Carbon Career & Technical Institute
Course Handbook

Real Training,
Real Results,
Real Careers!

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Mission Statement

Carbon Career & Technical Institute provides unique opportunities for students to build a better future.

Slogan

"Real training, real results, real careers!"

Contact Info

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Introduction

Carbon Career & Technical Institute is a comprehensive career and technical high school, providing both academic and career education for students in grades 9, 10, 11, and 12. CCTI is also a shared high school for those districts that wish to send their students for a half-day of career and technical training and remain in their home schools to meet their academic requirements. We also offer FLEX programs of shorter time periods in career and technical studies to meet the needs of **highly** motivated students in grade 12. Our exploratory program offers a limited number of 9th grade students an opportunity to attend CCTI.

CCTI is comprised of students from five sending districts: Jim Thorpe Area, Lehighton Area, Palmerton Area, Panther Valley and Weatherly Area. While enrolled at CCTI, students will learn the technical and academic skills necessary to be successful in their chosen career. Our goal is to provide first-rate career and technical training, valuable academics, and hands-on experience that will offer the first steps to a rewarding career.

Career and Job Trends

The United States has experienced massive economic restructuring over the past thirty years. One result of this has been the loss of many high wage, low skill jobs; it has appeared that the earnings of all, except college graduates, have dropped. Today young people and their parents are not really certain what the future holds; however, they do know that, on average, a four-year college graduate will earn more than someone without a degree. This well publicized information is really a half-truth and has led to labor market confusion and even some myths.

- Currently, only about 21% of all jobs in the U.S. economy actually require a four-year college degree. These jobs are primarily professional and managerial. This proportion has been consistent since the 1950's.
- Many high-skilled, high-wage jobs in the future will be in technical fields that do not require a four-year college degree. These skills can be acquired in high school or one or two year post-secondary school programs.
- The largest and fastest growing segment of the emerging technical workforce is in occupations that do not require a four-year college degree.
- College graduates will not automatically displace workers who have obtained specialized technical skills.
- In the labor market, scarce occupational skills are rewarded with above-average wages.
- Higher education has many values in and of itself, but a college degree does not automatically guarantee a higher income.
- The U.S. Bureau of Labor Statistics forecasts that currently, one in three four-year college graduates will not find college-level employment.

Occupations with the Most Job Growth 2016-2026

Occupations with the Most Job Growth 2016-2026 that You Can Receive Training for at CCTI		Employment		Change, 2016-26		Annual Wage 2017
		2016	2026	Number	Percent	
Total, all occupations	00-0000	156,063.8	167,582.3	11,518.6	7.4	$37,690
Personal care aides	39-9021	2,016.1	2,793.8	777.6	38.6	$23,100
Combined food preparation and serving workers, including fast food	35-3021	3,452.2	4,032.1	579.9	16.8	$20,180
Registered nurses	29-1141	2,955.2	3,393.2	438.1	14.8	$70,000
Home health aides	31-1011	911.5	1,342.7	431.2	47.3	$23,210
Software developers, applications	15-1132	831.3	1,086.6	255.4	30.7	$101,790
General and operations managers	11-1021	2,263.1	2,468.3	205.2	9.1	$100,410
Laborers and freight, stock, and material movers, hand	53-7062	2,628.4	2,828.1	199.7	7.6	$27,040
Medical assistants	31-9092	634.4	818.4	183.9	29.0	$32,480
Waiters and waitresses	35-3031	2,600.5	2,783.0	182.5	7.0	$20,820
Nursing assistants	31-1014	1,510.3	1,683.7	173.4	11.5	$27,520
Construction laborers	47-2061	1,216.7	1,367.1	150.4	12.4	$34,530
Cooks, restaurant	35-2014	1,231.9	1,377.2	145.3	11.8	$25,180
Market research analysts and marketing specialists	13-1161	595.4	733.7	138.3	23.2	$63,230
Customer service representatives	43-4051	2,784.5	2,920.8	136.3	4.9	$32,890
Medical secretaries	43-6013	574.2	703.2	129.0	22.5	$34,610
Management analysts	13-1111	806.4	921.6	115.2	14.3	$82,450
Maintenance and repair workers, general	49-9071	1,432.6	1,545.1	112.5	7.9	$37,670
Stock clerks and order fillers	43-5081	2,008.6	2,109.6	100.9	5.0	$24,470
Receptionists and information clerks	43-4171	1,053.7	1,149.2	95.5	9.1	$28,390
Sales representatives, services, all other	41-3099	983.0	1,077.9	94.9	9.7	$52,510
Licensed practical and licensed vocational nurses	29-2061	724.5	813.4	88.9	12.3	$45,030

Footnotes:
(1) Data are from the Occupational Employment Statistics program, U.S. Bureau of Labor Statistics. Wage data cover non-farm wage and salary workers and do not cover the self-employed, owners and partners in unincorporated firms, or household workers.
Source: Employment Projections program, U.S. Bureau of Labor Statistics

Occupation Growth

Top Fastest Growing US Occupations by 2018 you can receive training for at CCTI:***

- Network Systems Communication Analysts
- Home Health Aide
- Home Care Aide
- Skin Care Specialists
- Computer Applications Software Engineers
- Medical Assistants

Occupations with the Most Job Growth (source U.S. Bureau of Labor Statistics) you can receive training for at CCTI;

- Personal care aides
- Registered nurses
- Home health aides
- Combined food preparation and serving workers, including fast food
- Retail salespersons
- Nursing assistants
- Customer service representatives
- Cooks, restaurant
- General and operations managers
- Construction laborers
- Medical assistants
- Janitors and cleaners, except maids and housekeeping cleaners
- Software developers, applications
- Laborers and freight, stock, and material movers, hand
- First-line supervisors of office and administrative support workers
- Computer systems analysts
- Licensed practical and licensed vocational nurses
- Medical secretaries
- Receptionists and information clerks
- Office clerks, general
- Sales representatives, wholesale and manufacturing, except technical and scientific products
- Stock clerks and order fillers
- Market research analysts and marketing specialists
- First-line supervisors of food preparation and serving workers
- Electricians
- Maintenance and repair workers, general

Fast-Growing Pennsylvania Occupations through 2022 (source www.paworkstats.state.pa.us) that you can receive training for at CCTI*:

1. Retail Salespersons
2. Cashiers
3. Combined Food Preparation & Serving Workers
4. Registered Nurses
5. Waiters & Waitresses
6. Laborers & Freight, Stock & Materials Movers
7. Customer Service Representatives
8. Office Clerks, General
9. Home Health Aides
10. Janitors & Cleaners

List of six digit figure paying jobs that do not require a college degree that you can receive training for at CCTI*:

- Small business owner
- Construction Manager
- Plumber
- IT Manager
- Executive Chef
- List

List of several jobs that pay an average of $60k without a degree that you can receive training for at CCTI**:

- Oil pumper
- Retail Manager
- Millwright
- Engineers
- LPN, RN, Lab Tech
- Welder
- HVAC Contractor
- Construction Supervisor
- Plumber
- Draftsman

* Money Crashers
**Monster.com
***Boston.com

Frequently Asked Questions

Who may attend CCTI?

Students in grades 9*, 10, 11, and 12 who live in any of the five Carbon County districts may attend CCTI. You will get to meet other students who want to prepare for their future and make lifelong friends. *Opportunities are available for a limited number of 9th grade students in our exploratory program.

How will CCTI help me?

The education you receive at CCTI will open doors for you. All programs provide students with the entry-level skills to immediately gain employment. You will learn skills that are valued by employers and experience real-life work situations in your chosen career field. For students who qualify, cooperative education is available during the senior year. In addition, you will be introduced to multiple options for education after high school.

May I participate in activities at my district high school?

Yes. You are encouraged to participate in athletics and all extra curricular activities. In addition, you will have opportunities to make new friends and exercise your leadership abilities in the career and technical student organizations and other activities at CCTI.

Is college an option after CCTI?

Absolutely! Many CCTI graduates continue their education at colleges, technical schools, apprenticeships, or business and medical schools. You can even earn college credit (Articulation Credit) for some of the coursework you complete at CCTI, (refer to page 39).

