Attendees:
Ryan Barnett, MSOE Student Representative
Steven Barnicki, MSOE CE Faculty
Josh Cochrane, MSOE Student Representative
Eric Durant, MSOE CE Program Director
Jeremy Erdmann, Plexus
Tom Klein, Rockwell Automation
Tom Kraus, GE
Russell Meier, MSOE CE Faculty
Chaning Ogden, MSOE Student Representative
Harrison Palzewicz, MSOE Student Representative
Darrin Rothe, MSOE CE Faculty
Christopher Taylor, MSOE CE Faculty
Greg Treichel, Direct Supply
Leo Vinitsky, FedEx
Jeff Zingsheim, Honeywell

Mr. Zingsheim welcomed members; introductions were made.
The minutes from the December 7, 2007 meeting were approved as distributed.

Open house: The next open house is in July. Dr. Meier will conduct tours again. Having industrial reps at locations throughout the tour and at info tables in the Campus Center has been very well received by visitors. Visual aids and demonstrations attract a lot of attention. Volunteers are welcome and should contact Dr. Meier if they would like to participate.

Employment outlook is very good now. Sometimes we do not have enough students for industry.

Student events: We had our second student event in December. It was very well received by students, with over 80% in attendance. Free food and shirts with the sponsor’s logo are good draws. The next event is tentatively planned for September 29. Mr. Vinitsky from FedEx will be the speaker (and sponsor).

Enrollment numbers: We will have 74 new freshmen in the fall (Enrollment Management’s goal was 50). Biomedical Engineering’s number is also up significantly. We hope that this is a trend and not just a blip. It is hard to say why numbers are high this year. Dr. Durant thought reasons could include better marketing, open houses, and Project Lead The Way (PLTW). PLTW is a program that trains high school teachers on how to bring science and engineering into the high school classroom. PLTW also sponsored a day at MSOE where over 300 high school students were exposed to the different majors. MSOE is the lead university for our region. Josh Cochrane said he learned about MSOE through taking PLTW courses in high school.

Retention: There are 17 seniors in the graduating class this year. The national average is 45% graduating within six years.

Dr. Meier said retention rate for freshman to sophomore under the new curriculum was 68%.
Dr. Durant observed that the move of core courses to the freshman year has helped with retention. Students can decide early on if CE is the right major for them.

**Senior debriefing summary:** Dr. Durant reviewed the survey results. Student feedback helps define possible changes to the curriculum. Eleven students filled out the survey; 13 attended the debriefing. Students also complete team evaluations and senior design evaluations. The new course OR2000, which deals with leadership and teamwork skills, ran for the first time. A companion course, OR3000, will run for the first time next year. Both were suggested by the IAC as a good idea for transition into industry. It would be helpful to have a CE faculty in these courses to provide an engineering tie-in. It was suggested that CE faculty attend the OR2000 and SE2890 presentations. Mr. Vinitsky said he would be willing to attend presentations and to help put the industry views across. Mr. Ogden said he works with an organization for volunteering on campus and is looking for IAC members to speak.

**Curriculum Changes:** There was a discussion on the need for Thermodynamics (ME354) in the curriculum. The topic is not required for accreditation. The group felt some ideas in the course are necessary, e.g., energy, and how systems are controlled including low power modes, voltage regulator efficiency, etc. Control for heat and energy management may need to be more practical rather than theoretical, but need to understand other disciplines. Dr. Durant will follow up with EE faculty to see if there is a desire for a common class on how to apply the heat transfer material. Mr. Ogden noted that the thermodynamics in ME354 are not much different from physics (PH220). The IAC made the argument that students should learn how to monitor temperature and current, and how to turn subsystems on/off as needed. Look at power consumption from a circuit design viewpoint.

In another change, the electronics course (EE210) will likely be replaced with Operational Amplifier Design (EE3101), which covers the design of various circuits using op amps. Members suggested looking at topics in EE210 that are not on the EE-3101 course. Op-amps, as taught in EE-3101, may be needed for A/D and D/A. A computer interfacing piece is needed. Mr. Erdmann noted that a key thing is transistor drivers. Students and faculty said that EE210 currently has too much information. We will consider integration with microprocessor platform in CE4920 (“car in a box” 2). In that course, we could cover drivers, opto-isolators, and control of current flow. Mr. Erdmann said there is a need to have deeper coverage in these interfacing topics that students can retain and use. Not needed: thyristors, SCR, etc. But, the following are needed: A/D, D/A and PWM. The use of an an external D/A is common.

**GE hours requirement:** Members were asked for their thoughts on adding a professional development requirement to the curriculum. The AE&BC Department has a course which requires 20 hours of professional/community participation by students during their sophomore through senior years. Students accumulate the hours by attending talks, tours, volunteering, etc. It is a way to get students involved in activities outside of the classroom and helps them understand what it means to be a professional. Most thought this was a good idea.

Members were reminded to send internship opportunities to Dr. Durant for posting on our “job board.” Students are using this resource.

**Innovation/entrepreneurship:** There was discussion regarding dropping the microeconomics and engineering economy courses from the curriculum and adding a broader course of micro/macro economics and law, and a second course in the junior year covering writing a business plan. The Rader School of Business would offer these courses. The IAC recommended covering topics such as capital expenses, rates of return, dealing with business/finance people, presenting ideas to management, innovation versus invention, budgets, patent policies/reviews, and net promoter score.

**Next meeting:** Dr. Durant suggested November 7, December 5, or December 12 (all Fridays) for the next IAC meeting. He asked that members notify him within the next two weeks of their preference.
New business for next meeting:

- Discussion on C/C++ versus Java.
- Lifelong learning/short courses for business. Dr. Durant will discuss with MSOE’s BEC prior to the next meeting.

The meeting was adjourned at 11:30 a.m. and members were invited to attend the senior design show.