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2.007 Design and Manufacturing I  
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2.007 -- Introduction to Design and Manufacturing I  
**Milestone #4 – Most Critical Module**  
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**Deliverable: About 8 Pages in your notebook deposited to the “IN” side of the crate.  
Due Date: March 2-6 at the normal times (T, R, or F at 4PM).**

**DESCRIPTION:**

This milestone centers on design of your most critical module (MCM). You want to select some subset of your concept and design it in substantial detail. You need not build the module yet – that activity is scheduled over the next few weeks and culminates in a demonstration of the finished module on 16 March.

There is some flexibility in how you can define a “most critical module”. I would suggest you select a sub-system (e.g., arm, rope puller, or can crusher) based on its influence on your design’s overall success. The module’s criticality may be due to its large contribution to the machine’s expected score or it may be due to the difficulty or risk you perceive in making it work well.

Your work should be documented with about 8 pages in your lab notebook which should include:

1. **An overall graphical depiction of the module.** A hand drawing would be acceptable. I would suggest a three-view drawing, isometric sketch, or both.
2. **A solid model of at least one part of your most critical module.** Post your SolidWorks Part Document (.SLDPRT) on the Section 01 forum in Stellar. Also, at least one graphic depiction of the model should be printed and pasted into your notebook.
3. **Selected design details.** Describe some of the choices you made such as materials selected, dimensions defined, mechanism kinematics, etc.
4. **Supporting analysis.** Make some predictions about the performance of your module. You don’t have to analyze every aspect of the module, just those aspects that most benefit from analysis. For example, you might indicate how much of your energy budget will be consumed by the module during one round of play.

**OTHER ACTIVITY:**

The lab staff have prepared a lesson on several ways of joining parts together. You might get a your peer group together (or a couple groups at once) and go learn about spot welding, adhesives, and so on.