**University Council Minutes**
**May 6, 2019**
**3:00 PM**
**1045 Pamplin Hall**

**Present:** Tim Sands (presiding)**,** Rosemary Blieszner, Richard Blythe, Jack Finney for Cyril Clarke, Greg Daniel, Karen DePauw, Dani McNeil for Bryan Garey, Susan Short for Guru Ghosh, Said Mostaghimi for Alan Grant, Scott Midkiff, Sally Morton, April Myers, Lisa Royal for Kim O'Rourke, Patty Perillo, Julie Farmer for Charles Phlegar, Dwayne Pinkney, Julia Ross, Dwight Shelton, Robert Sumichrast, Kim Akers for Lisa Wilkes, Kayla Smith for Sherwood Wilson, Keith Goyne for Paul Winistorfer, Rajesh Bagchi, Jonathan Bradley, Urs Buehlmann, Bob Hicok, Kimberley Homer, Mary Kasarda, Monika Lawless, John Livingston, Robert Sebek for Tammie Smith, Monty Abbas, Susan Anderson, Eric Kaufman, Bettina Koch, Cayce Myers, David Tegarden, Lynn Abbott, David Bieri, Mary Marchant, Christopher Zobel, Velva Groover, Teresa Lyons, Lori Buchanan for Sue Teel, Annette Bailey, Kayla Winbush for Jaylen Foskey, John Massey, Glenda Scales, Christine Tysor, David Case for Jacob Davis, Zo Amani, John Ferris, & Rachel Iwicki

**Absent:** Michael Friedlander, Dan Harrington, Theresa Mayer, Steve McKnight, Kelly Oaks, Menah Pratt-Clarke, Tyler Walters, Virginia Pannabecker, Matthew Gabriele (with notice), Jia-Qiang He (with notice), Yan Jiao, Chris Lawrence, LaTawnya Burleson, Brian Huddleston, Katrina Loan, Erin Poff, Jeannie Layton-Dudding, Davon Woodard, Samantha Fried, Alexis Hruby, Anurag Mantha, Conrad Briles, Caed Cunningham, Sam Felber, Adil Sageer, & Madilynne Tanner

**Guests**: Nicole Abaid, Scott Case, Kiri DeBose, Kira Dietz, Justin Dubik, Stefan Duma, Tara Frank, Ron Fricker, Lindsey Gleason, Luisa Havens Gerardo, John Hole, Rachel Holloway, Bill Huckle, John Lesko, James Lord, Ennis McCrery, Shane Ross, Brandy Salmon, Jake Socha, Rick Sparks, Laurie Stacey, Kristie Verniel, & Nick Woods

Dr. Timothy Sands called the meeting to order at 3:00 p.m. A quorum was present.

## 1. Adoption of Agenda

A motion was made and seconded to adopt the agenda. The motion carried.

## 2. Announcement

Dr. Sands recognized Mr. Dwight Shelton, Vice President for Finance and Chief Financial Officer, for his many contributions to the university over the past four decades. Mr. Shelton will be officially retiring on November 30, 2019.

## 3. Announcement of approval and posting of minutes of April 22, 2019

Dr. Sands noted that these minutes have been voted on electronically and can be publicly accessed on the Governance Information System on the Web (http://www.governance.vt.edu).

## 4. Old Business

**Commission on Student Affairs**
Resolution CSA 2018-19C
Addition of a Statement on Sanction Enhancements for Policy Violations Motivated by Bias for the Student Code of Conduct (Changes to the Hokie Handbook www.hokiehandbook.vt.edu)

Ms. Ennis McCrery presented the resolution for second reading. A motion was made to approve the resolution. The motion was seconded, and the motion passed.

**Commission on Student Affairs**
Resolution CSA 2018-19D
Resolution to Change the Student Code of Conduct Section on Weapons (Changes to the Hokie Handbook www.hokiehandbook.vt.edu)

Ms. Ennis McCrery presented the resolution for second reading. A motion was made to approve the resolution. The motion was seconded, and the motion passed.

