1. Mission Statement

Manufacturing is how we satisfy human need and create wealth. The challenge is to create a product that is responsive to the customer with high quality and low cost. A graduate of 2.008 should have the tools and confidence to go into a manufacturing enterprise that is using an unfamiliar process to make a product he/she has not seen, and yet be able to make intelligent decisions.

2. Scope

2.008 introduces you to modern manufacturing with four areas of emphasis: manufacturing processes, equipment/control, systems, and design for manufacturing. The course exposes you to integration of engineering and management disciplines for determining manufacturing rate, cost, quality and flexibility. Topics include process physics, equipment design and automation/control, quality, design for manufacturing, industrial management, and systems design and operation. Labs are integral parts of the course, and expose you to various manufacturing disciplines and practices.

3. Objectives

- Internalize the attributes along which the success or failure of a manufacturing process, machine, or system will be measured: quality, cost, rate and flexibility.
- Provide exposure to a range of current industrial processes and practices used to manufacture products in high and low volumes. Focus in depth on a few selected processes.
- Apply physics to understand the factors that control the rate of production and influence the quality, cost and flexibility of processes.
- Understand the impact of manufacturing constraints on product design and process planning.
- Apply an understanding of variation to the factors that control the production rate and influence the quality, cost and flexibility of processes and systems.
- Understand the role of control in processes and systems, especially in view of the presence of noise (variation).
- Provide exposure to a range of manufacturing system constraints.
4. Instructors (2.008-staff@mit.edu)

- Faculty
  Professor Jung-Hoon Chun  Room 35-233  x3-1759  jchun@mit.edu
- Teaching Assistants:
  Kyungyoon Noh  Room 35-332  x3-2108  kyno@mit.edu
  Kris Kopanski  Room 35-332  x3-2108  kopanski@mit.edu
- Lab Instructors
  Mr. David Dow  Room 35-112  x3-2238  davedow@mit.edu
  Mr. Patrick McAtamney  Room 35-112  x3-2238  patmca@mit.edu

5. Credit and Workload

2.008 is a 12-unit subject. Each week, on the average, the course requires 3 hours of lecture, 5 hours of laboratory, group meetings and preparation for the laboratory, and 4 hours of study, homework and report writing. Six units may be applied to the General Institute Lab Requirement.

6. Lectures

- Lectures are held in Room 35-225, Monday and Wednesday from 12:30 pm to 1:55 pm.
- Lecture schedule: Refer to the attached 2.008 Spring 05 Lecture and Lab Schedule.
- Textbook:
- Recommended Reference Book: Easy to read to have an overview on manufacturing
- If you do not arrive on time, please enter the classroom from the third floor.

7. Laboratories

- Lab safety: ‘Safety First’. Please read the attached 2.008 Safety Policy and abide by the safety rules for your sake. **If not, you may not be allowed into the lab.**
- All experiments are held in Room 35-125.
- Lab sections are Monday 2 - 5 pm; Tuesday 9 am - 12 pm and 2 - 5 pm; Wednesday 2 - 5 pm; Thursday 9 am - 12 pm and 2 - 5 pm.
- Section selection: You will be assigned to one of the lab sections during the first lecture (February 2). Because each section can accommodate only 12 students, some of you may be asked to move to another section. Every effort will be made to enroll you in a convenient section, but seniors will have priority.
- Lab attendance: Absolutely mandatory. You must arrive on time.
- Lab schedule: Refer to the attached 2.008 Spring 05 Lecture and Lab Schedule.
8. Grading Policy

- Your grade will be based on your overall performance in class, labs, group meetings, and quizzes. They count approximately as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Quizzes</td>
<td>40%</td>
</tr>
<tr>
<td>Lab performance and reports</td>
<td>30%</td>
</tr>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Class participation, group meetings, and Final Presentation</td>
<td>15%</td>
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</tbody>
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- The quizzes are closed book and cover material from the lectures as well as the labs.

- Technical Instructors and TAs will grade your lab reports. There will be a box marked '2.008' in front of Room 35-125A (Computer room). You are required to drop off lab reports in the box by their due dates.

- All lab reports are due by 5 pm exactly one week after they have been assigned. No late reports will be accepted unless you have made prior arrangements with Technical Instructors and TAs.

9. Homework

- You are required to turn in the homework assignments by the due dates. The assignments will be graded by TAs.

- Solutions will be posted on the web site.

10. Group Meetings

- Each student as part of a lab group manufacturing a yo-yo will be required to meet once a week outside of class and lab. Your team will be established during the first lab session and should designate the weekly meeting time.

- These group meetings are to aid you in making design decisions, part dimensions, homework solutions, etc., as informed team members.

- Please take down minutes of the meetings each week, as they will help you in performing peer evaluations at the end of the semester.

11. Plant Tour

- Plant tours to a manufacturing facility (TBA) are scheduled for April 20th (Web.) and 21st (Th).

- You are encouraged to attend either one of the tours.

12. Presentation

- Presentation of your lab project will take place on May 11th (Wed) 12:30 to 2:30.

- Pizza will be provided and it will be the last day of the class. More details will be provided during the semester.