

Bristol Technical Education Center & Extension Campuses:

*CT Aerotech & Stratford School for Aviation
Maintenance Technicians*

2025-26

PROGRAM OF STUDIES

***PREPARING STUDENTS WITH THE SKILLS TO
BE SUCCESSFUL IN THE MODERN WORKFORCE***

PROGRAM OF STUDIES 2025-2026

CONTENTS

Statement of Nondiscrimination of the Connecticut Technical Education and Career System (CTECS)....	2
Welcome, Vision and Mission of Bristol Technical Education Center	3
Career Technical Education Programs.....	4
Career and Technical Clusters	5
Architecture and Construction Cluster	5
Health Technology Cluster.....	5
Hospitality and Tourism Cluster	5
Manufacturing Cluster.....	5
Transportation, Distribution and Logistics Cluster	5
Post-Secondary Career and Technical Courses (Chart)	6

COURSE SELECTIONS

Career and Technical Clusters

I.	Architecture and Construction Cluster	
	Heating, Ventilation and Air Conditioning (HVAC).....	7
II.	Health Technology Cluster	
	Health Technology.....	9
III.	Hospitality and Tourism Cluster	
	Culinary Arts.....	10
IV.	Manufacturing Cluster	
	Precision Machining Technology	12
	Robotics and Automation	14
	Welding and Metal Fabrication	16
V.	Transportation Distribution and Logistics Cluster	
	Automotive Technology	18
	Aviation Maintenance Technician	20
VI.	Schools and Contacts.....	22

Statement of Nondiscrimination

Under federal antidiscrimination laws, the CTECS, as a recipient of federal funds, must include a statement of nondiscrimination in all publications, handbooks, announcements, bulletins, and application forms that it makes available to employees, students, parents, applicants, sources of referral of applicants, and all unions and professional organizations. The CTECS statement must include an equal access statement. This must be done in order to ensure compliance with federal requirements. The CTECS's approved statement reads as follows:

The CTECS is committed to a policy of affirmative action/equal opportunity for all qualified persons and equal access to the Boy Scouts of America and other designated youth groups. The CTECS does not discriminate in any employment practice, education program, or educational activity **(including vocational opportunities and admissions)** on the basis of age, ancestry, color, criminal record (in state employment and licensing), gender identity or expression, genetic information, intellectual disability, learning disability, marital status, mental disability (past or present), national origin, physical disability (including blindness), race, religious creed, retaliation for previously opposed discrimination or coercion, sex (including pregnancy or sexual harassment), sexual orientation, veteran status or workplace hazards to reproductive systems, unless there is a bona fide occupational qualification excluding persons in any of the aforementioned protected classes.

Inquiries regarding the Connecticut Technical Educational and Career System's nondiscrimination policies should be directed to:

Levy Gillespie

Equal Employment Opportunity Director/Americans with Disabilities Coordinator (ADA)

Connecticut State Department of Education

450 Columbus Boulevard, Suite 607

Hartford, CT 06103

860-807-2071

Levy.gillespie@ct.gov

(Coordinator for matters related to Affirmative Action/Equal Opportunity Employment and nondiscrimination policies and practices.)

Linda Leyhow

Supervisor of Climate, Equity and Title IX

Connecticut Technical Educational and Career System

39 Woodland Street

Hartford, CT 06105

959-895-2710

linda.leyhow@cttech.org

(Coordinator for matters related to Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973.)

U.S. Department of Education

Office for Civil Rights

5 Post Office Square, Suite 900

Boston, MA 02109-3921

(617) 289-0111

Fax number (617) 289-0150

TTY/TDD (877) 521-2172

(Matters related to race, color, national origin, age, sex and/or disability)

WELCOME

Bristol Technical Education Center (BTEC) provides a unique, focused and rigorous educational program for each student who chooses to attend. This booklet provides students, parents and members of the community with information regarding specific courses which have been carefully crafted into a comprehensive educational program or “program of studies.”

VISION

We envision BTEC as the primary pipeline for Connecticut’s skilled labor workforce.

