Engineering Faculty Council 2018-2019

College of Engineering

University of Iowa

Meeting #2

Tuesday August 28, 2018

11:00 AM – 12 noon, room

SC 4511

1. Call to order
2. Approve minutes from EFC meeting #1
3. Announcements / updates on action items not listed below
   a. EFC Charge on Instructional Faculty Review Policy
4. FPOA Update
   a. Two FPOA reviews this year
   b. Is FPOA required for associate deans (Policy attached)
5. Approve Voting Faculty Roster
   a. Wilder approved BME list by email
   b. Stanier approved list in consultation with CBE Dept. Administrator
6. Discuss people we want to invite to upcoming EFC Meetings
7. Charges, membership, and chairpersons for EFC Standing Committees
Draft Minutes

Present (EFC): Profs. Rahman, Stanier, Wilder

Present (Dean’s office and/or other visitors):
• Nicole Grosland, ex-officio
• Larry Weber, ex-officio

1. Professor Stanier called the meeting to order at 11:00 a.m.
2. Wilder volunteered to be the secretary until a new member joined the EFC
3. The minutes from the 5/11/2018 meeting were approved
4. The college faculty list was circulated for review.
5. Communication methods were reviewed and contact information was collected (see below).
6. The EFC discussed the special election to fill the committee vacancy but noted that a complete and approved list of CoE faculty must be confirmed prior to a special election.
7. We discussed issues regarding conducting an FPOA.
8. We discussed the membership rosters of the standing committees.
9. We discussed the membership of the special ad hoc committees on First Year Experience / Core Redesign
10. We discussed 2018-2019 EFC priorities at various times during the meeting, including:
    a. Voting policies for all faculty
    b. EFC membership terms
11. The chair requested that the slates and charges of the standing committees be submitted by August 28, 2018.
12. We adjourned at noon.
210808Aug21 EFC contact info:

Grosland, Nicole, BME, Admin
Mobile: 319/594-0668
Work: 319/335-6425
Email: nicole-grosland@uiowa.edu
Address: 3100 SC

Rahman, Sharif, ME
Mobile: 319/xxx-xxxx
Work: 319/335-5679
Email: sharif-rahman@uiowa.edu
Address: 2140 SC

Saha, Punam, ECE
Mobile: 319/
Work: 319/335-5959
Email: punam-saha@uiowa.edu
Address: 3414 SC

Stanier, Charles, CBE
Mobile: 319/330-2403
Work: 319/335-1399
Email: charles-stanier@uiowa.edu
Address: 4122 SC

Weber, Larry, CEE, Admin
Mobile: 319/331-1135
Work: 319/467-0117
Email: larry-weber@uiowa.edu
Address: 306 Stanley Hydraulics Laboratory

Wilder, David, BME
Mobile: 319/541-7661
Work: 319/384-0513
Email: david-wilder@uiowa.edu
Address: 4613 SC

TBD
Mobile: 319/
Work: 319/
Email: @uiowa.edu
Address: SC
Faculty perception of administrators (FPOA) shall be obtained in the third year of each of the following administrators’ term: the Dean, the DEO of each of the six College of Engineering Departments and the Director of each Center/ Institute attached to the College.

The procedures will have the following parts. A questionnaire comprising the questions set out below shall be administered by the EFC to all faculty members holding a primary tenure track appointment in the administrator's unit.

1) The administrator is an effective leader of the unit.
2) The administrator has a clear vision of the unit’s future direction.
3) The administrator performs his/ her tasks in a timely fashion.
4) Overall, the morale of the unit is high.
5) The administrator makes effective use of resources.
6) The administrator fosters individual faculty development.
7) The administrator is committed to the academic development of graduate and undergraduate students.

In addition, the EFC will appoint a three member committee comprising faculty members of the cognizant Unit. This committee will analyze the numerical scores and the written comments generated by the questionnaires. Further, in case of the DEOs and Directors, the committee shall individually interview all faculty members holding primary tenure, tenure track appointments in the pertinent unit. For the Dean, the committee shall interview the DEO's, the Directors and such members of the College faculty as the committee feels may have information pertinent to this exercise.

