Attendees

Industry Members

Dr. Ian Atkinson – Google
Mr. Ryan Barnett – Rockwell Collins
Mr. Lon Bushweiler, Host – Plexus
Mr. Joe Izzo – Rockwell Automation
Mr. William Strangeway – Johnson Controls
Mr. Jon Ubert – QuadTech
Mr. Jeff Zingsheim, IAC Chair – Honeywell Corporation

Student Representatives

Mr. Ryan Kraemer '17
Mr. Seth Opgenorth '16
Mr. Brian Scharles '17
Mr. Samuel Voss '16

CE Faculty

Dr. Eric Durant
Dr. Darrin Rothe

Recorded by: Dr. Durant

Meeting called to order at 9:00 a.m.

Welcome and Introductions

Mr. Zingsheim, Chair, called the meeting to order. He and Dr. Durant, Program Director, thanked Mr. Bushweiler for hosting this meeting at Plexus in Neenah. All three welcomed the group and introductions were made.

Note: All items on the agenda were discussed, but several informational items are not repeated in these minutes.

Approval of Minutes

The May 22, 2015 meeting minutes were reviewed and approved.

Recent CE Event – October 26

Rockwell Automation sponsored a CE student / industry / alumni networking event and dinner this Monday, October 26. Member Mr. Izzo gave the keynote. All present agreed that he did a great job and the event went very well overall. The pace of the buffet line food service was slow; this will be fed back to our food service company.

Mr. Strangeway pointed out that at these events students should approach and talk with alumni. The organizer should let alumni know the hosts will encourage that and therefore that they might want to bring business cards. Mr. Voss agreed and suggested telling alumni to think of a few things so they can choose to expand on a theme or start a new one. Mr. Voss appreciated how Mr. Izzo's emphasis of security tied in with other recent events. Mr. Strangeway suggested that juniors and seniors could also be asked give suggestions to the underclassmen as part of the event focusing on what they wish they would have done in earlier college years; this might be combined with the senior design talks. Or, this could be handled by the IAC students (either speak for class or gather some ideas), but care should be taken to not make the overall meeting too long.

Career Fair – October 9

Mr. Scharles noted that the Kern Center fieldhouse was arranged differently for the Career Fair this year, providing more space and more effective use of that space. Mr. Voss said that many companies seemed even more enthusiastic to be there this year. Nametags with majors worked well, helping companies approach students according to Mr. Voss. Also, per Mr. Voss, the CE companies were spread out quite a bit so he had to walk around a lot. Mr. Scharles, in contrast, almost found trapped in conversation with some, especially staffing agencies, before he could get to the companies at the top of his list. Mr. Opgenorth went last year and said the Career Fair is one of the best value-adds from MSOE; his three co-ops, internship, and job offer all came from this. Mr. Voss also noted that meeting people from industry helped his work with the student chapter of IEEE where he needed to recruit guest speakers.

Mr. Bushweiler said that Plexus received good feedback that the Career Fair was very well run, large, and engaged students. Mr. Voss noted that a couple of companies used iPads to make a copy of resumes, etc., but there were a lot of delays while they uploaded data. Some handled this well, but in many cases it was somewhat impersonal. Mr. Kraemer allocated two hours in the afternoon to attend, but ran out of time.

Dr. Atkinson noted that placement agencies are not always the best for the first position, plus many of the hiring companies will not want to pay their fees. He wondered if there were too many such agencies at the Career Fair.

Next Fall Meeting

Dr. Durant asked the representatives to consider whether they would like to host next year's fall meeting at their company.

IEEE Student Chapter

Mr. Voss gave an overview of the speaker and tour opportunities they are planning for the coming year and how they would like to involve IAC companies. Mr. Voss will follow up soon with the members individually.

Review of Program Educational Objectives (PEOs) and Student Outcomes (SOs)

Dr. Atkinson described that a big difference between a junior and a senior engineer is the ability to independently analyze problems. After about four years, an engineer should be able to work with an abstract problem statement without supervision. This is met somewhat by the PEO on expert knowledge, but future revisions might emphasize this more. Mr. Bushweiler concurred, noting that, at Plexus, an Engineer I can implement the solution, but moving up an engineer does the analysis and comes to the solution without guidance. Dr. Atkinson suggested that the senior design experience is an important step in this development process.

4×4 Curriculum Format

The new CE 4.0 curriculum, which currently has only freshmen, makes greater use of 4-credit classes instead of courses with fewer credits; this helps students better focus by limiting the number of subjects taken at any one time. The freshman curriculum is purely 4×4, meaning that students take four, 4-credit classes each term of the freshman year. This has been well received.

Also, the upperclassmen reported that they like that the new CE curriculum has fewer gaps; for example, VHDL is studied throughout the freshman year instead of taking a one-year break from the material as in the previous curriculum.

Electives

Circuit/system Fabrication

Dr. Rothe and Mr. Voss spoke about Dr. Rothe's new circuit/system fabrication elective. Students learn about picking parts, complex distributor ordering procedures, board layout, and learning multiple SMT soldering technologies. Students do a careful "smoke test," ramping up power supply voltage to make sure there are no unexpected currents before moving to batteries. They also study how to flash firmware, bring a prototype up, and build enclosures using 3-D printers. This elective is like a small, 10-week senior design; it is great to take students through this whole process. The course has good tie-ins to testing materials in Embedded IV.

Mr. Voss thinks this class is so important it should be required; it is a nice summing up of the curriculum, tying together CE and EE topics.

Dr. Rothe thanked Rockwell Collins for donations supporting SMT, 3-D printers, and other hardware. This will help students in project courses beyond this one.

Parallel Computing

Dr. Atkinson asked whether MSOE offers an elective in parallel computing. We discussed Dr. Schilling elective in this area that ran last year. Dedicated Computing donated an Intel cluster that was used in this course. The members agree that this is an important area in industry now.

Dr. Rothe and Mr. Opgenorth noted that one or two labs plus the lecture in CS3841 Operating Systems provide some theoretical basis in this topic; the lab has moved away from developing embedded operating systems and towards Linux to better match learned theory. Dr. Rothe suggested that there is an opportunity to perhaps move to embedded Linux so it would both match the theory and be on embedded hardware.

Mr. Barnett suggested that considering power management, even in 2-core systems, is a good tie-in to OS. Mr. Scharles noted that the SE real-time systems course that uses BeagleBone and related hardware might have some aspects that would be good for CEs in this area.

Dr. Rothe and Mr. Opgenorth noted that Embedded II now has students implement a simple round-robin scheduler.

Mr. Voss noted, and Mr. Kraemer concurred, that in CS3841 there still seemed to be some disconnect between lecture and lab, plus the online lecture components seemed disconnected. Mr. Scharles thinks this may be due to trying to fit so much in.

Adjournment

Meeting adjourned to lunch and a manufacturing facility tour at 12:00 p.m.