

Manufacturing Skills for  
Connecticut:

# Review of Eli Whitney Technical High School's Manufacturing for Industry Program



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# Background

This program review report includes observations and key takeaways from data collected as part of the Manufacturing Skills for Connecticut (MSforCT) project and is specific to Eli Whitney Technical High School's Manufacturing for Industry program. The report summarizes information gathered by WestEd between November 2020 and July 2021 through document reviews, surveys, and virtual site visits.

## Manufacturing Skills for Connecticut Project Description <sup>1</sup>

Throughout Connecticut, significant gaps exist in the state's manufacturing workforce development system, most notably the dearth of comprehensive education, recruitment, and well-developed career pathways that, collectively, serve to connect industry to education. To address these issues [CONNSTEP](#), in partnership with [ReadyCT](#), the [Connecticut Business & Industry Association \(CBIA\)](#), and the Connecticut Manufacturers' Collaborative (CMC), designed the MSforCT project. The CMC includes all the major regional and statewide manufacturing member organizations across Connecticut, representing over 1200 manufacturing companies with tens of thousands of employees throughout all of Connecticut.

Funded through a grant from the U.S. Department of Commerce National Institute of Standards and Technology (NIST), the MSforCT project (2020-22) aimed to increase and improve career pathways to advanced manufacturing within the K-12 school system. To better understand which programs and models are most effective, remove the silos in which promising programs are operating, and share best practices, the project proposed to:

- complete a comprehensive inventory and analysis of manufacturing career pathway programs and initiatives across K-12 schools/districts;
- conduct program reviews of a subset of programs; and
- build a web-based repository of effective career pathway programs and key criteria for the creation of new programs. This interactive website will also serve as an online community of practice accessible to school districts, business associations, students and families, postsecondary institutions, and other stakeholders.

CONNSTEP contracted with [WestEd](#), a nonprofit educational research, development, and service organization, to conduct the comprehensive inventory and program review. This report summarizes only a portion of the data collected during the overall project period. Specifically, this report focuses on Eli Whitney Technical High School's Manufacturing for Industry program, one of the 13 programs selected for program review, and includes information collected via a state-wide online survey conducted in January 2021 and a virtual site visit conducted in June 2021.

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<sup>1</sup> Project description adapted from [ReadyCT's Manufacturing Skills for Connecticut webpage](#) and [Manufacturing Skills for Connecticut Project Abstract](#).

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## Overview of the CT Technical Education Career System

Among the schools that participated in the survey, two high schools in the Connecticut Technical Education and Career System (CTECS) were selected for site visits: Precision Machining Technology at Vinal Technical High School and Eli Whitney Technical High School (Eli Whitney). The CTECS is established and maintained by the Connecticut State Department of Education (CSDE) and advised by the CTECS board whose chairperson is appointed by the Governor.<sup>2</sup> The system serves approximately 11,200 full-time students in 17 diploma-granting technical high schools from 166 sending towns, offering 31 occupational careers within 12 career clusters. The system also governs one technical education center and two aviation maintenance programs located throughout the state, both of which serve adults<sup>3</sup>.

According to 2019-2020 enrollment data from Edsight<sup>4</sup>, the CTECS student body was 42.5% white, 40.0% Hispanic/Latino, and 11.8% Black or African American. Less than five percent (4.4%) of students identified as English learners (ELs), while 11.3% identified as students with disabilities. Additionally, 57.8% of students were eligible for free or reduced-price meals. The four-year graduation rate for Class of '18 CTECS students (across all schools) was 97.2%.

The CTECS model allows ninth graders to spend six months in an exploratory program, rotating through each trade or shop to determine which pathway to follow. By December of the ninth grade year, students choose their shop and all students are expected to commit to their pathway by October of their tenth grade year. Students spend 91 days in shop and 91 days in core academics. Students travel in cohorts, called cycles; students in Grades 9 and 12 travel to shop together while students in Grades 10 and 11 are in academic classes, and vice versa. There are 14 precision machine shops among the 17 CTECS high schools and they share one curriculum, which is based on NIMS credentials and the use of Tooling U<sup>5</sup>, the hybrid learning management system and curriculum aligned with NIMS. Students apply to their school of choice, generally based on location-proximity. One stipulation may be if the closest school does not offer the trade they are able to apply/attend to the available location.

Currently, CTECS is developing an articulation agreement with the community college system in CT which will allow students to earn up to 11 college-level credits. Thus, upon high school graduation, students will have earned almost a semester's worth of the necessary credits towards an associate's degree.