Based on its analysis of the questionnaire results and the oral interviews, the Committee shall submit a written report to the EFC chair. The EFC chair will transmit the Committee report, the numerical results of the survey and the typed written comments from the survey, to the administrator in question and all tenure track faculty members of his/ her unit.
Procedures for Faculty Perception of Administrators

The College of Engineering policy requires that the EFC annually seek inputs on the Faculty Perception of the Dean, DEO’s and the Center Directors. The policy states that these inputs be obtained via a questionnaire sent to all tenure track faculty in the College (for the Dean) and the unit (for DEO/Directors). In the recent past the response to this questionnaire has been very poor and of limited value in both assessing and improving the administration of the various units in the College. At the same time the EFC believes that meaningful survey of faculty perception of administration is important. Effectively conducted, it can provide valuable feedback that is bound to benefit the College and its units.

The EFC feels that the lack of recent success of the current system can be attributed to the nature of the current procedures, and the frequency with which they are undertaken. In particular, annual administration of these procedures is too frequent and by its very nature provides inputs that are based on inherently transitory perceptions. Further, the questionnaire is very long and requires substantial investment of faculty time. Some of the questions concern matters that not all faculty members can answer. In view of these facts the EFC makes the following motion.

The EFC moves:

That the procedures outlined in the attached document entitled College of Engineering Policy on Obtaining Faculty Perception of Administrators, be adopted effective AY 1998-1999.
<table>
<thead>
<tr>
<th>Dept.</th>
<th>Stanier</th>
<th>Rahman</th>
<th>Saha</th>
<th>Wilder</th>
<th>Vacant</th>
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<td>Term</td>
<td>Term ends 2020</td>
<td>Term ends 2019</td>
<td>Term ends 2021</td>
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<td>Note</td>
<td>To be off on CDA spring 2019</td>
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<td>Role</td>
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**2018-2019 Liaison**

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<tr>
<th>Teaching</th>
<th>Technology</th>
<th>P&amp;T Policy</th>
<th>Curriculum</th>
<th>Teaching</th>
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<tr>
<td>2017-2018 Committee Chair</td>
<td>Hans Johnson</td>
<td>Jennifer Fiegel</td>
<td>Shaoping Xiao</td>
<td>Hiroyuki Sugiyama</td>
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<td>Dr. Chris Coretsopolous (CBE) May 2020</td>
<td>Tae-Hong Lim (BME) – 2019</td>
<td>Yong Chen (ISE) - 2019</td>
<td>Andersland (ECE) – 2020</td>
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<td>Prof. Michael Schnieders (BME) May 2019</td>
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<td>David Murhammer (CBE) – 2019</td>
<td>Mackey (BME) – 2020</td>
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<td>Mr. Danny Tang (ETC), ex Officio non-voting</td>
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<td>2018-2019 Chair</td>
<td>Schnieders recommended as chair by Hans Johnson</td>
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<td>Mackey agreed</td>
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**Additional Committee Member Needs (2 year terms, 2020)**

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<tr>
<th>CBE, ISE, ECE</th>
<th>CBE, ME, ISE, ECE</th>
<th>CEE, ECE, ME</th>
<th>ISE, CBE, CEE</th>
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<td>Two needed</td>
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**Departments that are underrepresented**

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<th>CBE, ISE, ECE</th>
<th>CBE, ME, ISE, ECE</th>
<th>CEE, ECE, ME</th>
<th>ISE, CBE, CEE</th>
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**Notes**

Jia Lu sabbatical F2018
**Curriculum Committee Charges.** Wilder recommends adopt as listed from the final report. In addition the curriculum committee will be involved with the ad hoc committee on first year classes.

**General Charge**
- The Curriculum Committee shall be responsible for reviewing and evaluating all existing and any proposed curricula within the college, for reviewing and evaluating all existing and any proposed courses taught within the college or required in any of its curricula, and for making appropriate recommendations to the dean and the faculty.

**Specific Charges**
- The following charges will be remained in the list for the 2018-2019 College Curriculum Committee.
  - Continue work to develop, implement, and monitor a new CoE GEC policy
  - Monitor course quality for the mathematics, physics, and chemistry courses that are part of the engineering core curriculum
- In addition, the following new charges are recommended to the 2018-2019 College Curriculum Committee.
  - Monitor course quality for engineering core courses, including Circuits, Thermodynamics and Statics.
  - Seek a solution to improve EPSI, which currently has a lack of connection between lecture sections and lab sections.
  - Assess student needs of “Be Creative” courses
Technology Committee.

