

Bristol Technical Education Center & Extension Programs:

***CT Aero Tech & Stratford School for Aviation
Maintenance Technicians***

2020-21

PROGRAM OF STUDIES

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

PROGRAM OF STUDIES 2020-2021

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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 equal opportunity/affirmative action for all qualified persons and equal access to Boy Scouts of America and other designated youth groups. The CTECS does not discriminate in any employment practice, education program, or educational activity 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 (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:

The CTECS is committed to a policy of equal opportunity/affirmative action for all qualified persons and equal access to Boy Scouts of America and other designated youth groups. The CTECS does not discriminate in any employment practice, education program, or educational activity on the basis of **race, color, religious creed, sex, age, national origin, ancestry, marital status, sexual orientation, gender identity or expression, disability (including, but not limited to, intellectual disability, past or present history of mental disorder, physical disability or learning disability), genetic information, or any other basis prohibited by Connecticut state and/or federal nondiscrimination laws. The Department of Education does not unlawfully discriminate in employment and licensing against qualified persons with a prior criminal conviction.** Inquiries regarding the Connecticut Technical Education and Career System's nondiscrimination policies and practices should be directed to:

<p>Levy Gillespie <i>Equal Employment Opportunity Director/Americans with Disabilities Coordinator (ADA)</i></p> <p>Connecticut State Department of Education 450 Columbus Boulevard, Suite 607 Hartford, CT 06103</p> <p>(860) 807-2071 Levy.gillespie@ct.gov</p> <p><i>Coordinator for matters related to Affirmative Action/Equal Opportunity Employment and nondiscrimination policies and practices.</i></p>	<p>Christine Spak <i>Education Consultant</i></p> <p>Connecticut Technical Educational and Career System 39 Woodland Street Hartford, CT 06105</p> <p>(860) 807-2212 christine.spak@cttech.org</p> <p><i>Coordinator for matters related to Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973.</i></p>	<p>U.S. Department of Education Office for Civil Rights 5 Post Office Square, Suite 900 Boston, MA 02109-3921</p> <p>(617) 289-0111 Fax (617) 289-0150 TTY/TDD (877) 521-2172</p> <p><i>For matters related to race, color, national origin, age, sex and/or disability.</i></p>
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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.”

ABOUT US

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

Adult, eleventh- and twelfth-grade students come to BTEC from 42 towns to learn one of our six 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 grade 11 and 12 students remain a part of their sending schools but participate in our year-end certificate ceremony.

BTEC also oversees two extension campuses, each offering an exceptional program for Aviation Maintenance Technicians - CT Aero Tech and the Stratford School for Aviation Maintenance Technicians.

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

MISSION STATEMENT

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.

POST-SECONDARY PROGRAMS

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. Students concentrate their studies and receive a career and technical certificate in the following program:

- **Heating Ventilation and Air Conditioning (HVAC)**

II. 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**

III. 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:

- **Mechatronics**
- **Precision Machining Technology**
- **Welding and Metal Fabrication**

IV. 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:

- **Aviation Maintenance Technician**
- **Automotive Technology**

CAREER AND TECHNICAL PROGRAMS 2020-2021



ARCHITECTURE AND CONSTRUCTION CLUSTER

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

5.0 credits per year for High School students / 7.0 credits per year for Post-Graduate 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 skill 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 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 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). Each student will take the North American Technician Excellence (NATE) in HVAC, which is a competency-based test. 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.



HOSPITALITY AND TOURISM CLUSTER

CULINARY ARTS PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits High School students / 7.0 credits Post-Graduate students



PROGRAM DESCRIPTIONS

Introduction to Culinary Arts

Students deciding to enter the field of culinary arts will be introduced to the basics of safety, sanitation and personal hygiene, as well as equipment identification and use. Students will assist in the daily production of the National School Lunch (NSL). All students will make hot foods and learn basic garnishing and portion control. Cold sandwiches and basic desserts will be taught. Students will learn about kitchen utensils, small equipment, knife skills and basic hot and cold food preparations. In addition, they learn about weights and measures and simple recipe conversions. Technology-related mathematics, reading, writing, vocabulary and science are integrated throughout the curriculum.

Basic Food Service

Students learn the basics of food preparation using the school lunch as their main food lab. All students will rotate through different stations preparing, organizing and producing various food items to be served in the school's cafeteria. Basic theory will include a range of equipment identification, fruit and vegetable identification, basic cooking methods, storage and receiving of products, as well as a la carte and convenience foods. All students will be taught the proper procedure for serving institutional foods. Students will continue to receive instruction in nutrition, safety, sanitation and personal hygiene. Technology-related mathematics, reading, writing, vocabulary and science are integrated throughout the curriculum.

