1. Approval of minutes for the meeting of January 20, 2015
2. Updates from Undergraduate Studies Committee (Megan Marshall)
3. Updates from Graduate Studies Committees (Wang-Chien Lee)
4. Updates from Engineering Technology Committee (Ron Land/Terry Speicher)
5. Updates from Faculty Senate (Peter Butler)
6. Dean’s Report (Catherine Harmonosky)
7. CoE Constitution (Anthony Atchley/All)
8. High Quality Advising for Graduate Students (Igor Jovanovic/All)
9. Requirements for Hiring Exceptional High School Students in Labs (Melik Demirel)
10. Other Business
ENGINEERING FACULTY COUNCIL

Meeting Minutes – January 20, 2015

202 Hammond


1. Approval of minutes for the meeting of December 16, 2015
   • Minutes approved unanimously.

2. Updates from Undergraduate Studies Committee (Chris)
   • Unanimously approved to add permanent course numbers for Nuclear Engineering 447 and 442.

3. Updates from Graduate Studies Committee (Wang-Chien Lee)
   • Proposal of Acoustic MS one-year non-thesis program will be submitted.
   • Lori Long is on family leave, so the status of proposals submitted to her is currently unknown.

4. Updates from Engineering Technology Committee (Ronald/Terry Speicher)
   No update.

5. Updates from Faculty Senate (Peter Butler)
   No senate meeting since last EFC meeting.

6. Dean’s Report (Catherine Harmonosky)
   • The proposals for non-thesis MS program from Industrial and Manufacturing Engineering and Chemical Engineering have been revised and resubmitted, and will go through the 2nd round review at the Jan 22 Graduate Council Curricular Review Committee meeting. The revised proposals addressed two major concerns in the previous submission. One was that it was not specified whether the paper could be completed off campus. The other was that the research project work should be spread out in all three semesters as opposed to only during the summer. The M.Eng. program proposal from Computer Engineering was approved.
   • In addition to the MS program proposals from Industrial Engineering and Chemical Engineering, the M.Eng. program proposal from Civil Engineering went from EFC to the university level, and will go through the first-round review at the Jan. 22 GRC meeting.
   • The proposal of merging CS and EE departments to a new school has been approved by the university. An implementation plan is being developed.
• The search committee of the frontier faculty lines has compiled a short list of candidates. Reference letters are being requested. Meetings with department heads to discuss these candidates will be held this week. Candidates will be invited for interviews late Jan. or early Feb.

• The ad for the department head search of Industrial and Manufacturing Engineering has been placed. The search committee is compiling a list of candidates. Candidates screening is anticipated for mid Feb; Skype interviews will start late Feb and campus interviews will start early March.

• The chair of the department head search committee of Civil and Environmental Engineering will meet with Dean El Nashai to discuss the short list this week. Candidates will be brought to campus in Feb. or Mar.

• The new Director of Finance of COE, Susan Sampsell, started her position on Jan 12.

• An external committee completed a review of our Information Technology (IT) structure and functions in the college. The review report is being reviewed by Dean.

• A review of the fundraising activity was commissioned by PSU Advancement and it was done by the company GG & A.

7. COE Constitution (Sven Schmitz, Christine Masters, Ronald Land)

Proposed update on COE constitution:

• Add a section on the academic integrity committee.

• Expand the size of the committee so that there is representation for every department, but also shrink the number of people required to be present at the hearing so as to facilitate scheduling.

• Committee members at the hearing will include an undergraduate student member, a graduate student members, the committee chair (faculty member), and one faculty member/department head.

Suggested changes in the COE Constitution:

• Section 1.2, item j should be removed.

• Section 1.3, non-COE, non-UP faculty who teach engineering and engineering technology courses should not be extended membership in the ETC.

• Changing the name of the ETC to ‘Commonwealth Engineering & Technology’ may not be appropriate.

Suggested changes in the Bylaws:

• Section 4.1, the wording needs to be modified to clarify which review functions would reside with USC and which would reside with ETC.