**Commission on Undergraduate Studies and Policies**
Resolution CUSP 2018-19B
Resolution to Approve New Major, Humanities for Public Service, in Bachelor of Art in Religion and Culture

Dr. Mary Kasarda presented the resolution for second reading and made a motion to approve. The motion was seconded, and the motion passed.

**Commission on Undergraduate Studies and Policies**
Resolution CUSP 2018-19C
Resolution to Approve New Major, Polymer Chemistry, in Bachelor of Science in Chemistry

Dr. Mary Kasarda presented the resolution for second reading and made a motion to approve. The motion was seconded, and the motion passed.

**Commission on Undergraduate Studies and Policies**
Resolution CUSP 2018-19D
Resolution to Approve New Major, Medicinal Chemistry, in Bachelor of Science in Chemistry

Dr. Mary Kasarda presented the resolution for second reading and made a motion to approve. The motion was seconded, and the motion passed.

**Commission on Undergraduate Studies and Policies**
Resolution CUSP 2018-19E
Resolution to Discontinue Bachelor of Science Degree in Engineering Science and Mechanics

Dr. Mary Kasarda presented the resolution for second reading and made a motion to approve. The motion was seconded. Dr. Rajesh Bagchi indicated that the Commission on Graduate Studies and Polices (CGS&P) was asked to review this resolution. The CGS&P determined that it does not have the responsibility for undergraduate recommendations and therefore will not issue a comment on this resolution. CGS&P does have the responsibility for graduate education and has concerns that the language in this resolution isn't clear on the commitment or direction to maintain the Engineering Mechanics graduate program. The CGS&P identified a need for better communication within the college, the department administration, and the faculty regarding the continued success of the Engineering Mechanics program.

Dr. James Lord, Engineering Science and Mechanics (ESM) Program Chair, indicated that the resolution suggests that the ESM student enrollment and the number of students seeking ESM as their first degree choice has been declining. Dr. Lord indicated that the number of students enrolled in the ESM undergraduate program has declined but only slightly. In 2013, there were 127 undergraduate students enrolled, and currently there are 118 students enrolled. That is only a decrease of nine students. The number of students seeking ESM as their first choice from 2013-2017 were 36, 68, 39, 33, and 39. This does not appear to be a decline.

When the ESM existed as a separate program in 2000, the undergraduate enrollment was 73 and the College of Engineering had a total enrollment of 5464. By the fall of 2013, the College enrollment had a 32% increase, an enrollment of 7199. The ESM experienced an 80% increase in enrollment growth during the same period. It

was later stated that by the Fall of 2014, undergraduate enrollment growth had not appreciably improved. Richard Benson, former Dean of the College of Engineering, merged ESM and the School of Biomedical Engineering Sciences to form BEAM in order to bring improved growth prospects for the ESM undergraduate program. Dr. Lord indicated that it is not clear that the merger was intended to bring improved growth prospects for ESM, especially since up to that point, ESM had experienced excellent growth. He then stated that Dean Benson wrote that:

> "A motivating factor for this merger is that a BME/ESM partnership will enhance our ability to offer a new (for Virginia Tech) Bachelor of Science degree in biomedical engineering. I am further inspired by the prospect of a dual degree option where students receive both the ESM and BME undergraduate degrees."

Dr. Lord indicated that with that vision in mind, and the new BME degree accepting students for this fall, this appears to be entirely the wrong time to discontinue the ESM degree. ESM growth was apparently excellent prior to the merger and has since declined and the BME degree is now cited as the reason for the discontinuing of the ESM when BEAM was established to help strengthen both the ESM and BME programs. Dr. Lord indicated that the low student-to-faculty ratio for ESM is an issue, but he would like the opportunity to continue growing this program. He stressed that the enrollment in the Engineering Mechanics graduate program decreased by 35% during the time when the enrollment in the undergraduate program deceased by 23%. There is a concern that the discontinuation of the undergraduate program may heavily affect the Engineering Mechanics graduate program.

