

NDSU College of Engineering Diversity, Equity, and Inclusion Plan

Core Value

We are inclusive – we are proactive about diversity, knowing that we are far better together.

Introduction

In July 2016, deans from colleges of engineering across the nation, including North Dakota State University, signed a statement of commitment to diversity and inclusion in engineering education.¹ This statement notes that:

The evolving demographic landscape of the US, the need for constant economic competitiveness and the upholding of our core values to ensure equal opportunity and access to all who seek it, all point to the importance of actively embracing diversity and inclusiveness in all our endeavors. Diversity and inclusiveness are essential for the development of creative solutions to the world's challenges and to enrich life.

This commitment is in response to the present realities of an increasingly diverse marketplace in which engineering is a vital player. The members of the ASEE seek to enhance educational experiences, promote recruitment, ensure retention, and prepare highly qualified students from many backgrounds and identities. They also commit to develop, recruit, and retain diverse faculty and staff who are equally versed in inclusive practices. In particular, this commitment acknowledges the historic underrepresentation of certain groups in engineering schools and the field at large. With the affixed signature of the dean of engineering at NDSU to the ASEE statement, NDSU's College of Engineering has aligned ourselves to this commitment to diversity and inclusion.

We seek to effectively engage diversity and inclusiveness in our operations, policies, structures, and practices, where diversity and inclusion are defined in the following manner:

- **Diversity** is defined as *increased access, participation and success by persons with individual differences (e.g., race, ethnicity, gender, sexual orientation, socio-economic status, age, physical abilities, gender identity, religious beliefs, political beliefs, etc.).*
- **Equity** is defined as *fairness of treatment of all people according to their respective needs.* Equity is a means for the goal of equality.
- **Inclusion** is defined as *promoting and achieving changes in behavior and mindset that promote respect, belonging, and leveraging the value and harnessing the power of diversity to the benefit of the organization.*

¹ <https://deansdiversity.asee.org/wp-content/uploads/2017/06/Diversity-Initiative-Letter-Final.pdf>

Background and Campus Plan

The President's Council for Diversity, Inclusion and Respect was formed by NDSU's President in July 2020 as part of NDSU's commitment to ensuring that this pillar of NDSU's strategic plan will be factored into institutional decision making.

The current Inclusion Committee at the time was designated as the first Council. The Inclusion Committee was formed in 2016 to address diversity and inclusion on campus.

The Council received directive from the President to provide NDSU administration with guidance on how to make NDSU a better community for historically underserved populations and to operationalize the diversity and inclusion goal of the strategic plan.

NDSU's Strategic Plan 2021-2026 was launched in March 2021 and contains five primary goals. The first goal of the strategic plan is focused on diversity, inclusivity, and respect.²

NDSU's strategic plan is based on the following NDSU core values:

- Collegiality
- Inclusivity
- Community
- Creativity
- Excellence
- Impact
- Innovation
- Integrity
- Resilience
- Responsiveness
- Transformation

DIVERSITY, INCLUSIVITY, AND RESPECT GOAL

Create and maintain an open and collegial environment to promote inclusivity and diversity as a cornerstone of education, research, and outreach.

The cornerstone of diversity is inclusivity, moving beyond tolerance and encompassing support and appreciation. NDSU must intentionally recruit, engage, include, and support students, faculty, staff, and administrators from all backgrounds, including but not limited to first-generation students, international students, persons with disabilities, Indigenous communities, veterans, student parents, communities of color, New Americans, LGBTQ+, adult learners, and those who continue to be underrepresented and who remain on the margins. Our commitment to diversity, inclusivity, and collegiality is critical to serving our communities and our land-grant mission. Programming, curriculum, outreach opportunities, and policies that embrace inclusivity, collegiality, and connectivity will enrich the NDSU community with a variety of viewpoints and foster the creativity and vitality that come with increased diversity.

Sub-Goal Continuously improve the university climate for students, faculty, staff, and all stakeholders, with additional consideration of underrepresented groups as evidenced by regular assessment.

² https://www.ndsu.edu/fileadmin/president/pdf/NDSU_Strategic_Plan_0522.pdf

Sub-Goal Strengthen and secure an accessible and equitable university for our diverse body of students, faculty, staff, and administration.

Sub-Goal Design and implement additional programming, curriculum, outreach opportunities, and policies that uphold inclusivity, diversity, respect, and connection.