• Section 5.1, the limit on consecutive terms of office should be deleted for ETC.

Suggested changes in Standing Rules:

• Section 2, it needs to be made clear that the agenda for College Faculty meetings will be distributed to all COE faculty members does mean that.

• Article II, section 1.3, including all non-COE faculty as members of ETC is not appropriate.

• The choice of chair of ETC should be left to the [s]elected ETC members.

• Leave the [s]election of ETC members to the discretion of the bodies that they represent.
• Article II, section 2, changes may not be necessary.
• Article IV, section 4.3, rewording is suggested for clarity.

Two suggested ways to vote on drafted changes to the Constitution:
• Scenario 1: changes are first discussed and voted at EFC, and then are voted by all faculty at COE.
• Scenario 2: Each EFC unit is in charge of explaining the drafted changes to the Constitution, collecting comments from their representative units, and vote will be conducted among units.

8. Other Business

• Discuss how to simplify the students hiring process at Feb. EFC meeting (Melik Demirel).
<table>
<thead>
<tr>
<th>Course Proposal Changes</th>
<th>Type and Description of Change</th>
<th>Description or Rationale for Curricular Actions</th>
</tr>
</thead>
</table>
| **M E 410 – Heat Transfer**
Submitted by: Eric Marsh | **CHANGE - Modification of Prerequisites** | The course content of I E 424 is not being changed. However, the prerequisites are being updated.

The purpose of this course submission and consultation system request is to update the PSU Bulletin with the correct prerequisite course list for M E 410. Changes in Penn State course offerings, redundancies, and degree programs necessitate these changes.

Math 251 is being removed from the prerequisites because Math 251 is required for a course that is a prerequisite for M E 410 making the listing here redundant. Students who are permitted to take M E 410 based on the course controls do not take AERSP 308, AERSP 311, or C E 360 fluids courses, they only take M E 320 or B M E 409, and so the other fluids courses are being removed from the list. BME 409 (Biofluid Mechanics) has been added as an alternative fluid course due to the current arrangement with concurrent BME/ME majors.

CMPSC 202 is being changed to CMPSC 201 in the prerequisites because CMPSC 202 is no longer offered at Penn State. |
# EFC Proposal Report

