Welcome and Introductions – Given by Dr. Meier, in place of Mr. Zingsheim (IAC Chair)

Program Information

- Meeting Minutes – Minutes from the December 4th meeting were approved.
- Student Statistics – There are 35 incoming freshman. Enrollment numbers are expected to drop due to the number of children in the region and also our increased tightening of enrollment requirements. 30 of the 37 seniors are expected to graduate.
  - Note: Transfers to other majors are not recorded on the enrollment handout.

Review of Events - Recent

- JCI sponsored the CE event this spring on 3/10/2010.
- Student events are planned by IAC student members and have been sponsored by FedEx and JCI. Seniors use this opportunity to showcase projects and provide updates. There has been good alumni participation and students are more willing to interact with each other. The addition of CE t-shirts has increased the awareness on campus; other majors now know what we do.
- Plexus-sponsored EECS Embedded Design Competition: Featured an Environmental Awareness Theme. Projects are on display today in the Schroeder Room.
  - Student teams of 1, 2 or 3 (if group of three, then one must be a freshman) signed up to develop an embedded design from a kit. 30 teams, with a total of 60 students, signed up to participate. Judging will be done by Plexus, with a ceremony at 12pm to distribute awards.

Discussion followed:
  ~Looking for feedback, as we will do this again next year.
  ~Will launch this earlier, in fall quarter, so that there is more time to complete projects.
Great to add design competitions
Great experience (can participate F-S years) for applying to internships

Review of Events – Upcoming

• Industry Forum for students– (October in lecture hall)
  o Fridays seem to work better; tentatively plan on 10/8/10. Dr. Durant will move forward with the Forum.
  Discussion followed:
  ~Bringing other majors? Are we going broader?
  ~Add tour of Controls Lab

• Industry Tours – Last year’s Healthcare Tour in Wauwatosa was successful.
  Discussion followed:
  ~Well Publicized
  ~Can we continue this on a regular basis?
  ~After hours or weekends would work
  ~Have a second tour with students and faculty

• CE Student Event in Fall – Plans are underway. The event will be sponsored by FedEx and will take place on 9/27/2010.

• IAC Meeting – The IAC meeting for fall will be held at FedEx Smart Post in New Berlin on 10/22/2010.

• Op Computer Competition – This is a regional competition for high school students with a focus on computer science. MSOE hosts and students are judged on a series of tasks to solve in JAVA or C++. This year, teachers gave great feedback to faculty. One point was that universities should have a stronger role in teaching the TEACHERS how to present the material or possibly collaborate with them.
  Discussion followed:
  ~A great example of this is Project Lead the Way. We need one for software and programming. Should be taught by university faculty and a prior PLTW teacher and certification should be offered.
  ~Universities should be working with industry and high schools.
  ~This also gets MSOE’s name out; increase in enrollment.
  ~High school teachers are not experts and are looking for a seminar.
  ~Form a certificate based CU or PLTW.
  ~Student rep Palzewicz will contact a former teacher to see if there is interest in collaborating.

• Open Houses – These are great recruiting events for incoming students; industry sometimes attends. Faculty give tours of the facility and explain the difference between SE and CE. Admissions prefers the tours to keep moving, so IAC members should remain posted at the tables to answer questions.
  Discussion followed:
  ~If IAC members are interested in attending, please contact Dr. Meier.
  ~IAC members are encouraged to bring samples with them; students see projects that catch their eye and mothers appreciate seeing what their child will be able to do.
  ~The slogan “We put computers in stuff” did make it into recruiting and while a correlation is not definite, there has been an increase in retention.

Recent Changes

• Lab Reconstruction – The Control Systems Lab is being turned into a state-of-the-art facility and should be operational by fall. It will allow advanced analog and digital work.
**Senior Design** – Next year we are looking at having companies sponsor 50% of projects compared to this year’s 10%.

Discussion followed:

~Ideas from industry are used; otherwise students will come up with their own.