Dr. Lord then indicated that another reason cited by Dean Julia Ross in her support of the resolution is the planned growth within the college. Dean Ross has confirmed that no faculty or staff will lose their jobs as a result of this action so why not let the EMS faculty and staff help with the growth. There is nothing saved by this discontinuation because a majority of new students will come through ESM classes such as Statics, Deforms, and Dynamics whether they are enrolled in ESM or not.

The current Department Head supports the discontinuation, but not by faculty or students in the department. BEAM recently announced the appointment of a new Department Head (who holds an ESM degree). It would be best to put this discontinuation on hold until the new Department Head has an opportunity to try and improve enrollment numbers.

Dr. Lord then stated that the timing of this process troubles him. This resolution was approved by the College Curriculum Committee on February 6, 2019. On February 13, the ESM program along with the Engineering Education were required to add a statement to their websites that the ESM major is only available to students admitted to Virginia Tech in Spring 2019 or earlier. The faculty were told that:

> "Bev Watford, Dean Ross, etc. want it very clearly stated that new students entering this summer/fall are not eligible to enter ESM."

A concern was raised regarding this statement because the resolution has not yet been adopted and that this action was premature. It appears to be circumventing the governance process. Rick Sparks, Associate Vice President and University Registrar, indicated that he advised Dean Ross to add this statement to the websites so that incoming students would know there is the potential that this program may be discontinued. The decision to offer a major through undergraduate admissions is an administrative decision of any college. Any major can be paused for lots of reasons such as resources or reorganizations.

Dean Julia Ross commented on some of the data presented. When the decrease in enrollment numbers for BEAM was calculated for the resolution, a time-to-time comparison was used for fall enrollment data. The enrollment was 127 students enrolled in the fall of 2013 and 99 students enrolled in the fall of 2018. The 118 students currently enrolled cited by Dr. Lord are prior to Commencement which is happening in a week. It is inappropriate to compare the fall 2017 enrollment number to the enrollment number that occurs a week prior to

Commencement. Dean Julia Ross indicated that the 118-enrollment number does not accurately reflect the current number of students in the ESM program.

Dean Julia Ross then indicated that the faculty members in BEAM are evenly split on the discontinuation of the ESM degree.

Dean Julia Ross then stated that a new Department Head for BEAM has been hired, and she specifically selected someone who has a background in both Engineering Mechanics and Biomedical Engineering. She was selected in part by her ability to understand and best support the graduate Engineering Mechanics program. Dean Ross stated that she knows that there have been concerns raised in the last two weeks as to whether the college is truly supportive of the Engineering Mechanics graduate program. She then indicated that she was disappointed with the letter that was submitted to the CGS&P but was never submitted to the college. (See attached letter dated May 1, 2019, and signed by Dr. Shane Ross.) The College of Engineering is fully committed to the Engineering Mechanics graduate program.

Dr. Mary Kasarda pointed out that the ratio of students to faculty in ESM is 9.8:1, but the ratio in the Mechanical Engineering is 22:1. Dr. Kasarda then indicated that she did a side-by-side comparison of the degree path sheets for ESM and Engineering Mechanics, and the first two years are almost identical. ESM candidates have a great opportunity to get a Mechanical Engineering degree. It was pointed out that the same can be said for Civil Engineering and Aerospace Engineering and other programs that are Statics based or Mechanics based. It was then stated that the first two years are core engineering curriculum courses and the same for all engineering programs.

Dr. Kasarda then stated that she felt that sending the amended letter (dated May 1, 2019 and signed by Dr. Shane Ross) regarding the graduate program on a Friday afternoon was poor timing. The table that is included in the letter suggests that incoming ESM undergraduates and graduates from their program varies from 2-5 students every year. The Mechanical Engineering graduate program has over 300 students, and she would argue that the additional 2-5 students could be recruited from Mechanical Engineering or Aerospace Engineering.

