

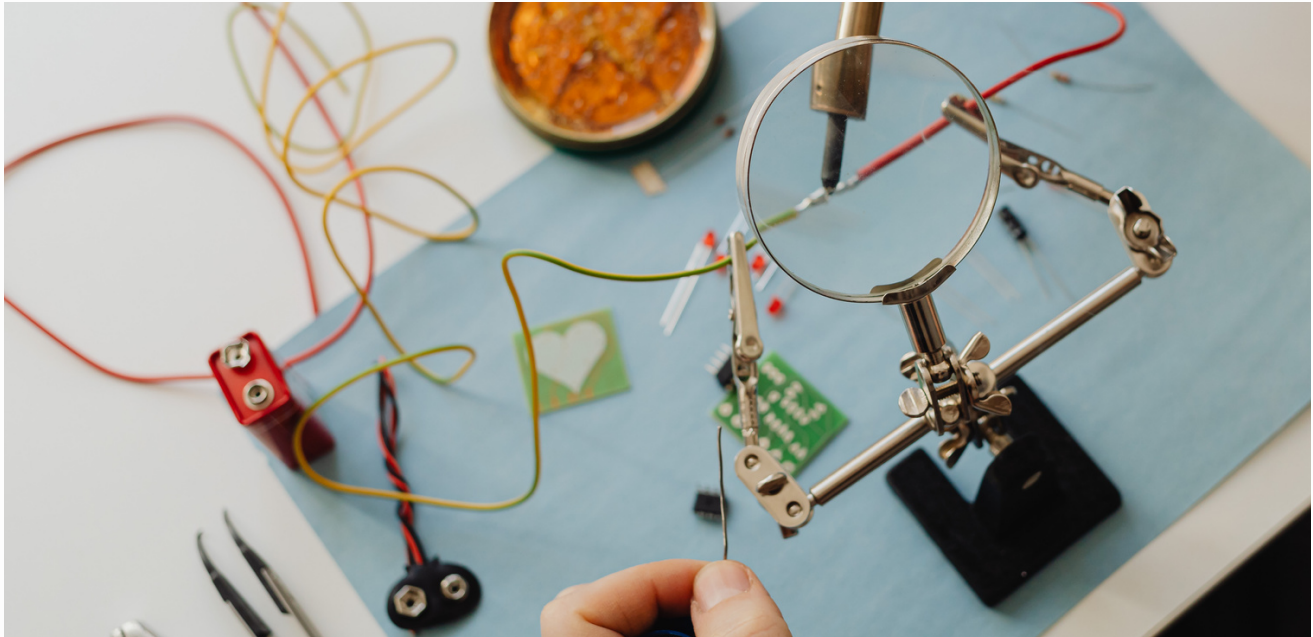


Preparing for Engineering *Pathways in High School*

A Practical Guide to Academics, STEM
Exploration, and Long-Term Planning for
Students Interested in Engineering

From the Admittedly Counseling Team
Led by former Ivy+ Admissions Officers

www.admittedly.co



What Competitive Engineering Programs *Look For*

Engineering is one of the most academically demanding undergraduate pathways. For students targeting highly selective universities, colleges want evidence that they are prepared to succeed in advanced quantitative coursework and have developed a genuine interest in applying those skills. That preparation is built over several years.

A student's math placement can determine which advanced courses they reach by senior year. Science sequencing affects access to advanced Physics, Biology, and Chemistry coursework. At the same time, students need to explore technical interests and eventually develop meaningful depth in those areas outside of the classroom.

For future engineering students, three areas deserve particular attention.



1 Academic Readiness

Strong grades matter, but so does **rigor and progression**, particularly in Math and Science coursework. In order to be competitive for highly selective engineering programs, students need to pursue the most advanced quantitative pathway available at their schools *and* excel in their classes.

2 Technical Exploration

Engineering is an applied field. Experiences in robotics, coding, research, design, competitions, independent projects, or other technical environments can help students explore and demonstrate how they enjoy solving problems.

3 Quality Over Quantity

Colleges are not counting STEM activities. They are looking at what students actually did with the opportunities they pursued. Leadership, responsibility, initiative, and impact matter far more than simply joining another engineering-related club to add to a list.

The Goal Is Not to Check Every Engineering Box

A student does not need robotics, research, coding, an internship, and a prestigious summer program. Strong applicants build an academic foundation and then pursue a smaller number of interests deeply enough to demonstrate genuine engagement.

Your Academic Track *Matters*

For students targeting Ivy League and other highly selective engineering programs, **advanced Math and Science preparation is an expectation, not simply an added bonus, when those opportunities are available to the student.**

Admissions officers evaluate students within the context of their high school, and they will be able to see what courses were available and how far a student chose to progress in STEM.

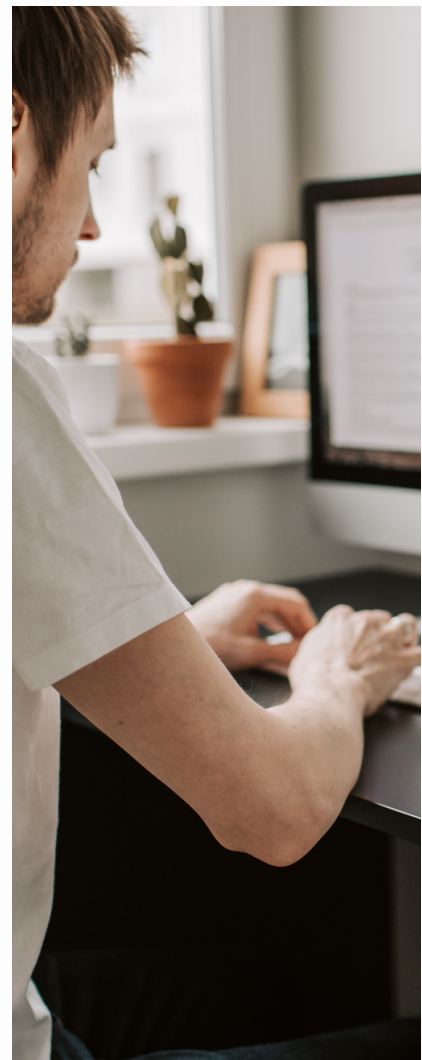
The Engineering Pathway Starts Early

Math is sequential. Placement decisions made in middle school can affect whether a student is positioned to reach Calculus or post-Calculus classes before they graduate from high school.

