

NAF ACADEMY OF ENGINEERING

NAF's Academy of Engineering answers an acute need for engineers in the United States by educating high school students in the principles of engineering and preparing them to pursue opportunities in this growing field.

HISTORY AND IMPACT

The NAF Academy of Engineering (AOE) was launched in 2007 as a collaboration between NAF, Project Lead The Way (PLTW), and the National Action Council for Minorities in Engineering, Inc. (NACME) to provide underrepresented students with the skills needed to succeed in STEM careers. In the 2014-2015 school year there were 109 AOE's serving more than 14,000 students in 21 states, including DC. Seventy-three percent of the students were from low or moderate income families (as determined by eligibility for free or reduced-price lunch), 73% were underrepresented minorities and 28% were females.

CURRICULUM

NAF partners with several highly regarded organizations to offer AOE's a choice of rigorous curricula. NAF offers supplemental and integrated units aligned with these curricula offerings. Additional support for AOE's is provided by NACME.

Project Lead The Way's Pathway to Engineering Curriculum courses include: Introduction to Engineering Design, Principles of Engineering, Digital Electronics, Computer Integrated Manufacturing, Civil Engineering & Architecture, Biotechnical Engineering, Aerospace Engineering, and Engineering Design & Development.

The STEM Academy's STEM 101 Curriculum courses include: Introduction to Engineering, Principles of Engineering, 3D Solid Modeling, Design for Manufacturing, Architecture & Construction Management featuring

Green Methods, Foundations in Biotechnology, Engineering Technology, Materials Science, Green Methods, and General Fabrication Methods.

The Paxton/Patterson CAREERplus Learning System Courses include: Robotics, Architecture & Construction, Manufacturing & Materials, and Alternative Energy & Environment.

COLLEGE AND CAREER READINESS

In addition to learning from career-focused curricula and working on collaborative projects, AOE students gain critical career knowledge through a series of work-based learning activities both inside and outside of the classroom. These include job shadowing events, mock interviews, résumé writing workshops, and the culminating experience—a paid internship. Local business partners work with educators to provide these opportunities to round out students' education. By serving on advisory boards and as mentors, business partners provide real world connections that help students understand the pathways to career success.

NAFTrack Certification, a student certification assessment system, validates successful course completion, projects, and internships. By receiving a passing score on end-of-course exams and satisfactory scores on culminating project and internship assessments, students earn the NAFTrack Certification, signifying to post-secondary institutions and employers that they are both college and career ready.

Graduates of NAF academies complete college faster, earn more, and have stronger ties to their communities than their peers. NAF's 97% senior graduation rate is a testament to this effort.



From 2012-2022, the Bureau of Labor Statistics projects engineering employment will grow 21%. Women make up just 13% of the engineering workforce and racial and ethnic gaps still exist in high school preparation for engineering. African American and Latino students are less likely to enroll in math and science courses than their Asian American or Non-Latino White peers. (NACME, 2011) NAF is working to recruit a diverse student body in STEM academies to fill this gap.

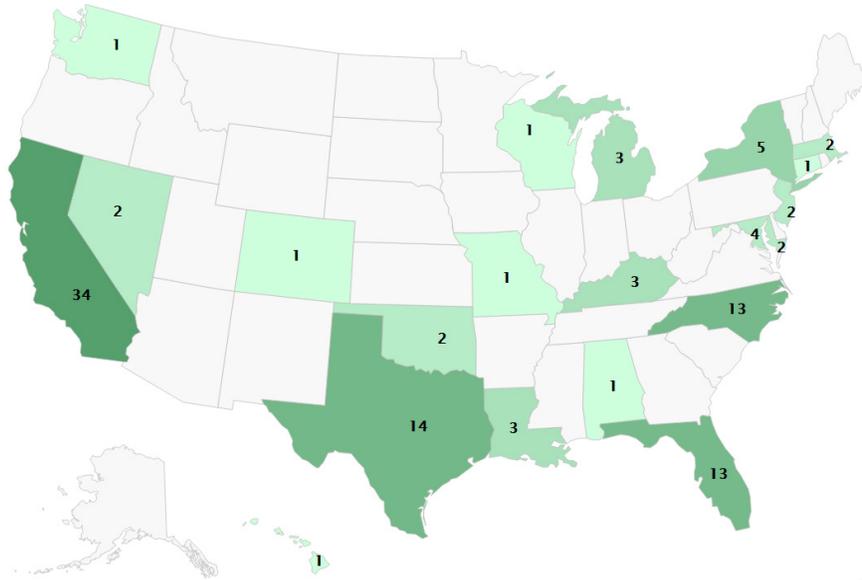


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2014-2015 School Year

NETWORK

109 academies



21 states including DC

highest concentration of academies

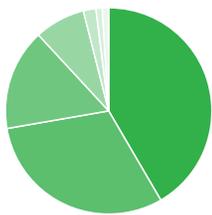
31% California
13% Texas
12% Florida
12% North Carolina
5% New York

61 districts

highest concentration of academies

9% Dallas
7% Charlotte-Mecklenburg
6% Collier County
5% Oxnard

STUDENTS



14,737 students
+17% from last year

42% Hispanic/Latino
31% Black/African-American
16% White
8% Asian
2% Other/Multi-Racial
1% Native American/Alaska Native
1% Pacific Islander

28% of students are young women
In 2010, women earned only 18% of undergraduate engineering degrees

73% of students qualify for free and reduced price lunch

21% are English Language Learners

OUTCOMES



94% of seniors graduated



92% of graduates plan to go to college

56% plan to attend a 4-year college
33% plan to attend a 2-year college
2% plan to obtain a technical degree

ADVISORY BOARD MEMBERS

1,453 advisory board members

INTERNSHIPS

689 internships (2013-2014)