Career and Technical Education at a Crossroads
Catherine Gewertz
Senior contributing writer, Education Week

Follow Catherine on Twitter: @cgewertz

Related links:

• “Pruning Dead-End Pathways in Career and Technical Ed.” – This story is about Tennessee’s work to offer only high-quality career-tech-ed programs, a key focus of this webinar.

• Three-part series: “Career and Technical Education at a Crossroads”

• “Coalition Calls for Transformation of Career and Technical Education”
  (High School & Beyond blog post)
Career and Technical Education at a Crossroads

Expert Presenters:

Kate Blosveren Kreamer  
Deputy executive director  
Advance CTE

Heather Justice  
Executive director  
Office of CTE, Tennessee Department of Education
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
Why We Need Career Technical Education

Kate Kreamer
Advance CTE
What is Career Technical Education (CTE)?

• CTE is an education option that provides learners with knowledge and skills they need to be prepared for college and careers.
  • Emphasizes real-world skills within a selected career focus
  • Allows learners to apply what they learn through hands-on projects and engage with industry mentors
• Learners take specialized courses in addition to required “core academic” classes
Support By the Numbers

- Policymakers
- Parents
- Employers
Support By the Numbers

500+ State policies passed since 2013

50 states + DC passed supportive policies related to CTE in past four years

405 U.S. Representatives voting to reauthorize Perkins (unanimously!)

9 in 10 Parents want more career focus in high school

$75 million Investment in New Skills for Youth from JPMorgan Chase
Why Such Demand for CTE?

- Balance college and career readiness
- Desire for more real-world skills among parents and students
- Cost of college – and increasing uncertainty in college degrees
- Strong message from business/industry
- Politically popular and bi-partisan
- Focus on quality
CTE Delivers

www.careertech.org/recruitmentstrategies

91% of parents of students in CTE believe their child is getting a leg up on their career, compared to only 44% of prospective parents.

82% of CTE students are satisfied with their ability to learn real-world skills in school, compared to only 51% of non-CTE students.

80% of parents of students in CTE are satisfied with their ability to participate in internships, compared to only 30% of prospective parents.

• The high school graduation rate for CTE concentrators is about 90 percent, approximately **10 percentage points higher** than the national average.

• Seventy-eight percent of CTE concentrators enroll in postsecondary education, full time, within two years of graduation.

• 84 percent of adult CTE concentrators went from CTE study to **further education or employment** within six months of completing their program.
**Happy 100<sup>th</sup> Birthday CTE!**

<table>
<thead>
<tr>
<th>THEN: VOCATIONAL EDUCATION</th>
<th>NOW: CAREER TECHNICAL EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>For a Few Students</td>
<td>For All Students</td>
</tr>
<tr>
<td>For a Few “Jobs”</td>
<td>For All Careers</td>
</tr>
<tr>
<td>6 to 7 “Program Areas”</td>
<td>16 Career Clusters&lt;sup&gt;®&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>79 Career Pathways</td>
</tr>
<tr>
<td>In lieu of Academics</td>
<td>Aligns/Supports Academics</td>
</tr>
<tr>
<td>High-School Focused</td>
<td>High School and Postsecondary</td>
</tr>
<tr>
<td></td>
<td>Partnerships</td>
</tr>
<tr>
<td>Terminal</td>
<td>Life-long learning</td>
</tr>
</tbody>
</table>
www.careertech.org/vision
All Career Technical Education (CTE) programs are held to the highest standards of excellence.

All learners are empowered to choose a meaningful education and career.

All learning is personalized and flexible.

All learning is facilitated by knowledgeable experts.

All systems work together to put learner success first.
Kate Kreamer
Deputy Executive Director, Advance CTE
kkreamer@careertech.org
How Tennessee is providing high-quality CTE pathways for students

Heather Justice, Executive Director, Office of CTE
Effective Pathways

1. Active industry involvement in student learning, starting in early grades
2. Strong integration of student supports, interventions, and counseling
3. “Banking” of postsecondary credits and industry certifications in high school
4. A seamless transition from secondary to postsecondary
5. Multiple entry and exit points for grades 13-16
6. Qualified workforce with regional / state relevance

Elementary & Middle School
- Foundational Academic Skills
- Career Exploration

High School
- Selected Program of Study with Relevant Capstone Experience

Career Opportunities
- Apprenticeship, OTJ & Military Training
- Technical College
- Community College
- University / College
Streamlining CTE programs of study
Justification

• While postsecondary information sets a framework, regional and state labor market data are the crux of the justification process
  – Data driven decisions
  – Effective use of data
  – Applying data to program choices
  – Including stakeholders in communications process

