



# Advanced Career STEM Courses

## Exciting career-focused courses prepare students for success after graduation

Imagine high school classes that show students how learning connects to life and work outside the school walls — and prepare them for success in college *and* the workforce of the future.

Developed by the Southern Regional Education Board with support from business, industry and postsecondary leaders, Advanced Career's exciting, project-based courses empower students from any background or ability level to test drive careers in high-tech, high-demand STEM fields.

**College-ready academics** — math, science, technical reading and writing, and research — and the **essential technical and workplace skills needed by employers** are baked into each AC project. Students develop critical thinking, problem-solving and communication skills as they work in teams to channel their creativity and know-how into solving real workplace problems with support from local industry mentors. Students create professional portfolios and earn AC certificates and digital badges or industry credentials that add value to college or job applications.

For schools, AC offers out-of-the-box lessons, units, projects and assessments. Industry pros designed AC equipment, tech and supplies to be affordable *and* meet industry standards. Teachers gain confidence and inspiration with just-in-time virtual training and coaching from SREB and support from a national community of peers.

### Flexible Implementation

Build your own pathways to the future! AC's design is flexible, and AC courses can enhance a school's existing pathways. AC also aligns well with honors, Advanced Placement and dual enrollment courses. Schools can:

- adopt one or more AC courses as part of a district-designed new or existing three- to four-course career pathway leading to postsecondary and industry credentials and high-demand careers
- offer a full pathway of AC courses in sequence with school-designed work-based learning elements
- collaborate with postsecondary and business and industry partners to build AC-enhanced pathways spanning grades nine to 14 or 16 that meet regional workforce demand

## Advanced Career Projects

AC's industry-driven projects embed college-preparatory literacy, math, science and problem-solving skills while mirroring the real workplace problems and tasks tackled by industry professionals. Each inquiry-based project challenges teens to take on job roles in high-tech fields while they deepen their understanding of workplace standards and project management processes, build teamwork and communication skills, and gain professional competency.

### Built-In Benefits and Supports

- Free courses\*
- Affordable end-of-course exams
- Certificates, digital badges and graduation recognition for students who meet AC standards
- Data from end-of-course exams and teacher and student surveys

\* SREB offers AC courses free to schools or districts that agree to offer AC courses within a career pathway program, require AC teachers to participate in teacher training prior to implementing a course, and offer AC EOC exams and student and teacher surveys (\$10 per student).

## Explore AC Courses

### Aerospace Engineering

Launch careers in aerospace engineering, aviation manufacturing and mechanics, space exploration and beyond with AC! Students learn the science of flight and how to design rockets and unmanned vehicles. Cool tools like flight simulators and sensing systems give students a birds' eye look at future careers in many aerospace-related industries. Courses enhance pathways in business, manufacturing, transportation and logistics, and more.

### Clean Energy Technology

Schools go green as students tackle global energy needs with a focus on conservation and sustainable, renewable resources. Hands-on projects featuring photovoltaic systems, biofuel generation, hydroelectric power and energy harvesting help students apply science and math principles to address energy needs in their own communities. Courses expand pathways in energy, agriculture science, architecture, construction, building and electrical trades, STEM and more.

