

Date: March 16, 2022

Source of Report: LD 313, Resolve, To Advance Career and Technical Education Opportunities in Maine

Topic: Career and Technical Education

Context

LD 313 directs the department to convene a work group to explore innovative approaches to advancing career and technical education (CTE) opportunities for middle and high school students. The work group was established in the summer of 2021 and began meeting in early November. The work group was made up of 15 members representing multiple agencies and organizations as required in LD 313 (Appendix A). The goal of the work group was to discuss several key topics related to CTE and provide recommendations to the Education and Cultural Affairs Committee in March of 2022. Prior to the first meeting, a draft work plan was established to address the components of the resolve. The plan was designed to be flexible to ensure the action items were thoughtfully addressed. The agenda for each meeting consisted of the individual topics that were included in LD 313. When appropriate, additional stakeholders were invited to the meetings to expand on relevant topics.

Actions

The Department convened the work group for seven meetings that were two hours each. At each meeting the work group reviewed the previous meeting notes and then started work on the topic that was the focus of the agenda.

Meetings:

November 2, 2021: Introductions were made, and the CTE director from MDOE provided an overview of CTE in Maine. The primary topics at this meeting were focused on current CTE programs as well as certification. The work group requested a multi-year comparison of CTE programming to examine if there had been growth.

November 23, 2021: The MDOE CTE data specialist provided data comparing 2016 with 2022 as requested from the previous meeting. (Appendix B) The work group reviewed the unique programs currently offered (Appendix C) and examined enrollment numbers for this same time period. The work group participated in a brainstorming activity to identify systemic barriers to expanding access to CTE programs.

December 15, 2021: The work group continued the discussion around systemic barriers and discussed possible solutions for each. The MDOE CTE director provided an update on the middle school CTE pilot programs. The pilots have continued beyond the three years of funding provided by the legislature due to the impact of the pandemic.

January 12, 2022: The work group continued the discussion around solutions for the systemic barriers that had been identified. A portion of the meeting was also spent preparing for the next round of topics, primarily focused on pathways.

February 2, 2022: The work group discussed the connection between CTE and STEM. The Maine Community College provided a presentation on current pathways that are being implemented throughout their system.

February 23, 2022: MEPRI provided a summary of their report. The work group discussed possible new secondary and postsecondary pathways into CTE. The work group determined these topics required additional time to resolve, therefore, the DOE state CTE director will convene a committee to continue this work.

March 3, 2022: The workgroup continued discussion around pathways and debriefed the overall work of the group.

Findings

Statewide Inventory of CTE program

While reviewing the data around CTE programs, the work group learned that CTE program enrollment has grown 13.5% from 2016 to 2022. There has been an increase in unique CTE programs from 65 to 83 in that same period. Programs in business administration, administrative assistant, and computer repair have decreased, while programs in plumbing, electrical, cosmetology, childcare, carpentry, and welding have increased. CTE exploratory programs, which provide students with the opportunity to experience several programs in small doses, have experienced the most significant increase. In 2016 there were 87 students enrolled in these programs. That number has grown to 761 in 2022.

Certification

The work group reviewed the proposed changes to Chapter 115 around certification. They found the changes to be positive for CTE by acknowledging skills and experience that an individual would bring from industry. The change in endorsements to classification of instructional programs (CIPS) was also supported. This shift aligns nicely with the federal data requirements as well as connecting to the Maine Community College System.

Systemic Barriers

A robust discussion was had around identifying systemic barriers to expanding access to CTE. The workgroup identified six barriers:

- sending school schedules
- transportation
- increase in graduation requirements at sending schools
- lack of marketing to younger grades
- teacher recruitment/retention
- capacity

The work group determined a significant amount of research needs to be done in order to address many of these barriers. The research will provide an opportunity to investigate best practices in Maine, as well as other states.

CTE and STEM Endorsements

While discussing options for CTE programs to be included in STEM endorsements, the work group acknowledged the alignment between STEM and CTE is often natural. The work group also learned there are no current teacher endorsements in STEM. However, the biggest challenge that was discussed is a clear definition of what identifies as a STEM career. The work group would like to see a definition that is aligned closely with the CTE programs in Maine. This is a task that the MDOE CTE group will work on with the CTE directors.