What is an articulation agreement?

This is an agreement between CCTI and a post high school institution, which attempts to simplify the college transition. CCTI has partnered with post secondary institutions, agreeing to provide articulation credits (college credit). While in high school, CCTI students may earn free college credits when they attend a partnered post secondary institution (refer to page 39).

Career or College?

Career and technical education has changed significantly in recent years. Students no longer need to choose between attending a career and technical school or preparing for college. Significantly, many of today's/tomorrow's jobs will not require a four-year college degree, but rather, a set of skills that are in demand by business and industry. The goal of a career and technical school is to provide students with the necessary training and experiences so that upon graduation students have choices, they may enter the workforce or continue into post-secondary education. Programs are organized so that students may enter into one or more of a variety of post-secondary options, including technical or business schools, medical training, apprenticeship opportunities, community college, or a four-year college program.

CCTI Key Practices in Education

- **High Expectations** – we set high expectations and vigorously work hard to get students to meet them.
- **Extra Help** – CCTI provides a structured system of extra help. This is an extension of our tutoring program. It enables students to review with our teachers any work they are struggling with in order to meet our higher expectation and be successful.
- **Career and Technical Studies** – increasing access to intellectually challenging career and technical studies, with a major emphasis on using high-level mathematics, science, language arts and problem-solving skills in the modern workplace and in preparation for continued learning.
- **Academic Studies** – increasing access to academic studies that teach the essential concepts from the college preparation curriculum by encouraging students to use academic content and skills to address real-world projects and problems.
- **Program of Study** – having students complete a challenging program of study with an upgraded academic core and a major.
- **Work-Based Learning** – we provide students with a system that integrates school-based and work-based learning, including exploratory experiences, job shadowing, internships, and cooperative education.
- **Teachers Working Together** – CCTI provides academic and technical teachers the time to plan and deliver integrated instruction aimed at teaching high-level academic and technical content.
- **Students Actively Engaged** – our aim is to get every student involved in rigorous and challenging learning.
- **Guidance** – CCTI involves each student and his or her parents in a guidance and advising system that ensures the completion of a program of study with an in-depth career and technical major.
- **Keeping Score** – we use student assessment and program evaluation data to continuously improve the school climate, organization, management, curricula, and instruction to advance student learning and to recognize students who are successful.

Career & Technical Education (CTE) Facts

What is Career and Technical Education?

- Encompasses 94% of high school students and 12 million postsecondary students.
- Includes high schools, career centers, community and technical colleges, four-year universities etc.
- Educates students for a range of career options through career clusters/pathways
- Integrates with academics in a rigorous and relevant curriculum.
- Features high school and postsecondary partnerships, enabling clear pathways to certifications and degrees.
- Fulfills employer needs in high-skill, high-wage, high-demand areas.
- Prepares students to be college and career ready by providing core academic skills, employability skills and technical, job-specific skills.

CTE Works for High School Students

- High school students involved in CTE are more engaged, perform better and graduate at higher rates.
- 81% of dropouts say relevant, real-world learning opportunities would have kept them in high school.
- The average high school graduation rate for students concentrating in CTE programs is 90.18%, compared to an average national freshman graduation rate of 74.9%.
- Over 70% of secondary CTE concentrators pursued postsecondary education shortly after high school.

CTE Works for College Students and Adults

- Postsecondary CTE fosters postsecondary completion and prepares students and adults for in-demand careers.
- 4 out of 5 secondary CTE graduates who pursued postsecondary education after high school earned a credential or were still enrolled two years later.
- A person with a CTE-related associate degree/credential will earn on average between $4,000 and $19,000 more a year than a person with a humanities associate degree.
- 27% of people with less than an associate degree, including licenses and certificates, earn more than the average bachelor degree recipient.

CTE Works for the Economy

- Investing in CTE yields big returns for state economies
- CTE addresses the needs of high-growth industries and helps close the skills gap.
- Skilled trades are the hardest jobs to fill in the US, with recent data citing 645,000 jobs open in the trade, transportation and utilities sector and 253,000 jobs open in manufacturing.
- Health care occupations, many of which require an associate degree or less, make up 8 of the 20 fastest growing occupations.
- STEM occupations such as environmental engineering and science technicians require an associate degree and will experience faster than average job growth.
- Middle-skill jobs, jobs that require education and training beyond high school but less than a bachelor degree, are a significant part of the economy.
- Of the 46.8 million job openings created by 2018, 30 percent will require some college or a two-year associate degree

Admissions Policy

Juniors and sophomores will be admitted only if they:

1.) have successfully achieved sophomore or junior standing according to the criteria of their home school and

2.) have successfully completed all previous high school level(s) of English, Science, Social Studies, and an Algebra course (the latter in some fashion).

Freshmen will be admitted only if they:

1.) have successfully achieved 9th grade status according to the criteria of their home school district and

2.) passed 8th grade English, Mathematics, Social Studies, and Science (English and math with a B average or better).

3.) Freshmen candidates who have previously completed 6th, 7th, or 8th grade Career Academy Camp and/or similar exploratory program, and meet the above criteria will be given priority.

Based on a review of attendance and disciplinary records, students and parents/guardians at any level may be asked to sign behavioral/attendance agreements to ensure their commitment to their chosen field of study.

All requests by students to transition from half-time to full-time status are subject to a review of records to determine eligibility.

Admissions Information

Each student must complete the required Student Application form, including the required signatures. Forms are available in each home school guidance office, or students may tear out the enrollment application found in the back of this booklet. These must be completed and submitted to the home school guidance office. A completed application will include the form itself, attendance and discipline reports, report card at time of application, report card or transcript for grade(s) completed prior to current year, Keystone exam(s) score report(s), grade 8 PSSA Score report, and a fully completed application form/checklist.

Every effort will be made to honor all student requests. When a program has full enrollment, students will be offered another program. However, students will be kept on a waiting list for programs that are filled. Applications are processed when received. Processing starts in March.

All career and technical programs may require students to purchase some type of safety equipment, tools, or uniforms. Students entering Health Medical will be required to have physicals, FBI clearances and tuberculin tests.

Ninth Grade Exploratory Program

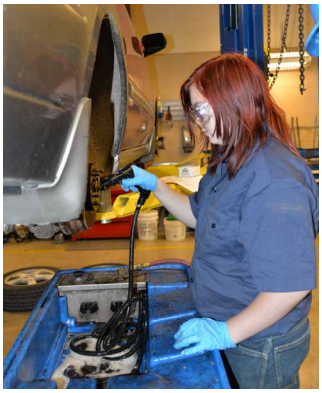
The ninth grade exploratory program allows ninth grade students to get an early start on their career and technical education. Freshman students accepted into this program will rotate through three career and technical programs of their choice for the first half of the year. Each rotation will last six weeks. Progress will be monitored through a daily work ethic grade, a skills grade and a knowledge grade. Upon completion of the third rotation, exploratory students will be scheduled in the CTE area of their choice pending the availability of the program and the students' performance during the rotation. Ninth grade students must complete the exploratory program to be eligible for a CTE program. When scheduled into their selected programs, students will receive a standard percentage grade on their quarterly report card.

Professional Development Program

PDP provides the tools to strengthen school-based learning, work-based learning and connecting activities. Skills lessons include self-assessments to communications skills, ethics, conflict resolution, government awareness, time management skills, career research, and more. Use of the PDP is integrated into the existing curriculum. Students are recognized for individual achievement as they develop their professional and occupational skills. Students in grades 9-12 will complete PDP, Career Essentials, and Today's Class in their technical areas for professional development.