Operating a Restaurant

Students are introduced to "front of the house" and "back of the house" restaurant operation through the daily operation of the school restaurant open to faculty and the public. In the dining room they learn customer service and formal dining room service skills which include setting tables, taking reservations, working the cash register while providing a la carte and buffet service menus. In the kitchen students learn and practice; soups, stocks and sauce-making, fruit and vegetable identification and cookery, dairy, eggs and cheese identification and cookery, salad and salad dressings, nutritional menu development and starches and grain cookery. The curriculum also includes meat, poultry and seafood identification, fabrication and cookery. Students will also develop basic baking skills through the production of fruit Danish, yeast and quick breads, layer cakes, pies and kitchen plated desserts. Students will demonstrate the highest standard of food safety training by completing ServSafe Certification through the National Restaurant Association. 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.

Advanced Restaurant Operations

Students continue to operate the school dining room restaurant. They have constant opportunities to advance their culinary skills and knowledge while creating seasonal, ethnic, global and local menus. Students will have an opportunity to visit a local farm, taking the classroom into the community while developing an understanding for sustainable foods. They will learn the art of garde manger in buffet and cold food service. Students continue to develop their supervisory skills in Restaurant Management. Baking and pastries continue to be part of daily restaurant production. Students rotate throughout all stations of the dining room and kitchen until proficiency is obtained. Students will demonstrate the ability to complete a job application and interview. All students will participate in the Culinary Arts Project (SCAP) where students are required to research and develop a theme global menu with recipes and costing. Students will then produce their individual menus in the restaurant where family members and faculty will have the opportunity to sample a student's culinary skills. The project is completed with an oral presentation where the students reflect on the yearlong project while practicing their oral communication skills needed for job interview. 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.

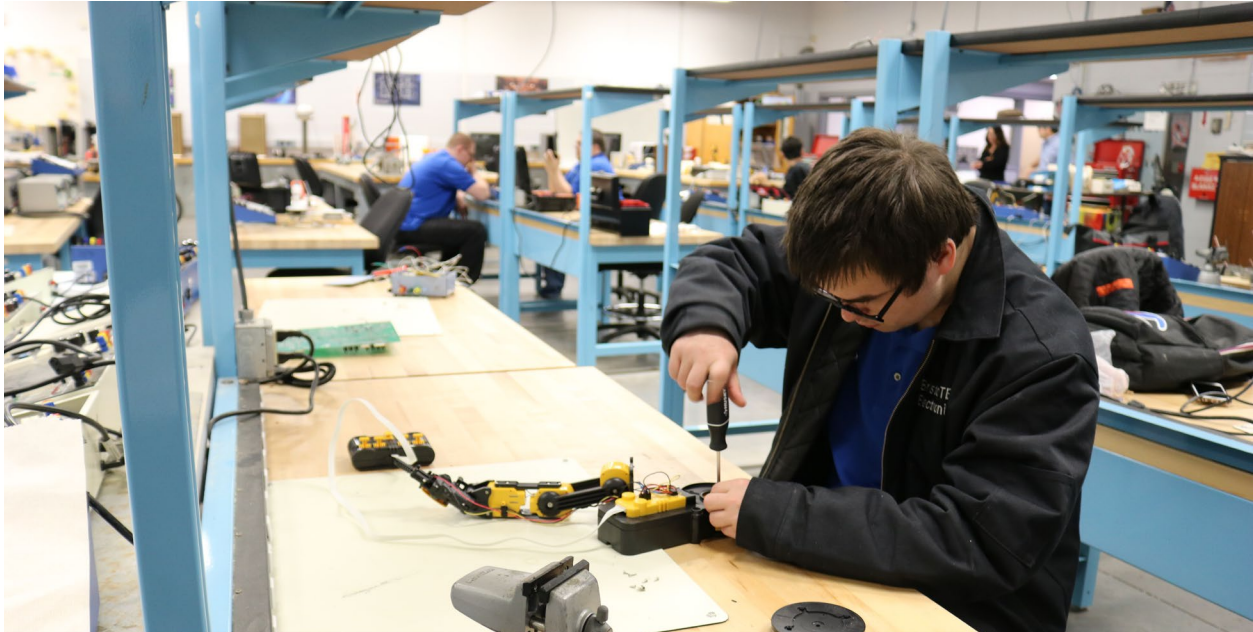
Successful students completing this program will be able to pursue a postsecondary two-year or four-year degree in Culinary Arts, Hospitality or Foodservice Management. Upon graduation, students are eligible for immediate employment in an accelerated entry-level culinary position in any foodservice establishment; Restaurants, Casinos, Commercial Kitchens, Catering Facilities, Retail or Commercial Bakeries, Corporate Dining or an Institutional Foodservice Company.