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<sup>2</sup> CT Technical Education and Career System - [CTECS Board](#)

<sup>3</sup> CT Technical Education and Career System - [About](#)

<sup>4</sup> Edsight - [Home](#)

<sup>5</sup> Tooling U - [Tooling U-SME: The Pinnacle of Manufacturing Training](#)

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# Eli Whitney Technical High School's Manufacturing for Industry Program

## Regional Information

Founded in 1956, Eli Whitney is located in Hamden, CT within New Haven County and is part of the CTECS district. The New Haven region is home to Yale University, Quinnipiac University, Albertus Magnus College, the University of New Haven, Southern Connecticut State University, and Gateway Community College, making it a hub for both talented, highly educated workers and entrepreneurs alike. The growing corporate base of the region has a flourishing biotech industry, high-tech aerospace and medical manufacturing and a technology cluster. New Haven County is home to 1,413 manufacturing sector employers and the Workforce Alliance serves as the workforce investment board for this region<sup>6</sup>. Eli Whitney enrolls approximately 600 students in grades 9-12 from eight towns<sup>7</sup>.

## District, School, and Program Overview

According to 2020-2021 enrollment data in Edsight<sup>8</sup>, the Eli Whitney student body, composed of 623 students, was majority Hispanic (just over half), a little over a third Black or African American and less than 10% white. Less than ten percent (7.2%) of students identified as English learners (ELs), while 12.8% identified as students with disabilities. Additionally, 69% of students were eligible for free or reduced-price meals. The four-year graduation rate for the Eli Whitney Class of '20 was 85.4%. As reported by National Student Clearinghouse, an average of 39% of Eli Whitney's class of 2019 enrolled in post secondary institutions in the fall immediately after graduating from high school; 20% in four-year institutions and 18% in two-year institutions<sup>9</sup>. Others go directly into the workforce. Eli Whitney offers 11 technical programs, including precision machining.

## Program Inventory Review

ReadyCT and WestEd worked together throughout fall 2020 to develop a comprehensive statewide inventory of K-12 Advanced Manufacturing Programs. To identify existing programs, WestEd created a Google Form and consulted with ReadyCT, the Connecticut State Department of Education (CSDE), and industry partners. At the end of the effort, the team had identified over 140 advanced manufacturing programs. A list of all programs identified can be found in Appendix A.

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<sup>6</sup> Connecticut Department of Labor - [Employer List](#)

<sup>7</sup> Eli Whitney Technical High School - [About Eli Whitney Tech](#)

<sup>8</sup> Edsight - [Home](#)

<sup>9</sup> National Student Clearinghouse - [Aggregate report for Eli Whitney Technical High School](#)

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## Survey and Site Selection Overview

WestEd researchers developed and disseminated an online survey to capture basic program data and inform the selection of programs to be reviewed.

### Survey Development

The project team utilized several sources to develop a rubric to define high-quality, high-impact programs, including the Association for Career & Technical Education (ACTE)<sup>10</sup>, the Society of Manufacturing Engineers (SME) and SME Education Foundation<sup>11</sup>, the National Association of Manufacturers (NAM)<sup>12</sup>, and the U.S. Department of Labor, Employment and Training Administration<sup>13</sup>. Survey questions were then developed to mirror the rubric and focused on five broad categories:

- Curriculum Standards and Competencies
- Business and Community Partnerships
- Career Development Offerings
- Sequencing and Articulation
- Access and Equity

### Survey Dissemination

WestEd administered an online survey to K-12 manufacturing programs from February 3, 2021 through March 12, 2021. A total of 47 schools responded providing information on 51 programs, representing a 33% response rate. A list of all survey respondents can be found in Appendix B.

### Site Selection

The project team used a combination of survey responses, site demographics, and industry recommendations to identify the manufacturing programs that would be invited to participate in a program review of high-quality, high-impact manufacturing programs. Using the rubric created (see Appendix D) during the survey development phase, WestEd researchers scored and ranked each completed survey. A higher survey score indicated that, based on the rubric, the program was more closely aligned with elements of a high-quality, high-impact program. However, it is also important to note the limitations of this approach to identifying high-quality, high-impact programs. The primary limitations are that the programs were chosen among only a sample of manufacturing programs that completed the survey; not all surveys provided complete responses; and surveys were completed by respondents playing diverse roles with differing levels of programmatic knowledge. Thus, the sample from which the team identified high-quality, high-impact programs is limited by self-selection and the self-reported nature of the data source. It is

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<sup>10</sup> Association for Career & Technical Education (ACTE) - [12 Elements of a High-quality CTE Program of Study](#).

<sup>11</sup> Society of Manufacturing Engineers (SME) & SME Education Foundation - [Four Pillars of Manufacturing Knowledge](#).

<sup>12</sup> National Association of Manufacturers (NAM) - [NAM-endorsed Skills Certification System](#).