MISSION

The mission of Bristol Technical Education Center is to provide a unique and rigorous learning environment that:

- Ensures both career technical education mastery and student success, as well as promotes enthusiasm for lifelong learning;
- Prepares students for apprenticeships, immediate productive employment, as well as continuing education; and
- Engages regional and state employers, industry partners, CTEC representatives, our sending schools, and members of our family community in a vibrant collaboration that responds to current, emerging and changing workforce needs and expectations.

CAREER TECHNICAL EDUCATION PROGRAMS

Bristol Technical Education Center (BTEC), part of the Connecticut Technical Education and Career System (CTECS), is located in Bristol, Connecticut.

Eleventh, twelfth-grade students and adults come to BTEC from twenty-two towns to learn one of our eight (8) technologies. Adult students (high school diploma or GED required) attend our full-time day programs to earn a technology certificate. Unlike CTECS' other technical high schools, BTEC 11th grade and 12th grade students remain a part of their sending schools; however, they participate in our year-end certificate ceremony.

Bristol Technical Education Center also includes two extension campuses, each offering an exceptional program for Aviation Maintenance Technicians – CT Aerotech and the Stratford School for Aviation Maintenance Technicians.

Adult apprentice and extension part-time evening courses are offered during the fall and spring semesters.

CAREER AND TECHNICAL CLUSTERS

Bristol Technical Education Center's career technical education programs are aligned to the National Association of State Directors of Career Technical Education Consortium's Common Core Career Technical Clusters. BTEC's career technical education programs are grouped into four career clusters as follows:

I. Architecture and Construction Cluster

Architecture and Construction cluster provides students with the theoretical knowledge and skills for entry-level employment in the residential, commercial and industrial construction areas or in postsecondary institutions. BTEC's students concentrate their studies and receive a career and technical certificate in the following program:

- Heating, Ventilation and Air Conditioning (HVAC)

II. Health Technology Cluster

The Health Technology cluster provides students with theoretical knowledge and clinical skills for careers in planning, managing and providing therapeutic services, diagnostic services, health informatics, and support services. Graduates may complete a competency credential or certification eligibility or entry-level employment in a variety of healthcare settings or continue their eligibility for entry-level employment in a variety of healthcare settings or continue their studies at a post-secondary institution. Students concentrate their studies and earn a career and technical certificate in the following programs:

- Certified Nursing Assistant
- Medical Assistant

III. Hospitality and Tourism Cluster

The Hospitality and Tourism cluster provides students with theoretical knowledge and skills for entry-level employment in the management, marketing and operation of restaurants, bakeries or lodging and travel-related services. Students concentrate their studies and receive a career and technical certification in the following program:

- Culinary Arts

IV. Manufacturing Cluster

The Manufacturing cluster provides students with the theoretical knowledge and skills for careers in planning, managing and performing the processing of materials into intermediate or final products, and related professional and technical support activities. Students concentrate their studies and earn a career and technical certificate in one (1) of the following programs:

- Precision Machining Technology
- Robotics and Automation
- Welding and Metal Fabrication

V. Transportation, Distribution and Logistics Cluster

The Transportation, Distribution and Logistics cluster provides students with the theoretical knowledge and skills for careers in the diagnostics, repair and maintenance of automotive or aviation equipment. Students also have the opportunity to continue their studies at postsecondary institutions. Students concentrate their studies and earn a career and technical certificate in one (1) of the following programs:

- Automotive Technology
- Aviation Maintenance Technician



2025-2026

Post-Secondary

Career Technical Education Programs

 2025-2026																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

*CT Aero Tech and Stratford School for Aviation Maintenance are extension campuses of Bristol Technical Education Center

ARCHITECTURE AND CONSTRUCTION CLUSTER

HEATING, VENTILATION & AIR CONDITIONING (HVAC) PROGRAM SEQUENCE – 2 YEAR PROGRAM

5.0 credits per year for high school students

7.0 credits per year for postgraduate students

PROGRAM DESCRIPTIONS



Introduction to Heating, Ventilation and Air Conditioning

Students deciding to enter the field of Heating, Ventilation and Air Conditioning (HVAC) will be introduced to the basics of safety and sanitation, as well as the use and care of hand tools, power tools, electrical, storage cylinders and stationary equipment. They are provided with information on entry-level employment opportunities in the HVAC trade. The students will demonstrate their skills in basic copper tubing practices like cut, swage, bend, flare and solder. Students will be introduced to the safe use of sheet metal tools and will construct basic sheet metal fittings commonly needed to install HVAC duct systems. Technology-related reading, writing, vocabulary, mathematics, blueprint reading and science are integrated throughout the curriculum.