College of Engineering Initiatives

At the college level, our diversity, equity, and inclusion plan builds on the campus wide Diversity, Inclusivity, and Respect Goal from the College Strategic Plan. We will be active participants in the above-described actions and work in partnership with The President's Council for Diversity, Inclusion and Respect and the Office for Faculty and Equity on several initiatives to build on our established infrastructure to support diverse populations including those underrepresented in engineering.

Towards the building of such an infrastructure, we will focus on 1) awareness and skill training for College of Engineering faculty, staff, and students; and 2) direct services and support for College of Engineering faculty, staff, and students from the Office for Faculty and Equity.

1. Awareness and Skill Training and Other Programming for College of Engineering Faculty, Staff, and Students.

The following workshops will be offered to CoE faculty, staff and students:

- Equal Opportunity/Title IX Training for Employees
 - Offered at least twice a month. New employees (faculty and staff) are required to complete in-person Equal Opportunity/Title IX training within 60 days of their employment start date. All full-time employees are required to complete in-person Equal Opportunity/Title IX Training every three years. This training is also required for graduate assistants.
- Supervisor Supplement: Equal Opportunity/Title IX Training for Supervisors
 - Offered at least once a month. All supervisors (includes chairs, heads, deans, and directors - individuals with assigned supervisory duties over a unit) are required to complete in-person Supervisor Supplement training on an annual basis.
- Community of Respect Training, Modules 1-4
 - Each module is offered at least once a semester. Faculty and staff are encouraged to complete all modules.
- Safe Zone Training, Levels 1-3
 - Each level is offered at least once a semester. Faculty and staff are encouraged to complete all levels.

- Hiring for Excellence Training
 - Offered four to six times a year. Content includes unconscious bias and underrepresentation of women in faculty ranks, especially in STEM disciplines. The training is required for search committee chairs; encouraged for committee members.
- Promotion, Tenure, and Evaluation Training.
 - Offered four to six times a year. Content includes unconscious bias. The training is required for faculty evaluation committee chairs; encouraged for committee members.
- Building Your Bison Community for New Students.
 - All incoming students required to complete this training during the first semester of enrollment to avoid potential delayed registration. Other individuals that are not identified as incoming students may request to be enrolled in this training.
- Including U.
 - Including U is a conversation series open to the NDSU community that focuses on a diverse range of experiences and identities in Higher Education. Sessions are offered via zoom about once a month.
- Faculty Research Series on Engaged Citizenship and Inclusion
 - This series of talks showcases the scholarly research of NDSU faculty who have published on matters of social responsibility, equality, inclusion, and/or open-minded, ethical decision-making and action as related to topics including race, gender, sexuality, ethnicity, class, ability, religion, or issues facing the LGBTQ+ community.
- Gender Equity Ally Training (Advocates and Allies)
 - Advocates and Allies are men committed to personal action in support of women and gender equity. Advocates and Allies programs equip men with the knowledge, skills, and strategies to effect positive personal, unit, and organizational change. Advocates and Allies programs emphasize men working with other men while maintaining accountability to women.

Further, professional staff will

- Help the Dean and his leadership team set goals with for completion of these trainings;
- Provide the College with a quarterly list of faculty and staff that have completed in-person training; and
- Schedule biannual meetings with Dean and his leadership team to review College's progress regarding goals.

2. Direct Services and Support for College of Engineering Faculty, Staff, and Students.

In order to provide time, space, and personnel for the purpose of supporting efforts of diversity and inclusion in the College, professional staff will

- **Hold office hours in the CoE complex.** Will provide professional staff with expertise in diversity and inclusion to be present one hour a week at a regularly scheduled time to hold in person resourcing to students, faculty, and staff of the College.
- **Help support student organizations.** Professional staff will connect with engineering student leaders, and be available to present to student organizations on diversity and inclusion.

Diversity and inclusive excellence are hallmarks of some of the most successful business around the world. Due to this trajectory of the field, professional resources, such as the one proposed herein, are beneficial to all persons in the College. Support personnel will address needs presented to them and cooperate with the Dean and his leadership team in fostering a more inclusive culture, embracing and promoting diversity. Some of the needs addressed by personnel might be (but are not limited to):

- Providing support to students of underrepresented populations, connecting them to social and academic resources available to them on campus and in the community.
- Supporting students to understand the importance of diversity and employ inclusive approaches in their studies and future work.
- Identifying and communicating possible areas of improvement directly with the College leadership that might improve retention and graduation of a diverse staff, faculty, and student community.
- Acknowledging and communicating areas of strength in inclusivity and diversity directly to College leadership.
- Answering faculty and staff questions about equitable and inclusive practices regarding recruitment, pedagogy, and retention.