College and Career Pathways

The Maine Community College System representative provided information related to two current pathways they are implementing: Guided Pathways and Math Pathways. Guided Pathways is a national framework that ensures all community college students have clear paths with courses, timelines and objectives that align with each student's career goals. It also provides the students with integrated services along the paths so students can access support easily and appropriately as they progress. Math Pathways addresses the notion that all students see math as a barrier rather than an essential skill and ensures that math courses are relevant and meaningful for all students. This information proved very helpful and gained a lot of interest from the work group. Both programs are still in the early stages at the MCCS, however, the group believes there will be an opportunity to align with the CTE schools as the colleges continue to integrate these pathways.

Industrial Arts Pathway

The group recognized a natural connection with existing industrial arts (IA) programs. These programs should be a natural feeder into the CTE schools. As certification continues to be a challenge for IA, it is an opportunity to be more systemic in the collaboration. The workgroup decided this connection should be included with the work around pathways. A goal for the newly established pathways committee is to learn about certification of IA instructors and how to make the connection to CTE.

Internships and Apprenticeships

The work group discussed the implementation of internships and apprenticeships and acknowledged these opportunities would be great for students attending CTE. They also identified challenges, including capacity for managing the process. The work group noted the small business community struggles to participate in many of these opportunities as they do not have the resources to support the relationship.

MEPRI Report

The Maine Education Policy Research Institute (MEPRI) shared a preliminary report with the work group. They addressed their findings as they related to the identified topics in LD 313; additional per pupil weight for students with special needs and English language learners; allowance for yearly building maintenance, capital improvements and equipment; regional salary index and adjustment to the student to teacher ratio. Their full report will be completed later this spring and will provide additional information.

Next steps the work group identified:

Short-term:

- Create a certification sub-group made up of CTE directors and student service coordinators to work closely with the MDOE certification team. This group will be tasked with monitoring changes to Chapter 115 and making recommendations on new endorsements. This will be an ongoing committee that stays connected to this work.
- Share information from this work group with Educate Maine as part of their work with the State Board of Education. They will be convening a statewide CTE stakeholder group to address the systemic barriers to CTE.

Long-term:

- Develop an advocacy plan to address the windfall provisions that many CTE instructors face when transitioning from the private sector into the public sector. This will be a collaboration between Maine Public Employee Retirement System (MPERS), CTE directors and the CTE team and Legislative Team at MDOE.
- Increase connections with multiple audiences to draw more attention to CTE opportunities while addressing current perception. This will be done by maximizing connections to groups such as the Maine School Board Association, industry partnerships and local chambers of commerce. Create a plan to market CTE to multiple audiences throughout the year with a focus on next February as CTE Month.
- Engage younger students in CTE.
- MDOE CTE director will establish a committee to continue the work on pathways. We will begin to investigate what the community college is currently implementing as well as best practices in the state as well as other states. This pathway committee will also research alignments with high school graduation requirements by reviewing current practices in Maine.

Recommendations

- Include the Student Services Coordinator and Career Development Coordinator endorsements in Chapter 115. These two positions are currently acknowledged in the current CTE funding model, however, there is no endorsement in Chapter 115. (Appendix D)
- Provide funding to support extended learning opportunity (ELO) coordinators at each CTE. This will allow for a more systemic approach to engaging students in internships and apprenticeship opportunities.
- Provide funding to support a math and English Language Arts liaison at each CTE. These positions would be responsible for aligning the CTE program standards with local graduation requirements. These positions would also play a role in the implementation of more technical math and writing into the CTE curriculum.
- Acknowledge Career and Technical Education as part of the whole student education experience. In doing so, CTE will be more than just an elective available to a small portion of the high school student population.

The Department is committed to elevating CTE programming as a pathway within the Workforce Development and Innovative Pathways (WDIP) team, a new team developed to align resources and provide strong support for CTE, ELOs and Early College Experiences. The

Department's Integrated Instruction Team will be poised to assist with the content standards in CTE programming.