Basic Refrigeration/Sheet Metal

The HVAC program is designed to provide students with an understanding of theoretical information covering the sciences of matter, heat, fluids and pressure. Theory information also includes the components of a basic refrigeration system and how they operate to move heat from where it is not wanted to where it is desirable. The students will demonstrate electrical fundamentals including electrical circuits, Ohm's law and meter use. Laboratory skills practiced include servicing and testing refrigeration equipment and basic electrical circuits including identifying electrical motors. Skills needed for the installation of HVAC

systems including piping materials, threading of black pipe and duct installation are also practiced. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Technology-related reading, writing, vocabulary, mathematics, blueprint reading and science are integrated throughout the curriculum.

Introduction to Heating and Cooling

Students will demonstrate theoretical competency in HVAC electrical controls, refrigeration systems, such as air conditioning and refrigeration, both domestic and commercial. The students will have an understanding of Environmental Protection Agency (EPA) certification requirements with refrigeration systems and will be able to calculate building heating and cooling loads. Skills practiced in lab and on in-school and outside work projects for customers include installation and service of refrigeration and heating systems and startup and checkout procedures. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology-related reading, writing, vocabulary, mathematics, blueprint reading and science are integrated throughout the curriculum.

Advanced Heating and Cooling

Students will explain and identify heating fuels (natural gas, propane and heating oil); how they burn and how to safely control the burn; and EPA certification requirements in order to pass certification exams. Instruction in different types of air conditioning systems, heat pumps, unitary, central station and split systems is provided in dividing needs and troubleshooting service. Students will demonstrate their ability to use code books and apply code requirements at apprentice entry-level. Skills practiced in the lab and on in-school and outside production work for customers include installation of the different systems and testing operation and airflow. The proper handling of refrigerants, including recovery, recycling and reclaiming, are studied and practiced. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students will demonstrate the ability to complete a job application and interview and to perform entry-level job readiness and trade skills. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology-related reading, writing, vocabulary, mathematics, blueprint reading and science are integrated throughout the curriculum.

Students successfully completing this course of study will be able to pursue a two-year or a four-year engineering degree at a college or university. Students can obtain immediate employment in the heating, ventilation and air conditioning field, which includes: residential and commercial heating, ventilation and air conditioning apprenticeship in installation and service; refrigeration mechanic; sheet metal apprentice; sheet metal design; gas system technician; oil burner technician; heating, ventilation and air conditioning sales representative; wholesale supply representative, and appliance repair technician.

HEALTH TECHNOLOGY CLUSTER

HEALTH TECHNOLOGY – 2 YEAR PROGRAM

5.0 credits per year for high school students (Juniors and Seniors only)

PROGRAM DESCRIPTIONS

Introduction to Health Technology

Exploration of Health Care Career Pathways

Certified Nursing Assistant

Advanced Career Exploration

In Grade 11, students are introduced to the basics of the healthcare industry. Students will learn about the safety and infection control practices, including personal and patient hygiene. They will also be exposed to a variety of healthcare occupations. As they progress through the program, our students receive hands on training in preparation to provide personal care to patients. Students also receive direct theoretical instruction in the fundamental subjects of healthcare including nutrition, growth and development, medical-legal issues, human behavior, medical terminology, health care safety, public health and professional communication. Throughout the program technology-related mathematics, reading, writing, vocabulary and science are integrated with the curriculum. Students will complete the requirements for Medical Assistant which will allow them to sit for the state exam at the end of the year. Towards the end of Grade 11, their education shifts to more hands-on skills in preparation for their Certified Nursing Assistant (CNA) certification.

In Grade 12, students begin by focusing on preparing for their CNA exam through direct instruction, hands-on classroom practice and practical hands-on experience during skilled nursing facility based clinical experience. Their education and clinical preparation will exceed the requirements to be eligible to take the State of Connecticut Registry Examination to obtain their CNA Certification. After testing for their CNA exam, students are eligible for placement in work-based learning positions and will get further education in job seeking skills to include applications, resume building, interview skills and professional responsibility. Students will be instructed on the basics of phlebotomy and EKG technician roles.

