



# Education and Student Activities Committee



## Meeting Minutes August 5, 2014

### Raleigh, NC

Meeting Called to Order: 7:00am

18 members in attendance

#### **ESAC Leadership**

Daryl Beetner has taken on the role of department chair at his university. Sarah Seguin agreed to step into the positions.

Matt Juszczuk elected as ESAC Secretary by a vocal majority

The new university grant coordinator is now Arturo Mediano

#### **SDEC and ESAC Collaboration**

Meeting between the standards and education committees held Monday August 4, 2014. The intent was to talk about how the two groups could best work together:

Three major topics of discussion from this meeting:

*First:* We tend to focus on student activity at the university level. We need to bring the other aspects of education up to this level without sacrificing what we have.

*Second:* Provide a coherent detailed plan on how this new committee would be the focal point of all training activities.

*Third:* The two committees conduct a survey of what they have available. As a corollary, we should talk to each TC, and get their applicable links on a top level page.

#### **Experiments Manual Update**

A dropbox is setup and hosts the most current draft manual. Request access directly through email. The old manual; has been converted to word, available for editing and updating. I have been converting figures and drawings.

We need to approach individuals who have completed really good experiments and request that they document their work and provide it for our manual. Complex setups are not the focus right now.



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## Action Items:

- Meet with Tom Jerse to leverage his six years of prior experience (Mediano)
- Review past university grant submissions to see if any are still viable (Mediano)
- Validate Google group list and add any additional members (Seguin)
- Mention Bob Scully's GU feedback to Antonio Orlandi (Steffka)
- Ask Sergio Pignari to communicate hardware competition to both chapters and the angels (Devine)
- Obtain Daryl's draft ESAC roadmap proposal and find any other documentation associated with this proposal

## Next Agenda:

- Approve Sarah Seguin as Vice-chair of ESAC
- Review GU evaluation forms
- Discuss implementation of Santa Clara and Dresden workshop and GU
- Discuss student hardware competition rules for mentoring and sponsoring
- Appoint an ESAC member to finish this roadmap effort
- Report back SIPI experiment ideas (Jost)
- Discuss changes to the student paper competition.
- Approve the meeting minutes of July 28, 2014

Meeting Adjourned 8:58am



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## Appendix A: Detailed Meeting Notes

### I. ESAC Leadership

Steffka: Daryl Beetner has taken on the role of department chair at his university. His work responsibilities preclude him from continuing as the ESAC vice-chair. Sarah Seguin agreed to step into the positions.

Nominations open for ESAC Secretary

Matt Juszczuk elected as ESAC Secretary by a vocal majority

Steffka: The new university grant coordinator is now Arturo Mediano

### II. University Grant

Steffka: We need formal documentation regarding the grant and the award

Brench: It is appropriate to have a full submission from ESAC with a formalized vote for approval.

Scully: Are there any submission yet?

Steffka: None

Scully: Are there any considerations reconsider past submissions that did not receive the award?

Steffka: We'll look into it

### III. Evaluation of Google Groups Email Communication

Steffka: We should have captured everyone's email and put them on the google group. Everyone should be seeing monthly updates. However, we need to update the member list with anyone that is missing.

Steffka: The intention is to continue with the schedule of monthly calls (the last Monday of every month). There will be a meeting at the end of August (August 25, 11:00 EST)

Juszczuk: What have we done to leverage Google's technology: google groups, hangouts, collaborative documentation?

Steffka: Communicating as a group has been large task up to this point

Seguin: Concerned about security and maintainability with Google documents

Steffka: Some companies have security issues and will not allow their employees to use Google applications.

Juszczuk: No action at this time, but let's be mindful of any opportunities that we might have.

Steffka: perhaps a future agenda item could be how to move to the next level



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### IV. Feedback from Fundamentals Tutorial and the Global University

Scully: A presenter at the GU asked about the complexity of the presentation. Everyone said it was fine. At the end, someone walked up and asked if everything would be at the same level of simplicity.

Steffka: That is the exact opposite of what we have heard in the past. The intent is for engineers five years into an EMC career, not years and years of experience.

Steffka: Working through the cadence of the topic material. GU used to be all day T, W, R. The downside is that attendees want to be part of the symposium. We changed this to a full day Monday, so that half days on T, W, R would be an option. The assumption is that GU attendees would not go to the fundamentals workshop.

Bunting: The feedback won't come from us. Are we collecting feedback from the students?