PDP Student Benefits:

- Delivers skills employers want
- Builds a portfolio
- Teaches job search skills
- Teaches workplace values
- Puts students in touch with business and industry
- Enables students to direct their own learning process



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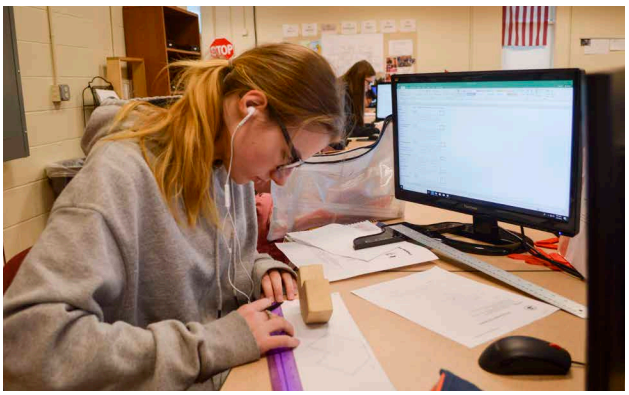

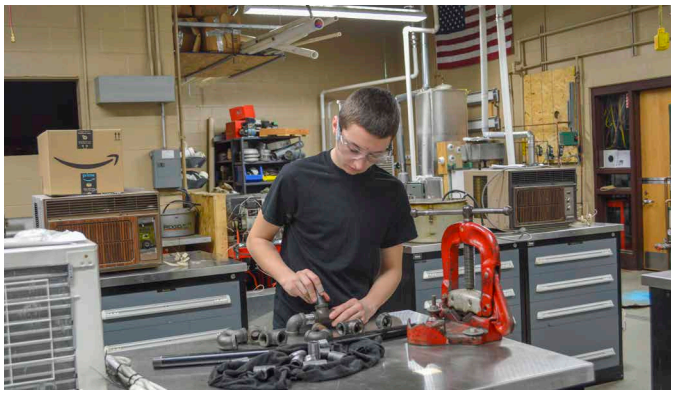

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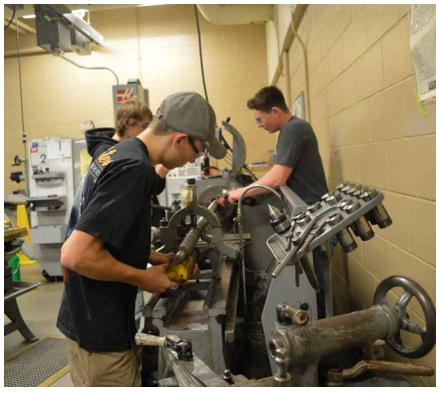


Career and Technical Areas

Autobody/Collision and Repair Technology/Technician (CIP 47.0603)

This is an instructional program that prepares individuals to apply technical knowledge and skills to repair damaged automotive vehicles such as automobiles and light trucks. Students learn to examine damaged vehicles and estimate cost of repairs; remove, repair and replace upholstery, accessories, electrical and hydraulic window and seat operating equipment and trim to gain access to vehicle body and fenders; remove and replace glass; repair dented areas; replace excessively damaged fenders, panels and grills; straighten bent frames or unibody structures using hydraulic jacks and pulling devices; and file, grind and sand repaired surfaces using power tools and hand tools. Students refinish surfaces by painting with primer and a finish coat.

Damage resulting from everyday vehicle collisions can be repaired, and vehicles can be refinished to look and drive like new. Automotive body repairers, often called collision repair technicians, straighten bent bodies, remove dents, and replace crumpled parts that cannot be repaired. They work alone, with only general direction from supervisors, or as specialists on a repair team. In some shops, helpers or apprentices assist experienced repairers.

If the vehicle is heavily damaged, an automotive body repairer might start by realigning the frame. Unibody vehicles, which are designs built without frames, must be restored to precise factory specifications for the vehicle to operate correctly. For these vehicles, repairers use benchmark systems to accurately measure the amount each section is out of alignment, and operate hydraulic machinery to return the vehicle to its original shape. Once the frame is aligned, repairers can begin to repair or replace damaged body parts.

Body repairers also repair or replace the plastic body parts that are increasingly used on new vehicles. They remove damaged panels and identify the type and properties of the plastic used. Repairers replace plastic parts that are badly damaged or very difficult to repair. Some body repairers specialize in fixing fiberglass car bodies.

It is possible for body repairers to specialize in installing and repairing glass in automobiles and other vehicles. Automotive glass installers and repairers remove broken, cracked, or pitted windshields and window glass. Glass installers apply a moisture-proofing compound along the edges of the glass, place the glass in the vehicle, and install rubber strips around the sides of the windshield or window to make it secure and weatherproof.

Most automotive body repairers work a standard 40 hour week. More than 40 hours a week may be required when there is a backlog of repair work to be completed.

Collision repair programs may be offered in high school or in postsecondary vocational schools and community colleges. Courses in electronics, physics, chemistry, English, computers, and mathematics provide a good background for a career as an automotive body repairer. Most training programs combine classroom instruction and hands on practice. Trade and technical school programs typically award certificates to graduates after six months to a year of collision repair study. Some community colleges offer two year programs in collision repair. Automotive technology is rapidly becoming more sophisticated, and most employers prefer applicants who have completed a formal training program in automotive body repair or refinishing. Most new repairers complete a segment of this training on the job. Many repairers, particularly in urban areas, need a national certification to advance past entry level work.

Fully skilled automotive body repairers must have good reading ability and basic mathematics and computer skills. Restoring unibody automobiles to their original form requires repairers to follow instructions and diagrams in technical manuals and to make precise three dimensional measurements of the position of one body section relative to another. In addition, repairers should enjoy working with their hands and be able to pay attention to detail while they work.

Auto Service and Technology (47.0604)

This is an instructional program that prepares individuals to apply technical knowledge and skills to engage in the servicing and maintenance of all types of automobiles and light trucks. This program includes instruction in the diagnosis and testing, including computer analysis, of malfunctions in and repair of engines, fuel, electrical, cooling and brake systems, drive trains and suspension systems. Instruction is also given in the adjustment and repair of individual components and systems such as fuel system components and air conditioning, and includes the use of technical repair information and the procedures for state inspection.

Automotive service technicians inspect, maintain, and repair automobiles and light trucks that run on gasoline, electricity, or alternative fuels. Responsibilities of automotive service technicians and mechanics have evolved from simple mechanical repairs to high level technology related work. The increasing sophistication of automobiles requires workers who are able to use computerized shop equipment and work with electronic components while maintaining their skills with traditional hand tools. As a result, automotive service workers are usually called technicians rather than mechanics.

Integrated electronic systems and complex computers regulate vehicles and their performance while on the road. Technicians must have an increasingly broad knowledge of the complexity of components within the vehicles. They also must be able to work with electronic diagnostic equipment, digital manuals and reference materials. While most automotive service technicians work a standard 40 hour week, some may work longer hours.

Service technicians use a variety of tools in their work. Employers furnish expensive power tools, engine analyzers, and other diagnostic equipment. Computers are also commonplace in modern repair shops. Through the internet or software packages, most shops receive automatic updates to technical manuals and access to manufacturers' service information, technical service bulletins, and other databases that allow technicians to stay current with industry standards.

Most employers regard the successful completion of a training program in automotive service technology as the best preparation for trainee positions. Graduates of these programs may need further training to become qualified. Some high school programs participate in Automotive Youth Education Service (AYES), a partnership between high school automotive repair programs, automotive manufacturers, and franchised automotive dealers. All AYES high school programs are certified by the National Institute for Automotive Service Excellence. Students who complete these programs are well prepared to enter entry level technician positions or to advance their technical education. Courses in automotive repair, electronics, physics, chemistry, English, computers, and mathematics provide a good educational background for a career as a service technician. Postsecondary automotive technician training programs usually provide intensive career preparation through a combination of classroom instruction and hands on practice. Community college programs usually award a certificate or an associate degree. Acquiring National Institute for Automotive Service Excellence (ASE) certification is important for those seeking work in large, urban areas.

The ability to diagnose the source of a problem quickly and accurately requires good reasoning ability and a thorough knowledge of automobiles. Many technicians consider diagnosing difficult problems as one of their most challenging and satisfying duties. For trainee automotive service technician jobs, employers look for people with strong communication and analytical skills. Technicians need reading, mathematics, and computer skills to study technical manuals. They must also study to keep up with new technology and learn new service and repair procedures and specifications.

