



Engineering Academy

PREPARE AND PROPEL

Over three years of Engineering Academy, students (ages 15 to 18) learn to think and act like engineers and prepare to advance to post-secondary education. With over 80 hours per year outside of school, the Academy includes a series of immersive engineering design challenges, career coaching, and college-readiness workshops to develop engineering habits of mind, strengthen their engineering identity, and foster the agency required and equip them with the skills needed to pursue an engineering career. Students who complete the Engineering Academy and enroll in a post-secondary engineering degree program will receive a partial scholarship from the GE Foundation.

Overview

The purpose of Next Engineers is to increase the diversity of young people pursuing engineering career paths by implementing three discrete but complementary programs – Engineering Discovery, Engineering Camp, and Engineering Academy. This document describes the **Next Engineers: Engineering Academy**. It should be read in concert with *The Five Building Blocks of Next Engineers* which summarizes the essential theory of change.

Academy objectives

The purpose of Engineering Academy is to deepen students' **awareness** of and solidify their **interest** in engineering through participation in open, authentic, and extended design challenges; investigation of engineering as a viable career path via college and career readiness activities; and meaningful interactions with professional engineers. These positive experiences will feed their motivation to actively pursue engineering as a career.

Participation in design challenges serves to instill a set of **engineering habits of mind** in students (dispositions and ways of thinking at the heart of engineering practice). Developing and practicing these habits of mind will help inculcate a firm **engineering identity** in students, recognized as a key attribute for students deciding to actively pursue engineering and possessing the necessary resilience to persevere in these studies.

Finally, through active exploration of the engineering environment and preparation and planning for the transition to post-secondary education, the Engineering Academy aims to contribute positively to the generation of student **agency** (their ability and willingness to take an active role in shaping their future rather than being solely influenced by their circumstances), and their decision to pursue engineering as a career.

THE 5 BUILDING BLOCKS OF NEXT ENGINEERS

- Awareness
- Interest
- Engineering Habits of Mind
- Engineering Identity
- Agency

ENGINEERING HABITS OF MIND

- Systems thinking
- Adapting
- Problem-finding
- Creative problem-solving
- Visualising
- Improving



Academy design

Next Engineers: Engineering Academy is a three-year out-of-school program for students aged 15 to 18 (the last three years of secondary education). Each year consists of a minimum of 80 hours of programming and comprises a set of engineering design challenges that students complete in teams as well as more discrete one-to-two-hour college and career readiness activities. In addition to these 80 hours, students will participate in at least 2 decision support meetings per year. The overall Academy program is summarized in the table below.

Year	Design Challenges	College and Career Readiness	Individual decision support
1	60 hours 4 design challenges	20 hours Group and individual activities focussing on awareness of self and engineering	2 meetings/year
2	56 hours 3 design challenges	24 hours Group and individual activities focussing on exploration of engineering and turning interest into action	2 meetings/year
3	52 hours 2 design challenges	28 hours Group and individual activities to design and plan for the transition to post-secondary education	2 meetings/year

As the Academy progresses, the openness and space for student choice and community engagement increases, especially in the design challenges.

Engineering Academy will be facilitated by community partner-managed facilitators. The involvement of GE engineering and non-engineering volunteers and other experts is encouraged.

Students are required to attend at least 80% of the scheduled programming and submit all mandatory work pieces to successfully complete the Engineering Academy. Students who successfully complete the Academy and gain acceptance into a post-secondary engineering program will receive a partial scholarship from GE.

Student selection

Each year, Engineering Academy will accept 50 students in their third to last year of secondary schooling (for example the start of 10th Grade in the US) who reside in the general geographical catchment area defined for Next Engineers in each city and who meet a set of defined minimum eligibility criteria defined per city.

Students are required to apply via an online or paper form and final eligible participants will be selected at random.



Engineering Academy is open to all eligible students. However, community partners will target marketing through Engineering Discovery and Engineering Camp channels.

For more information about Next Engineers visit www.NextEngineers.org.