<sup>13</sup> U.S. Department of Labor, Employment and Training Administration - [Advanced Manufacturing Competency Model](#).

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possible that other manufacturing programs not responding to the survey are indeed high-quality and/or the programs chosen among the survey respondents provided incomplete or inaccurate information.

In addition to survey rankings, the research team considered ReadyCT's input as it further analyzed the program list. To ensure that the sample included variation, the project team considered region, urban-rural classification, and socioeconomic and diversity indexes to select a list of finalists that were eligible to participate in the program review. Finally, stakeholder feedback was incorporated into the project team's finalist list. The goal was to identify a group of sites that consisted of both programs of interest to the CMC and programs that were willing and able to participate in the evaluation. The final list of programs selected for review can be found in Appendix C.

## Visit Overview

WestEd researchers conducted focus groups and interviews with stakeholders from Eli Whitney's Manufacturing for Industry program on June 9-10, 2021 and June 14, 2021 and interviewed CTECS leadership on July 27/29, 2021. Due to the ongoing coronavirus pandemic and travel restrictions, the activities were held virtually using an online video conferencing system. The purpose of the focus groups and interviews was to gather information on program characteristics and activities to supplement data captured via the survey. Additionally, the focus groups and interviews gathered information from key stakeholders about program strengths and challenges and solicited recommendations. The focus groups and interviews were tailored to stakeholders' roles as outlined below.

- A focus group with two technology education teachers
- An interview with the vice principal
- A focus group with three students
- An interview with the outgoing CTECS career and technical education department coordinator
- An interview with the incoming CTECS career and technical education department coordinator who was the current vice principal at another CTECS high school

## Program Review Results

The sections below synthesize information gathered through the program's documents, survey response, and virtual site visit. The results are organized by the framework that most influenced the site selection rubric—the 12 areas of high-quality Career and Technical Education (CTE) that were developed by the Association for Career & Technical Education (ACTE).

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## Summary by 12 Areas of High-Quality CTE

### *Standards-aligned and Integrated Curriculum*

Eli Whitney works closely with their Career and Technical Education Advisory Committee (CTEAC) Advisory Board to maintain an up-to-date curriculum best aligned to industry standards and needs, both regionally and nationally<sup>14</sup>. Each program area has its own advisory board. Technology-related mathematics, reading, writing, vocabulary, machine trade print reading, and science are integrated throughout the curriculum. The precision machining curriculum is aligned to the National Institute for Metalworking Skills (NIMS)<sup>15</sup> standards, providing students the opportunity to earn a NIMS credential. The Precision Machining Program standards are the same across all the CTECS schools and include demonstration and operation of tools and machinery and application of computer-aided design (CAD) and computer-aided manufacturing (CAM) principles.

### *Sequencing and Articulation*

Eli Whitney's Precision Machining Program consists of courses in machine safety, measuring tools, precision machining fundamentals and use of manual milling machines, lathes, and other metal processing machines. Students progress using computer numerical controlled (CNC) machines as early as the 10th grade. If they meet requirements and reach a certain level of proficiency, they are eligible for work-based learning during their junior year. Eli Whitney has a partnership with Gateway Community College (GCC), a public community college located in New Haven, Connecticut. Students who successfully complete the program can receive college credits from GCC. The school is also exploring a partnership with Housatonic Community College, located in Bridgeport, Connecticut, however instructors shared that college credits are less desirable by the machining students because they already have access to the NIMS certification.

### *Student Assessment*

The Precision Machining program utilizes a variety of assessment types including written and project-based assessments. Students often take online assessments created by the teachers or using programs such as Kahoot<sup>16</sup>. There is ongoing formative assessment while students work on their projects in the shop, with opportunities for correction and improvement along the way. Instructors work with students to better understand their interests and guide them. There are several opportunities for hands-on learning and assessment through project-based learning. However, there is a lack of theory-based assessment; administration shared that teachers are not experienced in teaching more theoretical content and assessing student understanding.

### *Prepared and Effective Program Staff*

Eli Whitney is the only school in the CTECS that has two NIMS certified instructors, which enables them to inspect student projects and provide students access to the NIMS credential completely

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<sup>14</sup> CT Technical Education Career System - [Message from the Board](#)

<sup>15</sup> NIMS - [Home](#)

<sup>16</sup> Kahoot - [Home](#)



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in-house. Instructors worked on their certification while teaching at the school and shared their accomplishments with the students, modeling the commitment it takes to complete a certification while working full time. One of the instructors also teaches manufacturing in the adult education program at GCC, which affords him access to the facilities and partnerships that benefit Eli Whitney. Like other CTECS schools, Eli Whitney struggles to attract and retain professionals from the trade who are also skilled at pedagogy and instructional practices. The teaching certification is minimal, and the teachers are often unprepared in pedagogical practices such as scaffolding lessons and assessing student learning. There is an underlying fear that pressuring instructors to increase their pedagogical expertise may result in their departure from the school, given that they could earn more if they return to industry.