Steffka: Yes, there is a formal evaluation form

Steffka: There seemed to be pretty good attendance at the fundamentals workshop throughout the day.

Chris: We seemed really short on time for some of the important topics: grounding and shielding

Steffka: Are there any ideas concerning how to incorporate SIPI?

Joffe: 40% of submissions were in the SIPI field, it sort of gives us an indication of the interest level.

Scully: For this particular conference there was an SIPI steering committee of 15+ people. Their task was to solicit input. They did that very well. We did not do that for the regular EMC track. This is essentially comparing apples to walnuts. If CA and Dresden have an abundance of SIPI content, then we'll see a trend. If we put the same effort into the EMC track, we'll see an equivalent increase in submissions. One symposium should not be cause to completely change directions.

Brench: for a one day fundamentals tutorial, the content is the same for both EMC and SIPI. It's a different story for GU. We should not be able to tell the fundamentals apart.

Joffe: I agree with everyone, there is no contradiction. Maxwell covers both.

Scully: GU should be advanced people should already be familiar with the fundamentals going into it.

Brench: This is exactly the reason for the liaison with TAC. We know how to teach it and TAC can give the direction.

Chris: GU would benefit from more applied EMC (demonstrations)



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Steffka: GU is still a work in progress. This is the first year that the topics were defined by ESAC. There is certainly some growing to be done.

Juszczuk: The fundamentals workshop seemed to not be focused on different industries. We should consider asking the presenters to consider differing perspectives.

Steffka: The expectation for Dresden is that there will be a fundamentals tutorial and a GU

Scully: It would be nice to have these session at both Dresden and Santa Clara

Steffka: Given the timeframe this should be a major topic of discussion at our next meeting

Jost: Let's reach out to experts in the EU to present in Dresden since the common North American based presenters may not be in attendance.

## V. SDEC and ESAC Collaboration

Jost: Meeting between the standards and education committees held Monday August 4, 2014. The intent was to talk about how the two groups could work together. It was suggested to have a link on the front page of the EMC Society website; make it more accessible. Currently, the perceived emphasis does not appear to be on education and training when someone visits the website.

Three major topics of discussion from this meeting:

*First:* We tend to focus on student activity at the university level and then Gaussian to left and right. Are we too focused on university to the detriment of the others? We need to bring the other aspects of education up to this level without sacrificing what we have.

*Second:* Provide a coherent detailed plan on how this new committee would be the focal point of all training activities.

*Third:* The two committees conduct a survey of what they have available. As a corollary, we should talk to each TC, and get their applicable links on a top level page.

We should encourage ourselves to look at what other societies are doing.

This implies that there needs to be a responsive web support at a higher level. We really need someone to keep it fresh.

(Note: addition meeting notes provided by Randy Jost and attached to these meeting minutes)

Scully: Links need to be checked often.

Devine: We should have better outreach for video links from vendors. Many vendors have very specific EMC content Agilent and R/S, etc

Scully: MIT offers entire courses on engineering and physics.



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Seguin: I am a member of the instrumentation and measurement society. For quite a while they had web tutorials, there was an issue with bandwidth while watching video. It was not well subscribed, and became an inactive link. We really needed someone to manage it.

Steffka: Randy to send information over to Matt. Need to peel back the onion and see what the priorities are for this effort.

## VI. 2015 Student Hardware Design Competition

Steffka: We need to discuss our plan to support the hardware competition at both Dresden and Santa Clara.

Steffka: The Santa Clara design is intended to be more SIPI oriented than Dresden.

Mediano: Dresden

Bogdan Adamczyk: Santa Clara

Mediano: he is preparing something

Steffka: the point is, we're looking at how to support both of these. Anyone from any part of the world can support.

Mediano: Stephen Dickmann is working on the Dresden proposal.

Deadlines and policy set up, advisor, letter showing original work. When a team registers, they receive a technical document. It will be a DC/DC converter. They prepare a prototype to pass conducted emissions,

Mediano: Originally we could have sent them a PC board and components. But if you sent them a footprint, you are giving them the solution. Only send them the main IC, the student decide the layout and component selection.

Juszczuk: Does that give students with access to university board manufacturing capabilities an unfair advantage?

Devine: We keep getting only four submissions (historical trend). We want to increase participation. Perhaps the local chapters could also sponsor. Industry could also sponsor.