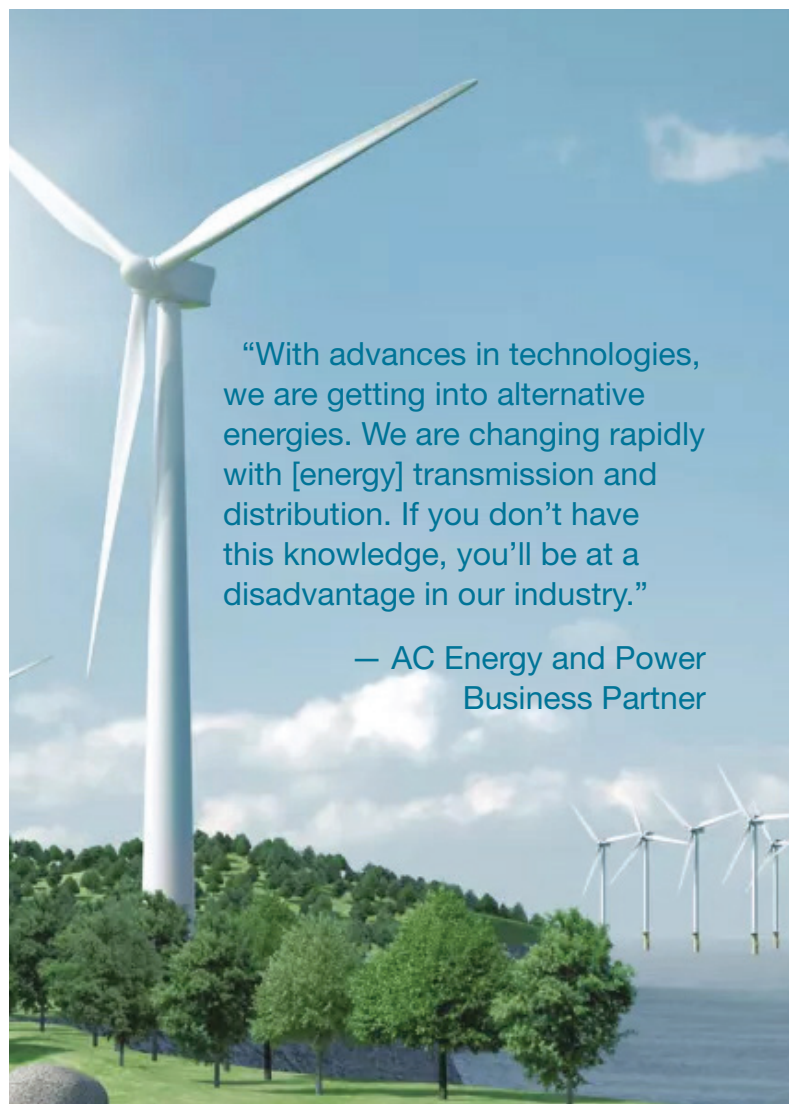
### Energy and Power

Energy drives our way of life. With AC, students learn about the generation, distribution and use of chemical, electromagnetic, thermal, nuclear and mechanical energy as they explore how motors and generators work, smart-home automation, plant-level process controls, natural gas pipeline monitoring and energy storage, wind power and more. Courses complement pathways in energy, agriculture, architecture, construction and building trades, and engineering.

“Every single project isn't just an engineering project. It has embedded mathematics, literacy, technology... and science. All embedded into a multi-week type project. [Students] are investigating career opportunities they didn't even know existed.”

— Patrick Smallwood, AC Clean Energy Technology Instructor, Center for Advanced Technical Studies, Chapin, South Carolina

- Virtual teacher trainings
- A national teacher community of practice
- Flexible coaching support, online or in-person
- An easy purchasing process for equipment and supplies



“With advances in technologies, we are getting into alternative energies. We are changing rapidly with [energy] transmission and distribution. If you don't have this knowledge, you'll be at a disadvantage in our industry.”