Throughout the program, students will be exposed to a variety of healthcare educational and professional opportunities. We invite industry professionals and local healthcare advocacy groups as guest speakers. Our students shadow local professionals as they work and engage in community outreach through volunteering at local healthcare facilities. Finally, we take field trips to local healthcare facilities, community colleges and four-year universities. They will also be exposed to college courses (taught by a BTECH instructor in coordination with SCSU) and have the opportunity to earn up to 15 college level credits prior to graduation. Students will graduate with a firm understanding of many different paths to be successful in the healthcare career of their choosing. They will be prepared to immediately enter the workforce as a CNA or MA and will have a solid foundation to pursue higher education in most medical professions.

HOSPITALITY AND TOURISM CLUSTER

CULINARY ARTS PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits for high school students

7.0 credits for postgraduate students

**2nd year program available to returning high school seniors who have successfully completed their 1st year as a high school junior*

PROGRAM DESCRIPTION



Introduction to Culinary Arts

Students entering the field of Culinary Arts are introduced to various career pathways within the Hospitality profession. They learn essential topics such as food service safety, sanitation, personal hygiene, and methods for holding hot and cold food. Instruction includes the preparation of cold and hot sandwiches and salads, as well as understanding weights, measures, and recipe conversions. All students will develop knife skills and safety practices, alongside portion control and basic garnishing techniques. Additionally, students earn the **Always Food Safe (AFS) Food Handler Certification from the American National Standards Institute (ANSI)**. Employability skills are integrated throughout the curriculum, helping students understand the needs of employers in the workplace. Furthermore, technology-related mathematics, reading, writing, vocabulary, and science are woven into the curriculum, enhancing the overall learning experience.

Basic Food Service

Students will learn the fundamentals of food preparation by rotating through different stations. They will prepare, organize, and produce various food items to be served in the school's cafe. Basic theory will cover

equipment identification, seasoning and flavoring, as well as the identification of grains and legumes. Students will also explore basic cooking methods, stocks, soups, and mother sauces. Through hands-on learning, students will enjoy mastering the essentials of baking, including creating yeast dough breads, laminated dough pastries, pies, and cakes. The curriculum will continue to emphasize workplace instruction in employability skills, problem-solving, and critical thinking. Upon completion, students will earn the **Always Food Safe (AFS) Allergen Certification** from the **American National Standards Institute (ANSI)** is a key component of the curriculum, which integrates technology-related mathematics, reading, writing, vocabulary, and science. Students are introduced to both “front of the house” and “back of the house” restaurant operations through the daily functioning of the school café and restaurant, which is open to faculty and the public. In the dining room, they learn customer service and formal dining room service skills, including setting tables, taking reservations, and working the cash register while providing à la carte and buffet service menus. In the kitchen, students learn and practice various skills such as making soups, stocks, and sauces, identifying and cooking fruits and vegetables, handling dairy, eggs, and cheese, preparing salads and dressings, and developing nutritional menus, along with cooking starches and grains. The curriculum also covers meat, poultry, and seafood identification, fabrication, and cooking techniques. Additionally, students will develop basic baking skills through the production of fruit Danish, yeast and quick breads, layer cakes, pies, and plated desserts. In preparation for industry employment, students engage in resume writing, portfolio assessment, and mock interviews with industry partners. Those who achieve an acceptable level of proficiency may be eligible for **Work-Based Learning (WBL)** opportunities.

Returning second-year students continue to operate the school dining room restaurant, providing them with constant opportunities to advance their culinary skills and knowledge while creating seasonal, ethnic, and global menus. They further develop their supervisory skills in Restaurant Management and explore the fundamentals of Entrepreneurship. Additionally, students can earn further credentials, including the **Always Food Safe (AFS) Food Protection Manager Certification** by ANSI and the **Certified Restaurant Server** designation through the **American Hotel and Lodging Educational Institute (AHLEI)**.

Advanced Restaurant Operations

Successful students completing this program will be able to pursue a postsecondary two-year or four-year degree in Culinary Arts, Hospitality or Food Service Management. Upon graduation, students are eligible for immediate employment in an accelerated entry-level culinary position in any food service establishment including restaurants, casinos, commercial kitchens, catering facilities, retail or commercial bakeries, corporate dining, or an institutional food service company.