Steffka: these are important conversations to have. It takes us to the core of what we are trying to do with this.

Song: One year only three designs were submitted. Of those there, only one worked. We gave them the board that year.

Seguin: If they are a student, isn't there some sort of faculty member?

Devine: A lot of the student chapters operate rogue. They have an advisor, but those students are not listed in any database.



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Seguin: Somehow we should know that they are students even if the chapter supports them

Devine: A letter or transcript should be sufficient.

Scully: At NASA a lot of students come in and do internships. I would hate to see those people left out of the picture. Mentors at those organizations should be able to sign-off. There should be no problem as long as there is someone in authority to verify that the competitors are students.

Mediano: the important thing is deadlines. We need to start Sep 1. I need to receive comments very soon. Please review the documentation that I have already.

Devine: We need to make sure that chapters know that there is a competition  
Some chapters need resources. We need demo kits to make available to people, perhaps a grant.  
Basic test equipment (about \$8k) for each kit. Make them available to be shipped around

Williams: In my chapter, we are very lucky to have universities with equipment. Some places do not. We need to look for funding for this. Otherwise, I know that some companies bring students into labs on the weekend to run their designs.

Board of directors has asked to engage more with industry

Williams: Use the Angels

Steffka: I believe that they are all in the IEEE website.

Williams: Sergio Pignari, society chapter coordinator, can send correspondence to the chapters and thr angels. The angels could then visit the chapters.

## VII. Experiments Manual Update

Steffka: Heard Henry Ott say in his keynote address that the experiments manual is critical and needs to be updated.

Jost: A dropbox is setup and hosts the most current draft manual. Request access directly through email. The old manual; has been converted to word, available for editing and updating. I have been converting figures and drawings.

We need to approach individuals who have competed really good experiments and request that they document their work and provide it for our manual. Complex setups are not the focus right now.

Scully: Jerry Myerhoff, is another good resource. Great at examining fundamental issues, especially design.

Jost: Plan to attend the SIPI lunch meeting. I will ask them if they have any applicable experiment ideas.



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Jost: "Educational demonstrations of fundamental concepts" is a better title (not "experiments manual")

Seguin: Are we going to review them? Do we have quality concerns?

Randy: Yes we will review them. Often there are hidden tricks that are not written down. We would be looking for consistency.

Devine: Perhaps have a competition amongst the chapters to develop the best experiment.

Song: We could have online videos of these demonstrations. We should have simulation labs as well.

Brench: TC9 had a big push 10-15 years ago to create simple demonstrations.

Steffka: We discussed that a deadline is needed. What is the expectation of an achievable deadline?

Brench: Before each board meeting have a major release of the experiments manual to demonstrate progress.

Steffka: I'm seeing a couple different parallel items. Jerry LuAnn, and Chris are putting together the new content. Randy's activity is to update the current experiments.

Brench: Don't limit based on resources limitations. If we need type editing or experiment validation, make it known. We will find people to help.

Juszczuk: what about the Science Teacher's Day experiments and demonstrations?

Brench: This was planned last minute and planned by Beth Scully. It had to be cancelled.

## VII. Roundtable Items

Brench: ESAC has been very active and achieved a lot in the past year. We have met all the goals given to us so far. We should all think about how to expand the education capabilities. There has been no real guidance from the Strategic Planning meetings. The emphasis has shifted from general education to students, but we be sure to educate from undergraduate to late in someone's career.

Scully: Daryl put together a draft response from action still has a copy but never seemed to go beyond that point. It was a request for ESAC to put together an interconnected roadmap (including workshops, papers, design competitions, etc). It is all supposed to be interconnected as a cohesive whole. Fundamental should be brought forward every other year so there is a continuum of educational process. A whole curriculum that they can follow  
Still no formal response, this is a High Priority.

Williams: At the 2008 symposium, a group met to identify the gaps in EMC education. We saw a need for guidance for people coming into EMC. Some people do not even understanding what EMC fully means and a path for them to follow. At the symposium, what should they do? We would like



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them to take home a study guide: specific topics from specific authors. So that by the end of 3 or 4 years, they are now ready to attend GU as a capstone. The board said it was a good idea and gave the directive to ESAC to implement it, but it died. It still needs the input from people who understand the whole scope. It needs multiple paths so people can go in multiple directions

Joffe: An INARTE discussion is an option at this meeting if we desire

Steffka: Next year there will be a national symposium (Santa Clara) and an international symposium (Dresden). Dresden will host the primary board meetings, ESAC will show up in Dresden. It is appropriate to also be in Santa Clara but if we have to make a choice Dresden would be the place.