Carpentry (46.0201)

The carpentry program is designed to prepare individuals to apply technical knowledge and skills to lay out, fabricate, erect, install and repair structures and fixtures using hand and power tools. This program includes instruction in common systems of framing, construction materials, measuring, estimating, blueprint reading and finish carpentry techniques.

Carpenters are skilled workers who are responsible for the construction of buildings and projects. They are able to study and to interpret blueprint specifications in order to prepare the project site, and to determine the dimensions and materials required. Carpenters are able to use power tools safely, in order to shape and cut materials for the project. These individuals may be required to perform many tasks, such as installing windows, doors, floors, millwork, and cabinetry. The ability to accurately measure and read a tape measure, level, and plumb bob are essential to this profession.

Carpenters are also skilled in the repair and restoration of many existing buildings. They may be responsible for the removal and replacement of damaged or defective building sections. In addition, they should be able to fabricate replacement frameworks, inspect building components to determine damage, and estimate the cost for repair of replacement parts. Carpenters may also work on scaffolding, install roofing materials, hang spouting and downspouts, and install roof vents.

Within buildings, carpenters build or repair cabinets, floors, windows, and doors. Woodworking machines, small hand tools, and all types of power tools can be found in every carpenter's toolbox. Large construction companies may assist carpenters in the purchase of many tools; however, independent carpenters need to be able to finance tools on their own budget.

Generally, carpenters receive training in one of the following methods: developing and demonstrating competencies as a secondary student in a career and technical education program; earning an associate degree in building construction technology; earning an undergraduate or graduate degree in construction management or completing a certified craft training and apprenticeship program.

Carpenters are expected to keep current with any new technology or codes related to the building/construction industries, recognize the various types of materials and methods available to the construction trade, and understand the complex interrelationships among numerous trades and professions within the industry.

Those individuals completing the program may be employed as carpenters, carpenter assistants or apprentices, lead carpenters, finish carpenters, maintenance carpenters, stair builders, production workers, concrete carpenters, house repairers, door installers, cabinet and trim installers, framers, assemblers, and woodworkers.

Building a safe, productive and sustainable workforce of carpentry professionals and helping to address the critical workforce shortage facing the construction industry is vital to the economy. It is extremely important for an individual to develop a strong carpentry/carpenter framework that produces portable credentials through a well-designed educational foundation.

Computer Engineering Technology (52.1201)

This is an instructional program that prepares individuals to apply technical knowledge and skills to support the design and development of software applications, manage data systems and related mathematical statistics for analysis and forecasting of business data, process and retrieve business information, and prepare and interpret process and data models.

Students will create a relational database, receive instruction in a variety of computer programming languages including writing, testing and debugging code; writing related system user documentation; demonstrating an understanding of core computer concepts to include the internet and the basic functions of business desktop applications; and analyzing common hardware, software and network processes. Students will receive instruction in business ethics and law, economics, office procedures and communications. Students will learn office safety, computer fundamentals, database administration and computer maintenance/troubleshooting.

Individuals who work in Management Information Systems careers assist in keeping business computers, information systems and personal computers functioning. Technical work in the field of Management Information Systems ranges from performing the most basic entry level skills to working independently as a technician. Computer support technicians must keep their skills current. Continuing education programs are offered by employers, hardware and software vendors, computing services, community colleges and private training institutions. Advancement opportunities demand improving and updating one's skills.

The support technician must understand data processing by mastering the principles, tools and techniques used in the design, programming, administration and security of database management systems. After identifying the data needs of an organization or company, the support technician determines the proper manner to organize and store the data. The support technician must help solve challenging computer related problems, integrate data systems, and process and retrieve information to improve efficiency and effectiveness.

Solving problems could involve hands on computer work with individuals who use personal computers. Many support specialists answer questions over the phone or by email. To answer a problem over the phone, the specialist takes the person through the necessary steps to fix the problem using their own computer. Computer support specialists may also install printers, software and other computer tools and then teach people the correct manner in which to use them.

Small companies use desktop applications and often need helpdesk technicians to support a business or company. These technicians field telephone calls and email messages from employees or customers seeking guidance on technical problems. These technicians are consulted for information about frequent customer issues, as well as other customer concerns. Most computer technicians start out at the helpdesk.

Business and industry use computers to store, transfer and analyze data, to communicate with employees and prepare documents and printouts. Information technology companies, medical and health fields, administrative or service organizations, financial and governmental institutions, schools, and scientific businesses all rely heavily on technology and computer systems. Their business operations rely on an accurate stream of data and its analysis from computer support specialists.

Employees in these occupations usually need several years of work related experience, on the job training, and/or vocational training.

Cosmetology (12.0401)

An instructional program that prepares individuals to apply technical knowledge and skills related to experiences in a variety of beauty treatments including the care and beautification of the hair, complexion and hands. Instruction includes training in giving shampoos, rinses and scalp treatments; hair styling, setting, cutting, dyeing, tinting and bleaching; permanent waving; facials; manicuring; and hand and arm massaging. Bacteriology, anatomy, hygiene, sanitation, salon management including record keeping and customer relations are also emphasized. Instruction is designed to qualify pupils for the licensing examination.

Culinary Arts (12.0508)

This is an instructional program that prepares students for employment related to institutional, commercial or self-owned food establishments or other food industry occupations. Instruction and specialized learning experiences include theory, laboratory and work experience related to planning, selecting, preparing and serving of quantity food and food products; nutritive values; use and care of commercial equipment; safety; and sanitation precautions. Instructional skills are provided to individuals desiring to become employed in all areas of the food service industry at entry level.

Cooks and food preparation workers prepare a wide range of foods, from soups, snacks, and salads to entrees, side dishes, and desserts. They work in a variety of restaurants, as well as other places where food is served, such as grocery stores, schools and hospitals. Cooks prepare and cook meals while food preparation workers assist cooks by performing tasks, such as peeling and cutting vegetables, trimming meat, preparing poultry, and keeping work areas clean and monitoring temperatures of ovens and stovetops.

Food preparation workers perform routine, repetitive tasks under the direction of chefs, head cooks, or supervisors. These workers prepare the ingredients for complex dishes by slicing and dicing vegetables, and making salads and cold items. They weigh and measure ingredients, retrieve pots and pans, and stir and strain soups and sauces. Food preparation workers may also cut and grind meats, poultry, and seafood in preparation for cooking.

Larger restaurants and food service establishments tend to have varied menus and larger kitchen staffs. Teams of restaurant cooks called assistant or line cooks, may be called to function in these large establishments. Each team has an assigned station that is equipped with the types of stoves, grills, pans, and ingredients needed for the foods prepared at that station. Job titles often reflect the principal ingredient prepared or the type of cooking performed, such as vegetable cook, fry cook, or grill cook.

Specifically, cooks measure, mix, and cook food according to recipes. The number, type and responsibilities of cooks vary depending on where they work, the size of the facility, and the complexity and level of service offered. Institution and cafeteria cooks, for example, work in the kitchens of schools, cafeterias, businesses, hospitals, and other institutions. For each meal, they prepare a large quantity of a limited number of entrees, vegetables, and desserts according to preset menus. Meals are generally prepared in advance so diners seldom get the opportunity to special order a meal.

Restaurant cooks usually prepare a wider selection of dishes, cooking most orders individually. Short order cooks prepare foods in restaurants and coffee shops that emphasize fast service and quick food preparation. They grill and garnish hamburgers, prepare sandwiches, fry eggs, and cook french fries, often working on several orders at the same time. Fast food cooks prepare a limited selection of menu items in fast food restaurants. They cook and package food, such as hamburgers and fried chicken, to be kept warm until served.

