



Inspiring students **for rewarding careers**

We're rewriting how STEM is taught today.
Together, we'll transform the workforce of tomorrow.

SIEMENS

Siemens Digital Industries Software

Siemens Digital Industries Software – a global technology company known for engineering excellence, innovation, quality and reliability for more than 170 years.

We are revolutionizing industry with digital technologies and offer those same state-of-the-art tools and resources to educators and students – so students are prepared to succeed in today's technology-focused world.



Those who enter the science, technology, engineering and mathematics (STEM) workforce are becoming more vital to our economy. According to a 2021 report by the National Science Foundation (NSF), workers in STEM occupations will improve living standards, economic growth and global competitiveness. Additionally, workers in STEM occupations also experience higher salaries than those in non-STEM occupations.

Employment prospects in many STEM occupations are expected to grow

10.5%
by 2030



STEM-related occupations will grow 10.5 percent by 2030

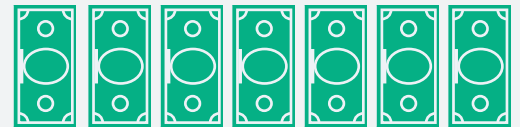
1M

Over 1 million new STEM jobs will be created from 2020 to 2030



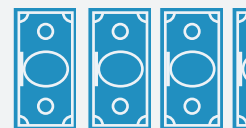
Median annual wage of 2020

\$89,780



STEM jobs

\$40,020



Non-STEM jobs

Source: The Bureau of Labor Statistics.

There's a need for advanced, highly technical skills

Today's students, commonly referred to as digital natives because of their familiarity with computers and the internet, will be in high demand as technology plays an even greater role than ever before in most jobs. This is especially true in the dynamic fields of engineering and manufacturing, where products are becoming more complex and procedures more automated through digitalization – the ability to digitize and optimize products and processes – is now common.

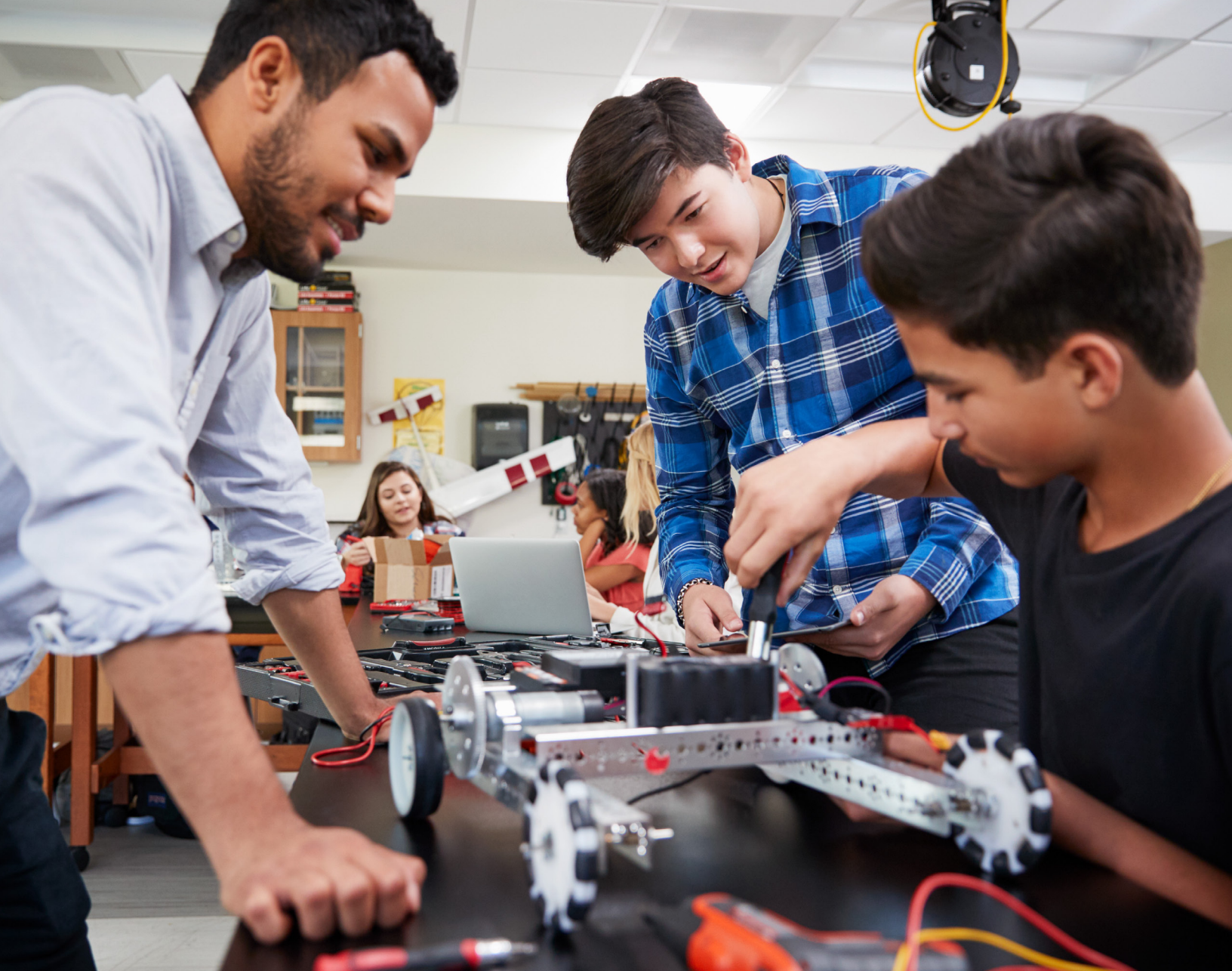
We have a need for advanced, highly technical skills from materials joining technologies to software development – skills that demand engineering knowledge and STEM aptitudes. In fact, the NSF estimates that 80 percent of the jobs available in the next decade will require math and science skills.