### *Engaging Instruction*

There are two instructors at Eli Whitney, the lead instructor who has been there about 10 years and a new instructor who came from industry in 2019. The two instructors have worked together to revise and update the program at Eli Whitney, including utilizing business contacts to develop new, work based learning relationships for students. When asked about the best part of the Precision Machining Program at Eli Whitney, one student said, “It’s challenging, and I like hands-on learning; I don’t like to sit down.” Another said their favorite project was building a stairway to heaven. The hands-on approach and project-based learning is a highlight for both students and instructors as is the manufacturing expertise of the staff. It was clear when meeting with the instructors, that the students were engaged and working independently on the machines.

### *Access and Equity*

Students are recruited to the school and program through printed materials, guidance activities, and family engagement evenings. Program administration begins recruitment as early as eighth grade to begin introducing students to the manufacturing program through information fairs. Several individuals cited difficulty in being able to visit the middle schools to recruit and indicated that there was competition with the sending districts in recruiting students. In addition to the fall information fairs and general marketing materials, there is a virtual open house<sup>17</sup> option available on the school website. Participants noted that a large percentage of students are drawn from New Haven, and many of them lack access to resources that would increase access to work opportunities, such as access to transportation. Administration noted that approximately 66% of the student body reads below a sixth grade level.

### *Facilities, Equipment, Technology and Materials*

Students have access to state-of-the-art equipment and technology. The program is primarily funded by a combination of state, district, and federal sources, including Title I<sup>18</sup>. Each shop engages in production work to sell, and the profits are often used to buy additional materials and tools for the shop. School staff noted that while the shops are well equipped, it is increasingly

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<sup>17</sup> Eli Whitney Technical High School - [Open House](#)

<sup>18</sup> United States Department of Education - [Title I](#)

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difficult to expand the program and admit more than 18 students given the number of lathes (10), other machines, and available shop space.

### *Business and Community Partnerships*

Placing Eli Whitney students at worksites can be challenging because most of them do not have access to cars and must rely on the New Haven public transportation system to get to their destination. The survey response indicated that local business partners provide donations and volunteer their time. The school partners with multiple businesses and organizations including the Connecticut Center for Advanced Technology (CCAT)<sup>19</sup>, the Workforce Alliance<sup>20</sup>, and the Justice Education Center<sup>21</sup>. Eli Whitney also works with CTEAC members, as do all CTECS schools.

### *Student Career Development/Career and Technical Student Organizations (CTSOs)*

There is a student manufacturing club that takes donations for student awards. The school has also participated in SkillsUSA<sup>22</sup> in the past; an instructor mentioned that he is hoping to get juniors and seniors involved this year. Students can participate in the CTECS Student Workforce<sup>23</sup>, a student - and teacher-run small business offering a wide range of services to the public at low cost. This provides students the opportunity to work on real projects with real customers, e.g, production work for manufacturers. At Eli Whitney, seniors in good academic standing have the opportunity to help first year students for credit in the shop. The instructor is part of the selection process and works with the seniors to train them. Given the staffing shortage, one instructor said that he would not be able to run the program this year without the help of the seniors.

### *Work-based Learning*

As with all CTECS schools, students spend 91 days in the shop during their ninth and tenth grade years and have work-based learning (WBL) placement usually by their junior year. WBL can also include job shadowing and pre-apprenticeships. While students at Eli Whitney may be challenged to get to work sites, as cited above, they do participate in the CTECS Student Workforce. The Instructors mentioned they have been trying to rebuild the program and the relationships from scratch over the past two years, and given that most of that time has been during a global pandemic, there hasn't been much opportunity for work-based learning.

### *Data and Program Improvement*

In its 2019-2022 Strategic Operating Plan, the CTECS identified five goals, each with a list of strategies and performance measures. The goal areas are: culture, climate, and instruction; industry alignment and collaboration; access and opportunities; systems of excellence; and human capital. Performance measures include student assessment and performance data, stakeholder

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<sup>19</sup> Connecticut Center for Advanced Technology - [Home](#)

<sup>20</sup> Workforce Alliance - [About Us](#)

<sup>21</sup> The Justice Education Center - [Home](#)

<sup>22</sup> SkillUp - [About Us](#)

<sup>23</sup> CTECS - [Student Workforce](#)

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survey data, student events and new programming, increased staffing aimed at specific goals, and increased WBL opportunities, to name a few. Each program area has a director who oversees all aspects of the program, including standards, curriculum, and certifications. Each school has autonomy over instruction and WBL placement; the school's instructor takes responsibility for these program components. Administration meets with their CTEAC Committee to inform their program and its continuous improvement. At Eli Whitney, the instructors noted that they are rebuilding their program - starting from scratch - and it has been difficult over the past two years to focus on continuous improvement because of the COVID-19 pandemic.