**Recommendation of Proposal Actions from the GS&R Committee (submitted 02/23/15) for EFC Meeting**

## Course and Program Proposals (2 Programs)

<table>
<thead>
<tr>
<th>Type Course or Program</th>
<th>Title</th>
<th>Program Name</th>
<th>Number or Degree</th>
<th>Action Requested</th>
<th>Vote GS&amp;R</th>
<th>Description (Why/What for)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>Proposal to Change the Culminating Experience for the Existing Master of Engineering Degree (M.Eng) in Aerospace Engineering.</td>
<td>AERSP</td>
<td>M Eng</td>
<td>Change</td>
<td>Approved</td>
<td>The Department of Aerospace Engineering proposes to modify the description and offering of its existing M.Eng. program to make it possible to complete the degree in a single calendar year. The primary purpose of this proposal is to replace a “scholarly paper” with a “capstone course” as the culminating experience for this M.Eng. degree in Aerospace Engineering. This capstone course will still serve to demonstrate comprehensive and in-depth knowledge, but will require less intensive faculty oversight. In order to allow M.Eng. students more flexibility to choose from a larger number of courses, some changes to credit distribution requirements are also suggested. The culminating experience of this course will involve acquisition and application of systems engineering and design principles to aerospace vehicle systems, or some other similarly complex system. Key topics will include: role of the systems engineer, project management, communications skills, team development and leadership. Projects will include both individual and team activities. This capstone requirement can be satisfied by several courses; there are sufficient options to begin this program immediately. Such courses include EDSGN 558 Systems Design and AERSP 596 Independent Study. Graduate-level courses in aircraft and spacecraft design could be developed in the future. By changing the culminating experience to a spring semester capstone course, students will be able to complete an advanced degree in one year. Enrollment of M.Eng. students is expected to approach 30 to 40 per year.</td>
</tr>
<tr>
<td>Program</td>
<td>Proposal to Change the Culminating Experience for the Existing Master of Engineering Degree (M.Eng) in Environmental Engineering.</td>
<td>Env E</td>
<td>M Eng</td>
<td>Change</td>
<td>Approved</td>
<td>The purpose of this proposal is to replace the writing portfolio with a capstone course as the culminating experience for the Master of Engineering (M.Eng.) degree in Environmental Engineering. The motivation for this proposal is to streamline degree requirements such that students can complete this degree in two semesters (Fall and Spring). Currently, most students seeking the M.Eng. degree complete their degree within three semesters (Fall, Spring and Fall semesters). By changing the culminating experience to a common, required capstone course, students will be able to complete an advanced degree in a shorter amount of time. There is a strong demand for this degree. Since 2010, the Environmental Engineering Graduate Program (separate from Civil Engineering) has received an average of 180 applicants per year. Of these 180 applicants, on average, 30 were admitted and 10 arrived to begin their in-residence degree programs. With the opportunity to complete the M.Eng. degree in two semesters, the Department of Civil and Environmental Engineering (CEE) expects the enrollment of M.Eng. students alone to approach 10 per year (i.e., this could double the Program’s graduate enrollment). In the near future, it is expected that demand for this degree will increase, as a graduate degree in Civil Engineering will be required in many states prior to taking the Professional Engineer (P.E.) exam. The Environmental Engineering Graduate Program proposes to replace the writing portfolio with a required capstone course, the new CE 535 Integrated Project Management for Civil Engineers. The culminating experience of this course will utilize a project-based, team-based learning process to teach project management’s value, methodology, and application to civil and environmental engineering projects. Students will learn how to initiate, plan, organize, staff, direct, control, and closeout a project. Key topics will include: role of the project manager, civil engineering project procurement/proposal development, importance and skills of communications, project team development and leadership, team conflict resolution, design management, scope management, work breakdown structure, scheduling/time management, budgeting/cost management, risk management, resource management, earned value, project evaluation and control, and project closeout and termination. This will be a writing-intensive course where students will complete both individually-authored and team-authored reports. Teams will be assembled to facilitate cross-specialization (Infrastructure, Transportation Systems, Water Resources, and Environmental) learning. This proposal would mirror a current proposal by CEE to change the culminating experience for the M.Eng. degree in Civil Engineering.</td>
</tr>
</tbody>
</table>
I have some vivid memories of advising graduate students in my early days as a university faculty member. I had just completed my Ph.D. program and had arrived at a new institution. One day I was a graduate student finishing up my dissertation; the next day I was advising graduate students. I received no formal guidance about how to make the transition. If the truth be known, I was flying by the seat of my pants: eager to learn, eager to be helpful, but woefully short on experience and knowledge about how to be an effective adviser. If more truth be known, my experience was not unique. I suspect it was the norm in those days for new faculty members to receive little or no guidance regarding their advising responsibilities. I like to think the field has made great progress at helping new faculty members learn how to serve as high-quality advisers for graduate students, but I fear the actual progress has been modest.

While this dearth of guidance might suggest that graduate students are facing big problems as they seek to make progress in their programs, the reality seems to be that in many cases faculty members have learned how to function as advisers and perform very effectively. There is a tendency to “advise as one was advised,” and it appears that this emulation is working fairly well, at least in some cases.

But not always. Over the years, I've also become aware of instances where students
have been treated badly at the hands of their advisers. The evidence of this mistreatment tends to be anecdotal and sometimes comes with requests that it not be shared for fear of reprisal. Some of the anecdotes are very disturbing and remind me of how vulnerable a student is if he or she gets cross-wise with an adviser. This kind of difficulty became very personal for me recently as I observed a member of my family have serious difficulties with an adviser in a graduate program at a different university.