STEM education encourages problem solving among students and develops critical-thinking skills. It builds the resilience that the next generation of leaders and innovators need to succeed. According to the World Economic Forum 2020, problem-solving and critical thinking top the list of skills employers believe will grow in prominence over the next five years.



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However, there are challenges. Teachers, especially in secondary schools, are required to teach so many fundamentals that it often becomes nearly impossible for them to have specialized knowledge of STEM curriculums.

Secondary schools are required to teach traditional courses that are focused on content fundamentals. This leaves out the higher level learning of analyze, create and build and the exposure to creativity and innovation so necessary to future career success.



Teachers felt support that would improve their effort to implement STEM education included collaboration with peers, quality curriculum, district support, prior experiences and effective professional development,”

states Kelly C. Margot and Todd Kettler from the International Journal of STEM Education.



We're moving toward a solution

*According to the National Science
Teaching Association (NSTA):*

***“Teachers of STEM should be provided
with resources necessary to implement
quality STEM education in their
classrooms, including opportunities
for professional growth and learning
through continual and sustained training,
mentoring and support services,
as they plan, develop and execute
their STEM lessons and units.”***



| Siemens resources for educators

Siemens resources available to educators:

- Project/problem-based curricula
- Easy-to-access professional development
- The same professional software used in industry
- Industry recognized certification
- The opportunity to learn, collaborate and network with peers

As a leading tech company, we understand what is at stake when it comes to educating and motivating an engineering-savvy workforce. We understand because we bring technology to companies of all sizes, from the smallest startup to the largest global companies.



Siemens engineering curriculum

Developed by a team of educators, our project-based curriculum for students focuses on the deep exploration of a problem.