— AC Energy and Power Business Partner



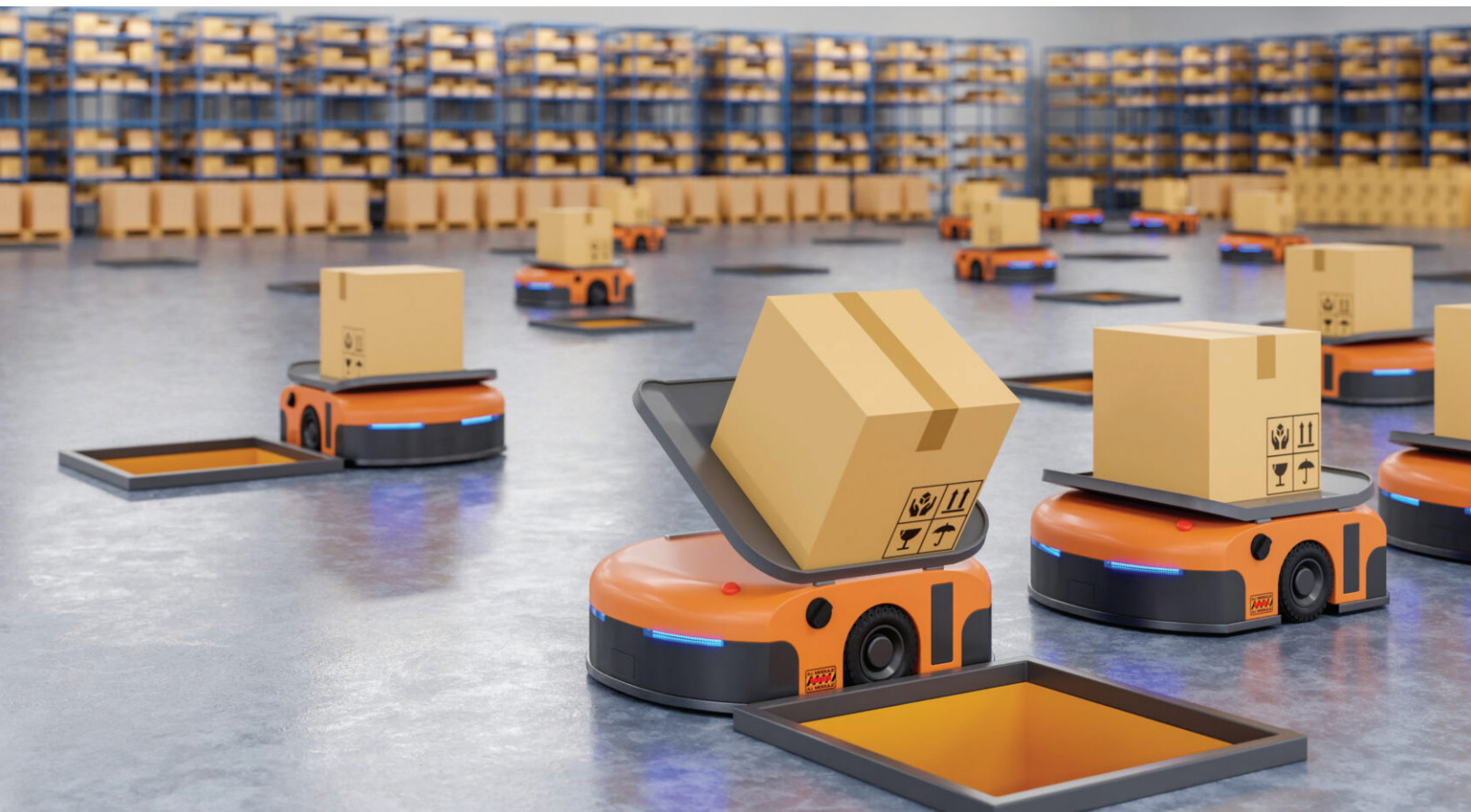


## Global Logistics & Supply Chain Management

Our global economy depends on our ability to move people and products from one place to another. Students problem-solve how to secure goods from far-flung locations, move them across borders, direct them to ports, transport them to storage warehouses and deliver them to businesses or consumers with evolving distribution systems. Courses enrich pathways in business, engineering, manufacturing and transportation, distribution and logistics.

## Manufacturing & Automation

Innovation drives the cutting-edge world of advanced manufacturing *and* the AC classroom, where students imagine, design and test new products for a global marketplace using systems approaches, computer-aided design and drafting, and computer numerical control systems. Projects challenge students to apply principles of biology, chemistry, computer science, engineering and physics. Courses augment pathways in Automated Materials Joining Technology, agriculture, manufacturing, transportation and more.





## What People Are Saying About AC

“We’ve had a lot of success with students who after they went through two years of this program got scholarships [and] participated in national and international competitions. They grew tremendously [and] would not have done this without...the Advanced Career program. They figure out they *do* have a voice and can make a contribution to solving big problems in society.”

— Al Gates, Director, Center for Advanced Technical Studies, Chapin, South Carolina

AC courses “give you more freedom and leeway to pursue your passion.”

— AC Student

“Having these skills and mindsets builds a sense of adaptability within you. That’s really fundamental to have.”

— AC Student



“The projects are open-ended enough that students learn a wide variety of skills and must design innovative solutions to solve the problems.”

— Aerospace Engineering Industry Professional

## Take Your Career Pathways to the Next Level

At SREB, we work one-on-one with schools, districts and states to provide additional onsite or virtual professional learning, coaching and technical assistance focused on enhancing instructional practices in *all* of your career pathways. Optional additional services address:

- Career pathway design, implementation and labor market analyses
- Powerful CTE and Project-Based Learning Instructional Practices
- Business and industry partnerships and work-based learning
- Classroom and lab designs

- Career academy implementation
- Leadership coaching and teacher professional learning communities
- Meeting the needs of nontraditional and underrepresented students, English language learners and students with disabilities

### Learn More and Get Started

Contact [advancedcareer@sreb.org](mailto:advancedcareer@sreb.org)

Visit [www.sreb.org/advanced-career](http://www.sreb.org/advanced-career)

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