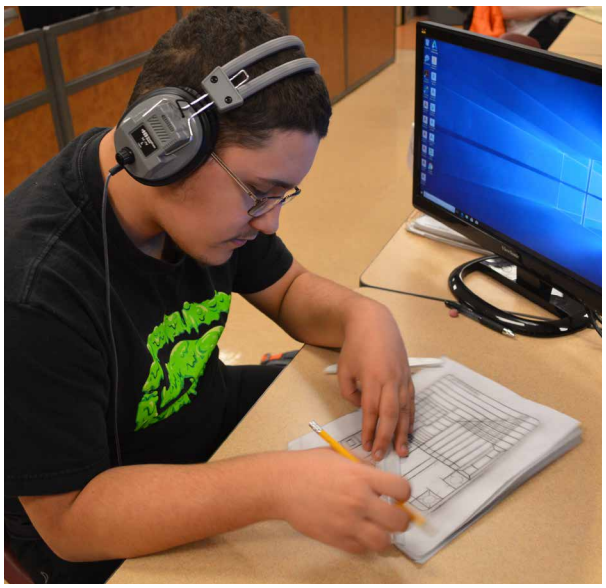
After gaining valuable experience on the job, cooks and food preparation workers may be promoted to kitchen managers or food service supervisors. These individuals purchase supplies, train workers, compile and balance cash receipts, and observe and evaluate work procedures to ensure quality standards and services are met.

Drafting and Design Technology/ Technician (15.1301)

This is an instructional program that generally prepares individuals to apply technical knowledge and skills as each relates to gathering and translating of data or specifications including basic aspects of planning, preparing and interpreting mechanical, architectural, chemical, structural, civil, pneumatic, marine, electrical/electronic, topographical and other drawings and sketches used in various engineering fields. Instruction is designed to provide experiences in drawing and CADD; the use of reproduction materials, equipment and processes; the preparation of reports and data sheets for writing specifications; the development of plan and process charts indicating dimensions, tolerances, fasteners, joint requirements and other engineering data; the development of models; and drafting multiple view assembly and subassembly drawings as required for manufacture, construction and repair of mechanisms.

Drafters prepare technical drawings and plans, which are used to build everything from manufactured products such as toys, toasters, industrial machinery, and spacecraft to structures such as houses, office buildings, and oil and gas pipelines. In the past, drafters sat at drawing boards and used pencils, pens, compasses, protractors, triangles, and other drafting devices to prepare a drawing by hand. Today, most drafters use Computer Aided Design and Drafting (CADD) systems to prepare drawings.

With CADD systems, drafters can create and store drawings electronically so they can be viewed, printed, or programmed directly into automated manufacturing systems. CADD systems also permit drafters to quickly prepare variations of a design. Although drafters use CADD extensively, it is only a tool. Drafters still need knowledge of traditional drafting techniques, in addition to CADD skills. Despite the nearly universal use of CADD systems, manual drafting and sketching are used in certain applications.



Architectural and civil drafters provide detailed drawings of a diverse range of architectural and structural aspects of bridges, highways, and buildings. Electrical and electronics drafters are responsible for the preparation of wiring diagrams, circuit board assembly diagrams and other drawings associated with the manufacture or repair of electrical products. Mechanical drafters provide drawings of mechanical devices, such as furniture, automobile bodies, furnaces, machinery, and manufacturing equipment.

Drafters usually work in comfortable offices. They may sit at adjustable drawing boards or drafting tables when doing manual drawings, although most drafters work at computer terminals. Because they spend long periods in front of computers doing detailed work, drafters may be susceptible to eyestrain, back discomfort, and hand and wrist problems. Many drafters work a standard 40 hour week.

Employers prefer applicants who have completed postsecondary school training in drafting, which is offered by technical institutes, community colleges, and various four year colleges and universities. Many four year colleges do not offer training in drafting, but they do offer classes in engineering, architecture, and mathematics that are useful for obtaining a job as a drafter. Technical training obtained in the Armed Forces can be applied in civilian drafting jobs. Some additional training may be necessary, depending on the technical area or military specialty.

Employers are interested in applicants with sharp drafting and mechanical drawing skills; keen knowledge of drafting standards, mathematics, science, and engineering technology; and, a solid background in CADD techniques. High school courses in mathematics, science, computer technology, design, computer graphics, and drafting are useful for people considering a drafting career.

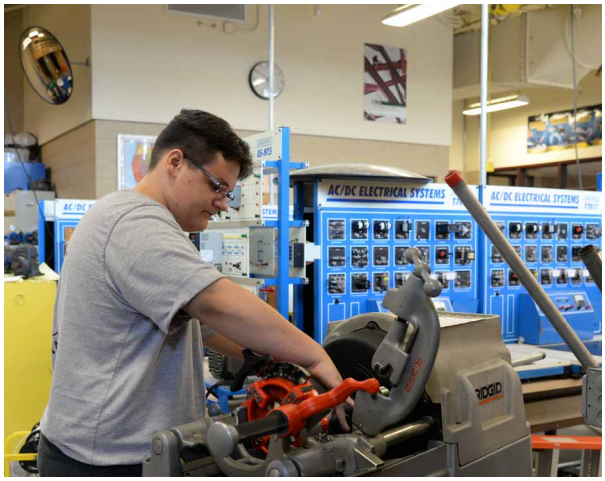
Electrical Distribution and Automation/Electrician (46.0399)

This is an instructional program that prepares individuals to apply technical knowledge and skills necessary to install, operate, maintain and repair electrically energized residential, commercial and industrial systems, DC and AC motors, controls and electrical distribution panels. Instruction emphasizes practical application of mathematics, science, circuit diagrams and use of electrical codes and includes blueprint reading, sketching and other subjects essential for employment in the electrical occupations. Reading and interpretation of commercial and residential construction wiring codes and specifications, installation and maintenance of wiring, service and distribution networks within large construction complexes are also critical components of the program.

Electricians bring electricity into homes, businesses, and factories. They install and maintain the wiring, fuses, and other components through which electricity flows. Electricians usually start their work by reading technical diagrams that show the locations of circuits, outlets, load centers, panel boards, and other equipment. To ensure public safety, electricians follow the National Electrical Code, and state and local building codes.

Electricians generally focus on either construction or maintenance, although many do both. Electricians specializing in construction primarily install wiring systems into factories, businesses, and new homes. Electricians who specialize in maintenance, usually repair and upgrade existing electrical systems and equipment. Specialized electricians may assist in the installation and repair of solar photovoltaic or thermal systems, security or fire alarm system wiring and equipment, heavy duty power transmission lines, or railroad communication systems.

Electricians may work indoors or outdoors, at construction sites, in homes, and in businesses or factories. Work may be strenuous at times and may include bending conduit, lifting heavy objects, and standing, stooping, and kneeling for long periods. Electricians risk injury from electrical shock, falls, and cuts. They must follow strict safety procedures to avoid injuries. When working outdoors, they may be subject to inclement weather conditions. Some electricians may have to travel long distances to jobsites. Most electricians work a standard 40 hour



week, although overtime may be required.

Most electricians learn their trade through apprenticeship programs. Because of the comprehensive training received, those who complete apprenticeship programs qualify for both maintenance and construction work. Apprenticeship programs may last four years. In the classroom, apprentices learn electrical theory, blueprint reading, mathematics, electrical code requirements, and safety and first aid practices. They also may receive specialized training in soldering, communications, fire alarm systems, and cranes and elevators.

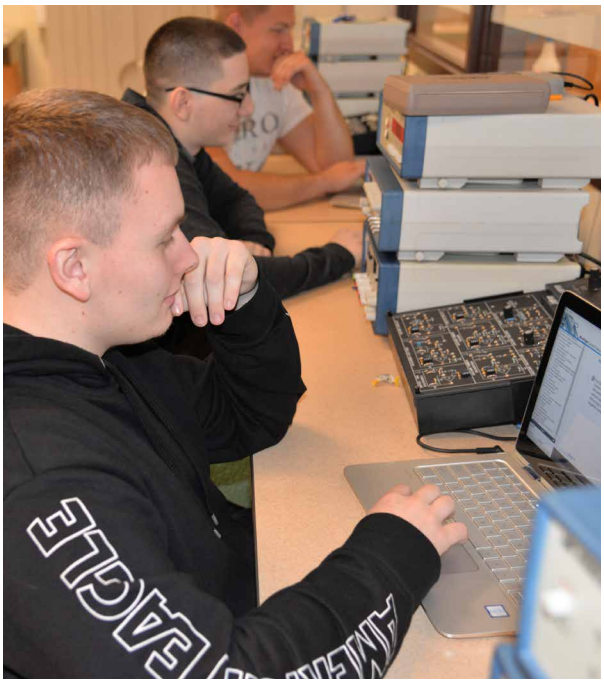
A number of public and private vocational technical schools and training academies offer training to become an electrician. Employers often hire students who complete these programs and usually start them at a more advanced level than those without this training. A few people become electricians by first working as helpers, assisting electricians by setting up job sites, gathering materials, and doing other nonelectrical work, before entering an apprenticeship program. Electricians may also need classes in mathematics because they solve mathematical problems on the job.