Our engineering curriculum includes:

- Teaching plans based on the engineering problem solving process
- Alignment to academic standards, including Next Generation Science Standards (NGSS), Technological and Engineering Literacy, English Language Arts (ELA) and mathematics standards
- Day-to-day teaching plans
- Just-in-time tutorials
- Formative assessments through rubrics

The curriculum is designed to teach multidisciplinary engineering skills, build confidence and resilience and prepare students to transition from high school directly to jobs or university courses.

Three sequential comprehensive courses:

Engineering design – Students find distinct solutions to the same problem by working in teams. They plan, organize, conduct research and learn computer-aided design (CAD) software fundamentals.

Manufacturing and automation – Students create a design and prepare it for machining.

Mechatronics and internet of things (IoT) – Students explore the intersections of robotics, electronics, computer programming and product engineering.



Educator training and professional development

Curriculum training

- Gives secondary school teachers the skills and confidence to successfully deliver curriculum
 - Siemens' engineering design course
 - Manufacturing and automation course, and
 - Mechatronics and IoT course
- Provides individual and small group help
- Offers an opportunity to earn 40 contact hours and a certificate of completion at the end of the training

Solid Edge Software fundamentals (virtual)

- Gives educators a core understanding of the basics of Solid Edge® software for CAD – 18 credit hours. Solid Edge is part of the Xcelerator portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software
- Teaches sketching, part modeling, assembly, engineering drawing and basic simulation

Solid Edge Software intermediate (virtual)

- Improves proficiency in Solid Edge –18 credit hours

Siemens' engineering educator expert training program

Siemens' Solid Edge software portfolio

Free and flexible software licensing available to schools, teachers, students, startups and maker spaces.

Siemens offers a portfolio of easy-to-use software tools that can help you introduce students to all aspects of the product development process. The portfolio includes our flagship Solid Edge 3D CAD software, as well as integrated applications for electrical design, simulation, computer-aided manufacturing (CAM), technical publications and built-in data management.

Taken together with Siemens' curriculum, you can confidently introduce your students to the engineering design process, enable them to learn with the same professional software used in industry, prepare them to successfully achieve Solid Edge certification and provide them with a competitive advantage as they pursue their first jobs or university classes.



Experience with Siemens resources



"The Siemens curriculum provides the basics of engineering, not just in a high school or college classroom. It's what real engineers use."

Tess Strauch

A teacher at Bethpage High School on Long Island, New York, Tess majored in biology and music in college and is now a STEM teacher who inspires and empowers students to dream of big innovations that make life better for all of us. She teaches engineering, physics and marine biology. Initially, Strauch did not have a core understanding of engineering and initially felt unprepared, until she embraced the Siemens resources available to educators.

"It's awesome to see the things that students design, which I would never think of on my own," states Strauch. "The Siemens curriculum provides the basics of engineering, not just in a high school or college classroom. It's what real engineers use."

