**IE 503**
**Introduction to Sustainable Production Systems Spring 2017**

*Instructor/Office and Office Hours*:
Dr. Jo Min, IMSE Department
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(515) 294-8095
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T: 4 pm, W: 1 pm, and Th: 11 am; plus appointments

*Evaluation Components*:
Exams: 45%
Research-Oriented Mini Project: 30%
Quizzes: 10%
Homework Assignments (e.g., Project Proposal): 15%
* Final Project Presentation Dates may include 4/25/17 & 4/27/17.
** Final Project Submission Deadline: at the beginning of 4/27/17 class.
*** There is no final. The class will meet at the scheduled final exam period for educational activities (Monday, 5/1/17, Noon-2 pm).

*Topics to be covered:*
Introduction of key concepts in sustainable production systems. Concepts include Reverse Logistics, Closed-Loop Supply Chains, Recycling and Remanufacturing, Sustainable Policy Productivity, Relevant Real Options.

*Course Objectives:*
1. students will learn the key concepts of sustainable production systems.
2. students will learn and appreciate the decision-making processes that industrial engineers typically face in various areas of sustainable production systems.
3. students will learn quantitative and analytical techniques for problem-solving related to the decision-making processes.
4. students will learn the distinctions between the sustainable production systems vs. the traditional production systems.

*Relationship of Course to Program Outcomes:*
c) an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
e) an ability to identify, formulate and solve engineering problems
h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
j) knowledge of contemporary issues
1) be able to design, analyze, implement, and manage effective production and service systems

*Prerequisite:* IE 341 Production System
*Textbook **(recommended; none required)**:*

*Closed-Loop Supply Chains: New Developments to Improve the Sustainability of Business Practices* by Ferguson and Souza, CRC Press, Boca Raton, Florida, 2010.

*Sustainable Supply Chain Management: Practical Ideas for Moving towards Best Practice* by Cetinkaya et al., Springer, Heidelberg, Germany, 2011.

Also, a multiple number of selected papers will be studied. e.g.,
- Guide and Van Wassenhove, "Managing Product Returns for Remanufacturing," Production and Operations Management, 2001 (10/2).
- Guide, Teunter, and Van Wassenhove, "Matching Demand and Supply to Maximize Profits from Remanufacturing," Manufacturing and Service Operations Management, 2003 (5/4).
- Savaskan, Bhattacharya, and Van Wassenhove, "Closed-Loop Supply Chain Models with Product Remanufacturing," *Management Science,* 2004 (50/2).

## Academic Honesty Statement

The IMSE Department has an expectation that all students will be honest in their actions and communications. Individuals suspected of committing academic dishonesty will be directed to the Dean of Students Office as per University policy. For more information regarding Academic Misconduct see http://www.dso.iastate.edu/ja/academic/misconduct.html

## Professionalism Statement

The IMSE Department has an expectation that all students will behave in a professional manner during all interactions with fellow students, faculty, and staff. Treating others with respect and having constructive communications are examples of being professional.

## Prerequisite Requirement Policy

It is the policy of the IMSE Department to require all students enrolled in this course to have satisfied all of the course's prerequisite requirements. If it is discovered that a student has not met any applicable prerequisite requirements, he/she will be required to immediately drop the course. The failure to drop the course will result in a final course grade of 'F', regardless of course performance. Students who discover they have improperly enrolled in a course without meeting the applicable prerequisite requirements are strongly encouraged to meet with advising staff to promptly drop the course and make alternative scheduling arrangements or discuss if an official waiver of the prerequisite requirements may be applicable.

*Class Operations and Management:*

1. ***ASK***: in (after) class, office hours, e-mail, call, … (course quality may go up!)
2. Attending this class is a first priority.
3. Once the lecture starts, no side-conversation during the lecture.
4. When visiting, if applicable, bring the materials (e.g., your lecture note, text) that you would like to ask about.
5. When visiting, I can be in and out of office. Please check back in minutes.
6. When e-mailing, to jomin@iastate.edu and **write "IE 503, key words" at the subject line**.
7. When an excuse must be made: Documentation (or lack of) matters. e.g., when too sick for an exam, please keep doctor's note, prescription, etc., for your record.
8. For any handwritten work, please do not erase and write on top of the erased space. Please cross out, and write below (e.g., EOQ parts are crossed out).
9. Accommodation Forms: Please submit as soon as possible. If more than a week after your signature date, write me a memo explaining your delay.