Due by 11:59 PM CST, Sept. 18)
Week 6 Sept. 25	<ul style="list-style-type: none"> <li>• Throughput time reduction</li> </ul>	<ul style="list-style-type: none"> <li>• Reading 4: A Framework for Reducing Manufacturing Throughput Time</li> </ul>	
Week 7 Oct. 2	<ul style="list-style-type: none"> <li>• Exam</li> </ul>	<ul style="list-style-type: none"> <li>• Review all material</li> </ul>	<ul style="list-style-type: none"> <li>• Midterm Exam (Due by 11:59 PM CST, Oct. 6)</li> </ul>
Week 8 Oct. 9	<ul style="list-style-type: none"> <li>• Introduction to Lean/ Value Stream Mapping (VSM) – Current State Mapping</li> <li>– Future State Mapping</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Learning to See Parts I and II</u> pp 1-34</li> <li>• Ames Writing Instruments (AWI) CaseA</li> <li>• <u>Learning to See Part III</u> pp 35-48</li> <li>Ames Writing Instruments (AWI) CaseB</li> <li>• Individual assignment #3</li> </ul>	
Week 9 Oct. 16	<ul style="list-style-type: none"> <li>• Value Stream Mapping – Continued</li> <li>• Go over exam</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Learning to See Parts IV</u> pp 49 – 74</li> <li>• <u>Learning to See Part V</u> pp 75 - 91</li> <li>• Ames Writing Instruments (AWI) Cases C &amp; D</li> <li>• Group assignment #2</li> </ul>	<ul style="list-style-type: none"> <li>• Individual assignment #3 (Due by 11:59 PM CST, Oct. 16)</li> </ul>
Week Oct 23	<ul style="list-style-type: none"> <li>• Just in Time Manufacturing: JIT</li> </ul>	<ul style="list-style-type: none"> <li>• Visit: <a href="http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/">http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/</a></li> <li>• Review the write-up and videos about TPS and JIT. Take the online quiz and be prepared to discuss the questions you missed in the Discussion Board</li> </ul>	<ul style="list-style-type: none"> <li>• Group assignment #2 and online peer evaluation (Due by 11:59 PM CST, Oct. 23)</li> </ul>
Week 11 Oct 30	<ul style="list-style-type: none"> <li>• Quality Control and Improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Managing Quality with Process Control HBS Note 8020 Section 1, 2, 2.1</li> </ul>	
Week 12 Nov. 6	<ul style="list-style-type: none"> <li>• Statistical Process Control</li> </ul>	<ul style="list-style-type: none"> <li>• Managing Quality with Process Control HBS Note 8020 Section 2.2, 3</li> <li>• Individual assignment #4</li> </ul>	

Week 13 Nov 13	<ul style="list-style-type: none"> <li>• Tools for Process Improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Managing Quality with Process Control HBS Note 8020 Section 2.3</li> </ul>	<ul style="list-style-type: none"> <li>• Individual assignment #4</li> <li>• (Due by 11:59 PM CST, Nov. 13)</li> </ul>
Nov. 20 Break	<ul style="list-style-type: none"> <li>• Thanks Giving</li> </ul>		
Week 14 Nov. 27	<ul style="list-style-type: none"> <li>• Six Sigma Concepts and Tools</li> </ul>	<ul style="list-style-type: none"> <li>• Managing Quality with Process Control HBS Note 8020 Section 2.3</li> </ul>	
Week 15 Dec. 4	<ul style="list-style-type: none"> <li>• Review</li> </ul>		<ul style="list-style-type: none"> <li>• Final Exam (Due by 11:59 PM CST, Dec. 11)</li> </ul>