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Appendix A

Stakeholder group	Representative	Entity
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One member of a regional chamber of commerce	Chris Gaunce	Central Maine Motors
One member of the Maine State Chamber of Commerce	Brian Langley	MSC Education Committee
One Superintendent of a school administrative unit that has an industrial arts program	Paul Penna	RSU 6
One representative from a trade association	Lisa Martin	Maine Manufacturing
One representative from the Maine Community College System	Mercedes Pour	Maine Community College System
One member of the Maine Association of Nonprofits:	Paul Towle	Aroostook Partners
One parent of a current/former career and technical student	Jennifer Williams	Lake Region Technical Center (LRTC) parent
One student from a career and technical education and Bridge Academy	Alyssa Drake	Region 2-Houlton
One representative from an organization representing superintendents	Steve Bailey	Maine School Superintendents Association (MSSA)
One representative from and organization representing principals	Holly Blair	Maine Principals Association (MPA)
One representative from and organization representing CTE directors	Rob Callahan	LRTC Director
One principal of a school	Mary Anne Spearin	Calais Middle/High School
One member of the Maine Climate Council	Matt Marks	Associated General Contractors of Maine
The Commissioner of Labor or commissioner's designee	Karen Fraser	Director Bureau of Rehabilitation Services
The Commissioner of Economic and Community Development or the commissioner's designee	Martha Bentley	Director

Appendix B

Summary	
Unique CTE Program Offerings Differential Report 2016-2022	
Unique CTE Program Offerings Count	Counts
2016 Unique CTE Program Offerings Count	65
2022 Unique CTE Program Offerings Count	83

Summary Local Approved CTE Program Differential Report 2016-2022		Counts
2016 Local Approved CTE Programs List Count		330
2022 Local Approved CTE Programs List Count		439
New Program approvals since 2016 (expansions/replacements)		109
New Program changes since 2016		33.03%
Years between 2016-2022		6
Average expansions and replacements per year		18+

Summary Student Enrollments for all CTE Programs Differential Report 2016-2022		Counts
Total Student Enrollments for 2016		8073
Total Student Enrollments for 2022		9164
Student Enrollment difference since 2016		+1091
Student Enrollment change since 2016		13.51%
Years between 2016-2022		6
Average change per year		181+

Top 15 Grand Total Program Enrollments for Years 2016-2022		
CIP and Title	Grand Total Enrollment 2016-2022	% of Grand Total
(51.0000) Health Services	5,173	8.83%
(47.0604) Automobile	4,547	7.76%
(12.0503) Culinary Arts	4,103	7.00%
(46.0201) Carpentry	3,132	5.34%
(19.0709) Child Care Provider	2,998	5.12%
(48.0508) Welding	2,686	4.58%
(99.6000) Maine CTE Exploratory	2,094	3.57%
(43.0107) Criminal Justice	2,011	3.43%
(99.4000) Maine CTE Academics	1,820	3.11%
(46.0302) Electrician	1,791	3.06%
(47.0603) Autobody	1,762	3.01%
(47.0104) Computer Installation	1,687	2.88%
(99.1000) Co-op	1,543	2.63%
(52.0201) Business Admin	1,184	2.02%
(52.0401) Administrative Assistant	1,106	1.89%
Grand Total for Top 15 Programs Years 2016-2022	37,637	64.23%
Grand Total All Enrollments for Years 2016-2022	58,599	

Appendix C

2022 Unique CTE Program Offerings
(01.0000) Agriculture, General
(01.0205) Agricultural Mechanics and Equipment/Machine Technology
(01.0303) Aquaculture
(01.0304) Crop Production
(01.0601) Applied Horticulture/Horticulture Operations, General
(01.1101) Plant Sciences, General
(03.0101) Natural Resources/Conservation, General
(03.0506) Forest Management/Forest Resources Management
(03.0511) Forest Technology/Technician
(09.0702) Digital Communication and Media/Multimedia
(10.0202) Radio and Television Broadcasting Technology/Technician
(10.0303) Prepress/Desktop Publishing and Digital Imaging Design
(10.0305) Graphic and Printing Equipment Operator, General Production
(11.0103) Information Technology
(11.1003) Computer Information Systems/Information Assurance
(12.0401) Cosmetology/Cosmetologist
(12.0503) Culinary Arts/Chef Training
(12.0505) Food Preparation/Professional Cooking/Kitchen Assistant
(14.1801) Materials Engineering
(15.0000) Engineering Technology, General
(15.0613) Manufacturing Technology/Technician
(15.0805) Mechanical Engineering/Mechanical Technology/Technician
(15.1301) Drafting and Design Technology/Technician, General
(15.1302) CAD/CADD Drafting and/or Design Technology/Technician
(15.1303) Architectural Drafting and Architectural CAD/CADD
(19.0709) Child Care Provider/Assistant
(31.0301) Parks, Recreation and Leisure Facilities Management
(31.0601) Outdoor Education
(41.0101) Biology Technician/Biotechnology Laboratory Technician
(43.0000) Security and Protective Services
(43.0107) Criminal Justice/Police Science
(43.0203) Fire Science/Fire-fighting
(46.0000) Construction Trades, General
(46.0101) Mason/Masonry
(46.0201) Carpentry/Carpenter
(46.0302) Electrician
(46.0503) Plumbing Technology/Plumber
(47.0101) Electrical/Electronics Equipment Installation and Repair, General
(47.0104) Computer Installation and Repair Technology/Technician
(47.0201) Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician

2022 Unique CTE Program Offerings
(47.0302) Heavy Equipment Maintenance Technology/Technician
(47.0603) Autobody/Collision and Repair Technology/Technician
(47.0604) Automobile/Automotive Mechanics Technology/Technician
(47.0605) Diesel Mechanics Technology/Technician
(47.0606) Small Engine Mechanics and Repair Technology/Technician
(47.0616) Marine Maintenance/Fitter and Ship Repair Technology/Technician
(48.0501) Machine Tool Technology/Machinist
(48.0506) Sheet Metal Technology/Sheetworking
(48.0508) Welding Technology/Welder
(49.0202) Construction/Heavy Equipment/Earthmoving Equipment Operation
(49.0205) Truck and Bus Driver/Commercial Vehicle Operation
(50.0102) Digital Arts
(50.0301) Dance
(50.0402) Commercial and Advertising Art
(50.0409) Graphic Design
(50.0602) Cinematography and Film/Video Production
(50.0913) Music
(51.0000) Health Services/Allied Health/Health Sciences, General
(51.0801) Medical/Clinical Assistant
(51.0904) Emergency Medical Technology/Technician (EMT Paramedic)
(51.1004) Clinical/Medical Laboratory Technician
(51.3902) Nursing Assistant/Aide and Patient Care Assistant/Aide
(52.0201) Business Administration and Management, General.
(52.0302) Accounting Technology/Technician and Bookkeeping
(52.0401) Administrative Assistant and Secretarial Science, General
(52.0407) Business/Office Automation/Technology/Data Entry
(52.0801) Finance, General
(52.0901) Hospitality Administration/Management, General
(52.1401) Marketing/Marketing Management, General
(52.1701) Insurance
(52.1803) Retailing and Retail Operations
(52.1910) Hospitality and Recreation Marketing Operations
(90.1166)-Applied Academics-Mathematics
(91.3372)-Applied Academics-English
(91.3374) Applied Academics-Social Sciences
(97.3088)-Applied Academics-History
(99.1000) Maine CIP-Co-op
(99.3001) Maine CIP
(99.4000) Maine CTE Academics
(99.6000) Maine CTE Exploratory

2022 Unique CTE Program Offerings
(99.7000) Maine CIP-Diversified Occupations
(99.8000) Maine CIP
(99.9991) Business Non-counted Enrollment

Appendix D

Endorsement # ____: Student Services Coordinator in Career and Technical Education

- A. Function:** This endorsement on a specialist certificate allows the holder to serve as a Student Services Coordinator within a Career and Technical Education (CTE) center or region, to provide services including but not limited to: recruitment and enrollment, academic support, activities coordination, community relations or to act as a support service liaison for students in grades 6 through 12.
- a. Eligibility:** Applicants shall meet eligibility requirements specified in Part I. In addition, eligibility for this certificate shall be established in one of three pathways. Individuals who are not eligible through these pathways may be eligible for a conditional certificate, in accordance with **Section B.4, below, and Part I Section 6.6** of this rule.
- a. Eligibility Pathway 1**
- a. Holds a valid Maine Assistant Building Administrator certificate; or,
 - b. Holds a valid Maine School Counselor certificate
- b. Eligibility Pathway 2**
- a. Earned at least a Bachelor’s degree from an accredited college or university, in accordance with **Part I Section 6.1** of this rule;
 - b. Completed a minimum of one year of full time employment in a career and technical education or a related field including but not limited to: education, human resources and employment services, or having held a management position in industry;
 - c. Completed a minimum of three-semester hours in diversity-centered content related to today’s classroom (e.g., culturally responsive teaching, multicultural education, intercultural education, second language acquisition or world language teaching methods);
 - d. Completed an approved course for teaching students with exceptionalities in the regular classroom.
 - e. Completed an approved course in Federal and state civil rights laws and education laws.
- c. Eligibility Pathway 3**
- a. Earned at least an Associate’s degree from an accredited college or university, in accordance with **Part I Section 6.1** of this rule;
 - b. Completed a minimum of four years full time employment in career and technical education or a related field including but not limited to: education, human resources and employment services, or having held a management position in industry;