Most States and localities require electricians to be licensed. Although licensing requirements vary from State to State, electricians usually must pass an examination that tests their knowledge of electrical theory, the National Electrical Code, and state and local electric and building codes. Experienced electricians periodically take courses offered by their employer or union to learn about changes in the National Electrical Code.

Electronics Communication Engineering Technology (15.0303)

This is an instructional program that prepares individuals to apply basic electronic principles and technical skills to the production, calibration, estimation, testing, assembling, installation and maintenance of electronic equipment. Emphasis is on passive components and solid state devices; digital circuits; optoelectronic devices; operational amplifiers; audio amplifiers; oscillators; power supplies; and AM, FM and PCM modulators. Knowledge is acquired through theoretical instruction, experimentation and hands on activities. Instruction will develop basic levels of knowledge, understanding and associated skills essential for entry level employment in communications, industrial electronics, digital processing, robotics, avionics, biomedical technology and other electronics occupations.

Engineering technicians use the principles and theories of science, engineering, and mathematics to solve technical problems in research and development, manufacturing, sales, construction, inspection, and maintenance. Their work is more narrowly focused and application oriented than that of scientists and engineers. Many engineering technicians assist engineers and scientists, in their area of expertise. Others work in quality control, inspecting products and processes, conducting tests, or collecting data. In manufacturing, they may assist in product design, development, or production.



Engineering technicians who work in research and development build or set up equipment, prepare and conduct experiments, collect data, calculate or record results, and help engineers or scientists in other ways, such as making prototype versions of newly designed equipment. They also assist in design work, often using computer aided design and drafting (CADD) equipment. Many engineering technicians specialize in various disciplines, such as electrical engineering, electromechanical, or electrical and electronics drafting fields.

Electromechanical engineering technicians combine knowledge of mechanical engineering technology with knowledge of electrical and electronic circuits to design, develop, test, and manufacture electronic and computer controlled mechanical systems. Robotics technicians assist in building, installing or testing robotic equipment or related automated systems.

Many engineering technicians enter the occupation with an associate degree in engineering technology. Training is available at technical institutes, community colleges, extension divisions of colleges and universities, public and private vocational technical schools, and in the Armed Forces. Because the type and quality of training programs vary considerably, prospective students should carefully investigate training programs before enrolling.

Although it may be possible to qualify for certain engineering technician jobs without formal training, many employers prefer to hire an individual with a two year associate degree in engineering technology.

Career and technical education schools, another source of technical training, include postsecondary public institutions that serve local students and emphasize training needed by local employers. They require a high school diploma or its equivalent for admission.

Other training in technical areas may be obtained in the Armed Forces. Many military technical training programs are highly regarded by employers. However, skills acquired in a military program are often narrowly focused and may be of limited applicability in civilian industry, which often requires a more diverse training. Therefore, some additional training may be needed, depending on the acquired skills and the nature of the job.

Graphic Design (50.0402)

This is an instructional program in the applied visual arts that prepares individuals to use artistic techniques to effectively communicate ideas and information to business and consumer audiences via illustrations and other forms of printed media. This program includes instruction in concept design, layout, paste up and techniques such as engraving, etching, silkscreen, lithography, offset, drawing and cartooning, painting, collage and computer graphics.

Graphic designers (graphic artists) plan, analyze, and create visual solutions to communications problems. They use a variety of methods such as color, type, illustration, photography, animation, and various print and layout techniques. Graphic designers develop the overall layout and production design of magazines, newspapers, journals, corporate reports, and other publications. They also produce promotional displays, marketing brochures for products and services, distinctive logos for products and businesses, and signage systems – called environmental graphics – for business and government. An increasing number of graphic designers also develop material for Internet web pages, interactive media, and multimedia projects. Graphic designers also may produce the credits that appear before and after television programs and movies.

Multimedia artists, animators, illustrators, and animation directors may create and design two and three dimensional images, create storyboards by editing animation imagery, produce backgrounds for multimedia campaigns, and develop designs and illustrations for television, product labels, cartons, promotional products, technical manuals, and mailings.

Commercial and industrial designers may modify, refine, and design home appliances, automobiles and children's toys. They consult with individuals from engineering, marketing, and sales departments of production firms in order to complete their work. Frequently, they may be requested to evaluate the predicted success of their design ideas, by examining factors such as appearance, market demands, consumer expectations, and functionality.

Working conditions and places of employment vary. Graphic designers employed by large advertising, publishing, or design firms generally work regular hours in well lighted and comfortable settings. Designers in smaller design consulting firms and those who freelance generally work on a contract, or job, basis. They

frequently adjust their workday to suit their clients' schedules and deadlines. Consultants and self employed designers tend to work longer hours in smaller, more congested, environments.

A bachelor or an associate degree in graphic design is usually required for a job as a graphic designer. Creativity, communication, problem solving skills and familiarity with computer graphics and design software also are important. A bachelor degree is required for most entry level and advanced graphic design positions, although some entry level technical positions may only require an associate degree. Bachelor degree programs in fine arts or graphic design are offered at many colleges, universities, and private design schools.

In addition to postsecondary training in graphic design, creativity, communication, and problem solving skills are crucial. Graphic designers must be open to new ideas and influences, quick to react, willing to work independently, creative and able to communicate their ideas visually, verbally, and in writing. They also must have an eye for details. Designers show employers these traits by putting together a portfolio, a collection of examples of a person's best work. A good portfolio often is the deciding factor in getting a job.

Health/Medical Assistant/Aide (51.0899)

This is a program with a combination of subject matter and experiences designed to prepare individuals for entry level employment in a minimum of three related health occupations under the supervision of a licensed health care professional. Instruction consists of core course content with clinical experiences in one or two health related occupations. The core curriculum consists of planned courses for introduction of health careers, basic anatomy and physiology, medical terminology, legal and ethical aspects of health care and communications, and at least three planned courses for the knowledge and skills for the occupational area such as medical assisting, ward clerk, nursing assisting, etc.

Medical assistants perform administrative and clinical tasks to keep the offices of physicians, podiatrists, chiropractors and other health practitioners running smoothly. They should not be confused with physician assistants, who examine, diagnose and treat patients under the direct supervision of a physician.

The duties of medical assistants vary from office to office, depending on the location and size of the practice and the practitioner's specialty. In small practices, medical assistants usually do many different kinds of tasks, handling both administrative and clinical duties and reporting directly to an office manager, physician, or other health practitioner. Those in large practices tend to specialize in a particular area, under the supervision of department administrators.

Medical assistants who perform administrative tasks have many duties. They update and file patients' medical records, fill out insurance forms and arrange for hospital admissions and laboratory services. Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms and other office procedures and terminology are recommended for success. They also perform tasks less specific to medical settings, such as answering telephones, greeting patients, handling correspondence, scheduling appointments and handling billing and bookkeeping.

Medical assistants also may arrange examining room instruments and equipment, purchase and maintain supplies and equipment, and keep waiting and examining rooms neat and clean. In addition, they function with the public; therefore, they must be well groomed and have a courteous, pleasant manner. They also must be able to put patients at ease, explain physicians' instructions, and respect the confidential nature of medical information. Clinical duties require a reasonable level of manual dexterity and visual acuity.

Medical assistants work in well lighted, clean environments. They constantly interact with other people and may have to handle several responsibilities simultaneously. Many full time medical assistants work a regular 40 hour week. However, medical assistants may work part time, evenings, or weekends.