Granted, I have only my family member’s side of the story, but the concern was along the lines of the adviser being very unresponsive to repeated requests for answers to questions and requests for feedback on drafts. Not only was this adviser being unresponsive, but the feedback when it came was limited and contradictory. While it really is not appropriate for me to second-guess this faculty member’s feedback, there is no question in my mind that the faculty member was creating unwarranted and frustrating hardships for a member of my family. Having to pay tuition for this kind of bad treatment just added insult to injury. I watched this member of my family struggle with figuring out what to do. The adviser had what my family member needed, namely the sign-off on the thesis, and there was not much that could be done other than to accept the bad treatment.

This said, advisees also need to understand that good scholarship requires hard work and that they can expect to receive hard-hitting feedback from their adviser on their work. While advisers have a responsibility to provide tough criticism when it is warranted, the criticism always needs to be respectful, humane, and responsive. Advising is a complex task and things work best when the lines of communication are open and effective in both directions.

In light of all this, I welcome the interest our Graduate Student Council is taking in helping the College strengthen graduate advising. Our Graduate Student Council is raising awareness about the importance of high-quality advising and recently conducted a survey of all graduate students in the College that included questions about advising. As this awareness has grown, our department heads have taken an interest and are beginning to facilitate discussion with the faculty in our departments about best practices. Indeed, the EPS Department has begun searching the research literature on the topic and is making the relevant studies available to members of the department. Our Faculty Council also is becoming aware of the effort and I am hoping the Faculty Council will take the lead on developing a statement that articulates the
faculty's commitment to excellence in advising practices. We will be working closely with the Graduate Student Council on this initiative.

As part of our effort to raise awareness about the importance of high-quality advising, I recently sent out a notice to our graduate students inviting descriptions of good experiences students have had with their advisers. In my request, I noted that I’d be addressing the topic in this Connections column and that I would not mention names. Within five minutes of sending my message to the listserv, I began to receive responses that included glowing accounts of excellent advising practices. It is very gratifying to me to see instances where our students are describing the positive support they are receiving from their advisers. I am pleased to share excerpts of a few examples with you here:

- My adviser is an incredible and dedicated mentor. I was fortunate to be added to one of her research projects right when I started. This opportunity continues to be a great source of knowledge, experience, and networking, which has been invaluable to my time here. Additionally, she shows support for me in all areas of my personal and professional development. Despite the setbacks I encounter, she challenges me to stay on track and to slow down when I need to gain a new perspective on my work.

- Since my first day in the College of Education, I have been impressed by how incredibly attentive and supportive the faculty in my program were. In particular, my adviser has guided me through all the official aspects of my program. While all of this has been much appreciated, it's what he has done that is not part of his official capacity that has really made the difference for me. He is always an open door and is willing to make time to talk, answer questions, or encourage me to see a different perspective. Since the selection of a topic for my dissertation, I can think of many times where he has come across articles related to my interests and shared them with me - without his help, I would feel absolutely lost in this process. I feel like I have someone who is really rooting for me as a student, and truly cares about my success both personally and professionally.

- She guided me through this process with many conversations and emails that helped me work through ideas, pushed me to think harder and deeper, and provided multiple edits and suggestions for articles, presentations, and the dissertation. She spent time deep in discussions about the nuances of research, teaching, and how to be a good professor/adviser. I feel that I am well prepared to teach and research as a first-year professor next fall.
• Any student who has worked with my adviser really knows that he takes his mentoring obligations very seriously. Despite his demanding schedule, he always makes time for students, even those who are not his advisees. I owe my first publication in a peer-reviewed journal to the support and guidance that he provided. He also facilitates a study group for graduate students interested in his area of specialization and meets with individual students very frequently, even in the summer. Perhaps most importantly, he is a very approachable, down-to-Earth person who will just as soon talk with you about guitars as he will about his research. I am honored to work with such a fine scholar and mentor.

