Diversity and Inclusion Plan
University of Nebraska – Lincoln College of Engineering
April 30, 2019

I. OVERVIEW

The University of Nebraska – Lincoln (UNL) College of Engineering (COE) is committed to increasing diversity and inclusion amongst our faculty and student body. The percentages of our current faculty from underrepresented groups in science and engineering are much lower than the recent percentages of those groups graduating with doctoral degrees (see https://www.nsf.gov/statistics/women/). Similarly, the percentages of the current student body from underrepresented groups in science and engineering are much lower than that of the general population within our state.[1] Our goal is to increase these percentages in our faculty and student body, with the long-term goal of reaching the same percentages found in the greater community.

Having more diverse faculty strengthens our ability to educate and develop the future workforce of Nebraska, by providing role models for diverse students and a place at the table for diverse opinions to be considered as we move the College forward. Educating a more diverse student body provides all students with greater opportunities to learn how to listen, consider, and respect diverse viewpoints, empowering them to be positive citizens for the future.

The UNL COE is targeting recruitment and retention of females and persons from racial and ethnic backgrounds that are underrepresented in science and engineering (Blacks, Hispanics, and American Indians or Alaskan Natives), as defined by the National Science Foundation. (In this plan, the acronym UREG refers to these underrepresented racial and ethnic groups.) Our specific goals are shown in Table 1.

Table 1: Percentages of females and of domestic students from underrepresented racial and ethnic groups (UREG) in the student body and faculty, for the current 2018-19 academic year and our 5-year goal for the 2023-24 academic year

	% Female: 2018-19	*% Female: 2023-24*	*% Domestic Students from UREG: 2018-19*	*% Domestic Students from UREG: 2023-24*
Undergraduate Students	16.2%	35%	8.8%	15%
Graduate Students	21.7%	30%	5.7%	10%
Faculty	17.7%	25%	2.8%	6%

We believe that we can make the most gains in our undergraduate student population, and we expect that the percentages will be less at the graduate level and further at the faculty level. We will be tracking these numbers annually to assess and evaluate the outcomes of strategies deployed to reach these goals. If the numbers are not tracking as we wish, we will adjust the plan accordingly.

We are committed to equity, implicit bias, and inclusion training. Each year, the Associate Dean for Faculty and Inclusion meets with all search committees to discuss the importance of diversity and awareness of implicit bias. Those committees are then asked to report on the outcome of their efforts to increase the pool of underrepresented applicants and reduce implicit bias in search committee discussions, when submitting preliminary short lists to the Dean for approval. The Dean will close the search in cases where committees do not show a serious consideration of these issues. Additionally, the number of workshops at UNL on raising awareness of implicit bias and inclusion training has increased in

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[1] Nebraska census data indicates that, between 2010 and 2017, the female population remained 50% of the total population; Hispanic population increased from 9 to 11% of the total; and Black or African American population increased from 4.5% to 5% of the total. Other ethnic groups constituted 3% of the population or less and were largely unchanged between 2010 data and 2017 estimates.

recent years. Beginning in 2019-20, the College of Engineering will mandate that all faculty engage in at least one of these workshops every two years, either in person or by viewing recorded materials when available.

II. DATA

The UNL COE currently has two staff members, focused on data compilation and analysis. They are familiar with University databases and run regular reports to provide insight on the outcomes of our strategies.

Table 2 shows baseline data for the current academic year and three previous years. We will be compiling this data annually to assess and evaluate the success of our strategies towards reaching the 5-year goals listed in Table 1. The anticipation is that the percentages of students from underrepresented groups will increase steadily each year, in terms of enrollment numbers. We are also compiling data on retention and graduation rates of undergraduate and graduate students, with the associated expectation that those will also increase steadily each year. If not, then we will adjust our strategies accordingly.

III. STRATEGIES

The UNL College of Engineering is pursuing different strategies to reach the goals listed in Table 1. Many of these have been identified as best practices in the literature related to recruitment and retention of diverse populations. The College staffs both a Recruitment and Admissions office and an Engineering Student Services office, and these groups are involved in running many of the listed activities.

a. Pipeline Programs

To increase diversity in the **undergraduate** student body, our college deploys various K-12 pipeline programs. We run engineering engagement and recruitment programs with specific schools in Nebraska that have greater than 70% of students receiving free or reduced-price lunches, to create a pipeline for recruitment of underrepresented groups. We also host events focused on introducing females to engineering, including 'Introduce a Girl to Engineering Day', Girl Scout events, Tech Savvy Girls, Girls Inc. Eureka! Summer Program, and more. Another event that we host, 'Engineering Exploration Day', is aimed at recruiting diverse and first-generation college students. This event is run in coordination with industry partners and other community members. Measures of accountability related to these pipeline programs include increasing the (i) numbers of students reached at these events; (ii) numbers of students attending these events who then are recruited to UNL COE; and (iii) percentages of students from underrepresented groups in the undergraduate student body.

