

ENGINEERING PLUS PARTNERSHIPS LAUNCHING UNDERREPRESENTED STUDENTS

ENGINEERING DIVERSITY GRAND CHALLENGE

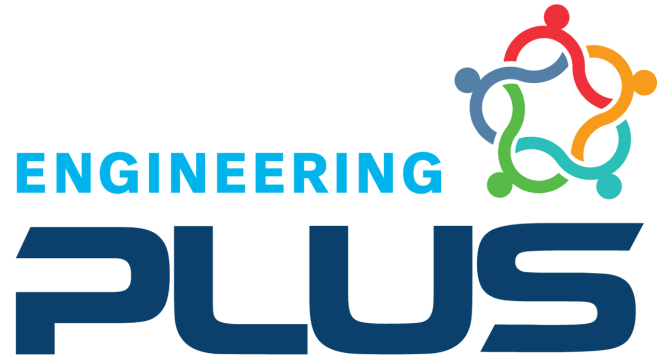
Despite significant investments by government agencies, universities, foundations and industries that rely on the skills and talents of engineers, Black, Indigenous and People Of Color (BIPOC) and women are underrepresented in the engineering workforce.

Engineering depends on team collaboration, and research shows that diverse groups are typically more effective than homogeneous teams when complex problem solving are critical goals. The U.S. must educate a diverse engineering workforce to address the complex technological challenges faced by our society. Greater diversity in the STEM workforce will result in a new generation of engineering talent and leadership to secure our nation's future and long-term competitiveness.



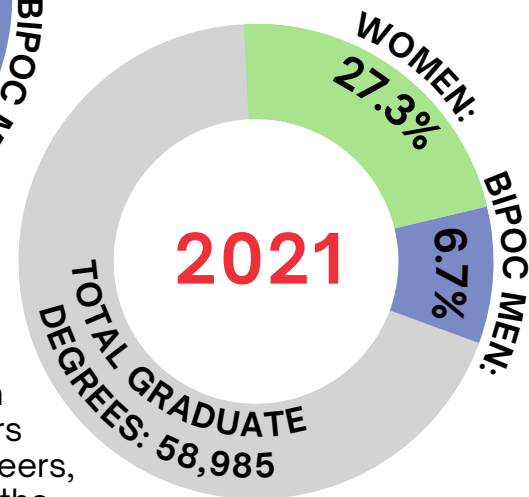
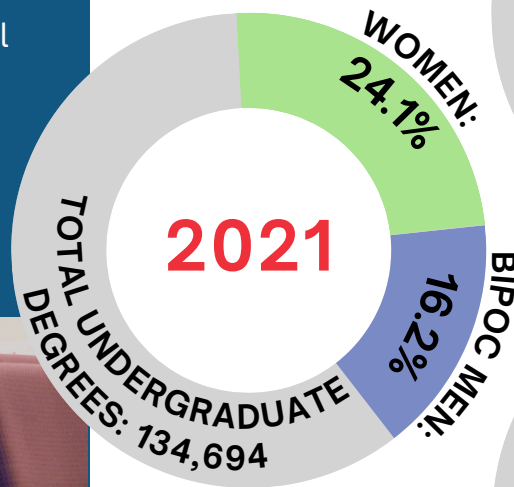
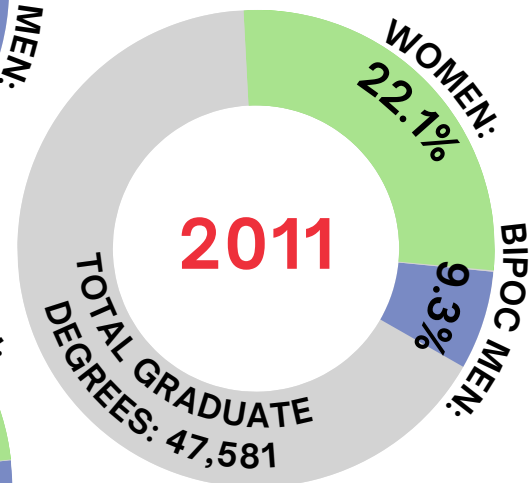
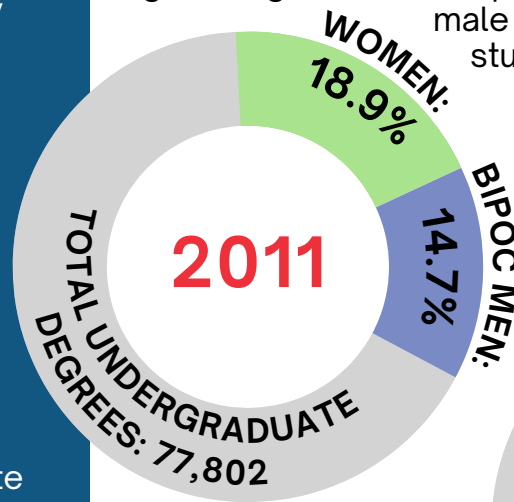
The vision of Engineering PLUS is to create transformative, systemic, and sustainable change.