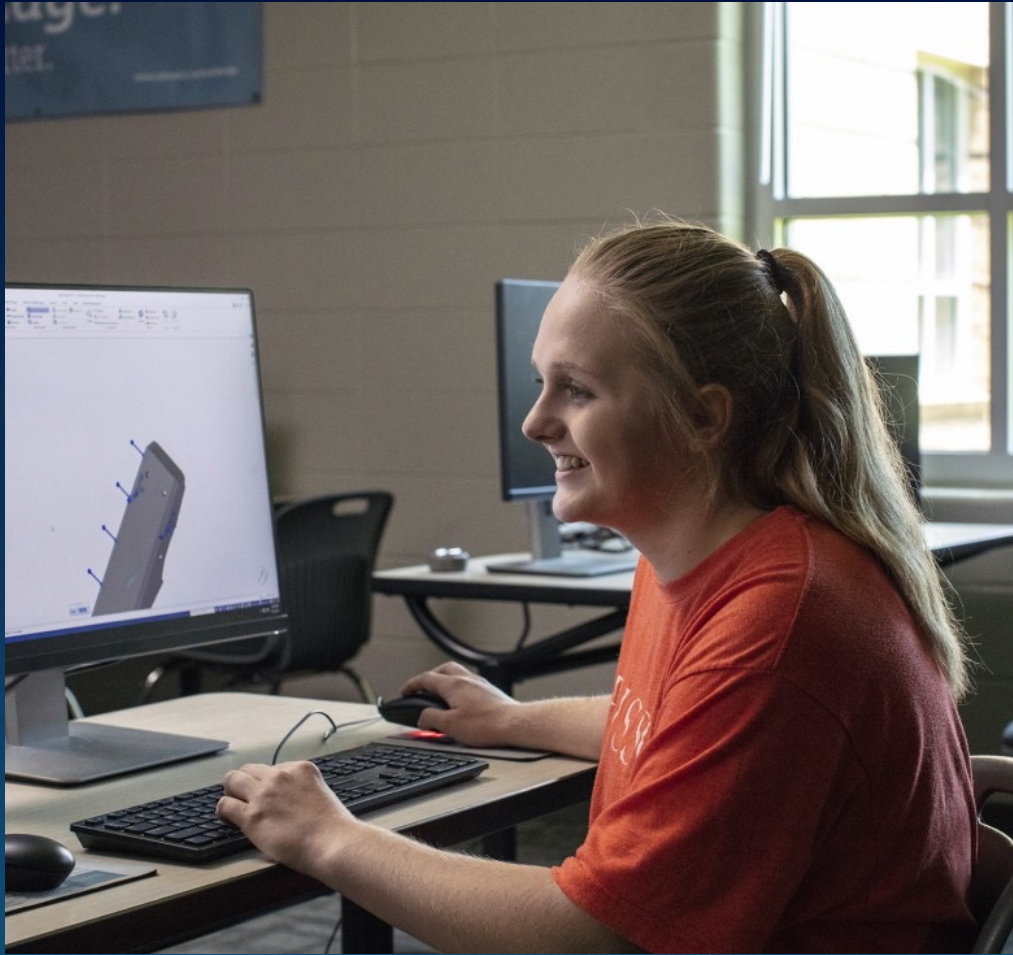
With mentors like Strauch, young students can do more with technology to change the world and the lives of others.



Levi Zima

Levi began using Solid Edge and was developing CAD models by the time he was seven years old. This makes him not only digital native, but a Solid Edge native. When he turned 15, Zima had already completed 32 Solid Edge tutorials. He also learned about plastic injection molding, which he started when he was 12. By 16, he was running a manufacturing production line at his father's company, RF Laboratories.

Zima's accomplishments are traced to the teachers he grew up with who inspired him and the Siemens tools that energized him.



Ashley Kimbel

As a high school student in Huntsville, Alabama, Ashley Kimbel, used Solid Edge to create a prosthetic foot for a United States Marine Corps veteran who lost his leg in Afghanistan. Her story, which became a national sensation on NBC's Today show, demonstrates the creative power of students when combined with the right technology and strong mentors. With Solid Edge, Kimbel designed, tested and built a prosthetic limb for a local U.S. Marine veteran who had lost his leg in Afghanistan as a result of enemy fire.

The future starts today

The pace of technology is accelerating at a staggering speed and the demand for highly skilled digitally savvy workers is growing. As the challenge and opportunity of educating the next generation falls on the shoulders of secondary and post-secondary educators, you can count on Siemens to support you on the journey.



Visit Siemens [Solid Edge resources for educators](#) to learn more.

About Siemens Digital Industries Software

Siemens Digital Industries Software is driving transformation to enable a digital enterprise where engineering, manufacturing and electronics design meet tomorrow. Xcelerator, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, helps companies of all sizes create and leverage a comprehensive digital twin that provides organizations with new insights, opportunities and levels of automation to drive innovation. For more information on Siemens Digital Industries Software products and services, visit siemens.com/software or follow us on [LinkedIn](#), [Twitter](#), [Facebook](#) and [Instagram](#). Siemens Digital Industries Software – Where today meets tomorrow.

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