General Charge

- The Engineering Technology Committee shall be responsible for reviewing and evaluating policies governing hardware, software, shops and computing services within the college, and for evaluating the effectiveness of the Engineering Technology Center, for making appropriate recommendations regarding computer and technology resources to the Dean and the faculty.

2017-2018 Charges – not sure how many of these are intended to be annual

*Meet with the DEO of each Department to review current technology, services, and infrastructure and review the five-year plan and list of priorities for the next year. Meeting with each departments representative will ensure that the needs of the departments are recognized explicitly in the committee’s planning and advocacy.*

*Investigate ETC staffing and services for further opportunities to better support the Teaching mission.*

*Monitor the University of Iowa’s OneIT process to ensure that IT services are consistent with the College expectations.*

*Investigate ETC staffing and services for further opportunities to better support the Research mission.*

*Assess the need for policy governing acceptable student behavior in the Engineering Computer Laboratories. Also, propose policy languages as appropriate.*

*Study adequacy and effectiveness of electronic tools and facilities available for offering online courses. In addition, make recommendations to improve the experience of faculty who teaches online courses.*

*Monitor the instructional spaces and teaching resources in the South Annex of SC, as those spaces come online, including standard ITS classrooms, as well as teaching laboratories and the new digitally-enabled collaborative learning space for team-based education. Work with staff and EFC to identify and correct any defects with those spaces. Report to the faculty regarding new teaching spaces.*

*Recommend specific charges for the 2018-2019 Engineering Technology Committee.*

- In recognition that most departments do not have a formal 5-year technology plan, and under the recognition that technology is changing at a pace that is much faster than a 5-year cycle, we recommend rephrasing the first charge.
- Suggest that a catalog of teaching lab equipment and a replacement timeline/cost estimates be created to better understand the how to make future replacement/maintenance plans.
- Continue to monitor the new annex teaching spaces, and the maker space for utilization and improvements that are needed in both technology and policy. Recommend improvements that will enable the new digitally-enabled collaborative learning space for team-based education.
- Monitor the implementation of the policy governing acceptable student behavior in the Engineering Computer Laboratories, and report on its effectiveness.
Teaching Committee

General Charge

The Teaching Committee shall be responsible for all matters relating to evaluation and improvement of the quality of instruction in the college, and for making appropriate recommendations to the dean and the faculty.

- Oversee the College Teaching Award nomination and selection process and revise as needed.
- Continue to collect data regarding TA appointments for all ENGR. Using this data set and any other information you find useful, explore the impact of increased College enrollment on TA sustainability and the undergraduate and graduate educational experiences.
- Continue to monitor the instructional spaces in the new Annex to identify and correct any defects.
Draft charge for ad hoc first year course experience committees

Version (by Stanier, 8/21/2018)

Jointly with the EFC Curriculum Committee, make a recommendation to the [EFC / Faculty] regarding changes to the course IEPS / IEC that would retain the strengths of those courses, and improve them, giving strong consideration to the factors (expose students, develop skills, recruitment, retention, etc.) listed in the May 2018 faculty-approved motion (attached).

Deliverables:

- **Fall Semester**
  - Prepare a short (~2-3 page) history of the course, including teaching philosophy, learning objectives, resource allocation (sections, teaching assistances, faculty, staff support), and pedagogy.
  - Prepare a report on strengths, weaknesses, constraints, and opportunities
  - Suggested timeline
    - October – stakeholder meetings
    - Nov 1 – draft documents to curriculum committee
    - Dec 1 – draft documents to EFC

- **Spring semester**
  - Prepare a recommendation consisting of a summary and rationale of recommended changes to the course, a revised list of course objectives, and an implementation plan for implementation starting in F2021
    - Mar 15 – draft documents to curriculum committee
    - Apr 15 – draft documents to EFC, including a motion for presentation to the faculty

- In addition to the above, the IEPS committee shall deliberate and vote
  - on whether IEPS is to “Give exposure to different types of engineering to aid in major selection” or whether that role should be filled entirely by other means, such as first year seminars and advising.
  - Recommend the degree of linkage between IEPS projects and lecture
  - Recommend whether students select project sections with knowledge of the project content (as opposed to current practice of random matching between projects and students).