Those individuals completing this program of study may continue their education in order to develop skills and competencies that lead to other fields of specialization. Such specialty fields permit the individual to be employed as ophthalmic medical technologists, radiologic technicians, neurodiagnostic technologists, speech and language pathology assistants, endoscopy technicians, surgical assistants, and midwives.

Heating, Ventilation, Air Conditioning and Refrigeration (47.0201)

This is an instructional program that prepares individuals to apply technical knowledge and skills to install, repair and maintain commercial and domestic heating, air conditioning and refrigeration systems. Instruction includes theory and application of basic principles involved in conditioning of air (cooling and heating); filtering and controlling humidity; operating characteristics of various units and parts; blueprint reading; use of technical reference manuals; the diagnosis of malfunctions; overhaul, repair and adjustment of units and parts such as pumps, compressors, valves, springs and connections; and repair of electric, electronic and pneumatic control systems.

Technicians often specialize in either installation or maintenance and repair, although they are trained to do both. They also may specialize in heating, air conditioning or refrigeration work. Many technicians specialize in one type of equipment. Technicians may also sell service contracts to their clients. Service contracts provide for regular maintenance of the heating and cooling systems and help to reduce the seasonal fluctuations of this type of work.

Refrigeration mechanics install, service, and repair industrial and commercial refrigerating systems and a variety of refrigeration equipment. They follow blueprints, design specifications, and manufacturers' instructions to install motors, compressors, condensing units, evaporators, piping, and other components.

Technicians may work outdoors or indoors, in awkward or cramped positions and in high places. Hazards include electrical shock, burns, muscle strains, and other injuries from handling heavy equipment. Appropriate safety equipment is necessary when handling refrigerants because contact can cause skin damage, frostbite, or blindness. Also, inhalation of refrigerants when working in confined spaces is a possible hazard.

Individuals completing this program may be employed as service technicians, installers, refrigeration operators, and service mechanics. The majority of mechanics and installers work a 40 hour week. During peak seasons, they often work overtime or irregular hours. Maintenance workers, including those who provide maintenance services under contract, often work evening or weekend shifts and are on call.

Many technicians train through apprenticeships. In addition to understanding systems, technicians must learn refrigerant products and the legislation and regulations that govern their use. Applicants for apprenticeships must have a high school diploma or equivalent. After completing an apprenticeship program, technicians are considered skilled trades workers and capable of working alone. These programs are also a pathway to certification and, in some cases, college credits.

High school courses in shop math, mechanical drawing, applied physics and chemistry, electronics, blueprint reading, and computer applications provide a good background for those interested in entering this occupation. Math and reading skills are essential.

Many secondary and postsecondary technical and trade schools, junior and community colleges, and the U.S. Armed Forces offer six month to two year programs in heating, air conditioning, and refrigeration.

Marketing/Distributive Education (52.1801)

This is an instructional program that provides instruction in the fields of sales, distribution and marketing operations and focuses on the process and techniques of direct wholesale and retail buying and selling operations. This program is concerned with marketing, sales, distribution, merchandising and management including ownership and management of enterprises engaged in marketing. Marketing education programs prepare individuals to perform one or more marketing function such as selling, pricing, promotion, product/service management, distribution, financing and marketing information management. In addition, instructional programs include varying emphasis on technical knowledge of products and/or services marketed; related communication, economic, technological and computation skills; and abilities and attitudes associated with human relations. The program may also include management functions associated with owning and operating a business. Sales, distribution and marketing operations prepares individuals for occupations in such businesses as retail and wholesale trade, finance, insurance, real estate, entertainment, hospitality, food service, communications, storage and distribution.

Advertising, marketing, promotions, public relations, and sales managers coordinate their companies' market research, marketing strategy, sales, advertising, promotion, pricing, product development, and public relations activities. Sales managers direct sales programs. They assign sales territories, set goals, and establish training programs for the sales representatives. Sales managers advise the sales representatives on ways to improve their sales performance. Sales managers maintain contact with dealers and distributors. They analyze sales statistics to determine sales potential and inventory requirements and to monitor customers' preferences.

Substantial travel may be involved. Sales managers travel to national, regional, and local offices and to the offices of various dealers and distributors. Advertising and promotion managers may travel to meet with clients or representatives of communications media. At times, public relations managers travel to meet with special interest groups or government officials. Job transfers between headquarters and regional offices are common, particularly among sales managers.

A wide range of educational backgrounds is suitable for entry into advertising, marketing, promotions, public relations, and sales managerial jobs, but many employers prefer those with experience in related occupations. For marketing, sales, and promotions management positions, some employers prefer a bachelor or master degree in business administration with an emphasis on marketing. Courses in business law, management, economics, accounting, finance, mathematics, and statistics are advantageous. Additionally, the completion of an internship while the candidate is in school is highly recommended. In highly technical industries, such as computer and electronics manufacturing, a bachelor degree in engineering or science, combined with a master degree in business administration, is preferred.

Familiarity with word processing and database applications is important for most positions. Computer skills are vital because marketing, product promotion, and advertising on the internet are increasingly common. Also, the ability to communicate in a foreign language may open up employment opportunities in many rapidly growing areas around the country, especially cities with large Spanish speaking populations.

Persons interested in becoming advertising, marketing, promotions, public relations, and sales managers should be mature, creative, highly motivated, resistant to stress, flexible, and decisive. The ability to communicate persuasively, both orally and in writing, with other managers, staff, and the public is vital. These managers also need tact, good judgment, and exceptional ability to establish and maintain effective personal relationships with supervisory and professional staff members and client firms.

Precision Machine Technology (48.0501)

This is an instructional program that prepares individuals to apply technical knowledge and skills in all aspects of shaping metal parts. Instruction involves making computations relating to work dimensions, tooling and feeds and speeds of machining. Emphasis is placed upon bench work and the operation of lathes, power saws, shapers, milling machines, grinders, drills and computer operated equipment (CNC and CIM). Instruction also includes the use of precision measuring instruments such as layout tools, micrometers and gauges; methods of machining and heat treatment of various metals; blueprint reading; and the layout of machine parts. Instruction prepares students to operate all types of hand and computer controlled machines.

Machinists use machine tools, such as lathes, milling machines, and machining centers, to produce precision metal parts. Although they may produce large quantities of one part, precision machinists often produce small batches or unique items. They use their knowledge of the working properties of metals and their skill with machine tools to plan and carry out the operations needed to make machined products that meet precise specifications.

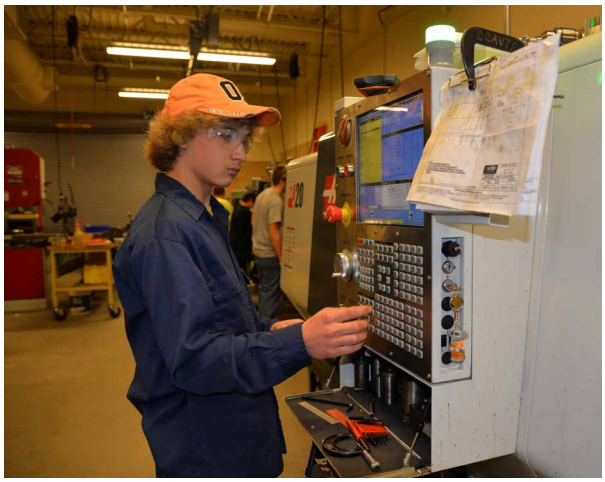
Some machinists, often called production machinists, may produce large quantities of one part, especially parts requiring the use of complex operations and great precision. Frequently, machinists work with computer control programmers to determine the manner in which the automated equipment will cut.

Because the technology of machining is changing rapidly, machinists must learn to operate a wide range of machines. Some newer machines use lasers, water jets, or electrified wires to cut the product. While some of the computer controls are similar to other machine tools, machinists must understand the unique cutting properties of these different machines. As engineers create new types of machine tools and new materials to machine, machinists must constantly learn new machining properties and techniques.

Many machinists work a 40 hour week. Evening and weekend shifts are becoming more common as companies extend hours of operation to make better use of expensive machines.