While there has been progress in increasing the number and percent of women and BIPOC graduates since 2011, engineering is still a discipline graduating predominantly



An NSF INCLUDES Alliance

male students. The share of BIPOC students historically drop off the engineering pathways at key transition points and they receive only 6% of engineering Ph.D.s.



Women are also underrepresented among graduate degree recipients. As a community of educators and professional engineers, we are not addressing the problem systemically, i.e., we are not addressing the root causes that are 90% of the problem. Moreover, our current efforts to broaden participation in engineering fail to consistently leverage evidence-based, high impact practices and redress obstacles, all of which are necessary to catalyze institutional change at scale.



THE ENGINEERING PLUS ALLIANCE PARTNERS

- **AISES** - American Indian Science and Engineering Society
- **ARIS** - Advancing Research Impact in Society
- **ASEE** - American Society for Engineering Education
- **CSEdResearch.org**
- **Drexel University**
- **LSMRCE** - Louis Stokes Midwest Regional Center of Excellence
- **NELSAMP** - Northeast Louis Stokes Alliance for Minority Participation
- **The National GEM Consortium**
- **NACME** - National Action Council for Minorities in Engineering
- **NAMEPA** - National Association of Multicultural Engineering Program Advocates
- **Northeastern University**
- **NSBE** - National Society of Black Engineers
- **NSF INCLUDES National Network**
- **SageFox Consulting Group**
- **STEM PUSH** - STEM Pathways for Underrepresented Students to Higher-Education
- **SWE** - Society of Women Engineers
- **UMLSAMP** - Urban Massachusetts Louis Stokes Alliance for Minority Participation

OUR VISION TO ACHIEVE MEANINGFUL PROGRESS

The Engineering PLUS Alliance, funded at \$10 million over 5 years, is one of 17 National Science Foundation (NSF) INCLUDES Alliances of higher education institutions and the only Alliance focused on engineering. NSF INCLUDES is a nationwide initiative designed to build U.S. leadership in science, technology, engineering and mathematics (STEM) by increasing the participation of individuals from groups that have been historically underrepresented in STEM. The Engineering PLUS Alliance posits that networked communities are needed to build an inclusive infrastructure that will drive the transformative, systemic and sustainable change needed to increase the annual number of BIPOC and women earning undergraduate /graduate degrees in engineering to 100,000 / 30,000 by 2026.

BUILDING AND LEVERAGING OUR NETWORK

The Engineering PLUS team aims to recruit over 400 engineering institutions and community colleges into regional hubs, and train more than 400 stEm PEER change agents. We will recruit national and regional advisory boards of industry, federal and nonprofit stakeholders. Through the strength and breadth of the Alliance network, and widespread adoption of high-impact practices that increase diversity in engineering education, we will achieve our goal of dramatically increasing the annual number of BIPOC and women earning engineering undergraduate / graduate degrees.

KEY STRATEGIES

Partner with the American Society for Engineering Education (ASEE) to develop a critical mass of institutional partners by leveraging and enhancing the Deans Diversity Pledge (DDP) and the ASEE Diversity Recognition Program (ADRP).

Institutional Change Agents (PEERs). The Engineering PLUS Alliance will train, empower, resource and support a national network of stEm* PEERs (Practitioners Enhancing Engineering Regionally), change agents who will accelerate the implementation of high-impact, evidence-based practices within their home institutions and beyond.

*"E" emphasizes Engineering in Science, Technology, Engineering, Mathematics.

Regional Hubs that build on and expand NSF LSAMP Alliances. Regional Hubs are helmed by the leaders of NSF-funded Louis Stokes Alliances for Minority Participation (LSAMP), experts in supporting STEM students to B.S. and graduate degree completion. Members will learn about the high-impact practices that are successful in increasing diversity in engineering education and the value of data-driven decision-making. Regional Hubs will be the engines of national institutional change.



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