A Framework for MAE Foundational Change to Improve our Inclusivity and Diversity

As with all academic units across the country, Mechanical and Aerospace Engineering (MAE) at the University of Virginia (UVA) has a critical and important responsibility for foundational change to better support diversity and inclusion of all groups, especially those that are traditionally Under-Represented in Engineering (URE). To be successful, this will take a determined approach of unity and action, that includes top-down aspects (especially in terms of resources, framework and support) led by faculty and staff. However, it must also include bottom-up aspects (especially in terms of ideas, engagement and accountability) to make certain we incorporate the voice of our students. To drive this approach, the department will adopt a framework for change in 2020 which includes plans and actions to ensure broad foundational changes. These changes can build on efforts that are already in place, but we should consider how these efforts can be more impactful.

Based on multiple meetings, messages and town hall meetings with our students, alumni, staff and faculty, we have identified nine critical issues as the most important for us to address now. Our objective is to ensure meaningful plans and/or progress on all nine of these MAE issues by Summer of 2021, with a focus on transparency. To accomplish this, we developed a set of goal-oriented task forces for Fall 2020 with specific strategies, actions plans, and people responsible to develop plans and/or carry out changes. Together, we will focus on Diversity, Respect, Inclusion, Vision and Equity (DRIVE) to make a meaningful difference. There are many other efforts by the university, UVA Engineering and others that we can also support.

In UVA Mechanical & Aerospace, WE BELIEVE

- Science is real
- Love is love
- Black Lives matter
- Feminism is for everyone
- Moving things are cool
- Immigrants are welcome
To make such changes, MAE developed a set of eight goals in two broad areas:

1) Recruiting and Retention
GOAL A: Increase the size and support for under-represented MAE undergraduates
GOAL B: Increase the size and support for under-represented MAE graduate students
GOAL C: Develop a diverse and excellent faculty
GOAL D: Provide more scholarships, fellowships, etc. to support diversity

2) Culture and Setting
GOAL A: Make MAE a more inclusive environment
GOAL B: Provide support to second-year MAE students as a cohort for inclusivity
GOAL C: Improve the culture of diversity and inclusion in MAE
GOAL D: Better reward MAE faculty work towards diversity and inclusion

A task force was formed to address each of these eight goals. The strategies, plans of action and members of each of those task forces are listed below. The team members are identified alphabetically with the following identification: A=Alumni, F=Faculty, G=Grad, S=Staff, UG=Undergrad, *= Task Force Leader

1) RECRUITING and RETENTION
GOAL A: Increase the size and support for under-represented MAE undergraduates
TASK FORCE STRATEGY: Encourage interest in mechanical and aerospace engineering in middle and high school URE students, support existing MAE URE students, and change our department's image to be more inclusive.
TASK FORCE PLAN of ACTION: Improve our department's image by emphasizing the breadth and diversity of students, faculty, staff, research, and classes, and by improving accessibility to points of contact and resources using an up-to-date MAE “Press Kit,” social media, our MAE website, and more. These media resources and other targeted efforts such as (i) middle school outreach programs, (ii) high school recruiting initiatives, and (iii) programs and strategies to support existing MAE underrepresented minority students will be used to grow and support a diverse MAE population.
TASK FORCE MEMBERS: Chloe Dedic* (F), Keivan Esfarjani (F), Joshua Franklin (UG), Eric Tumperi (A), Dan Quinn* (F), Jamia Tate (S)

GOAL B: Increase the size and support for under-represented MAE graduate students
TASK FORCE STRATEGY: Focus on increasing the diversity of our applicant pool and matriculated students.
TASK FORCE PLAN of ACTION: Increase awareness of and access to UVA graduate programs with URE students via (i) communication, (ii) content promotion, and (iii) financial assistance. The work on communication will involve working with organizations involved with URE groups (within UVA and nationally) and directly contacting universities that historically have higher percentages of URE students. Content promotion will involve
updates to the MAE graduate program website (personnel photos, lab research videos, clear navigation, advertised fellowships) and working to increase UVA's presence in google searches, social media, and academic forums. Accessibility will involve working with the fellowship task force and decreasing the financial barriers of the application and recruitment process (fee waivers, no GRE requirement). Finally, the task force will work to increase matriculation of URE students by adjusting recruitment and investigating why previous students declined offers.

TASK FORCE MEMBERS: Corina Espelien* (G), Patrick Hopkins (F), Rafeal Mudafort (A), Juliet Simpson (G), Edem Tetteh (S), Baoxing Xu (F)

GOAL C: Develop a diverse and excellent faculty

TASK FORCE STRATEGY: Increase efforts to effectively recruit diverse faculty candidates that would support our mission of DRIVE (Diversity Respect Inclusion Vision and Equity). Determine how to evaluate faculty candidates that can support our mission of DRIVE.

