Career and Technical Education: Enhancing Educational Experiences in Middle School, High School and Postsecondary Education

1. What is career and technical education?

Career Technical Education (CTE) helps learners develop the knowledge and skills they need to be prepared for college and careers. CTE emphasizes real-world skills and practical knowledge within a student's career of interest. CTE is a cost-effective way for students to start a career in as little as one or two years of school. The Florida Department of Education (FDOE) has a wide variety of CTE degree and certificate programs across the following 17 Career Clusters. See the table below for the Career Clusters and two program examples for each cluster.

<table>
<thead>
<tr>
<th>Career Cluster</th>
<th>Program Examples</th>
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<tbody>
<tr>
<td>Agriculture, Food and Natural Resources</td>
<td>Agritechnology and Veterinary Assisting</td>
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<tr>
<td>Architecture and Construction</td>
<td>Building/Trades Construction and Electrician Apprentice</td>
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<tr>
<td>Arts, A/V Technology and Communication</td>
<td>Digital Design and Digital Video Technology</td>
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<td>Business Management and Administration</td>
<td>Administrative Office Specialist and Medical Administrative Specialist</td>
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<tr>
<td>Education and Training</td>
<td>Early Childhood Education and Early Childhood Education Apprentice</td>
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<tr>
<td>Energy</td>
<td>Energy Technician and Electrical Line Service and Repair Apprentice</td>
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<tr>
<td>Engineering and Technology Education</td>
<td>Energy Pathways and Communications Technology</td>
</tr>
<tr>
<td>Finance</td>
<td>Finance and Personal &amp; Family Finance</td>
</tr>
<tr>
<td>Government and Public Administration</td>
<td>Emergency Planning &amp; Response and Principles of Public Service</td>
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<tr>
<td>Health Science</td>
<td>Allied Health Assisting and Practical Nursing</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>Culinary Arts and Commercial Foods &amp; Culinary Arts</td>
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<tr>
<td>Human Services</td>
<td>Cosmetology and Barbering</td>
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<tr>
<td>Information Technology</td>
<td>Web Development and Computer Systems &amp; Information Technology</td>
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<tr>
<td>Law, Public Safety and Security</td>
<td>Criminal Justice Operations and Florida Law Enforcement Academy</td>
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<tr>
<td>Manufacturing</td>
<td>Welding Technology Fundamentals and Welding</td>
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<tr>
<td>Marketing, Sales and Service</td>
<td>Marketing, Management &amp; Entrepreneurial Principles and Sport, Recreation &amp; Entertainment</td>
</tr>
<tr>
<td>Transportation, Distribution and Logistics</td>
<td>Global Logistics &amp; Supply Chain Technology and Automotive Service Technology</td>
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Career and Technical Education will help students to do the following:

- Explore career interests during middle school and high school
- Develop employment skills
- Complete courses to meet high school graduation requirements
- Develop leadership skills
- Earn certificates, industry certifications, applied technology diplomas (ATDs) and/or associate's degrees in a wide range of programs that provide a living wage
- Prepare for additional postsecondary education
- Start a career within one to two years in an affordable way.

For more information on occupations important to Florida's economic development, refer to FDOE Career Clusters and Curriculum Frameworks.
2. What advantages does taking CTE courses provide to middle school and high school students with disabilities?

Secondary transition planning is widely recognized as an essential activity at the high school level and it is equally important at the middle school level. Middle school students need strengthened transition services in the following areas:

- Student participation in the individual educational plan (IEP) process
- Self-awareness and self-advocacy skills
- Transition planning that identifies courses of study through the student's strengths, interests and preferences (Weidenthal & Kochhar-Bryant, 2007)

Transition services prepare students to pursue postsecondary education and careers and is known as college and career readiness (CCR). Recent research suggests that CCR at the middle school level should include the following:

- Career Exploration
- Postsecondary Options and Aspirations
- Goal-Setting and Planning (Grigal, Cooney, & Hart, 2019)

Research also shows that secondary students with disabilities who participate in CTE, particularly those who concentrate their courses in one program of study, are more likely than students with disabilities who did not participate in CTE to do the following:

- **Graduate from high school** - CTE participation increases student engagement, reduces the likelihood of dropout and increases graduation rates. The connection between CTE courses, student interests and real-world problem-solving increases student engagement because it impacts HOW students learn as well as WHAT students learn.
- **Go to college** - CTE increases the likelihood of college enrollment. Through experience in CTE, students are able to envision career directions and access higher learning to achieve their goals.
- **Contend for competitive wage jobs** - CTE research shows that students with technical or applied science degrees earn salaries that are competitive with bachelor's degree holders (Dougherty, 2016).

Dougherty (2016) explained that CTE offers students many advantages without a downside. He summarized, "High school CTE improves outcomes for students seeking to start their careers quickly, but is no hindrance to those who want additional academic training. Make high-quality, labor-market-aligned CTE available to all students, and encourage (and enable) them to participate" (p. 30). For more information refer to Career and Technical Education in High School: Does It Improve Student Outcomes?
Three Common Myths about CTE

1. Myth: CTE is only for students who are not going to a 4-year college.
Fact: CTE can also be a pathway to further postsecondary education.