MANUFACTURING CLUSTER

PRECISION MACHINING TECHNOLOGY PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits for high school students
7.0 credits for postgraduate students

PROGRAM DESCRIPTIONS



Precision Machining Technology

Students deciding to enter the Precision Machining Technology field will be introduced to the basics of safety, as well as the use and care of hand tools, power tools and stationary equipment. Manufacturing methods are initiated with an introduction to machinery and material types, along with their basic applications. Students start with small metalworking projects, which lead to projects that are more complicated. Technology-related mathematics, reading, writing, vocabulary, machine trade print reading and science are integrated throughout the curriculum.

Precision Machining Technology Practices and Principles

Students are instructed in and demonstrate skills and knowledge in machine safety, measuring tools, speeds and feeds, lathe operation, mill operation, pedestal grinder, various types of cutting tools and drill press operation. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Technology-related mathematics, reading, writing, vocabulary, machine trade print reading and science are integrated throughout the curriculum.

Precision Machining and Introduction to Computer Numerical Control (CNC)

Students continue to refine skills introduced and move on to CNC machining. Students receive advanced instruction and training in the use of measuring tools, material types, advanced lathe operation, advanced mill operation, layout and inspection. Introduction to MasterCAM®, computerized numerical control (CNC) machining and programming are introduced. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students will perform in-school manufacturing projects. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology-related mathematics, reading, writing, vocabulary, machine trade print reading and science are integrated throughout the curriculum. Students receive instruction and demonstrate skills in more advanced areas of manufacturing technology, such as lay-out and turning irregular shapes, turning eccentric, CNC programming, specialized vertical mill attachments. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students will continue to perform in-school machining projects. Students will demonstrate the ability to complete a job application and interview and to perform entry-level job readiness and trade skills.

Students will be assessed against industry-recognized national standards. The National Institute for Metalworking Skills (NIMS) is the nation's only American National Standards Institute accredited developer for the precision manufacturing industry. NIMS competency-based assessments are used to demonstrate mastery of program goals and earn students' industry-recognized credentials. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology-related mathematics, reading, writing, vocabulary, machine trade print reading and science are integrated throughout the curriculum.

Students successfully completing this course of study will be able to pursue a two-year or a four-year degree in the area of manufacturing or mechanical engineering, or other related fields. Graduates electing to enter the workforce typically acquire positions as CNC operators or programmers, mold-makers or engineering technicians.

ROBOTICS AND AUTOMATION PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits for high school students

PROGRAM DESCRIPTIONS



Introduction to Mechatronics

Students deciding to enter the Mechatronics field will be introduced to the basics of safety as well as equipment identification and use. Students are introduced to mechanisms and a wide variety of electromechanical principles and practices. Safety, hand tool and digital multi-meter use are demonstrated and practiced. Career opportunities are explored. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Basics of Electrical and Electronic Circuitry, Motors, Generators, Motor Controls and Power Supplies

Students learn circuit interpretation, design and construction through the use of computer assisted training and simulators. Principles of direct current (DC), alternating current (AC), magnetism, semiconductors and electronic devices are taught and practiced. Students demonstrate the ability to use test equipment to measure electrical and mechanical variables. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Semiconductor Devices, Pneumatics, Robotics and Programmable Logic Controllers, Hydraulics

Students are instructed and demonstrate skills in construction and diagnostic repair of direct current (DC) motors, alternating current (AC) motors, motor controls, hydraulic and pneumatic devices and equipment. Motor control design use and troubleshooting are taught and practiced with simulators and motor controls. Electronic circuitry is instructed and practiced. The National Electrical Code (NEC) is presented through basic projects and students demonstrate analytical skills needed to verify or troubleshoot residential and

commercial low- and high-voltage wiring, including commercial and residential alarm and automation systems. Students will perform in-school electromechanical projects for customers. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology- related mathematics, reading, writing, vocabulary and science are integrated throughout the curriculum.

Students successfully completing this course of study will be able to enter the workforce and acquire positions as production development technicians in manufacturing facilities and robotics technicians in assembly applications. Additionally, repair technicians for all phases of high-and low-voltage electricity, hydraulic and pneumatic mechanical controls. Students that elect to further their education will be able to pursue a two-year or a four-year degree in the areas of Robotics and Mechatronics, Electronics, and Electrical Engineering Technologies.