~Please send project ideas to Dr. Rothe.

**Laptops** – This fall incoming freshman will be getting new 2 yr. cycle laptops, which are 64-bit and feature Windows 7.

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**Ongoing Items**

**Part-time faculty** are always welcome. If you are interested, please contact Dr. Durant.

Discussion followed:

~A Masters degree is required for part-time instructors and a Ph.D. is required for full-time.

~Adjunct faculty are prepped fully; course outcomes are posted and past faculty provide syllabi, notes, etc. Most courses have multiple sections, in which adjunct would be teaching a course with other faculty. There are also weekly meetings for adjunct faculty.

~Guest lecturers are also welcome.

**Volunteers** for the next IAC host are needed. The spring meeting will still be held at MSOE, in order to view the senior design show afterwards. However, we are looking for a host for fall 2011.

**Senior Design Collaboration** – The IEEE student group was not as good this year, however they are learning how to network and communicate. Membership is growing and the upcoming e-board is highly energetic and enthusiastic.

Discussion followed:

~IEEE has had a rocky existence but membership is picking up and students are looking for tours in industry to get ideas.

~The meetings schedule prevents some participation. After hour tours are more feasible.

~Perhaps there should be industry presentations to attract new members.

~Knowing IAC members were coming would help with attendance.

~There were faculty presentations this year and next year we hope to expand to industry presentations.

~If you’re interested in presenting or hosting a tour, please contact Dr. Meier.

**Senior Projects** – Students form teams and pick projects at the end of their junior year. There has been a problem with finding projects.

Discussion followed:

~It would be nice if there were IAC projects with actual project requirements. Students don’t stick to requirements if they are making up their own project. It would also be good to have involvement from industry partners.

~Students submit a formal proposal in the fall quarter listing required specs, a timeline and technical study. The goal is to have projects done by winter quarter and spend spring quarter tweaking the projects.

~Project ideas are welcome. The expectations for industry are that you would attend a few meetings, provide ongoing tech support, provide the hardware and avoid too stringent of requirements.

~An example of a project was for Engineers Without Borders. The team was split into two parts and their first run was functional. It would be nice to get new ideas and learn how to develop them.

~Plexus sponsored one project through funding and the relationship allowed the student to gain employment.
~If a company sponsors the design, do they get the rights to the project?
- That is between the student and the company to decide.
~Prof. Barnekow and Dr. Rothe will send a list of what makes a good project to IAC members.
~Note: Dr. Meier has information on two students who are currently looking for employment.

Student Feedback – Junior and Senior debriefings

- **Senior Debriefing** – We had a 76% response rate. If you are confused by the attached slides, please contact Dr. Durant. Changes have improved retention and we are hoping to see fewer students leave MSOE or move to other majors. Our balanced curriculum is getting national attention; we have software, hardware, math and science courses in every quarter. Our retention rate is slightly skewed by the fact that we don’t offer certain majors (e.g., sociology).

Graph 1 indicates that students think they completely met outcomes. Graph 2 indicates that students were successful in the work and that MSOE was adequate in helping them. We focus on bubbles in the “not very” or ‘not at all’ categories.

Discussion followed:
~The program success on the Team Project is very surprising.
~Are we connecting OR200 and OR3000 to this question? The number of teams is lower for core courses.
~Senior Design is not assisting them, but instead focuses on courses.
~Take note of WHY they are listing it lower.
~Note that the Embedded bubble is at “extremely”; this is after our new curriculum.
~Students claim they don’t need JAVA. There have been large rises in every programming language except C++. JAVA and C++ flip-flop for the number 1 spot.
~We should have an elective in C++. A Business course on it is encouraged.
~Teach students on core methods for embedded systems. They can then learn other languages.
~Students need solid application code as well as embedded code; the definition of embedded systems is changing.
~Regionally, new positions for net developers are opening. They are picking Microsoft over JAVA.
~A survey course in programming languages would teach them how to handle things differently.
~It’s good to be able to adapt.
~use principal differences and be able to write in 2 codes.
~It’s not what you’re using, but the ability to know techniques and move between languages.
~There’s a broad spectrum on what seniors would be using in jobs.
~In a business environment, all languages are running. You’re not expected to be an expert in everything, but you need to know how to run them.
~Databases should be a requirement for CS, but not CE..don’t take away from current courses.
~Advanced data structures would be a helpful course.
~IT values CE’s to understand hardware and software.
**Look at electives and integrated courses.