## **Final Reflections and Takeaways**

Eli Whitney's strengths are in its instruction, curriculum, and facilities. The commitment of both instructors to their students was notable. Eli Whitney's strengths and challenges mirror the strengths and challenges of the larger CTECS district. Teachers, administrators, and students noted the diversity of paths as well as the experiential nature of the programs as strengths of CTECS. As with many of the schools interviewed in this study, Eli Whitney struggles to attract and retain qualified teachers who have both experience in the trade as well as the pedagogical expertise and understanding of student learning. Eli Whitney is located in a low-income area and experiences challenges associated with that, such as limited transportation for students to get to work-based learning opportunities.

# Appendix A: Inventory of CT K-12 Advanced Manufacturing Programs, by District

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## **Ansonia School District**

Ansonia High School, Ansonia, CT

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## **Berlin School District**

Berlin High School, Berlin, CT

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## **Bolton School District**

Bolton High School, Bolton, CT

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## **Bridgeport School District**

Bassick High School, Bridgeport, CT

Bridgeport Regional Vocational Aquaculture School, Bridgeport, CT

Central High School, Bridgeport, CT

Fairchild Wheeler Interdistrict Multi-Magnet High School, Bridgeport, CT

Kolbe Cathedral High School, Bridgeport, CT

Warren Harding High School, Bridgeport, CT

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## **Bristol School District**

Bristol Central High School, Bristol, CT

Bristol Eastern High School, Bristol, CT

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## **Brookfield School District**

Brookfield High School, Brookfield, CT

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## **Capitol Region Education Council**

Academy of Aerospace and Engineering, Windsor, CT

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## **Cheshire School District**

Cheshire High School, Cheshire, CT

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## **Clinton School District**

The Morgan School, Clinton, CT

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## **Colchester School District**

Bacon Academy, Colchester, CT

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## **Connecticut Technical Education and Career System (CTECS)**

A. I. Prince Technical High School, Hartford, CT

Bristol Technical Education Center, Bristol, CT

Bullard-Havens Technical High School, Bridgeport, CT

E. C. Goodwin Technical High School, New Britain, CT

Eli Whitney Technical High School, Hamden, CT

Ella T. Grasso/Southeastern Technical High, Groton, CT

Emmett O'Brien Technical High School, Ansonia, CT

H. C. Wilcox Technical High School, Meriden, CT

Harvard H. Ellis Technical High School, Danielson, CT

Henry Abbott Technical High School, Danbury, CT

Howell Cheney Technical High School, Manchester, CT

J.M. Wright Technical High School, Stamford, CT

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Norwich Technical High School, Norwich, CT  
Oliver Wolcott Technical High School, Torrington, CT  
Platt Technical High School, Milford, CT  
Vinal Technical High School, Middletown, CT  
W. F. Kaynor Technical High School, Waterbury, CT  
Windham Technical High School, Windham, CT

**Coventry School District**

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Coventry High School, Coventry, CT

**Cromwell School District**

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Cromwell High School, Cromwell, CT

**Danbury School District**

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Danbury High School, Danbury, CT

**Darien School District**

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Darien High School, Darien, CT

**Derby School District**

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Derby High School, Derby, CT

**East Granby School District**

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East Granby High School, East Granby, CT

**East Haddam School District**

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Nathan Hale-Ray High School, Moodus, CT

**East Hartford School District**

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East Hartford High School, East Hartford, CT  
Synergy Alternative High School, East Hartford, CT  
Woodland School, East Hartford, CT

**East Haven School District**

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East Haven High School, East Haven, CT

**East Lyme School District**

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East Lyme High School, East Lyme, CT

**Eastern Connecticut Regional Educational Service Center (EASTCONN)**

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Quinebaug Middle College, Danielson, CT

**Ellington School District**

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Ellington High School, Ellington, CT

**Enfield School District**

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Enfield High School, Enfield, CT

**Fairfield School District**

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Fairfield Ludlowe High School, Fairfield, CT  
Fairfield Warde High School, Fairfield, CT

**Farmington School District**

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Farmington High School, Farmington, CT

**Glastonbury School District**

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Glastonbury High School, Glastonbury, CT

**Granby School District**

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Granby Memorial High School, Granby, CT

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**Greenwich School District**