2. Myth: CTE is training for one job only.
Fact: CTE prepares students to explore multiple career options.

3. Myth: CTE does not build academic skills.
Fact: CTE encompasses both technical and academic skills.

3. What are CTE course substitutions and what advantage do they provide for high school students?

Substituting a CTE course for a graduation requirement can benefit students in the following ways:

- Assist students to master the course objectives in a manner that is more easily grasped.
- Provide students the benefit of exploring a career direction and gaining employment skills.
- Increase student confidence and engagement.

These advantages increase student engagement and reduce instances of dropping out of school which support students as they pursue a high school diploma.

See BEESS CTE Course Substitutions for more information.

4. Are accommodations and modifications available for CTE courses at the middle school and high school levels?

Both accommodations and modifications are available for CTE courses at the middle school and high school levels. Accommodations and modifications are recommended by the student’s IEP team according to each student’s individual needs. Here is a simple way to think about the difference between accommodations and modifications. Accommodations change how the student is instructed or tested. Modifications change what the student is expected to learn. Information on accommodations are available in Accommodations: Assisting Students with Disabilities.

Accommodations can be requested at the postsecondary level when a student discloses a disability and provides documentation that verifies the presence of a disability. Modifications to the curriculum are not available at the postsecondary level.

Information on Diversified Education and Instructional Support Services

The FDOE CTE webpage has more information on the following:

- **Diversified Education**: Below the list of career clusters, find the link to Diversified Education Home. This program provides courses in career exploration and planning for middle school students and courses in employability skills and work experience for high school students.

- **Instructional Support Services**: Below the list of career clusters, find the link to Instructional Support Services. This program provides services and instruction for students with disabilities representing special populations.

"Today’s CTE delivers real options for college and rewarding careers, helps learners build real-world skills, and enhances the high school and college experience."

Career Technical Education: Myths and Facts (n.d., p.1)
5. Why is CTE a valuable option to consider when planning for further education after high school graduation?

CTE is an excellent option for all students to consider, including students with disabilities, for multiple reasons. Three primary reasons are discussed here.

Reason #1: Ease of access. Students can access CTE courses and the benefits that accompany them at the middle school and high school levels. Additionally, there is open access/enrollment for students with a high school diploma at a Florida College. CTE Centers do not require a high school diploma for admittance.

* See this Florida College System webpage for information on available programs and majors.

Reason #2: Employment opportunities and wages. Students who are enrolled in CTE during high school and at the postsecondary level are able to earn industry certifications, which are nationally recognized credentials that indicate students have met pre-determined standards for knowledge, skills and competencies. Industry certifications may assist students to obtain a job in one of the fast-growing occupations in Florida that typically provide better wages than students exiting high school without an industry certificate usually earn. Approximately half of the 50 fastest-growing occupations require a postsecondary career certificate or associate degree. Measuring the Economic Success of Florida’s Graduates: Economic Security Report 2018 analyzed data collected from 2011-2015 and showed that an associate in science degree stacks up favorably to a bachelor’s degree in regard to first-year wages and percentage of graduates employed. See the chart below for specific details.

* This data does not distinguish between graduates working within or outside their fields of study.

Reason #3: Cost-effectiveness for students. The Association for Career and Technical Education (ACTE) reported that Career and Technical Centers and Technical Colleges are a good bargain for students and can cost significantly less than other institutions of higher learning.
6. What are the differences between CTE at the high school level and postsecondary level?

It is essential for students with disabilities to understand the differences between CTE at the high school and postsecondary levels. These differences are summarized in the table below.