• My adviser is the kind of adviser who I want to be "when I grow up." He is a warm, personable, respectful, and caring adviser who always maintains utmost professionalism. Whenever I talk to him whether it is through email or in person, not only is he quick to respond but he is always open to listening to my thoughts/ideas/concerns without judgment. I can feel that he respects my interests and goals. At times when I feel confused, unsure of which direction to take, or overwhelmed with a project, etc., he never fails to encourage me while giving me constructive advice as we plan the next steps together. Above all, he creates a friendly, open, and safe environment. Even though graduate studies can sometimes be quite stressful, he sets a fine example as a professional as well as an adviser and encourages and inspires me to continue to grow.

• Shortly upon arrival [my adviser] had me engaged in a research study as promised. I have also had the experience of co-teaching a course with her and she has also allowed me to take part in multiple research projects. I have now been engaged in every aspect of research from data collection to publication. The experience that I have had at Penn State has been tremendous, and my adviser has really helped me to make the best decisions for my future career as a faculty member. I can honestly say that I would not have experienced the amount of growth that I have experienced if she was not my adviser.

• I am in a master’s degree program, and I feel very lucky to be able to work with my academic adviser. We would always be sure to meet each semester and develop short- and long-term goals in line with my career aspirations. When there were conflicts between my graduate assistantship and a mandatory class, my adviser would be very understanding and allow me to switch classes, despite our curriculum being pretty structured. In my last semester, I will be doing an internship, which requires prerequisites that are closely matched with prior experiences in my background. My adviser worked with me to arrange an
appropriate accommodation that is tailored to meet my needs. I am very grateful for this attentiveness to my individual needs, interests, and background. I really, really enjoyed my academic advising experience with my adviser. He is very busy but always makes time for his advisees. He is a great help and I hope he continues advising!

- My graduate program demonstrates its commitment to providing high-quality advice for graduate students by organizing a very helpful introductory class for all new students. The class facilitates interactions with faculty members and provides a very valuable safe zone where students can share personal worries, difficulties, and issues that need to be resolved in order to become mature educators in the field. The course is helpful for all students but is especially helpful for international students like me.

- I have been lucky to work alongside my adviser for the past four years! During my time as a doctoral student, she has pushed me to conduct research from the ground up, present at international conferences, and publish in prestigious journals. I’ve had the honor of working alongside her as we have together pursued our common interests; developed new interests; and created our own research niche. I owe my professional success to my adviser who supported me both as my adviser but also my friend.

- Throughout my graduate studies, my adviser has been very supportive of my course work and research interests. In meetings, he listens to my thoughts and concerns, skillfully asking questions that encourage me to reflect and learn from those reflections. He has supported decisions that I have made regarding my coursework and the research questions that I have asked, even if they may not have been the same path he would have taken. Even though I look to him as a mentor and a guide, he treats me as an equal and with respect. I am honored to be able to work with him throughout my graduate work.

- My adviser is an inspiration to me. Her commitment to her students is unwavering. She is always there when you need her to offer excellent and critical counsel on dissertation research, trends in education, employment opportunities, scholarly writing, and more. In addition, she has responded to sensitive and personal issues that have arisen for me on my Ph.D. journey with understanding and sensitivity. She is a great listener. She advises but always leaves the decisions to me. She is an exceptional role model. At a recent conference, she stopped what she was doing in order to meet with me and a potential employer so she could sing my praises. She didn't have to do that, and I didn't ask. She offered and I accepted!
She models professionalism, dedication, and excellence in all she does, all reasons why in my opinion she excels as my graduate adviser; she is a great communicator and relationship builder. For these reasons and more too numerous to mention, my adviser is the embodiment of a great adviser and models how to practice this fine art.