<table>
<thead>
<tr>
<th></th>
<th>Employment</th>
<th>Percent Change</th>
<th>Projected Annual Job Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>136,900</td>
<td>142,300</td>
<td></td>
</tr>
<tr>
<td>2024</td>
<td>+4%</td>
<td>3,300</td>
<td></td>
</tr>
<tr>
<td>Mechatronic Engineers (Engineers, All Other)</td>
<td>136,900</td>
<td>142,300</td>
<td></td>
</tr>
<tr>
<td>Projected Annual Job Openings</td>
<td>3,300</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tennessee</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>3,020</td>
<td>3,290</td>
<td></td>
</tr>
<tr>
<td>2024</td>
<td>+9%</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Mechatronic Engineers (Engineers, All Other)</td>
<td>3,020</td>
<td>3,290</td>
<td></td>
</tr>
</tbody>
</table>
Seamless Transitions & Vertical Alignment

Elementary & Middle School
- Career awareness and exploration
- Recruitment of students into programs

High School Mechatronics Program of Study
- Capstone Work-Based Learning Experience
- Industry Certification
  - Machining Level I - Measurement, Materials, and Safety Certification (NIMS)
  - Siemens Level 1 Certified Mechatronic Systems Assistant
- Early Postsecondary
  - Dual credit/enrollment: Motlow State Community College

Certificate
- Industry Certification
  - Siemens Level 2 Certified Mechatronics Systems Associate
- TCAT
  - Mechatronics Technician (TCAT Nashville)
- Dyersburg Community College
  - Industrial Electricity Certificate
  - Mechanical Components I
  - Programmable Logic Controller I

Associates
- A.S., Mechanical Pre-Engineering
  - Motlow State Community College
- A.S., Advanced Integrated Technology
  - Columbia State Community College

Bachelors
- B.S., Mechatronics Engineering
  - Middle Tennessee State University
- B.S., Mechanical Engineering
  - Middle Tennessee State University

High School Diploma
- Industrial Machining Mechanic ($51,300)

Certificate
- Industrial Engineering Technician ($53,110)
- Electromechanical Technician ($58,540)

Associates
- Industrial Engineering Technician ($61,900)
- Electromechanical Technician ($61,900)

Bachelors
- Mechatronic Engineers ($76,300)
- Mechanical Engineer ($85,060)
- Industrial Engineer ($80,270)
Anatomy of a Program of Study

- Tennessee’s programs of study are meant to provide a relevant framework of industry-aligned, rigorous courses that progress a student in knowledge and skills year over year.

**Programs of Study**

- Transition Seamlessly into Postsecondary & Workforce
- Provide for Capstone Work-Based Learning Experiences
- Logically Progress
- Contain Clear, Specific, Measurable Standards
- Embed Academic, Technical, & Employability Skills
- Deepen Understanding of Prior Content through Each Course
- Transition Seamlessly into Postsecondary & Workforce
# Anatomy of a Program of Study

<table>
<thead>
<tr>
<th>Program of Study</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechatronics</td>
<td>Principles of Manufacturing (5922)</td>
<td>Digital Electronics (5925)</td>
<td>Mechatronics I&lt;sup&gt;1&lt;/sup&gt; (6156)</td>
<td>Mechatronics II&lt;sup&gt;1&lt;/sup&gt; (6157)</td>
</tr>
<tr>
<td></td>
<td>Or Robotics &amp; Automated Systems (6143)</td>
<td>Or Dual Enrollment Mechatronics (4063)</td>
<td>-or- Manufacturing Practicum (5926)</td>
<td>-or- Dual Enrollment Mechatronics (4063)</td>
</tr>
<tr>
<td></td>
<td>Or Project Lead the Way (PLTW) Computer Integrated Manufacturing (6055)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>1</sup> Mechatronics I and Mechatronics II are dual enrollment courses.
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
Career and Technical Education at a Crossroads

Suggested Reading from *Education Week*:

• “[Pruning Dead-End Pathways in Career and Technical Ed.](https://www.edweek.org/ran/2017/05/09/pruning-dead-end-pathways-in-career-and-technical-ed.html)” (May 9, 2017) – *This story is about Tennessee’s work to offer only high-quality career-tech-ed programs, a key focus of this webinar.*

• Three-part series: “[Career and Technical Education at a Crossroads](https://www.edweek.org/ran/2017/05/12/career-and-technical-education-at-a-crossroads.html)”

• “[Coalition Calls for Transformation of Career and Technical Education](https://www.edweek.org/ran/2017/05/11/coalition-calls-for-transformation-of-career-and-technical-education.html)” (High School & Beyond blog post)

---

**Spotlight on Career Readiness**

In this Spotlight, see how new tests aim to measure career readiness, explore different opinions on career-ready skills, and learn how community engagement and individualized plans can inspire students.