WELDING AND METAL FABRICATION PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits for high school students
7.0 credits for postgraduate students

PROGRAM DESCRIPTIONS



Introduction to Welding and Metal Fabrication

Students deciding to enter the field of Welding and Metal Fabrication will be introduced to the basics of safety and sanitation, as well as equipment identification and use. Students learn about the variety of careers available in the welding and metal fabrication industry, hand tools and shop equipment. Different modes of welding are demonstrated and practiced. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Basics of Welding, Metal Cutting and Preparation

Arc welding is demonstrated and practiced. Students prepare sections for joints, fillets and grooves and then test-weld. Proper use of machine cutting tools is demonstrated and then practiced by students. Oxy-fuel cutting and joining processes are taught and practiced, and quality is examined and diagnosed. Gas Metal Arc Welding (GMAW) applications, parameters, gases, wire types and sizes are studied, demonstrated and practiced. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Metal Fabrication and Advanced Welding Techniques

Industry weld symbols are defined and applied to blueprint interpretation. Metal identification, properties and applications are taught and practiced. Destructive and nondestructive welding inspection are demonstrated and practiced. Pipe welding is introduced and demonstrated. Shielded Metal Arc Welding (SMAW), Flux Core Arc Welding (FCAW), Plasma Arc Welding (PAW) and Gas Tungsten Arc Welding

(GTAW) are introduced with discussion and exercises on procedures and applications. Students begin preparation for certification assessments. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students will perform in-school welding projects for customers. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Ferrous and Non-Ferrous Material Welding, Pipe Welding and Welding Certification

On-site flat, horizontal, vertical and overhead application welding skills are demonstrated and practiced by students. Characteristics of stainless steel and aluminum are taught and specific welding techniques are demonstrated and practiced. Pipe and tube welding are demonstrated and practiced. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students will demonstrate the ability to complete a job application, a practice interview and have entry-level job readiness and trade skills. Students will perform in-school welding projects for customers. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). All students are required to complete summative assessments that adhere to AWS standards. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Students successfully completing this course of study will be able to pursue a two-year or four-year degree in mechanical engineering. Students electing to immediately enter the workforce typically acquire positions as welders in the aviation and aerospace industries, large construction companies and independent welding and fabrication shops.

TRANSPORTATION, DISTRIBUTION AND LOGISTICS CLUSTER

AUTOMOTIVE TECHNOLOGY – 2 YEAR PROGRAM

10.0 credits for high school students

14.0 credits for postgraduate students

PROGRAM DESCRIPTIONS



Introduction to Automotive Technology

Students deciding to enter the Automotive Technology field will be introduced to the basics of safety, equipment identification and use, engine operation, construction and components, vehicle maintenance, and shop operation. This course allows students to experience a variety of automotive practices through demonstrations and instruction. Students learn of the varied careers available within the automotive industry. Engine design and construction are discussed and studied. Students will receive experience with engine mechanical repairs and diagnosis. All eight areas of Automotive Service Excellence (ASE) Master Technician Service certification are covered in the four-year course of study. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Principles and Applications of Automotive Systems

Students start with a refresher on shop safety and hand-tool use. Major areas covered include engine mechanical systems, vehicle electrical and electronic systems and brake systems. Students receive instruction in operation and then practice diagnosis and repair with general electrical, battery, starting and charging systems. The hydraulic system, Drum and Disc Brakes systems design, power assist units, and

Anti-lock Brakes systems (ABS) and traction control systems are covered. Specific applications and repairs are discussed, explored and practiced. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Diagnosis and Service of Automotive Systems

Students diagnose and repair electrical components, lighting systems, instrumentation, wiper systems, chassis wiring and vehicle accessories. Students will also diagnose and repair suspension and steering systems. Two- and four-wheel alignment is taught with wheel and tire service and diagnosis. Expanded diagnostics and repair training in engine performance based on fuel, ignition and computerized engine management systems are performed. Students will perform in-school automotive projects for customers. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Advanced Diagnostics and Repair of Automotive Systems and Emissions Control Systems