MANUFACTURING CLUSTER

MECHATRONICS PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits High School students / 7.0 credits Post-Graduate 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 and National Electrical Code

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.

Digital Electronics, Robotics, Programmed Logic Controllers, Variable Speed Drives and Industrial Machine Maintenance Practices

Robotics, programmable logic controllers (PLC) and variable speed drives are taught. Motor controls, hydraulics, pneumatics and electrical theories are applied to the field of major appliance repair. Digital electronics are instructed and practiced. Service documentation is developed and tested. Students are instructed in preventative maintenance schedules, and proper maintenance procedures are practiced. Troubleshooting, part nomenclature, interpretation and application of schematics and proper service techniques are refined. 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 have entry-level job readiness and trade skills. Students will perform in-school electromechanical projects for customers. Students reaching an acceptable level of proficiency may be eligible for Work-Based Learning (WBL). Each student will take the SkillsUSA® - Skills Connect assessment, which is a performance-based test. 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 mechanical, electrical or electronic engineering.



PRECISION MACHINING TECHNOLOGY PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits High School students / 7.0 credits Post-Graduate 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 nations' 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, toolmakers, mold-makers, or engineering technicians.



WELDING AND METAL FABRICATION PROGRAM SEQUENCE – 1 YEAR PROGRAM

5.0 credits High School students / 7.0 credits Post-Graduate 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 Qualifications

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 is 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 a 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 & LOGISTICS CLUSTER

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 are approved Aircraft Maintenance Technician Schools by FAA under CFR 14 part 147 (CT Aero # EM9T117R, Stratford Schools for Aviation Maintenance Technicians # TF5T221N).

BTEC's minimum academic requirement for applicants is 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 may obtain jobs as airport mechanics or aircraft mechanics and technicians for aircraft and power plant companies.

The program is composed of three curricula:

GENERAL

Basic Electricity
Aircraft Drawings
Aircraft Weight and Balance
Fluid Lines and Fittings
Materials and Processes
Ground Operation and Servicing

Cleaning and Corrosion Control
Mathematics
Maintenance Forms and Records
Basic Physics
Maintenance Publications
Mechanic Privileges and Limitations

AIRFRAME

Wood Structures
Aircraft Covering
Aircraft Finishes
Sheet Metal and Non-Metallic Structures
Welding
Assembling and Rigging
Airframe Inspections
Aircraft Landing Gear Systems
Hydraulic and Pneumatic Power Systems

Cabin Atmosphere Control Systems
Aircraft Instrument Systems
Communication and Navigation Systems
Aircraft Fuel Systems
Aircraft Electrical Systems
Position and Warning Systems
Ice and Rain Control
Fire Protection Systems

POWER PLANT

Reciprocating Engines
Turbine Engines
Engine Inspection
Engine Instrument Systems
Engine Fire Protection Systems
Engine Electrical Systems
Lubrication Systems
Ignition and Starting Systems

Fuel Metering Systems
Engine Fuel Systems
Induction and Engine Airflow Systems
Engine Cooling Systems
Engine Exhaust and Reverser Systems
Propellers
Unducted Fans
Auxiliary Power plants



AUTOMOTIVE TECHNOLOGY – 2 YEAR PROGRAM

10 credits for High School students / 14 credits for Post-Graduate 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 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 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.

SCHOOLS AND CONTACTS 2020-2021

ADDRESS	TELEPHONE	E-MAIL ADDRESS	PRINCIPAL
<u>BRISTOL T.E.C.</u> 431 Minor Street Bristol, CT 06010	(860) 584-8433	bristol.ed.tech@cttech.org	Scott Zito
<u>CT AERO TECH</u> Brainard Airport 500 Lindbergh Drive Hartford, CT 06114	(860) 566-1234	scott.zito@cttech.org	Scott Zito
<u>STRATFORD SCHOOL FOR AVIATION MAINTENANCE TECH</u> Sikorsky Memorial Airport 200 Great Meadow Road Stratford, CT 06615	(203) 381-9250	sikorsky@cttech.org	Scott Zito