**Most Critical Module (MCM) Demonstration Information.**

First a brief treatise on hardware demonstrations in general:

Hardware demonstrations are both the easiest and the most stressful presentations you will do as an engineer. The hardest part from a communication standpoint is providing context. You usually have hardware in front of you that does something super cool and thus automatically draws the audience's attention and provides sufficient interest. Thus, you simply need to demonstrate the abilities of the device/design in a way that proves the design fulfills a need relevant to the audience. This is a good time to be sure there are no flaws in your functional requirements. As designers, we said "if it fulfills these functional requirements then it solves the problem", so natural we just need to demonstrate the functional requirements. However, if the functional requirements weren't stated in a way that is quantitatively measurable what are we to demonstrate and prove? This is why early on last semester we talk at length about defining your problem (and more importantly your solution) in a way that can be measured to prove you were successful. If you have done that well, then the hardware demonstration becomes easy and fun. Then comes the stress -- will the prototype perform as expected during the demonstration? This is often make or break for new products. Reliability becomes key, and reliability is impossible without significant testing. I had an adviser that wouldn't do a hardware demonstration without 9 successful test trials in a row previous to the actual demonstration. Depending on the situation that might be excessive or it might be insufficient. Either way, the point is you need to test, test, test, ... to find and correct all bugs before the demonstration. If the product works as advertised, hardware demonstrations are very rewarding.

Now some MCM specific details:

As mentioned in the title, or if you forgot from last semester, MCM stands for “most critical module.” This is the module in your design that everything else hinges on. If it works you are likely to be successful; if it does not you are likely to fail. Ultimately, you (or more specifically your design) defines your MCM. I’m sure at some point last semester your section instructor suggested what they think your MCM should be. Whatever it is you should be prepared to show me the hardware and demonstrate its features and abilities.

The hardware demonstrations during the semester are there to help you in two ways. One, they are hopefully timed to ensure you are making at least minimum progress on your hardware (your manufacturing really should be way ahead of our demo schedule). Two, they are intended to help you hone an appropriate demo for your final demonstrations. The first hardware demonstration, the MCM demo, is intended to be a learning experience more than anything else. Thus, the rubric is pass/fail. You should demonstrate the features and abilities of your MCM compared to your functional requirements and/or problem statement. Show/discuss the good, the bad, the lessons learned, the deviations in as built vs design, etc. If you have hardware and can show its operation in the context of the functional requirements you get full credit. There is not a strict time limit. You have a minimum of 5 mins and a maximum of 1 hr.