Greenwich High School, Greenwich, CT

**Griswold School District**

Griswold High School, Griswold, CT

**Groton School District**

Robert E. Fitch High School, Groton, CT

**Guilford School District**

Guilford High School, Guilford, CT

**Hamden School District**

Hamden High School, Hamden, CT

**Hartford School District**

Hartford Public High School, Engineering & Green Technology Pathway, Hartford, CT  
Pathways Academy of Technology & Design, East Hartford, CT

**Killingly School District**

Killingly High School, Killingly, CT

**LEARN**

Connecticut River Academy, East Hartford, CT

**Lebanon School District**

Lyman Memorial High School, Lebanon, CT

**Ledyard School District**

Ledyard High School, Ledyard, CT

**Madison School District**

Daniel Hand High School, Madison, CT

**Manchester School District**

Manchester High School, Manchester, CT

**Meriden School District**

Francis T. Maloney High School, Meriden, CT  
Orville H. Platt High School, Meriden, CT

**Middletown School District**

Middletown High School, Middletown, CT

**Milford School District**

Joseph A. Foran High School, Milford, CT  
The Academy, Milford, CT

**Milford School District**

Jonathan Law High School, Milford, CT

**Monroe School District**

Masuk High School, Monroe, CT

**Montville School District**

Montville High School, Oakdale, CT

**New Britain School District**

New Britain High School, New Britain, CT

**New Canaan School District**

New Canaan High School, New Canaan, CT

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**New Haven School District**

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Metropolitan Business Academy, New Haven, CT  
Riverside Education Academy, New Haven, CT

**New Haven School District**

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Engineering - Science University Magnet School, West Haven, CT  
Wilbur Cross High School, New Haven, CT

**New London School District**

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New London High School, New London, CT

**Newtown School District**

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Newtown High School, Sandy Hook, CT

**North Stonington School District**

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Wheeler High School, North Stonington, CT

**Norwich Free Academy**

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Norwich Free Academy, Norwich, CT

**Old Saybrook School District**

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Old Saybrook High School, Old Saybrook, CT

**Plainfield School District**

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Plainfield High School, Plainfield, CT

**Plainville School District**

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Plainville High School, Plainville, CT

**Plymouth School District**

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Terryville High School, Terryville, CT

**Portland School District**

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Portland High School, Portland, CT

**Regional School District 1**

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Housatonic Valley Regional High School, Falls Village, CT

**Regional School District 4**

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Valley Regional High School, Deep River, CT

**Regional School District 5**

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Amity Regional High School, Woodbridge, CT

**Regional School District 7**

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Northwestern Regional High School, Winsted, CT

**Regional School District 8**

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RHAM High School, Hebron, CT

**Regional School District 10**

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Lewis S. Mills High School, Burlington, CT

**Regional School District 12**

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Shepaug Valley School, Washington, CT

**Regional School District 15**

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Pomperaug High School, Southbury, CT

**Regional School District 16**

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Woodland Regional High School, Beacon Falls, CT

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**Regional School District 17**