Students continue to build upon knowledge with in-depth training in engine management systems affecting vehicle emissions and performance. Air conditioning service, diagnosis and repair is introduced and practiced. Principles of the HVAC distribution systems are covered. Students are introduced to diagnostic and repair procedures for automatic transmissions and transaxles, as well as manual drivetrains, clutches and drive axles. Shop operation and customer satisfaction are introduced and discussed. Students continue to receive instruction in safety requirements and demonstrate sound safety practices. Students will perform in-school automotive projects for customers. Students will demonstrate the ability to complete a job application and interview and to perform entry-level job readiness and trade skills. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Each student will take several Automotive Service Excellence (ASE) Student Certification exams, an industry recognized credential. Technology-related mathematics, reading, writing, vocabulary, blueprint reading and science are integrated throughout the curriculum.

Students' will be exposed to automotive curriculum which is completely aligned with standards issued by the ASE Foundation, the industry recognized certification association for professional automotive technicians.

Students successfully completing this course of study will be able to pursue a two-year or a four-year degree in the area of automotive or mechanical engineering, or other related fields. Students electing to immediately enter the workforce typically acquire positions as repair technicians in independent repair facilities or new/used vehicle dealerships. Additionally, employment as a service advisor, service writer or automotive parts counterperson is common.

AVIATION MAINTENANCE TECHNICIAN – 2 YEAR PROGRAM



The Aviation Maintenance curriculum provides training that enables the student to develop operative skills that prepare them to test for the Federal Aviation Administration (FAA) exams. Our schools meet the training requirements of the FAA under CFR 14 Part 147.

Applicants must hold a high school diploma or GED. Mathematical and mechanical aptitude are essential, as well as reading, writing and language skills. Please check the school websites for up-to-date enrollment information.

Upon completion of the individual curriculum blocks, students are eligible to take the FAA national certification written, oral and practical examinations (additional exam cost not included in tuition) in General, Air Frame, and Powerplant.

Graduates from this program are well prepared for careers as an airport mechanics or aircraft mechanics and technicians for aircraft and power plant companies.

The program is composed of three curricula:

GENERAL

Aircraft Drawings
Aircraft Materials, Hardware and Processes
Aircraft Weight and Balance
Cleaning and Corrosion Control (includes paint)
Fluid Lines and Fittings
Fundamentals of Electricity and Electronics

Ground Operation and Servicing
Human Factors
Inspection Concepts and Techniques
Mathematics
Physics for Aviation
Regulations, Forms and Records & Publications

AIRFRAME

Aircraft Electrical Systems
Aircraft Fuel Systems
Aircraft Instrument Systems (includes pos and warning)
Airframe Fire Protection Systems
Airframe Inspection
Communication and Navigation Systems
Environmental Systems
Flight Controls

Hydraulic and Pneumatic Power Systems
Ice and Rain Control Systems
Landing Gear Systems
Metallic Structures
Non-Metallic Structures
Rotorcraft Fundamentals
Water and Waste Systems

POWER PLANT

Engine Electrical Systems
Engine Exhaust and Reverser Systems
Engine Fire Protection Systems
Engine Fuel and Fuel Metering Systems
Engine Inspection
Engine Instrument Systems
Ignition and Starting Systems

Reciprocating Induction and Cooling Systems
Engine Lubrication Systems
Propellers
Reciprocating Engines
Turbine Engines
Turbine Engine Air Systems



SCHOOLS AND CONTACTS 2025-2026

ADDRESS	TELEPHONE	E-MAIL ADDRESS	PRINCIPAL
<u>BRISTOL TECHNICAL EDUCATION CENTER</u> 431 Minor Street Bristol, CT 06010	(860) 584-8433	<u>eric.hilversum@cttech.org</u>	Mr. Eric Hilversum Interim Principal
<u>CT AERO TECH.</u> Brainard Airport 500 Lindbergh Drive Hartford, CT 06114	(860) 566-1234	<u>eric.hilversum@cttech.org</u>	Mr. John Ryan Chief Administrator
<u>STRATFORD SCHOOL FOR AVIATION MAINTENANCE TECH.</u> Sikorsky Memorial Airport 200 Great Meadow Road Stratford, CT 06615	(203) 381-9250	<u>eric.hilversum@cttech.org</u>	Mr. John Ryan Chief Administrator