A question was raised as to the consequences of delaying the vote until next year. Dean Ross indicated that the resolution would die, and would have to be brought back for first reading next year. Right now the timing of the discontinuation of the degree is 2023, and a delay until next year will push the discontinuation until 2024, which would be a delay of a full year.

Ms. Rachel Iwicki stated that as a Mechanical Engineering student, she does not feel that Mechanical Engineering is a good substitute for ESM, which is more theory based and has a completely different focus than Mechanical Engineering. There really is no comparison between the two programs. She then indicated that ESM is not advertised as well as other programs. She feels she would have probably been better suited for ESM but did not know much about the program. Ms. Iwicki then indicated in conversations with students that the advertising and recruitment for ESM wasn't on the same level as other programs. Ms. Iwicki stated that that students within the ESM program are supportive of keeping the program and feel their voices were not heard.

Mr. John Livingston commented that looking from the outside, governance works best when those most affected are central to the process. The process for discontinuation of the ESM degree seems clouded and should be delayed to allow those affected ample time to weigh in.

A statement was made that Dean Julia Ross is doing what a dean is supposed to do by looking at the overall college as a whole and making improvements.

A comment was made that just three years ago, the ranking of Engineering Physics, an emphasis within the ESM program, was number four nationally, and a 2016 press release by the university stated that Engineering

Physics was the highest ranking engineering program at Virginia Tech. Thus a program is being discontinued that was recently one of the highest ranked programs.

It was then stated that the discontinuation of the ESM program has been a whirlwind. As of July, 2018, faculty in the program were unaware of any changes being considered. Only months later, the faculty are now trying to keep this program from being discontinued and none truly understand why the discontinuance is proposed. The faculty feel they have not had an opportunity to discuss this among themselves.

Dr. John Ferris, Faculty Senate President, indicated that the Faculty Senate waived their right to comment on this resolution for procedural matters. This resolution came through the College of Engineering Faculty Organization, the Engineering Curriculum Committee, the Commission on Undergraduate Studies and Policies, and Faculty Senate Commission that reviews these resolutions, so Faculty Senate thought at the time there had been appropriate time to consider this. That being said, Faculty Senators have reached out to Dr. Ferris and have requested an opportunity to comment on this resolution. Dr. Ferris indicated that he suggested those wanting to make comments should attend this University Council meeting.

Dr. Lord made one additional point that the resolution was approved by the University Curriculum Committee on a Friday afternoon (March 22), and by the Commission on Undergraduate Studies and Policies the following Monday (March 25). Despite promises that the ESM faculty would be kept informed of such discussions, they were in fact not made aware of those meetings until after they had occurred. Dr. Lord stated this in response to other members of the Council indicating that the process of discontinuing the ESM degree had progressed very smoothly up until this point and that the timing of the concerns in the May 1 letter signed by Shane Ross and distributed by the CGS&P was “distasteful” having been “sent out on Friday afternoon.” Dr. Lord then asked the Council when were the ESM faculty supposed to make their concerns heard.

Ms. Susan Anderson indicated that she is a faculty member in the Math Department, and she indicated that she feels very uncomfortable voting on something that is disruptive to the College of Engineering. She then suggested that these discussions should have happened at a faculty/departmental level. Ms. Anderson is member of the Faculty Senate Committee which determines if resolutions should be reviewed, and she indicated that she would have suggested this resolution for further review had she known there was this much turmoil over it.