Haddam-Killingworth High School, Higganum, CT

**Regional School District 18**

Lyme-Old Lyme High School, Old Lyme, CT

**Regional School District 19**

E. O. Smith High School, Storrs, CT

**Rocky Hill School District**

Rocky Hill High School, Rocky Hill, CT

**Seymour School District**

Seymour High School, Seymour, CT

**Shelton School District**

Shelton High School, Shelton, CT

**Simsbury School District**

Simsbury High School, Simsbury, CT

**Somers School District**

Somers High School, Somers, CT

**South Windsor School District**

South Windsor High School, South Windsor, CT

**Southington School District**

Southington High School, Southington, CT

**Stafford School District**

Stafford High School, Stafford Springs, CT

**Stamford School District**

The Academy of Information Technology, Stamford, CT

**Stonington School District**

Stonington High School, Stonington, CT

**Stratford School District**

Frank Scott Bunnell High School, Stratford, CT

**Stratford School District**

Stratford High School, Stratford, CT

**Suffield School District**

Suffield High School, Suffield, CT

**Thomaston School District**

Thomaston High School, Thomaston, CT

**Thompson School District**

Tourtellotte Memorial High School, North Grosvenordale, CT

**Torrington School District**

Torrington High School, Torrington, CT

**Trumbull School District**

Trumbull High School, Trumbull, CT

**Unified School District #1**

State of Connecticut Department of Correction, Wethersfield, CT



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**Vernon School District**

Rockville High School, Vernon, CT

**Wallingford School District**

Lyman Hall High School, Wallingford, CT

Mark T. Sheehan High School, Wallingford, CT

**Waterbury School District**

Waterbury Career Academy, Waterbury, CT

**Waterbury School District**

Crosby High School, Waterbury, CT

John F. Kennedy High School, Waterbury, CT

Wilby High School, Waterbury, CT

**Waterford School District**

Waterford High School, Waterford, CT

**Watertown School District**

Watertown High School, Watertown, CT

**West Hartford Public Schools**

Conard High School, West Hartford, CT

William H. Hall High School, West Hartford, CT

**West Haven School District**

West Haven High School, West Haven, CT

**Westbrook School District**

Westbrook High School, Westbrook, CT

**Wethersfield School District**

Wethersfield High School, Wethersfield, CT

**Windham School District**

Windham High School, Windham, CT

**Windsor School District**

Windsor High School, Windsor, CT

**Windsor Locks School District**

Windsor Locks High School, Windsor Locks, CT

**Wolcott School District**

Wolcott High School, Wolcott, CT

**Woodstock Academy**

The Woodstock Academy, Woodstock, CT

## Appendix B: CT Advanced Manufacturing Program Survey Respondents, by District

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### **Ansonia School District**

Ansonia High School, Ansonia, CT

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### **Bridgeport School District**

Bassick High School, Bridgeport, CT

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### **Bristol School District**

Bristol Central High School, Bristol, CT

Bristol Eastern High School, Bristol, CT

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### **Cheshire School District**

Cheshire High School, Cheshire, CT

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### **Colchester School District**

Bacon Academy, Colchester, CT

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### **Connecticut Technical Education and Career System (CTECS)**

Bristol Technical Education Center, Bristol, CT

Bullard-Havens Technical High School, Bridgeport, CT

Eli Whitney Technical High School, Hamden, CT

H. C. Wilcox Technical High School, Meriden, CT

Harvard H. Ellis Technical High School, Danielson, CT

Platt Technical High School, Milford, CT

Vinal Technical High School, Middletown, CT

W. F. Kaynor Technical High School, Waterbury, CT

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### **Coventry School District**

Coventry High School, Coventry, CT

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### **East Granby School District**

East Granby High School, East Granby, CT

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### **East Haddam School District**

Nathan Hale-Ray High School, Moodus, CT

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### **East Hartford School District**

East Hartford High School, East Hartford, CT

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### **East Haven School District**

East Haven High School, East Haven, CT

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### **Eastern Connecticut Regional Educational Service Center (EASTCONN)**

Quinebaug Middle College, Danielson, CT

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### **Glastonbury School District**

Glastonbury High School, Glastonbury, CT

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### **Griswold School District**

Griswold High School, Griswold, CT

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### **Hamden School District**

Hamden High School, Hamden, CT

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**Hartford School District**

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HPHS Academy of Engineering & Green Technology, Hartford, CT

**LEARN**

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Connecticut River Academy, East Hartford, CT

**Lebanon School District**

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Lyman Memorial High School, Lebanon, CT

**Madison School District**

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Daniel Hand High School, Madison, CT

**Manchester School District**

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Manchester High School, Manchester, CT

**New Britain School District**

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New Britain High School, New Britain, CT

**Plainfield School District**

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Plainfield High School, Plainfield, CT

**Plainville School District**

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Plainville High School, Plainville, CT

**Regional School District 16**

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Woodland Regional High School, Beacon Falls, CT

**Regional School District 8**

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RHAM High School, Hebron, CT

**Rocky Hill School District**

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Rocky Hill High School, Rocky Hill, CT

**South Windsor School District**

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South Windsor High School, South Windsor, CT

**Stonington School District**

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Stonington High School, Stonington, CT

**Suffield School District**

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Suffield High School, Suffield, CT

**Thomaston School District**

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Thomaston High School, Thomaston, CT

**Thompson School District**

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Tourtellotte Memorial High School, North Grosvenordale, CT

**Torrington School District**

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Torrington High School, Torrington, CT

**Unified School District #1**

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State of Connecticut Department of Correction, Wethersfield, CT

**Wallingford School District**

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Lyman Hall High School, Wallingford, CT

**Waterbury School District**

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Waterbury Career Academy, Waterbury, CT

**West Hartford Public Schools**

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Conard High School, West Hartford, CT