It is important for us to celebrate these successes, but we also must be attentive to instances where the quality of advising falls short. Toward that end, I have a few draft principles I wish to share with the hope that these can facilitate continued fruitful discussions within our departments and within the Faculty Council. In particular, it seems to me that high quality advising has the following hallmarks:

**Accessibility**

The adviser needs to be reasonably accessible. Advisers should not disappear, but students also need to understand that advisers lead demanding lives and have professional as well as family responsibilities. It is not reasonable for students to expect immediate access at all times.

**Accuracy**

The advice provided needs to be accurate. Students can reasonably expect their advisers to be knowledgeable and able to communicate clearly.

**Timeliness**

The advice provided need to be timely. While it is hard to put a precise metric on this, it is also hard to defend making a student wait more than three weeks for feedback.

**Criticism**

The advice provided can include criticism, but the criticism needs to be respectful and humane. Students should expect constructive criticism to be part of the advising experience. Advisers should strive to serve as “critical friends.”

**Standards**

Advisers need to set high, but realistic and attainable standards. It is not appropriate
for advisers to expect students to reach ever higher standards. Students are entitled to know what counts as an acceptable level of performance for moving to the next milestone in the program.

**Responsiveness**

Advisers are entitled to expect their advisees to be attentive to the advice that is offered, but not to the point where advisees are expected to slavishly follow all suggestions that are offered. Advisers need to listen carefully to their advisees.

**Boundaries**

Advisers should keep their relationships with advisees focused on academic and professional development. It is not appropriate for advisers to expect advisees to become involved with assisting advisers with their personal needs.

**Remedies**

Advisees need to know where they can obtain assistance if difficulties develop with an adviser. Similarly, advisers need to know where they can obtain assistance if difficulties develop with an advisee.

I hope at least some of these points prove to be helpful as these College-wide conversations about high-quality advising continue. We’ll be involving faculty, staff, and students in these conversations, and I’m confident that real progress will be made. While the focus in this column has been on graduate advising, we also need to be attentive to ensuring high-quality advising for our undergraduate students. Let’s also keep our eyes open for ways to improve undergraduate advising as these conversations progress.

In the meantime, please accept my very best wishes for a safe and satisfying holiday break.

The Penn State College of Education serves approximately 2,800 undergraduate and 1,200 graduate students each year. The College prepares administrators,
counselors, psychologists and researchers, as well as P-12 teachers in 21 different specialty areas. *U.S. News & World Report* ranks ten of the College's graduate programs in the top 20 of their respective program rankings, with five programs in the top 10. The College is known nationally for its education research and outreach, housing such centers as the Center for the Study of Higher Education, the Center for Science and the Schools, and the Mid-Atlantic Center for Mathematics Teaching and Learning.

For more information on Penn State's College of Education, contact EdRelations@psu.edu, call 814-863-2216, or visit www.ed.psu.edu.
9. **Requirements for Hiring an Exceptional High-School Student in a Laboratory (Melik Demirel)**

To complete the University background check, please provide a personal email to Jodi Shaw in HR. You will then receive a system-generated email asking you to complete information on line. There is no paperwork for this. The grad student employee who will also be working with the minor will need to provide this information for the background check as well. Please be sure that both of you have completed the “Reporting Child Abuse” training as well, if not already done this year.

**Both of you will also need to comply with the new law by providing the three required items listed in the prior email below.** Please use the following link for these and follow the instructions on the website:

**Instructions for Obtaining Clearances**

Provided below is a link to instructions for individual submission of clearances for employees:

http://guru.psu.edu/policies/OHR/Background_Check_Instructions.pdf

In summary, the required documents are

1. Pennsylvania State Police Criminal Background Check (SP4-164)
2. Pennsylvania Child Abuse History Clearance Form (CY-113)
3. Federal (FBI) Fingerprint Criminal Background Check (Criminal History Report)

**Comment:** Note that all these items will need to be completed for the professor and the grad student prior to working with the high school student. The total cost of $50 per person. The number could increase drastically if you start including the grad students. It takes more than 5 hours (including a trip to UPS store for fingerprinting and filling out online forms) to complete the process per person.