- OR2000/3000 is a one credit course that focuses on teamwork and leadership skills. Previous feedback was poor. Now the credit workload is appropriate and there is an increased number of oral presentations. CE faculty may need to teach something that connects to CE
Potential guest lecturers for OR2000/3000 might tie-in to an adjunct position.

The class should be re-structured, but this is on the back burner.

- There have been internal changes in registration. Feedback from students is negative.
- We are looking to improve the Senior Design space for EE, CE, BE and SE. The department is looking at budget items. If you would be interested in helping, please contact Dr. Durant.
- **Junior Debriefing** – was the same as the senior debriefing except for the embedded design bubble.

**Recent Developments**

- **Program Outcomes** – CE has a new standard Assessment Process for our ABET accreditation process. All programs in the department now have a matching set of assessment criteria.
- **Popular Electives** – We had two popular electives this year: Computer Architecture II (which currently had 32 students enrolled) and Information Security (which currently had 50 students enrolled). In the fall, we also have a new elective: Wireless Sensor Networks. The class was filled within one day. Feedback from IAC is welcome.
  
  Discussion followed:
  
  ~Guest speakers would be great.
  ~Add spread spectrum tech for networking.
  ~Please send any additional thoughts/comments to Dr. Meier.
- **Czech Tech** exchange program – Students would travel to Prague at the end of their sophomore year. All instruction would be in English. The program is already active in the AE program and feedback was good. The winter quarter classes would need to go a bit faster for these students and their junior/senior course sequence would change a bit.

**General Discussion**

- **Does industry look for CE or all 3 degrees?**
  
  ~We look for skill sets; why did you choose this program/interest?
  
  ~We look for engineers in general (those that have problem solving), but we look at CEs in particular.
  
  ~We look for CE because our products are focused on embedded design.
  
  ~We look for all 3, but CE and EE in particular.
- **Student feedback** often includes that “CE” or “Embedded” are not in job descriptions.
  
  ~Industry not sure what CE is?
  
  ~HR groups everything as SE; you have to read into the requirements.
  
  ~Look at the underlying description.
- **LinkedIn** – Senior class feedback showed that students are not sure if they could get jobs.

  Discussion followed:
  
  ~LinkedIn is a great way to get yourself out there, but there was not much conversation this year. We need to work on getting the word out.
  
  ~SWE had a presentation on LinkedIn and other student groups are getting involved.
  
  ~The Fall CE event would be a great opportunity to promote this.
  
  ~Do students feel the faculty need to help more?
  
  ~Who should take admin responsibilities?
  
  ~Faculty need to push this more in their courses.
  
  ~It should be maintained by students and passed from class to class. What are other ways of publicizing it?
  
  ~It should be opened to all of EECS.
  
  ~Should be promoted at Freshman Orientation in the packet (for all programs).
  
  ~Provide a blip on the Facebook page.
~The administrator should be responsible for posting events (IAC meetings, Senior Show, etc) as well as questions.
~ Someone needs to take this on and view it as a job.
~ In the last 12 years, 70% of recruiting has been done on LinkedIn.
~ Should be supported by alumni and faculty members.
~ Would show incoming students that this was something made by students.

- **Linux** – This was intended as an elective, but with the economy crisis, we decided not to purchase another board/book. Next year we would like to add embedded Linux as an option. There is some Linux experience in other classes.

**Meeting Wrap-up**
- **Action Item – LinkedIn**

Meeting adjourned at 10:56am