Engineering Faculty Council 2018-2019

College of Engineering

University of Iowa

Meeting #8

Tuesday Oct 16, 2018

11:00 AM – 12 noon, room

SC 4511

1. Call to order
2. Approve minutes from EFC meeting #6, #7
3. Announcements / updates
   a. Future visitors
      i. Oct 23, Michael Schnieders (confirmed)
4. Ad hoc committee charges
5. Diversity Council, Faculty Representative
6. Craig Just (confirmed), P&T Policy Committee Chair
7. David Murhammer, Curriculum Committee Chair

EFC members, please come ready to approve (or have specific changes ready) for the ad hoc charges, pages 6, 7, and 13
Engineering Faculty Council 2018—2019
Meeting #06 October 2, 2018

DRAFT Minutes v02

Present (EFC): Profs. Rahman, Saha, Stanier, Wilder, Bai (IEPS ad hoc chair), Bhatti (IEC ad hoc chair)

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 11:05 a.m.

2. The minutes from the Sep 25 EFC meeting #5 were corrected and approved.

3. Announcements:
   - Grosland mentioned PoT process is being reviewed at a university level
   - Stanier met with CEE DEO Bradley about current activities in CEE relevant to EFC. They discussed ABET review of the Civil Engineering Program, and the Environmental Engineering Program. They also discussed the potential to change the curriculum to make computers and computers tools seem appealing and relevant to CEE students; currently they view them as something to avoid.
   - Stanier met with Casavant regarding pitching AI and Casavant would produce a final report for the Dean and the Curriculum Committee.
   - All people proposed for the ad hoc committees (IEPS and IEC) have accepted and Murhammer agreed to chair the Curriculum Committee
   - Mackey (Teaching Committee chair) agreed not to meet with the EFC
   - There was a discussion about the implications of the vote reminded regarding an off-campus MS program in Engineering and Information Technology

   General question regarding the review of the curriculum: Do we continue the philosophy of “Engineering and Something More” as well as the “three-semester common core”?

4. We reviewed ad hoc committees and charges
   - Stanier mentioned that Valentine has provided documents regarding the history of EPS-I (now IEPS).
   - Bai, asked where to look or to whom to turn to get data on the IEPS class
   - It was emphasized that all ideas related to IEPS are welcome. The EFC were reminded that some of its goals have been related to retention, engagement, and excitement about the profession of engineering.
   - Bai expressed its goals have been to build confidence, make it exciting, and foster teamwork.

5. We adjourned at noon.
Engineering Faculty Council 2018—2019
Meeting #07 October 9, 2018

DRAFT Minutes


Present (Dean’s office and/or other visitors): Prof. Grosland, ex-officio

1. Professor Stanier called the meeting to order at 11:04 a.m.

2. The minutes from the October 2 EFC meeting #6 were corrected and will be submitted for approval on October 16.

3. Announcements: Future visitors, listed in the agenda, were announced

4. Jason Kosovski, Director of CoE Marketing and Communications, arrived
   Stanier explained the EFC, its duties, and committees
   Kosovski addressed how he could help.
   Big picture: Kosovski runs the CoE’s communications (PR, social media, web, digital, print, video) in order to gain more “eyeballs” nationally and internationally due to the distinction of the UI CoE.
   The UI CoE needs
   More intentionality / strategy in message; Plans for growth and engagement
   An answer to “What are we trying to accomplish?”
   A goal such as better marketing and transactional interactions
   To track visits to and engagement with the website
   To use existing UI resources (such as the change from eWeek to e-newsletter)
   Review of current CoE staffing:
   Web developers: Bill Easton and Hailey Boileau
   Two web interns: for updating website and monitors
   One website design intern is coming
   Strategic Communications help: Lynn Davey
   Alumni relations: Wendy Brentner
   Further items discussed:
   Guidance on press releases; Suggestion that Kosovski visit EAC
   Request for Kosovski’s guidelines
   Support for faculty and department website design, creation, and implementation
   One of Kosovski’s priorities is cleaning up websites
   What about creating websites for mandated publication/promulgation of data?
   Straighten out research center websites wrt “branding guidance” harmonization
   Would like a communications team
   How to change misperceptions:
      More difficult if based on opinion, Easier if based on facts
      Words are important !!!

5. New members of the Curriculum Committee were approved

6. We adjourned at 11:55am.
Charges for 2018-19 Engineering Curriculum Committee

October 11, 2018

APPROVED

Members

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>David Murhammer (CBE), chair</td>
<td>May 2019</td>
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<tr>
<td>Prof. Terry Braun (BME)</td>
<td>May 2019</td>
</tr>
<tr>
<td>Yong Chen (ISE)</td>
<td>May 2019</td>
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<tr>
<td>Rick Fosse (CEE)</td>
<td>May 2019</td>
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<tr>
<td>Raghuraman Mudumbai</td>
<td>May 2021</td>
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<td>Vacant</td>
<td>2021</td>
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EFC Liaison Member

Prof. David Wilder (BME)

General Charge

The Curriculum Committee shall be responsible for annual review and evaluation of all existing and proposed required undergraduate core courses taught within and outside the College of Engineering, and for making appropriate recommendations to the dean and the faculty.