Steffka: Was there an ESAC member that attended the first TAC meeting this week? Daryl Beetner was the prior representative to TAC. Bottom line: an ESAC representative on TAC is not required.

Brench: Primarily the link is from TAC into ESAC. Information flows into ESAC, they say what they want and it flows to us, not the other way around.

Steffka: I was anticipating attending TAC in Daryl's stead but an email exchange with him changed that

Devine: What the expectations with the society?

Brench: The main goal is to cover the full range of training needs: if TAC sees a need for training in a given area or if ESAC feels there is an area missing. We need to average all the information we receive. That's why there needs to be a liaison that is part of TAC.

Brench: Whoever knows the most about both committees should attend both.

Scully: all these meetings are open. Anyone can go to anyone else's meeting. We're not going to mandate a formal ESAC member to the TAC. For no other reason than good communication, it makes good sense for someone from ESAC to attend TAC. Especially on Friday during the report out.

Williams: the roadmap request, once complete, will probably give us all the information we need. We'll get feedback from TAC.

Brench: Rather than building the map, we've been building the road.

Bunting: We need to fix the student paper competition. Not going to do it here or now. APS sends all finalists to their symposium for free. We need to learn from the other societies to determine the best practice for this event.

Bunting: Less than half of a TC's responsibilities are focused on the symposium. We need to remember to focus on the bigger picture. We are not doing enough for students in academia.



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## Appendix B: NOTES from the ESAC/SDECom Meeting

Monday, August 04, 2014

Meeting started with a short discussion of what we wanted to accomplish. The general consensus was to create a list of several objectives that we can work on over the next several months to show some demonstrable progress in integrating the educational activities between ESAC and SDECom.

One immediate thing that could be done would be to generate a listing of the existing educational material available in both of the organizations, to see what we have, what overlaps may exist and what holes need to be filled.

Another thing that could be done immediately is to provide crosslinks and pointers between the two web sites to help direct people to the material that already exists. It was pointed out that a very useful thing to have would be a case study or an example of how a particular standard would be applied to conduct or evaluate a measurement.

It was pointed out that there is existing material at the following location on the IEEE web site ([http://www.ieee.org/education\\_careers/education/standards/tutorials.html](http://www.ieee.org/education_careers/education/standards/tutorials.html)) and represents the kind of material we could develop and should have pointers to on our web pages.

During the above discussions, a tangential, but important discussion on the scope and emphasis of the ESAC was conducted. It was pointed out that ESAC has its web site buried down several layers in the EMCS web site. This potentially sends a message that the education may not be very important to our society. Thus, it was proposed that we create a very clearly identifiable link on our home page to educational materials.

At the same time, it was also pointed out that the very name of the education committee – Education and Student Activities Committee – makes it sound like our emphasis is mostly on student activities, primarily at the university level, instead of encompassing the broader area of EMC-related education for the society at large. It was suggested that we should brand ourselves the Education and Training Committee (or perhaps the Education and Training Meeting Encounter?) to clarify that we are responsible for and interested in educational activities across the broad spectrum from K-12, through university level, to professional and continuing education. Thus, we should consider taking a look at the scope of our responsibilities and make it clearer that we are about more than the university students, but the other constituencies that we are trying to reach, including before and after the university experience.

Other things that were suggested we could do over the next few months – before the next board meeting and to the extent possible – include:



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- Finish off the assignment given to the ESAC by the BoD to create a comprehensive curriculum structure that encompasses the various aspects of the education and training mission, to include K-12 outreach, university activities (University Grant, Student Paper Contest, Hardware Design Contest, etc.), standards education, Tutorial/Workshop presentations, Global University and demos at the Symposia, etc. Note that while ESAC does not need to be the implementing body for all of these activities, they should serve as the clearinghouse and coordinator of such activities.
- Create a page of web links of EMC-related materials. This would also entail identifying someone who could not only act as the point person to gather links, but also evaluate and check on their currency periodically.
- Encourage the people who have developed demonstrations for the symposia, or in their classroom or outreach activities, to submit them to the ESAC to make them available via the web pages.

One thing that was pointed out was while we were doing these activities, we should make sure that the development of educational materials related to standards does not generate additional requirements on the people that are trying to accomplish the above.