Families with younger students who are considering engineering should understand their school's placement tests, prerequisites, and accelerated pathways **before high school begins.**

Once high school starts, students should pay particular attention to:

Math: Build toward the most advanced appropriate pathway available. For highly selective engineering applicants, Calculus should be an important benchmark, with coursework beyond it advantageous when available and appropriate.



Science: Maintain a rigorous progression through foundational sciences. Remember that physics is particularly important for engineering programs.

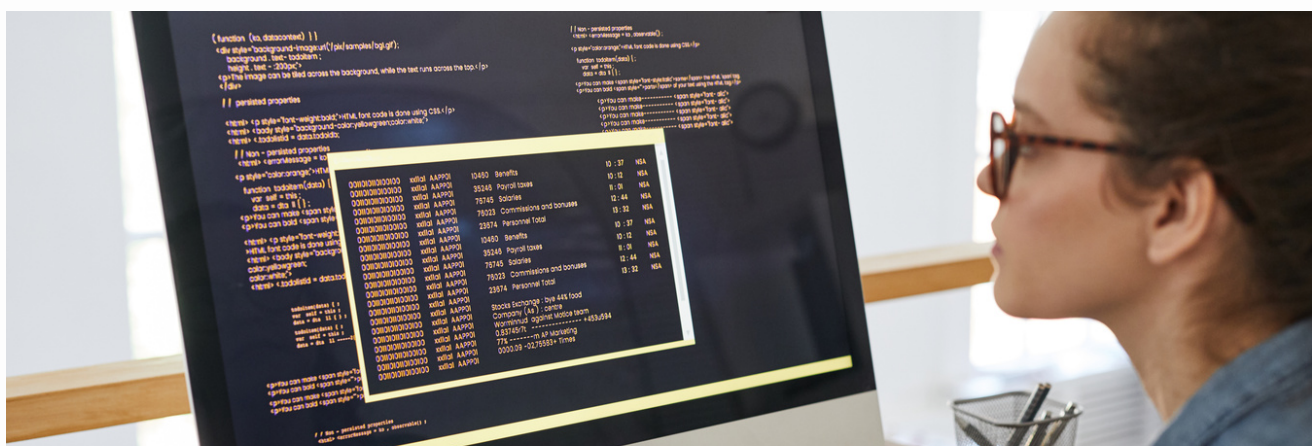
Computer Science & Engineering: Programming, engineering design, CAD, robotics, electronics, or similar courses can complement the core Math and Science sequence when available.

What If You're Already Off Track?

If a student interested in highly selective engineering programs is not currently positioned to reach advanced Math and Science, **this is something to address, not ignore.**

That does not automatically mean the goal is out of reach. Depending on the student's starting point, school policies, academic readiness, and available opportunities, carefully planned acceleration, summer coursework, dual enrollment, or other advanced study could change the student's trajectory for the better.

The earlier a family identifies a gap in the academic sequence, the more options they may have to address it strategically.



Go Beyond “*Interested in STEM*”

Strong academics demonstrate that a student is prepared to study engineering, but students also need to prove that they have actually explored this interest outside of taking foundational classes.

Students might consider pursuing activities such as:

- Robotics, engineering, coding, or STEM teams
- Math, science, engineering, or coding competitions
- Independent building, coding, or design projects
- Research or substantive internships
- Engineering-focused summer experiences
- Community problems they can approach through technical solutions



Do not treat this as a checklist.

Two students can participate in the exact same robotics team and build completely different profiles. One only attends meetings. Another develops technical expertise, solves increasingly difficult problems, assumes responsibility, mentors others, or moves the team's work forward.

The activity name did not create the difference. **The student's involvement and impact did.**

From Exploration to Depth

Younger students can use activities to discover what they enjoy. As those interests become clearer, however, students should begin narrowing their focus and pushing the strongest ones further.

That might mean becoming more technically skilled, taking on greater responsibility, competing at a higher level, building independently, or applying an interest to a real problem.

Leadership Is More Than a Title

“President” or “Team Captain” can be meaningful, but the title alone tells admissions officers very little.

Leadership is demonstrated through **ownership and impact**: solving problems, improving a team, mentoring others, taking initiative, or creating meaningful results.

For engineering applicants, the question is not “How many STEM activities do I have?”

It is “What evidence is there that I have taken my interests seriously?”





Build the Path *Before The Application*

Generic guidance can show you the admission landscape, but it cannot tell you whether your student's current path is competitive, where gaps may exist, or which decisions deserve attention now.

If your family is considering support through their admissions journey, we invite you to [apply for a complimentary strategy call with the Admittedly team.](#)

This initial conversation helps us understand your student's goals and current profile, highlight important considerations and potential gaps, and determine whether Admittedly may be the right admissions partner for your family moving forward.