- In addition to the above, the IEC committee shall deliberate and vote
  - on the programming language(s) taught in the course, and the feasibility of student choice in selecting language(s) of focus through enrolling in language specific sections or projects

**Recommended committee size: 4-5 members**, recognizing that the ad hoc committees can be assisted by the curriculum committee, and can invite additional stakeholders to specific meetings to give information relevant to the course adjustments under consideration.

Potential members, based on suggestions made in 2017-2018 EFC deliberations, those involved in the 2017-2018 discussions of the core, current DUGS, and past instructors of the courses in question.
EFC will seek a balance of those with experience in the relevant courses, and those with fresh
perspectives possible from limited perspective in the 1st year core.

Possible members of either unless marked by * (IEPS only) or † (IEC only)

A. Bhatti
J. Kuhl
A. Bradley*
R. Valentine*
DUGS - Nicole Kallelmeyn (BME)
DUGS - Paul Hanley (CEE)
DUGS - Mark Andersland / Gary Christensen (EE / CSE)
DUGS - James Buchholz (ME)
C. Coretsopoulos*

Stakeholders but ineligible due to membership on other committees
• DUGS - David Murhammer (CBE) --- also on curriculum committee
• DUGS - Yong Chen (ISE) --- also on curriculum committee
• David Wilder, IEPS Course Coordinator (on EFC)
• Terry Braun, IEC Course Coordinator (on EFC Curriculum Committee)

Additional stakeholder groups or sources of information:
• Undergraduate students
• Staff (i.e. tutoring, computing support, shops, library, maker spaces, outreach, recruitment,
advising, diversity)

IEPS Lecture Instructors Since 2014
Allen Bradley (2014 to 2018)
Ibrahim Demir 2018
Salam Rahmatalla 2018
Keri Hornbuckle 2017
Jerry Schnoor 2016
Michelle Scherer 2015

Project Sections:
Ruben Beltran 2017
Arun Pennathur 2015-2018
David Wilder 2014-2018 (honors)
Richard Valentine 2014-2018
Jennifer Fiegel 2015, 2017-2018
Er Wei Bai 2015-2018
Shaoping Xiao 2018
Chris Coretsopoulos 2014-2018
Just Garvin 2016
Julie Jessop 2014, 2016
Sureh Raghavan 2015
Jacob Odgaard 2014
Gene Parkins 2014
Uday 2014
Gary Fischer 2014
Chris Stoakes 2016-2017

IEC Instructors Since 2014
Justin Garvin 2014-2018
Ed Dove 2014, 2016
Gary Christensen 2015-2018 (Honors section in 2016)
Terry Braun, 2016, 2018
Joe Reinhardt 2017-2018
Gheorghi Guzun 2017
David Kristensen 2017
Mona Garvin 2017-2018
Relevant Background:

1. Faculty approved motion
2. Discussion during May 10, 2018 faculty meeting
Review of Undergraduate Engineering Core Curriculum

Motion
The College of Engineering shall review its undergraduate engineering core curriculum with the goal of starting implementation of changes recommended after the next ABET visit in 2020.

Guidance
Modifications to the curriculum should consider the factors such as
1. Expose students to disruptive breakthroughs, big ideas that changed society, and entrepreneurial success stories by engineers.
2. Expose students to real engineering projects to help motivate and frame their math and science courses.
3. Develop skills universally needed by all our students (oral, written, and graphical communications, numerical computations).
4. Give exposure to different types of engineering to aid in major selection.
5. Help with student recruitment, retention, and diversity.
6. Maintain the College's ability to integrate transfer students.
7. Maintain student's ability to change major during the first few semesters.
8. Be consistent with the College's financial resources and infrastructure.
9. Empower students to use College-wide resources (library, shops, computing, advising, tutoring).
10. Feedback from alumni and from external advisory boards on what constitutes shared engineering knowledge across all engineering disciplines.

Timeline
2018-19 – Proposals for the first year of engineering: The EFC, in conjunction with the curriculum committee and two ad hoc committees (one for Introduction to Engineering Problem Solving (IEPS) and one for Introduction to Engineering Computing (IEC)), to consider the first year experience for engineering students and develop specific proposals for these two courses.