Dr. Pamela VandeVord, Interim Department Chair for BEAM, indicated that the faculty present at this University Council meeting are only a subset of the faculty. Dr. VandeVord previously conducted a survey (it was later indicated that this survey was in regards to improving growth of the department) of the entire faculty, and the majority of the faculty voted with a positive response. A question was raised regarding the size of the majority. Dr. Jake Socha indicated he had the numbers for the survey, which are listed below:

- Tenured faculty had nine votes in favor, eight votes not in favor, and eleven did not respond
- Other tenure-track faculty had four votes in favor, six votes not in favor, and three did not respond
- Collegiate Faculty had two votes in favor, zero votes not in favor, and one did not respond
- Instructors had six votes in favor, zero not in favor, and two did not respond

Dr. Socha indicated that this survey was sent out at 11:00 a.m. on a Friday and responses were required by Noon on the following Monday. Dr. Socha was not able to respond himself because he was in a location where he did not have access to this survey and was not aware of it. He then indicated that this survey was not in regards to discontinuing the ESM program, but it was about agreeing with the plan for improving growth. So overall there were more votes in favor than opposed to supporting the growth of the undergraduate program.

Following the discussion, a vote was taken by University Council, and the motion passed with majority of 21 in favor of the resolution and 19 in opposition of the resolution to discontinue the Bachelor of Science degree in ESM.

**Commission on Undergraduate Studies and Policies**
Resolution CUSP 2018-19F
Resolution to Approve Transitional Plan to Facilitate the Change of Date of Entry Graduation Requirements

Dr. Mary Kasarda presented the resolution for second reading and made a motion to approve. The motion was seconded, and the motion passed.

## 5. New Business

**Commission on Faculty Affairs**
Resolution CFA 2018-19E
Resolution to Amend the Faculty Handbook Promotion and Continued Appointment Procedures for Faculty in University Libraries

Professor Bob Hicok first made a motion for first reading and action (commonly referred to as "waiver of first reading"). The motion was seconded. A vote was taken and the motion for action passed. A motion was then made by Professor Hicok to approve the resolution itself, and the motion was seconded. Professor Hicok indicated that this resolution, once approved, will change the composition of the University Promotion and Continued Appointment Committee by removing the director of Virginia Cooperative Extension, and the two faculty members from University Libraries and two Extension faculty members. There will be an addition of three University Library faculty members with continued appointment and two faculty members at the associate or professor level with tenure in one of the colleges. Nominations will come from University Libraries faculty and college faculty and not from the director of Virginia Cooperative Extension. A vote was taken on the approval of the resolution, and the motion passed.

**Commission on Undergraduate Studies and Policies**
Resolution CUSP 2018-19G
Resolution to Amend Implementation for Pathways General Education Curriculum to Extend Pathways Ad Hoc Review Committee

Dr. Mary Kasarda first made a motion for first reading and action (commonly referred to as "waiver of first reading"). The motion was seconded. A vote was taken and the motion for action passed. A motion was then made by Dr. Kasarda to approve the resolution itself. This resolution, once approved, will extend the Pathways Ad Hoc Review Committee for one additional year. A vote was taken on the approval of the resolution, and the motion passed.

## 6. Announcement of acceptance and posting of Commission Minutes

Dr. Sands noted that these minutes have been voted on electronically and will be posted on the University web (http://www.governance.vt.edu). Note that the purpose of including Commission minutes on the agenda is to accept them for filing. University Council By-laws require that policy items be brought forward in resolution form for University Council action.

- Commission on Faculty Affairs
  April 5, 2019

- Commission on Graduate Studies and Policies
  April 3, 2019

- Commission on Staff Policies and Affairs
  February 26, 2019
  March 26, 2019

## 7. Presentation

Dr. Bandy Salmon, Associate Vice President for Innovation and Partnerships, gave an update on the Innovation Campus that covered the following:

- How we got here and where we're going
- Impact on the Blacksburg campus
- The Innovation Campus and focus

## 8. Adjournment

There being no further business, a motion was made to adjourn the meeting at 4:12 p.m.