<table>
<thead>
<tr>
<th>CTE - High School Level - Individuals with Disabilities Education Act (IDEA) and ADA</th>
<th>CTE - Postsecondary Level - Americans with Disabilities Act (ADA)</th>
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<tbody>
<tr>
<td>Access services through Exceptional Student Education (ESE), School District</td>
<td>Access services through a Disability Services Office</td>
</tr>
<tr>
<td>Emphasis on success: Curriculum can be modified through Access points instruction for students with significant disabilities.</td>
<td>Emphasis on equal access: Standards, course objectives and the curriculum cannot be modified; however, accommodations may be accessed.</td>
</tr>
<tr>
<td>Appropriate accommodations, as indicated on the student’s IEP, can be provided.</td>
<td>Appropriate accommodations, as indicated through documentation, can be provided. Documentation could require a psychological/educational evaluation, and could also include documentation from high school, such as a Summary of Performance from high school, an IEP, etc.</td>
</tr>
<tr>
<td>The school facilitates an evaluation.</td>
<td>The student is responsible for getting an evaluation and providing any other documentation of disability. Vocational Rehabilitation may be able to assist postsecondary students get the evaluation they need.</td>
</tr>
<tr>
<td>Students are determined eligible for ESE based on evaluation outcomes and IDEA disability categories.</td>
<td>Evaluation and other documentation must show the student’s functional limitations and the impact of the limitations regarding the demands of postsecondary education in order to demonstrate the need for reasonable accommodations.</td>
</tr>
<tr>
<td>The individual educational plan (IEP) is the guiding document for providing ESE services.</td>
<td>The IEP and the Summary of Performance can be useful documents to share, but are not the guiding documents for providing services to students with disabilities.</td>
</tr>
<tr>
<td>School personnel, discretionary project personnel and/or parents identify students potentially in need of ESE services.</td>
<td>Students must advocate for themselves through the Disability Services Office, which includes the disclosure of a disability.</td>
</tr>
<tr>
<td>The school is responsible for arranging accommodations with classroom teachers.</td>
<td>Accommodations determined by the Disability Services Office may be communicated to the student’s professors by office personnel or the student may be responsible for initiating accommodations with professors in each course.</td>
</tr>
<tr>
<td>Academic tutoring may be provided through ESE services.</td>
<td>Students are responsible for identifying and accessing tutoring resources.</td>
</tr>
<tr>
<td>Parents have access to student records if they are legal guardians or if the student is under age 18. Students who have received transfer of rights may invite parents to the IEP meetings.</td>
<td>Parents do not have access to student records without written consent from the student unless the parents have legal guardianship.</td>
</tr>
</tbody>
</table>
Question 1:
Florida College System Programs Listing
https://www.floridacollegesystem.com/students/programs.aspx
Provides an overview of the eight meta majors and provides a degree finder tool.
Florida Department of Education Career and Technical Education Brochure
Provides a brief overview of CTE programs in Florida.
Florida Department of Education: Career Clusters Infographic
Provides a visual overview of the CTE career clusters.
What is CTE? (2018)
A two-page overview of CTE and its value for students and industry.
What is career and technical education, anyway?
Highlights the improvements in CTE and addresses frequently asked questions about CTE.

Question 2:
Career and Technical Education in High School: Does It Improve Student Outcomes? (2016) -
Explores the positive impact CTE has on student outcomes.
An education blog for parents that discusses the value of CTE for students with disabilities.

Question 3:
Florida Department of Education (FDOE), Bureau of Exceptional Education Services (BEESS), Career and Technical Education Course Substitutions
Provides guidance on eligible CTE course substitutions and provides a rubric to assist districts in making their own course substitution determinations.
Florida Department of Education (FDOE), Career and Technical Education Program Resources
http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.st
Provides an overview of CTE resources.
Question 4:

Accommodations and Modifications for Students with Disabilities in Career Education and Adult General Education


Assists school district personnel to make decisions about the use of accommodations and modifications by students with disabilities.

Florida Department of Education (FDOE), Division of Career and Adult Education Guidance on Modified Occupational Completion Points (MOCPs)


Describes the history, benefits and usage of MOCPs.

Question 5:

Florida College System

https://www.floridacollegesystem.com/

Provides comprehensive information on Florida College System majors, programs, admissions and financial assistance.

Measuring the Economic Success of Florida’s Graduates


Details economic outcomes of recent completers from Florida’s public postsecondary educational institutions.

Technical Assistance Paper (TAP): CTE Basic Skills Assessment Requirements

http://www.fldoe.org/contact-us/search.stml?q=Career+and+Technical+Education+TAP

Provides information about a wide range of CTE topics.

Up to the Challenge: The Role of Career and Technical Education and 21st Century Skills in College and Career Readiness

https://eric.ed.gov/?id=ED519335

Promotes the combined focus on CTE and 21st Century Skills to prepare students to be college and career ready after graduating from high school.

Question 6:

Differences Between High School and College Disability Services


Compares and contrasts differences between high school and postsecondary education when accessing disability services.

Disability Rights Education and Defense Fund


Provides a comparison of ADA, IDEA and Section 504 legislation.

Family Guide to Secondary Transition Planning for Students with Disabilities


See table on differences in accessing services for students with disabilities between high school and college (p. 38-39).
Additional Resources

Advance CTE Fact Sheets
https://careertech.org/fact-sheets
Includes a list of all the fact sheets produced by Advance CTE

Career and Technical Education, Inclusion, and Postsecondary Outcomes for Students with Disabilities
Describes the positive connections between inclusion, CTE and post-school outcomes.

Developing a Postsecondary Career and Technical Education Program to Support Students with Intellectual and Developmental Disabilities: Replication Guide Based on Project Achieve at Florida State College at Jacksonville
https://www.fddc.org/publications
Provides an overview of Project Achieve and information about how to replicate the program.

Florida Consortium on Inclusive Higher Education
https://fcihe.com/
Provides information on Florida’s inclusive college programs for students with intellectual disabilities.

Why Is Career and Technical Education (CTE) Important for Employment Success for Students With Disabilities?
https://ccrscenter.org/sites/default/files/CTE_SWD_Infographic.pdf
Visual overview of how CTE supports employment success for students with disabilities.

* This publication was produced by the State Secondary Transition Interagency Council (SSTIC) subcommittees on Student Success and Post-School Outcomes in collaboration with FDOE, BEESS and Project 10: Transition Education Network. The purpose of this project is to communicate with parents and other transition stakeholders regarding the value of Career and Technical Education for students with disabilities.