Professional personnel will be in regular communication with the leadership of the College so that they are aware of areas of concern and excellence noted. This will enable leaders to make informed decisions regarding diversity and inclusiveness pertaining directly to the present state of the College.

In addition, the College of Engineering will support proven policies and practices that have been identified in the literature as best practices relative to recruitment, retention, climate and culture. These include our 3) K-12 outreach activities, 4) pipeline programs, 5) implementation of an engineering leadership living learning community, and 5) addition of new academic programs that attract diverse students.

3. K-12 Outreach.

The College of Engineering will actively promote the following STEM K-12 Offerings, STEM Competitions, and Programs for Schools and Educators. The College of Engineering Outreach Coordinator and the Associate Dean for Undergraduate Programs coordinate these programs in coordination with College of Engineering student organizations.

STEM K-12 Offerings

- Mommy, Me & SWE
- DADDS (Dads And Daughters Do Science)
- TechKids – TechGirls & TechBOYZ
- Tech Teens
- STEM Kids Camp

STEM Competitions

- FIRST Lego League
- North Dakota Science Olympiad

Programs for Schools and Educators

- Introduce a Girl to Engineering
- Guest Speakers/Partners in the Classroom
- Tours

4. Pipeline programs.

In collaboration with the ND EPSCoR program, the College of Engineering will participate in the Nurturing American Tribal Undergraduate Research and Education (NATURE) program. The NATURE Programming Includes:

- University Summer Camp: this is a two-week camp held at North Dakota State University that hosts tribal college students who are 18 years of age or older.
- Tribal College Summer Camp: this is a two-week camp held at the five tribal colleges in North Dakota where each tribal college hosts their local tribal high school students.
- Sunday Academy: held throughout the academic year at the five tribal colleges in North Dakota. Each tribal college hosts their local tribal high school students.
- Senior Bridge Camps: a pilot camp begun in 2019 designed to be a bridge between high school graduation and entrance into college.

In addition, the College of Engineering will develop relationships with several area community colleges with pre-engineering options. These community college partnerships include Minnesota State Community and Technical College (M State) Moorhead, Itasca Community College, and Bismarck State College. We will grow the number of students participating in campus visits and presentations from these

schools (which traditionally have a higher number of underrepresented minority students).

5. Engineering Leadership Living/Learning Community.

Through a partnership between the College of Engineering, Residence Life, and the Student Activities Office, we will offer and seek to expand a living/learning community to first year engineering students. The Engineering Leadership Learning Community gives students the opportunity to:

- Live next to each other in a residence hall
- Develop close-knit friendships and friend groups
- Coordinate study groups with neighbors in the same classes
- Connect and network with college faculty and staff
- Attend events and activities specific to engineering interests

The program begins with LAUNCH Program with connects students with faculty and staff in the College of Engineering, identifies tools for being successful in their college experience, and helps them become more comfortable with the NDSU campus. The two-day program is packed full of sessions and events to LAUNCH the students in the right direction.

6. Addition of new academic programs that attract diverse students.

Finally, we plan to introduce two new academic programs that we expect to be popular with women and underrepresented minority students. The first is a new Bachelor of Science in Environmental Engineering degree program, which is aligned with the land-grant mission of North Dakota State University, is established as a need by industry, and would position the state to provide educational programming in an academic area in which the employment sector is growing at 8%/year. This program would bring in new students and does not compete with other existing programs in the state. In particular, the NDSU College of Engineering would be able to better meet the needs of employers and pursue increased diversity as **58% of the environmental engineering degrees conferred nationally are to women.**³

The second is a new minor we plan to introduce in Robotics. The field of robotics and artificial intelligence is growing very fast and many students, starting with K-12, are interested in it. A growing number of girls are trying out robotics—through school clubs or regional organizations, and in co-ed or all girls teams—and finding out that they have a knack for it. FIRST (For Inspiration & Recognition of Science & Technology) Robotics has helped spark interest in engineering by girls and minority students. There are many high school graduates who aspire to be robotics professionals but NDSU does not offer such opportunity for them at this time although it has a student group that involve robotics. Potential employers for graduates of this program will include drone manufactures, civil structure inspection

³ ASEE's Engineering by the Numbers, <https://ira.asee.org/wp-content/uploads/2022/10/Engineering-and-Engineering-Technology-by-the-Numbers-2021.pdf>

agencies, precision agriculture consulting companies, Industrial manufacturers, and automotive companies. The proposed program intends to correct that deficiency, which is likely to attract more students to join NDSU.