COLLEGE OF ENGINEERING
BIOMEDICAL ENGINEERING AND MECHANICS
VIRGINIA TECH

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May 1, 2019

Re: Engineering Mechanics Graduate Committee response to CUSP Resolution 2018-19.E to Discontinue Bachelor of Science Degree in Engineering Science and Mechanics

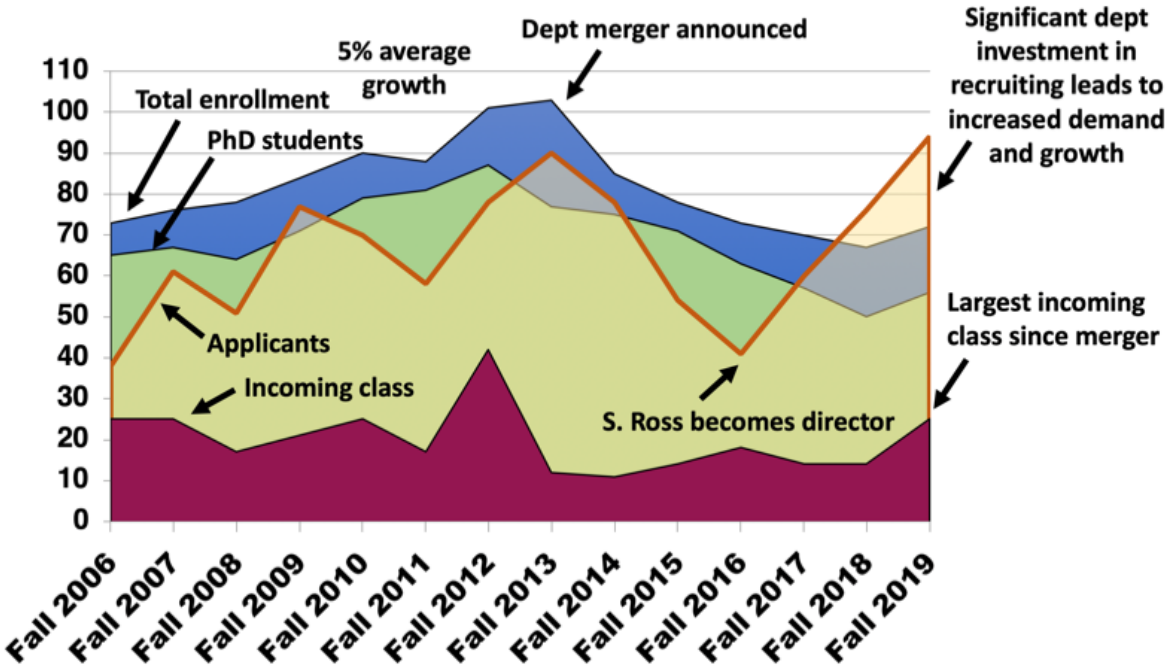
To: Commission on Graduate Studies and Policies

Enrollment numbers for the Engineering Mechanics (EM) graduate program are specifically mentioned in the supporting documentation for CUSP Resolution 2018-19.E under the rationale for the resolution to discontinue BSESM (further, the graduate program is erroneously referred to as the "ESM graduate" program), suggesting that, according to the authors of the resolution, the ESM undergraduate and EM graduate programs are inextricably linked. *This is a key reason we find it necessary to outline the effect of the discontinuation of the ESM undergraduate program on the EM graduate program*, a graduate program which has strong appeal to domestic students[a] and has seen demand (as measured by applicant numbers, shown below) grow steadily, and markedly, by 25%-60% every year for the last three years—an impressively high rate of continuous demand growth, perhaps the highest in the College of Engineering (COE). Moreover, our graduates are successful. Recent examples include the recognition by the COE of an EM doctoral student as the 2019 Outstanding Doctoral Student for the entire COE, and two new doctoral students receiving the prestigious NSF Graduate Research Fellowship. Moreover, our hundreds of EM alumni contribute to many arenas of industry, government and academia. In fact, over the past decade, 1 out of every 3 of our recent 100+ EM doctoral students have entered faculty positions (more than triple the national average for engineering PhDs) as academic ambassadors of Virginia Tech across the globe.