- c. Completed a minimum of three-semester hours in diversity-centered content related to today's classroom (e.g., culturally responsive teaching, multicultural education, intercultural education, second language acquisition or world language teaching methods);
- d. Completed an approved course for teaching students with exceptionalities in the regular classroom
- e. Completed an approved course in Federal and state civil rights laws and education laws.

d. Conditional Certification Pathway

- a. Earned at least an Associate's degree in accordance with Part I Section 6.1 of this rule; or currently enrolled in an Associate's degree program from an accredited college or university, having previously earned a minimum of 36 hours in the degree program;
- b. If pursuing full endorsement through pathway 1 or 2: Completed at least one year of full time employment in relevant work experience equivalent to one-year full-time employment; or,
- c. If pursuing full endorsement through pathway 3: Completed at least two years of full time employment in relevant work.

* If the Student Services Coordinator in Career and Technical Education application for certificate is received by September 1, 2022, an applicant holding the title of Student Services Coordinator from September 1, 2021 to June 1, 2022 in a Maine CTE center or region, that also holds a full teacher, specialist, or administrator certificate, will receive the Student Services Coordinator certificate upon completion of the application with no additional certification pathway 1-3 requirements applied.

Endorsement # ____ : Career Development Coordinator in Career and Technical Education

- c. **Function:** This endorsement on a specialist certificate allows the holder to serve as a Career Development Coordinator in a Career and Technical Education center or region in grades 6 through 12, to provide students experiences and support services related to post-secondary career and educational pathways, as well as develop working partnerships between CTE schools and industry.
- d. **Eligibility:** Applicants shall meet eligibility requirements specified in Part I. In addition, eligibility for this certificate shall be established in one of two pathways. Individuals who are not eligible through these pathways may be eligible for a conditional certificate, in accordance with **Section B.3, below, and Part I Section 6.6** of this rule.
 - a. **Eligibility Pathway 1**
 - a. Earned at least a Bachelor's degree from an accredited college or university, in accordance with **Part I Section 6.1** of this rule;

- b. Completed a minimum of one-year full time employment in education or a related field including but not limited to: human resources and employment services, or having held a management position in industry;
- c. Completed a minimum of three-semester hours in diversity-centered content related to today's classroom (e.g., culturally responsive teaching, multicultural education, intercultural education, second language acquisition or world language teaching methods);
- d. Completed an approved course for teaching students with exceptionalities in the regular classroom
- e. Completed three-semester hours, or provide certificate of completion for an approved professional development course in career development; and,
- f. Completed an approved *Introduction to Career and Technical Education* course or have one-year prior work experience in a career and technical education school.

b. Eligibility Pathway 2

- a. Earned at least an Associate's degree from an accredited college or university, in accordance with **Part I Section 6.1** of this rule;
- b. Completed a minimum of two-years full time employment in education or a related field including but not limited to: human resources and employment services, or having held a management position in industry;
- c. Completed a minimum of three-semester hours in diversity-centered content related to today's classroom (e.g., culturally responsive teaching, multicultural education, intercultural education, second language acquisition or world language teaching methods);
- d. Completed an approved course for teaching students with exceptionalities in the regular classroom
- e. Completed a minimum of three-semester hours course, or provide certificate of completion for an approved professional development course in career development; and,
- f. Completed of a three-semester hours *Introduction to Career and Technical Education* course or have one-year prior work experience in a career and technical education school.

c. Conditional Certification Pathway

- a. Earned an associate's degree or higher; or currently enrolled in an associate's degree program from an accredited college or university, in accordance with Part I Section 6.1 of this rule having previously earned a minimum of 36 credit hours in that degree program;

- b. Completed a minimum of one year of full time employment in a career and technical education or a related field, including but not limited to: education, human resources and employment services, or having held a management position in industry.

* If the Career Development Coordinator in Career and Technical Education application for certificate is received by September 1, 2022, an applicant holding the title of Career Development Coordinator from September 1, 2021 to June 1, 2022 in a Maine CTE center or region, that also holds a full teacher, specialist, or administrator certificate, will receive the Career Development Coordinator certificate upon completion of the application with no additional certification pathway 1-2 requirements applied.