To increase diversity in the **graduate** student body, we are targeting underrepresented individuals who receive their undergraduate degrees from UNL and developing early entry incentives for them (e.g. automatically admitting undergraduate honors students or underrepresented students with high GPA's in graduate school). We are also leveraging and expanding a partnership we have with Navajo Technical University (NTU), a non-PhD granting engineering school in New Mexico that serves the Navajo nation. We have invited their students and faculty member Scott Halliday to join us in an 8-week 'Advanced Manufacturing Summer Institute', hosted at UNL in our College of Engineering; see http://go.unl.edu/izi0. Additionally, we are submitting a full proposal to the National Science Foundation to support an "Engineering Research Center for Advanced Food Engineering and manufacturing (CAFE)". Dr. Monsuru Ramoni from NTU is a co-investigator on that grant. NTU will organize workshops for Tribal Colleges on the creation of pre-engineering and two-year engineering curricula. ERC partners will then develop a

process for transitioning students from these two-year colleges to NTU for bachelor's degrees, and upward for graduate studies at UNL and the other partner institution, Georgia Institute of Technology.

In addition to NTU, we are also developing pipelines with other minority-serving institutions, such as University of Texas at Rio Grande Valley and Lincoln University of Missouri. Measures of accountability related to these pipeline programs include increasing the (i) numbers of students reached through these endeavors; and (ii) numbers of students who then are recruited to UNL COE; and (iii) percentages of students from underrepresented groups in the graduate student body

b. Other Student Recruitment Initiatives

The UNL COE also engages in other recruitment initiatives, aimed at increasing diversity in our undergraduate and graduate student body. These include:

- Promoting the Multicultural Engineering Program (MEP) and Women in Engineering (WIE) program to prospective students and parents. The MEP program started in fall 2018, and WIE program will start in fall 2019.
- Directing a portion of college-based scholarships to support access programs.
- Creating customized college diversity print recruitment materials.
- Creating videos to highlight openness within the college to use in electronic campaigns.
- Dedicating resources to expose and engage more underrepresented undergraduate students in research, via mentoring/advising programs involving appropriate role models (faculty or other PhD students) and travel to appropriate conferences to participate in activities and present their work.

c. Student Retention Programs

The UNL College of Engineering has created the 'Complete Engineer Initiative' to meld the critical technical skills engineers need with essential non-technical skills that can help students graduate as well-rounded, successful members of society and our communities: https://engineering.unl.edu/complete-engineer/. To better retain students from underrepresented groups, Engineering Students Services is actively developing programs and services to increase belonging, provide social and academic support, and offer personalized success coaching to facilitate goal discovery and achievement. By emphasizing their innate interests and abilities, we aim to minimize roadblocks for these students to become 'Complete Engineers'. Below is a list of the retention programs we have developed and are deploying:

- The 'Engineering Readiness Academy' (ERA), which is a summer bridge program that provides academic, personal, and career for students who may be underprepared to succeed in engineering curriculum. While it was not designed specifically for underrepresented students, participation in ERA helps connect students with faculty, staff, and a cohort of peers who will provide support throughout college.
- 'Engineering Pathways' is an initiative funded through an NSF grant to evaluate our current admissions processes and selectivity to determine if all students who could be successful in our college are getting the opportunity. Through this initiative, we will assess the success of students who did not meet our published admission criteria but who were admitted to the College of Engineering through a College Review process, specifically looking for which pre-college factors may be most predictive of student success. Recognizing that students who are alternatively admitted to our College may need additional academic and personal support, we will also be developing programs and services to foster success. Like the Engineering Readiness Academy, this initiative is not specifically for underrepresented students, but it will provide another opportunity for us to increase and retain the diverse students in the College of Engineering.

- Targeted first year programs: The Multicultural Engineering Program (MEP) is a cohort-based program designed to engage and enhance the experiences of talented scholars who demonstrate experience with, or commitment to, leadership and diversity. This program, which started in fall 2018, provides success coaching, seminars and workshops, study support, scholarship opportunities, and mentorship. The Women in Engineering (WIE) is also a cohort-based program designed to engage and enhance the experiences of talented scholars who demonstrate experience with, or commitment to, the recruitment and advancement of women in engineering. This program, set to begin in fall 2019, provides success coaching, seminars and workshops, study support, scholarship opportunities, and mentorship.
- Collaborative work/live/play environments, including 'Engineering the Leader in You' on our Scott Campus in Omaha. These are to be expanded to include graduate students.
- Weekly facilitated study groups, such as 'Study Stop'.
- Having professional advising staff work with 1st and 2nd year undergraduates and engaging in the campus 'MyPlan' system as an early alert system.
- Positive self-efficacy development and identity development programs, overseen by UNL COE Engineering Student Services, as part of the UNL Complete Engineer initiative.
- Targeted experiential learning at all levels, as part of the UNL Complete Engineering initiative.
- Enhancing the graduate student community via formation of graduate student associations in all departments and reestablishing the COE Graduate Student Association (GSA).
- Utilizing increased GSA activities to spin off more focused, diverse graduate student groups.

d. Faculty Programs

To increase diversity and inclusion in our faculty, we are deploying several initiatives, many of which began in the 2018-19 academic year.