The presentation of the data on graduate enrollment and graduate degrees awarded in the supporting documentation for CUSP Resolution 2018-19.E is not holistic. The presentation of data fails to acknowledge the significant impact of the 2014 merger of the former ESM department with SBES[b] on EM graduate student recruiting, an event from which overall EM graduate enrollment numbers are only starting to recover[c] (see chart below). This recovery is in large part due to significant investment in EM graduate recruiting from the BEAM department since 2016, when P. VandeVord became interim department head and appointed S. Ross as EM graduate director. With support from the BEAM administration, we extensively revised and streamlined our doctoral program in 2017, making the curriculum more flexible to encourage interdisciplinary research across the university and adding significant communications and ethics components. The COE's New Horizons Program and the Graduate School have also helped us not only recruit excellent students but also increase diversity in our program, with recent incoming classes composed of 25% female and 10% underrepresented minorities.

[a] Over two-thirds of our recent incoming graduate student cohorts have been domestic students.
[b] Virginia Tech-Wake Forest University School of Biomedical Engineering and Sciences (SBES).
[c] Fall 2019 is the first year of total EM graduate enrollment growth since the merger.

Note below the result on graduate enrollment the last time we had a program disruption (the merger), and the higher enrollment at the time of the disruption (our highest enrollment of 103). The effects of another program disruption, and starting from a smaller enrollment (72), would likely result in even steeper declines in EM enrollment.




The supporting documentation for CUSP Resolution 2018-19.E fails to consider potential impacts of the ESM undergraduate discontinuation on future EM graduate enrollment, as outlined below. As the COE Dean has stated in the email dated 9/28/18 provided to you, the "transition would be slow, well-thought out, and methodical." To achieve this, more consideration is needed to develop a mitigation strategy and preserve the vitality of the EM graduate program, a "highly valued" program that the Dean recognizes plays a "vital cross-disciplinary role … in achieving the college's mission and vision" and which "underpin[s] many of the College's foundational strengths". Indeed, when the merger occurred under a previous COE Dean (Benson), the new department was assured in a letter dated 4/28/14 that "there will be no changes in curricula as a result of this merger", yet this is the broader implication of CUSP Resolution 2018-19.E.

1. The ESM undergraduates have been a significant pipeline into the EM graduate program, primarily through the accelerated ESM UG/G program ("5-year BS/MS") through which we recruit, on average, about 25% of our incoming EM graduate students, as shown in the following table. Given the requirements of the UG/G program, these are among our best students, and often stay for a doctorate. *Discontinuing the ESM undergraduate program eliminates this pipeline of highly qualified EM graduate students.*

| Year | Incoming ESM UG/G | Total Incoming EM students | Incoming UG/G as % of total |
|---|---|---|---|
| *Fall 2014* | 5 | 11 | 45% |
| *Fall 2015* | 4 | 14 | 29% |
| *Fall 2016* | 2 | 21 | 10% |
| *Fall 2017* | 5 | 14 | 36% |
| *Fall 2018* | 2 | 15 | 13% |
| *Fall 2019* | 5 | 24 | 21% |

2. The EM graduate program uses GTAs provided by the COE as part of the funding offers for graduate student recruiting, primarily doctoral students. Currently, the EM program receives 16 GTAs from the COE, which provide funding for about 20% of our enrolled students. The COE provides these GTAs in proportion to ESM student credit hours (SCHs).

*With the discontinuation of the ESM undergraduate program, ESM SCHs will decrease, leading to fewer GTAs, making it more difficult to make competitive multi-year funding offers to recruit the best graduate student applicants.*

3. Since its first announcement in September 2018, the ongoing process of discussing discontinuation of the ESM undergraduate program has resulted in faculty leaving the BEAM Department. The choice to leave the department was offered by the COE Dean. The number of BEAM tenured and tenure-track faculty generalized as ESM faculty were, according to the COE Dean, **17** at the beginning of Fall 2018. That number fell to **14** at the beginning of Spring 2019. Departing faculty cited the looming threat of discontinuing the ESM undergraduate program as the single most important factor in their decision, especially for those whose research heavily involves undergraduate research assistants. The number of ESM faculty could be lower beginning Fall 2019, perhaps as low as **10** or fewer[d], depending on, among other factors, the final approval of CUSP Resolution 2018-19.E. *A dwindling number of ESM faculty will make it increasing difficult to staff EM graduate courses, which our growing enrollment numbers require.*