PLAN of ACTION: (i) Establish goal criteria for demographics of faculty hires for MAE
- Reimagine the diversity statement and how it is evaluated
- Plan for getting student involvement in the faculty search committee
- Create a recruiting formula to attract diverse candidates
- Establish a pathway to maintain faculty hires to tenure

TASK FORCE MEMBERS: Darius Carter* (G), Mark Coleman (A), Tomo Furukawa (F), Eric Loth (F)

GOAL D: Provide more scholarships, fellowships, etc. to support diversity

TASK FORCE STRATEGY: Work with prospective donors to build a strategy that directly focuses on D&I, and work with University Scholarship teams to develop a mutually beneficial scholarship program.

TASK FORCE PLAN of ACTION: Understand the current situation and needs through survey; work with Ridley Scholar and University Scholarship teams to better understand diversity scholarship; prioritize the needs for mutually beneficial scholarship programs based on the survey; include diversity in MAE one pager by clearly defining “diversity”.

TASK FORCE MEMBERS: Kristen Babel (UG), Jack Carpenter (S), Morgan Price (G), Cindy Chang* (F), Chris Li* (F)

2) CULTURE and SETTING

GOAL A: Make MAE a more inclusive environment

TASK FORCE STRATEGY: Go away from a museum-based perspective to one that is highly focused on the future with images of success stories (students and alumni) that inspire them demonstrating diversity and social impact.

TASK FORCE PLAN of ACTION: During fall of 2020, we will conduct a group led review of all spaces in MAE (especially MEC 341) and then make major interior renovations (take down material and replace them with new material) on a regular (e.g. annual) basis, especially the 1st, 2nd and 3rd floors of MEC.
GOAL B: Provide support to 2nd year MAE students as a cohort for inclusivity
TASK FORCE STRATEGY: Create a space in MEC that is for MAE 2nd-year students and ensure that it is highly functional and welcoming; create a BRIDGE type experience for these students.
TASK FORCE PLAN of ACTION: Grant MAE 2nd-year students access to the MAE Student Lounge (MEC 216), which for the past decade has been reserved for use only by 3rd and 4th-year students. (We are currently considering granting 4th-year students additional access to MEC 206, which they would share with our Master's of Engineering students, as a way to help alleviate overcrowding in MEC 216.) Pair groups of incoming MAE 2nd-year students up with 4th-year mentors (initially selected from members of our Pi Tau Sigma and Sigma Gamma Tau honor societies), who will meet with them regularly throughout their 2nd year.

GOAL C: Improve the culture of diversity and inclusion in MAE
TASK FORCE STRATEGY: Build and educate the community of MAE students, faculty, and staff centering on the challenges and successes of historically and currently underrepresented groups in engineering. Take action to intentionally change our own culture to foster a community of diversity and inclusion.
TASK FORCE PLAN of ACTION: Develop a series of undergraduate, graduate, faculty, and staff seminars, reading experiences and community events to focus on challenges and successes of underrepresented groups. Additionally, create resource databases for use by the community asynchronously.

GOAL D: Better reward MAE faculty work towards diversity and inclusion
TASK FORCE STRATEGY: Substantially revise the annual report and review to explicitly include faculty progress and plans to make UVA a more diverse, equitable, inclusive and welcoming environment for excellence. Use this revision in department annual faculty evaluations and, longer term, seek to update promotion and tenure policies based on the new annual reporting guidelines. This will recognize that supporting diversity and inclusion is everyone's responsibility and is valued as part of our faculty's work.
TASK FORCE PLAN of ACTION: A joint MAE & ESE committee will develop a revised SEAS Performance Benchmarking Guide for use in the MAE and ESE departments. Faculty efforts towards improving diversity, equity and inclusion (DEI) will be listed in all three performance benchmarking categories: Teaching, Research/Scholarship, and Service/Outreach. Using survey results from faculty, staff and students, an accompanying list of example activities faculty can engage in to improve DEI will also be
developed. The revised benchmarking guide, if approved by the MAE and ESE faculty, will be used in their annual reporting for the 2020 calendar year. The revised guidelines would be re-evaluated in the summer of 2021 based on feedback on their effectiveness for the 2020 reporting year. After piloting this inclusion of DEI activities into annual performance measures, the task force plans to work with the SEAS Faculty Council toward making the revised benchmarking guides a permanent requirement throughout SEAS. If successful, this should then be followed by efforts to align the SEAS promotion and tenure policy with the new benchmarking guides for annual reporting.

MAE TASK FORCE MEMBERS: Faculty (A. Reimers*, M. Momot, J. Kerrigan, M. Panzer) as part of a combined task force with ESE.