- Increasing awareness and accountability with college leadership: The Dean and Associate Dean for Faculty and Inclusion lead discussions on the importance of diversity with Department/School Chairs/Heads/Directors in late spring, as plans begin to formulate for the next College hiring plan.
- Educating search committees on the importance of diversity and awareness of implicit bias: Each fall, a meeting is held with all COE search committee chairs and members to discuss expectations and share committee tactics for achieving diverse applicant pools and short lists. The Associate Dean for Faculty and Inclusion meets individually with any search committee chairs unable to make the group meeting.
- Holding search committees accountable: Search chairs are asked to submit a completed PDF-fillable form with their preliminary short lists to the Dean for approval, describing their recruitment efforts in support of diverse applicant pools and raising awareness of implicit bias in review processes. The Dean will close the search in cases where committees do not show a serious consideration of these issues.
- Increasing pool of underrepresented applicants: Each fall, the College posts a general ad to several outlets aimed at underrepresented groups (SWE, NSBE, SHPE, etc.), that points to all the open positions within the College of Engineering.
- Faculty development and training programs, related to diversity and inclusion: Beginning in 2019-20, COE will (i) include diversity and inclusion training as part of the faculty onboarding process; and (ii) mandate that all COE faculty participate in assorted diversity and inclusion training seminars and workshops held on campus, at least once every two years, either in person or by viewing recorded materials when available.

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Table 2: Baseline data

I. Faculty

a) Tenure & Tenure Track Faculty

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	15.8%	15.6%	13.9%	14.8%	0.5%	1.0%	0.5%	1.1%	1.1%	2.0%	2.0%	1.6%	0.5%	0.5%	0.5%	0.0%

b) Professors of Practice, Instructors, and/or Long-Term Adjuncts

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	22.2%	26.8%	23.1%	16.3%	4.4%	2.4%	5.1%	2.3%	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%

c) Other Academic Staff

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	25.0%	30.0%	22.7%	21.1%	5.0%	5.0%	4.5%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

d) Administrators

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	23.5%	23.1%	23.1%	18.8%	0.0%	0.0%	0.0%	0.0%	11.8%	7.7%	15.4%	6.3%	0.0%	0.0%	0.0%	6.3%

II. Undergraduate Students

a) Undergraduate Student Enrollment

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	16.2%	16.6%	16.7%	15.9%	1.8%	2.3%	2.5%	2.6%	6.8%	5.4%	4.7%	4.2%	0.2%	0.1%	0.1%	0.1%

b) Undergraduate Student 6-year Graduation Rates (Based On Classes Enrolled 6 Years Ago)

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	Fall 2012	Fall 2011	Fall 2010	Fall 2009	Fall 2012	Fall 2011	Fall 2010	Fall 2009	Fall 2012	Fall 2011	Fall 2010	Fall 2009	Fall 2012	Fall 2011	Fall 2010	Fall 2009
	47.6%	57.3%	52.2%	56.0%	100.0%	57.1%	0.0%	20.0%	57.1%	47.8%	46.2%	46.7%	0.0%	--	0.0%	--

c) Undergraduate Degree Recipients

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2017-18	2016-17	2015-16	2015-16	2017-18	2016-17	2015-16	2015-16	2017-18	2016-17	2015-16	2015-16	2017-18	2016-17	2015-16	2015-16
	18.6%	14.5%	11.1%	15.6%	2.7%	2.8%	1.5%	0.9%	3.6%	3.0%	3.6%	3.3%	0.2%	0.0%	0.0%	0.2%

III. Graduate Students

a) Master's Student Enrollment

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	21.1%	17.3%	15.1%	18.5%	2.1%	1.6%	2.0%	2.1%	8.2%	7.3%	2.5%	2.1%	0.0%	0.0%	0.0%	0.0%

b) Master's Student Retention (Students Who Were First-Time Graduates The Previous Fall)

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	100.0%	100.0%	75.0%	71.4%	100.0%	0.0%	50.0%	100.0%	100.0%	100.0%	100.0%	--	--	--	--	--

c) Master's Degree Recipients

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	14.8%	16.5%	25.9%	19.5%	0.9%	1.9%	0.0%	1.7%	2.9%	1.9%	2.4%	0.8%	0.0%	0.0%	0.0%	0.0%

d) Doctoral Student Enrollment

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	22.1%	20.9%	21.7%	21.8%	0.7%	0.0%	0.0%	0.4%	1.8%	1.3%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%

e) Doctoral Student Retention (Students Who Were First-Time Graduates The Previous Fall)

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	81.8%	75.0%	90.9%	85.7%	--	--	--	0.0%	0.0%	--	--	--	--	--	--	--

f) Doctoral Degree Recipients

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	20.5%	22.9%	28.0%	16.3%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

IV. Other

a) Postdoctoral Fellows

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	35.1%	22.5%	17.5%	15.8%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

b) Advisory Board Members

	(i) Women				(ii) Black				(iii) Hispanic				(iv) American Indian/Alaska Native			
	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16	2018-19	2017-18	2016-17	2015-16
	12.5%	9.5%	5.6%	10.5%	0.0%	0.0%	0.0%	0.0%	4.2%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%