7. Inclusive Facilities.

In 2022 a new engineering building was listed as NDSU's top priority in the capital projects request to the North Dakota Legislature. While there is still a long road ahead, we are excited to take this next step in the journey to secure funding for the project from the state and other stakeholders. The new facility also provides an opportunity to create more inclusive spaces. We will prioritize the inclusion of updated/modern facilities with the inclusion of (1) gender neutral bathrooms, (2) lactation rooms, (3) a meditation room (4) minority student group lounges (SWE, NSBE, AISES, etc.), (5) space to accommodate student testing needs (disability inclusion).

Goals and Metrics

The following DEI goals and metrics are identified based on these initiative

Initiative 1 – Awareness and Skill Training

- 100% completion of EO/Title IX Training for Employees
- 20 CoE participants per year in Supervisor Supplement EO/Title IX Training
- Tripling of Community of Respect and Safe Zone training from 2021-22 levels
- Doubling of Hiring for Excellence and PTE Training (with unconscious bias training) from 2021-22 levels

Initiative 2 – Direct Services

- Increase hours of support by 5 hours per week, provide resourcing to students, faculty, staff, and student organizations

Initiative 3 – K-12 Outreach

- Double the number of K-12 outreach participants by 2025

Initiative 4 – Pipeline Programs

- Create three new articulation agreements/MoUs with minority serving institutions and other partners with high numbers of historically underrepresented populations in engineering.

Initiative 5 – Engineering Leadership Living/Learning Community

- Double the number of underrepresented populations (women and ethnic minorities) in the Engineering LLC by 2025.

Initiative 6 – Addition of New Academic Program that Attract Diverse Students.

- Grow Environmental Engineering program to at least 80 students by 2025.
- Double the size of the Robotics minor and the Biomedical Engineering minor.
- Launch Software Engineering with the first graduates by Spring 2026.

Initiative 7 – Secure funding for a new engineering building by Summer 2025 with inclusive facilities as described in initiative 7.

Other initiatives include the development of a **DEI passport system** for our students to track their training and other DEI related activities. This DEI passport will utilize the Leadership Pathway infrastructure that is already being developed on the MyNDSU platform to grow leadership and innovation skills in our students.

Next, by 2026, our goal is to have **increased diversity** as follows:

- Increase the percentage of female faculty from 21% to 25%
- Increase the percentage of URM faculty from 7% to 10%
- Increase the percentage of undergraduate engineering students from 13.5% to 20%
- Increase the percentage of URM students from 10% to 13%

Lastly, our goal is **improve the inclusive culture in the college**. Specifically, our goal is to increase the percentage of faculty and staff that rate the overall climate in the College of Engineering as *extremely good* or *good* (5 or 6 on a six-point Likert scale) to at least 90%. Likewise, our goal is to increase the percentage of faculty that *agree* or *strongly agree* (5 or 6 on a six-point Likert scale) that the College of Engineering actively supports diverse faculty and staff to 85%.

Process and Version History

The first DEI plan was developed by the College of Engineering Leadership Team in October 2019. **Updates and modifications** to the plan since then have included

- Additional definitions for equity in the Introduction
- Rewriting of the Background and Campus Plan section to provide context relative to the new President’s Council for Diversity, Inclusion, and Respect, and to align with the 2021-2026 NDSU Strategic Plan and its *Diversity, Inclusivity, and Respect Goal*.
- Elaboration on College of Engineering Initiative 1 (Awareness and Skill Training) to provide addition details about the various workshops, and how frequently they will be offered
- Addition of Initiative 7 on Inclusive Facilities
- A new section on Goals and Metrics
- Other minor updates throughout

The Dean of Engineering held four open forums about this Diversity, Equity, and Inclusion Plan in September 2022 so that **faculty, staff, and student perspectives were obtained as part of ongoing efforts for improvement**. Two of the open forums were with Engineering Student Ambassadors (who represent each department in the College of Engineering), one open forum was held for all faculty and staff interested in attending, and one open forum was held with members of the College of Engineering Advisory and Advancement Board. Many of their suggestions were used to improve and operationalize this plan.