William H. Hall High School, West Hartford, CT

**Windham School District**

Windham High School, Windham, CT

**Windsor School District**

Windsor High School, Windsor, CT

## Appendix C: Final List of CT Programs Selected for Review

<b>Bacon Academy Manufacturing at Bacon Academy</b> Colchester School District, Colchester, CT
<b>Bristol Manufacturing Production Pathway at Bristol Central &amp; Bristol Eastern High Schools</b> Bristol School District, Bristol, CT
<b>Early College Advanced Manufacturing Program at Connecticut River Academy</b> LEARN Regional Education Service Center, East Hartford, CT
<b>Precision Machining Technology at Eli Whitney Technical High School</b> Connecticut Technical Education and Career System (CTECS), Hamden, CT
<b>Hamden Engineering Careers Academy at Hamden High School</b> Hamden School District, Hamden, CT
<b>Intro to Manufacturing at Lyman Hall High School</b> Wallingford School District, Wallingford, CT
<b>Manchester Public Schools Manufacturing Program at Manchester High School</b> Manchester School District, Manchester, CT
<b>Academy of Manufacturing, Engineering &amp; Technology (MET) at New Britain High School</b> New Britain School District, New Britain, CT
<b>Manufacturing for Industry: YMPI with EWIB at RHAM High School</b> Regional School District 8, Hebron, CT
<b>Manufacturing Pathway at Tourtellotte Memorial High School</b> Thompson School District, North Grosvenordale, CT
<b>Precision Machining Technology at Vinal Technical High School</b> Connecticut Technical Education and Career System (CTECS), Middletown, CT
<b>Manufacturing Academy at Waterbury Career Academy</b> Waterbury School District, Waterbury, CT
<b>Career and Technical Education at Windsor High School<sup>24</sup></b> Windsor School District, Windsor, CT

<sup>24</sup> Windsor High School declined to participate in the program review.

## Appendix D: Scoring Rubric

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
Identified Student Populations	Has your program identified student populations in your vicinity that are typically underserved educationally or underemployed due to educational, economic or other barriers?	Yes	Access and Equity	0.3333333333	1
Identified Root Causes	Has your program identified the root causes of identified gaps in participation and performance of these student groups?	Yes	Access and Equity	0.3333333333	1
Orgs to Support Access & Equity	Has your program utilized any organizations and/or resources to support your efforts related to access and equity?	Yes	Access and Equity	0.3333333333	1
Business Partnerships	Is your program involved in any business partnerships?	Yes	Business and Community Partnerships	0.5	1
Community Partnerships	Is your program involved in any community partnerships (i.e., partnerships with nonprofit organizations, public agencies, and/or government offices)?	Yes	Business and Community Partnerships	0.5	1

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
CTSOs	Has your school established one or more Career and Technical Student Organizations (CTSOs)?	Yes	Career and Technical Student Organizations (CTSOs)	1	1
Age: > 5 Years	Calculated age using starting year provided	> 5 Years	Data and Program Improvement	0.5	1
Program Data	Please describe the types of data the program collects and how data are used.	Response Provided	Data and Program Improvement	0.5	1
Specialized Facilities	Please describe any specialized facilities, equipment, technology, and/or materials available to program participants. Please provide any relevant website links or documentation.	Response Provided	Facilities, Equipment, Technology and Materials	1	1
Staff PD	Do program staff have opportunities to participate in professional learning activities specific to advanced manufacturing?	Yes	Prepared and Effective Program Staff	1	1
Sequenced Courses	Does the program structure require students to take courses in a SEQUENCE (e.g., Advanced Manufacturing Technology I, Advanced Manufacturing Technology II, Advanced Manufacturing Technology III, etc.)?	Yes	Sequencing and Articulation	0.3333333333	1

Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
Credentials	Which of the following industry-recognized credentials does your program offer?	At least 1 selected	Sequencing and Articulation	0.3333333333	1
Credit that Articulates	Which of the following opportunities to earn credit that articulates to the next level of education does your program offer?	At least 1 selected	Sequencing and Articulation	0.3333333333	1
Industry-Recognized Standards & Competencies	Does your program's curriculum incorporate industry-recognized technical standards and competencies (e.g., NIMS, AWS, MSSC, etc.)?	Yes	Standards-aligned and Integrated Curriculum	0.25	1
Employability Skill Standards	Does your program's curriculum incorporate employability skill standards, such as problem solving, critical thinking, teamwork, communications, interview skills, and workplace etiquette, that help students succeed in the workplace?	Yes	Standards-aligned and Integrated Curriculum	0.25	1
Publicly Available Standards	Are program standards publicly available and accessible?	Yes	Standards-aligned and Integrated Curriculum	0.25	1
Curriculum Reviewed Regularly	Is the program's curriculum reviewed regularly?	Yes	Standards-aligned and Integrated Curriculum	0.25	1



Category Name	Full Question	Response Required to Receive Point	Related High-quality CTE Program Element	Element-Weighted Score	Non-Weighted Score
Career Development	Which of the following career development opportunities does your program offer?	At least 1 selected	Student Career Development	1	1
Work-based Learning	Which of the following work-based learning opportunities does your program offer?	At least 1 selected	Work-based Learning	1	1
<b>Total Possible Score:</b>				<b>10</b>	<b>19</b>