

NAF's Academy of Engineering answers an acute need for engineers in the United States. High school students learn about the principles of engineering and prepare 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 2015-2016 school year there were 124 AOE's serving more than 14,000 students in 20 states, including DC. Seventy-four percent of the students were from low-income families (as determined by eligibility for free or reduced-price lunch), 71% were underrepresented minorities and 27% were females.

CURRICULUM

NAF partners with several highly regarded organizations to offer AOE's a choice of rigorous curricula. 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 I & II courses offer a variety of integrated units including Alternative Energy, Architectural Design, Biotechnology, Communications Technology, Construction Technology, Digital Electronics, Environmental Technology, Manufacturing Technology, Materials Science, Robotics & Automation, Transportation Technology, Alternative Energy & Environment, Architecture & Construction, Manufacturing & Materials, and Robotics.

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 NAFTrack Certification - signifying to post-secondary institutions and employers that they are both college and career ready. Select AP, IB, Cisco, and dual enrollment courses or third party curricula qualify for NAFTrack Certification.

Graduates of NAF academies complete college faster, earn more, and have stronger ties to their communities than their peers. NAF's 98% senior graduation rate is a testament to this effort.



From 2012-2022, the Bureau of Labor Statistics estimates 180,000 new engineering jobs will be created. Women make up just 13% of the engineering workforce. Additionally, African American and Latino workers represent 29% of the general workforce population, but only 12% of the engineering workforce (US News 2015). NAF is working to recruit a diverse student body in engineering academies to fill this gap.



14,471
STUDENTS



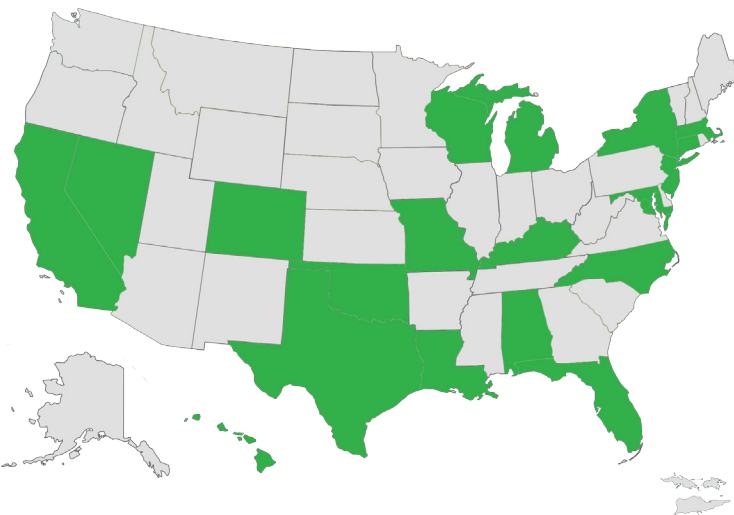
124
ACADEMIES

20

STATES
including DC

highest concentration
of academies

- California **43**
- Florida **17**
- Texas **16**
- North Carolina **14**



68

DISTRICTS

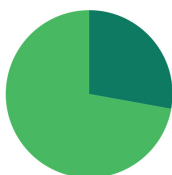
highest concentration
of academies

- 13** Dallas
- 8** Charlotte-Mecklenburg
- 7** Collier County
- 6** Oxnard Union
- 5** New York City

1,520 ADVISORY BOARD MEMBERS

NAF STUDENTS

70%
MALE



27%
FEMALE

*Note: Women make up 13%
of the engineering workforce*

3% unreported

- 43%** Hispanic/Latino
- 28%** Black/African American
- 16%** White
- 6%** Asian
- 3%** Other/Multi-racial
- 3%** Unreported
- <1%** Native American/Alaska Native
- <1%** Pacific Islander

74% Low-Income Students
based on eligibility for free & reduced price lunch

20% English Language Learners

OUTCOMES



98%

of seniors graduated



91%

college-bound graduates



968

internships completed