In any given year, 30 of our 42 graduate courses are typically offered to meet degree requirements (some are given in alternate years). Using the department average teaching load of 2 courses per year, just for staffing EM graduate courses, this requires a minimum of 15 ESM faculty—*assuming they only taught graduate courses*, which they do not. This also assumes faculty of the proper expertise to teach a given course, but some areas of expertise will be disproportionately affected by the faculty departures. Compounding the staffing problem, the COE Dean stated in her meeting with the BEAM department on 9/28/18—simultaneous with her announcement of an intention to discontinue the ESM undergraduate degree—that *there will be no hiring of additional BEAM tenure-track faculty with ESM expertise*. This state of affairs makes it difficult to achieve the Dean's stated intention in her 9/28/18 email that "no changes will be made to BEAM's graduate engineering mechanics (EM) program."

4. If the trends cited above continue, the numbers of EM graduate students enrolled would, despite recent growth, likely fall, further exacerbating the trends of lower graduate student and faculty numbers. Within a few years, the numbers of EM graduate students could be low enough—and with few department faculty capable of teaching the EM graduate courses—that an argument might be made to end the program. *Though this is not the intention of CUSP Resolution 2018-19.E, it could be the result.* Given that a major rationale for the discontinuation of the ESM undergraduate program was falling enrollment numbers, it is reasonable to assume that a similar argument might be made for the EM graduate program.

We do not see this as a desirable outcome, especially given the high quality of student talent we have been able to attract, the high demand for these applicants among the faculty, and the overall growth in demand for the EM graduate degree to record high levels.

We note that the demise of the Engineering Mechanics graduate degree program would bring with it the end of a GTA pool with unique expertise who serve the entire COE by assisting the sophomore-level ESM service courses which most engineering majors take, all of which are fundamental courses in engineering mechanics (Statics, Dynamics, Mechanics of Deformable Bodies). With a currently estimated incoming freshman class of 2700 engineering majors (**double** what it was just five years ago and 800 over the intended target[e]), these service courses will require even greater numbers of qualified GTAs, not their elimination[f].

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[d] This estimate is based on other faculty with offers on the table to move to other departments. It does not include faculty leaving the university, which is also possible.

[e] Past first-year engineering student enrollment numbers are at https://enge.vt.edu/undergraduate.html
Current projections for Fall 2019 engineering enrollment provided by the Department of Engineering Education.

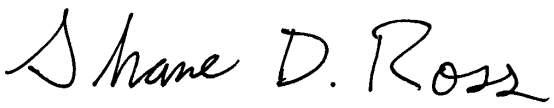
[f] We will have twice the undergraduate students to teach, but half the GTAs compared to five years ago (we had 30 provided by the COE at that time), thus quadrupling the workload for the GTAs, assuming they aren't reduced even further.

*In summary*, the discontinuation of the ESM undergraduate program has drastic unintended consequences for the EM graduate program. We therefore urge that more consideration is needed to develop a mitigation strategy and preserve the vitality of the EM graduate program.

We end by saying that our department is in the final stages of new department head search, the first department head search for BEAM, and therefore, as a time of transition in our department, it would be wise to involve the new head in major decisions that impact multiple, if not all, programs within the department. It is only fair to the future leadership of the department that such significant decisions be left to their discretion as they chart a vision for the department and its academic programs.

On behalf of the Engineering Mechanics Graduate Committee, Nicole Abaid, Scott Case, Mark Cramer, Shane Ross, and Jake Socha (all tenured and tenure-track faculty in BEAM),

Respectfully,



Shane D. Ross, Ph.D.
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Department of Biomedical Engineering and Mechanics (BEAM)
College of Engineering