Specific Charges

1. Continue to monitor the CoE GEC policy
2. 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.

3. Monitor course quality for engineering core courses, including Circuits, Thermodynamics and Statics.
4. Work with the ad hoc committee on first year core classes to meet their charge.
5. Assess student needs of “Be Creative” courses
Charges for 2018-19 Engineering Promotion and Tenure Policy Committee

September 17, 2018

APPROVED

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<td>May 2019</td>
</tr>
<tr>
<td>Prof. Tae-Hong Lim (BME)</td>
<td>May 2019</td>
</tr>
<tr>
<td>Soura Dasgupta (ECE)</td>
<td>May 2020</td>
</tr>
<tr>
<td>Prof. Fred Stern (ME)</td>
<td>May 2021</td>
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EFC Liaison Member
Prof. Punam Saha (ECE)

General Charge

The Promotion and Tenure Committee shall be responsible for reviewing and evaluating the criteria for and the appropriateness of all recommendations concerning faculty promotions, tenure, and new appointments in the college and for making such recommendations to the dean and the faculty as it deems necessary.

Specific Charges

1. Monitor the administrative burden on faculty in maintaining updated APR documents.
2. Monitor the implementation of the promotion and tenure timeline checklist in the university Workflow system.
3. Create timeline checklists for EFC review concerning instructional faculty undergoing promotion and implement in Workflow.
4. Implement 3-year review checklist in Workflow for tenure track faculty.
5. Develop best practices guide(s) for peer evaluations of teaching, particularly as relates to the use of innovative teaching methods in the classroom.
6. Clarify policy on review of instructional faculty (probable typo with dropping of term “primary faculty” in some places). Submit revised language to EFC depending on outcome of review.
Draft charge for ad hoc IEPS first year course experience committees

Version (by Stanier, 8/21/2018, 10/02/18 update, 10/4/18 update)

Membership:

Er-Wei Bai, Chair
Allen Bradley
Eric Nuxoll
Priya Pennathur
Chris Stoakes
David Wilder, EFC liaison (non-voting)
Nicole Grosland, Associate Dean (non-voting)

Jointly with the EFC Curriculum Committee, make a recommendation to the EFC regarding changes to the course IEPS / IEC for implementation in Fall 2021 and Spring 2022 that would retain the strengths of those courses, and improve them, giving strong consideration to the factors (expose students, develop skills, recruitment, retention, confidence building, excitement about the profession, teamwork 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
    - Dec 1 – “progress to date” documents to curriculum committee
    - Feb 1 – “progress to date” documents to EFC

- **Spring semester**
  - Prepare a recommendation consisting of a summary and rationale of recommended changes to the course, a resources list and budget estimate, 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

- **IEPS:** 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).
  - Clarify the division of responsibility between IEPS and the Engineering Success Seminar with respect to overlaps, interactions, and attributes.
• Recommend minimum standards and continuous improvement of lecture and project sections along ABET guidelines
• Contemplate what could be done if resources were unlimited
Non-comprehensive list of stakeholders and resources – consider consulting them.

Directors of undergraduate studies
- CBE – David Murhammer
- BME – Nicole Kallemeyn
- CEE – Paul Hanley
- ME – James Buchholz
- EE/CSE – Mark Andersland / Gary Christensen
- ISE – Yong Chen

Course Coordinators
- 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
- Alumni
- Staff (i.e. tutoring, computing support, shops, library, maker spaces, outreach, recruitment, advising, diversity)

<table>
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<tr>
<th>IEPS Lecture Instructors Since 2014</th>
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<tbody>
<tr>
<td>Allen Bradley (2014 to 2018)</td>
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<tr>
<td>Ibrahim Demir 2018</td>
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<td>Salam Rahmatalla 2018</td>
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<td>Keri Hornbuckle 2017</td>
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<td>Jerry Schnoor 2016</td>
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<td>Michelle Scherer 2015</td>
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**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 204
- Gene Parkins 2014
- Uday Kumar 2014
- Gary Fischer 2014
- Chris Stoakes 2016-2017

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<th>IEC Instructors Since 2014</th>
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<td>Justin Garvin 2014-2018</td>
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<td>Ed Dove 2014, 2016</td>
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<td>Gary Christensen 2015-2018 (Honors section in 2016)</td>
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<td>Terry Braun, 2016, 2018</td>
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<td>Mona Garvin 2017-2018</td>
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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
From Draft May 10, 2018 College Faculty Meeting Minutes:

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.
Draft charge for ad hoc, IEC, first year course experience committees

Version (by Stanier, 8/21/2018, 10/02/18 update, 10/4/2018 update)

Membership:

Asghar Bhatti, Chair
Gary Christensen
Justin Garvin
Jon Kuhl
David Wilder, EFC liaison (non-voting)
Nicole Grosland, Associate Dean (non-voting)

Jointly with the EFC Curriculum Committee, make a recommendation to the EFC regarding changes to the course IEC for implementation in Fall 2021 and Spring 2022 that would retain the strengths of those courses, and improve them, giving strong consideration to the factors (expose students, develop skills, recruitment, retention, confidence building, excitement about the profession, teamwork etc.) listed in the May 2018 faculty-approved motion (attached).

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- **IEC:** In addition to the above, the IEC committee shall deliberate and vote
  - on the programming language(s) taught in the course, including possible input from departments and alumnae/i and the feasibility of student choice in selecting language(s) of focus through enrolling in language specific sections or projects
  - include recommendation on how/whether (or pros/cons) to incorporate AI in IEC
  - Recommend minimum standards and continuous improvement of lecture and project sections along ABET guidelines
  - Contemplate what could be done if resources were unlimited
Non-comprehensive list of stakeholders and resources – consider consulting them.

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**Actions completed**

2017-18 Broad core vision

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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).
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b. The motion was approved by voice vote.