2019-20 – Proposals for second year of engineering, including Statics, Electrical Circuits, and Thermodynamics: The EFC, in conjunction with appropriate committees, to develop specific proposals related to these courses.

2020 - ABET review.

Fall 2021 - Offer courses based on the proposed revisions.
Rationale
The last major revision to the College’s undergraduate curriculum was initiated in February 1997 when Dean Miller appointed a Curriculum Advancement Task Force (CATF). The CATF produced a draft document *Preparing Engineers Beyond Technology: Engineering Education at the University of Iowa* in October 1997 which was endorsed by a faculty vote of 51-4 in April 1998. An Ad Hoc Core Curriculum Committee (AHC3) was appointed in December 1997 to develop a three-semester core curriculum based on the principles laid out in the CATF document. In February 1999 the AHC3 proposed the three-semester core curriculum with a list of core concepts and skills. The faculty endorsed this document in May 1999 by a vote of 35-11-1. The final curriculum was approved by the College’s faculty in a series of motions in May 2001.

Since 2001 the curriculum has evolved through the normal continuous-improvement cycles but there has not been a comprehensive look at the curriculum. At the same time over these past 20 years or so the College has changed in several significant ways. The in-coming student body to the college has increased from around 200 to around 500. With the addition of Engineering Annex the college has seen significant growth in space that is available for incorporating innovations in teaching. With rapid advancement in technology and vast quantity of easily accessible information (both reliable and unreliable) the needs and expectations of our students are vastly different now than 20 years ago.

Actions completed

2017-18 Broad core vision
1. Several Lunch & Learn Sessions During the Fall 2017
2. EFC looked at several peer institutions (Big10 Plus)
3. EFC met with DEOs to understand core needs of departments
Professor Bhatti presented the EFC MOTION: Review of Undergraduate Engineering Core Curriculum. “The College of Engineering shall review its undergraduate engineering core curriculum with the goal of starting implementation of changes recommended after the next ABET visit in 2020” plus the supporting text on factors to consider in the review, timeline for review, rationale for review, and the initial work completed during the 2017-2018 year. The first actions of the review will be for two ad hoc committees (one on IEPS and one on IEC) be formed in fall 2018, and together with the curriculum committee, be charged to review and revised these courses while also considering the first year engineering experience as a whole.

a. Discussion focused not on the motion itself, but on the supporting text:
   i. Faculty mentioned the course titles are no longer EPS 1 and EPS 2, but rather IEPS and IEC – this was incorporated into the supporting text as a friendly amendment.
   ii. Professor Christensen commented that wide stakeholder involvement is needed, and in particular ECE involvement in the review of EIC, since this is the first in their sequence of required courses.
   iii. Professor Reinhardt recommended that the list of factors to be considered in the review be separated from the motion itself; furthermore, the list should suggested rather than prescribed. This was incorporated into the motion as a friendly amendment.
   iv. Professor Fiegel explained that it will be a challenge to evaluate IEPS because the course will be evolving during F2018 to adopt the new Annex spaces.
   v. Professor Bradley noted that the 2000 review of the core was very broad, while the proposed review seemed focused on individual courses. Professor Stanier responded that EFC was interested in a somewhat broader review, and proposed as a friendly amendment that the timetable refer to review of the first year experience, and the 2nd year experience, in addition to referencing the individual ENGR courses such as IEPS and IEC.
   vi. Professor Peeples also recommended broad stakeholder involvement, particularly in making sure that student retention continues to be addressed in the first year experience.
   vii. Several faculty noted that the recommendation that the core should “empower students to use College-wide resources (library, shops…)” was potentially problematic and could result in hollow words without the resulting actions and resources needed for true empowerment. For example, balancing student access to machine shops, safety, liability, and expense, can be difficult. Stanier commented that he felt the review / core redesign might be able to empower students without resulting in unlimited or 24/7 access to shop facilities. Dean Scranton explained that more resources are available now than 20 years ago for IEPS (such as space in the new Annex).
   viii. Professor Fiegel noted that the supporting text mentioned that the review was to consider how IEPS and IEC “give exposure to different types of engineering to aid in major selection.” She explained that in IEPS there is an explicit effort to avoid educating about individual majors; instead, this is left to the first year seminar. Other faculty mentioned that the project sections often do involve a disciplinary focus.

b. The motion was approved by voice vote.