In high school, students should take math courses, especially trigonometry, and, if available, courses in blueprint reading, metalworking, and drafting. Formal apprenticeship programs, typically sponsored by a union or manufacturer, are an excellent way to learn the job of machinist. Apprentices usually must have a high school diploma, GED, or the equivalent, and most have taken algebra and trigonometry classes. Apprenticeship programs consist of paid shop training and related classroom instruction. In shop training, apprentices may work full time and are supervised by an experienced machinist while learning to operate various machine tools. Classroom instruction includes math, physics, materials science, blueprint reading, mechanical drawing, and quality and safety practices. Apprenticeship classes are often taught in cooperation with local community colleges or vocational technical schools. Many entrants previously have worked as machine setters, operators, or tenders.

To boost the skill level of machinists and to create a more uniform standard of competency, a number of training facilities, state apprenticeship boards, and colleges are implementing curricula that incorporate national skills standards developed by the National Institute of Metalworking Skills (NIMS). After completing such a curriculum and passing practical and written exams, trainees are granted a certificate, recognized as a NIMS credential. Completing a recognized certification program provides a machinist with better career opportunities and helps employers to better judge the abilities of new hires. Journeyman certification can be obtained from state apprenticeship boards after completing an apprenticeship.



Welding (48.0508)

This is a program that prepares individuals to apply technical knowledge and skills in gas, arc, shielded and nonshielded metal arc, brazing, flame cutting and plastic welding. Hand, semiautomatic and automatic welding processes are also included in the instruction. Students learn safety practices and types and uses of electrodes and welding rods; properties of metals; blueprint reading; electrical principles; welding symbols and mechanical drawing; use of equipment for testing welds by ultrasonic methods and destruction and hardness testing; use of manuals and specification charts; use of portable grinders and chemical baths for surface cleaning; positioning and clamping; and welding standards established by the American Welding Society, American Society of Mechanical Engineers and American Bureau of Ships.

Opportunities in the welding field are endless and can be extremely rewarding. Due to the fact that welding is widely used in construction, manufacturing and many other industries, employers have a constant need for skilled welders. Welding is an important part of our nation's growth and stability. In fact, for those who are involved in the welding industry, there is a strong conviction that a large part of the U.S. economy is dependent on welding, and that continued advances in the field help to drive this nation's productivity and strengthen its financial stability.

Welding is the most common way of permanently joining metal parts. Because of its strength, welding is used in all types of manufacturing industries, such as shipbuilding, automobile manufacturing and repair, and aerospace applications. Welding also is used to join beams when constructing buildings, bridges and other structures, and to join pipes in pipelines, power plants and refineries. Other applications include the manufacturing of small electronic devices, medical components and nanotechnology, which is the latest development to revolutionize the world of manufacturing, at the molecular level.

Aspiring welders also learn to interpret plans, drawings, codes and specifications, lines, symbols and abbreviations on working drawings or blueprints. The analysis of specifications and contract drawings for projects is an important skill that welders should master. Welders also need to be able to produce accurate labor and material estimations for a manufacturing project.

Welders who are proficient in a variety of welding methods using a wide array of tools and procedures could find themselves working on oil platforms in the Gulf of Mexico, on top of the tallest buildings in New York City, on the U.S. Navy's newest aircraft carrier or operating a private welding business. Welding employment opportunities are diverse and skilled welders can choose from a variety of openings both nationally and internationally. Welding technology offers immediate job prospects with potential for growth and promotion. Welding career pathways also include college where students can consider a field of study in welding engineering or metallurgy.

Brazing and soldering are closely related fields in which welders may achieve proficiency. Individuals in these occupations set up, operate, and monitor welding, soldering, or brazing machines that weld, braze, solder, or heat treat metal products, components, or assemblies.

Those individuals completing the welding program may be employed as fabricators, cutters, mig welders, sub arc operators, aluminum welders, spot welders, fitter welders, maintenance welders, and welders.

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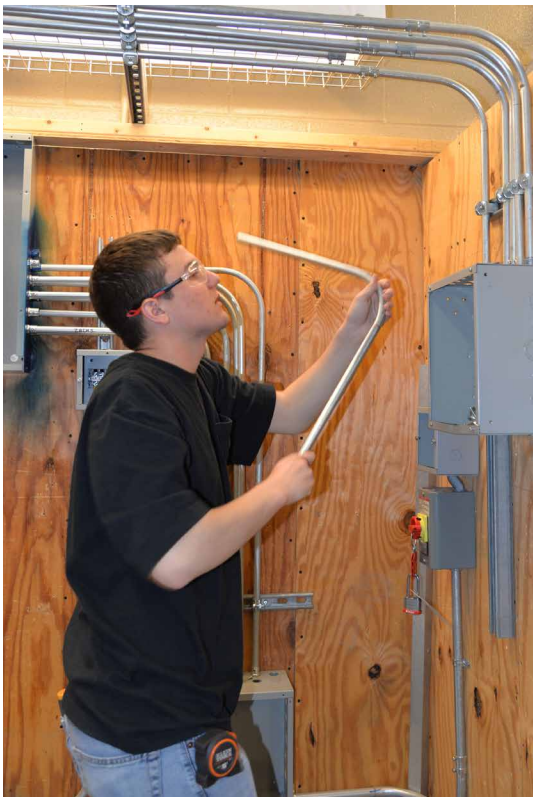

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Academic Course Descriptions

English

English 9 – 1 credit
In this course, students will enhance their reading comprehension, vocabulary and writing skills in literature, content, and technical materials. Writing using the five-paragraph essay model will be expected. Technical communication, speaking, and listening skills are developed throughout the year in a variety of activities. All lessons are carefully aligned to the PA Academic Standards in Reading, Writing, Speaking and Listening. The PDE recommended reading anchors are reflected in the lessons.

English 10 Literature – 1 credit
This course is heavily aligned to the Common Core and PA Academic Standards in reading, writing, and speaking. The class covers literary terminology, vocabulary building, test taking strategies, and several literary genres. A large portion of focus for this class is Keystone Exam preparation, where students will study the tools and acquire the skills to make them successful on the exams. Students will also synthesize reading materials, utilize various types of technology, and organize a professional portfolio.

English 11 – 1 credit
This course focuses on developing and expanding the individual student's ability to read with critical awareness the various works of American and World literature. Genres include poetry, prose, drama, and nonfiction. Various forms of writing will be studied. The course is aligned to the Common Core and PA Academic Standards in reading, writing, and speaking. It will include a study of the language arts and communication skills necessary for the matriculation student's or entry level worker's success. Written and oral skills vital to continuing education or joining the work force are emphasized.

English 12 – 1 credit
The English 12 curriculum includes a comprehensive study of written and oral communication skills necessary for entry level employment and/or college/technical school matriculation. It includes a study of the following areas: literature analysis and evaluation, various writing, and oral communication. The course is heavily aligned to the PA Academic Standards.

Advanced English 10 Literature – 1 Credit
Advanced English 10 is a course designed to develop advanced language, literature, and analysis skills. Students will study all aspects of literature including Shakespeare, poetry, non-fiction, short stories and drama. Integrated vocabulary and various writing styles will be addressed. Students will synthesize reading materials, utilize various types of media, and organize a professional portfolio. CCTI students will be recommended by the freshman year English teacher, assuming they demonstrate a strong work ethic and maintain an A average. Incoming students will be chosen if they were enrolled in an Honors 9 course and/or demonstrate a high level of competence in their grade 9 English course.

Advanced English 11 – 1 credit

This course is heavily aligned to the PA Academic Standards and Anchors in both reading and writing. It will also include those language arts and written communication skills necessary for post high school and/or entry level worker's success. Added reading and writing assignments, including a classical and modern novel selection, as well as in-depth literary analysis, evaluation, and criticism will be emphasized. In addition to the PA standards for writing informative and persuasive essays, students will also write descriptive and compare/contrast essays. Vocabulary skills will be enhanced through word etymology and study of Greek and Latin root words. Research assignments relating to topics discussed in literary works will also be utilized.

AP English Literature & Composition – 1 credit

This AP English Literature course is designed to teach beginning-college writing and literature through the fundamentals literary analysis. It follows the curricular requirements described in the AP English Course Description. We will talk essentially every day about some vital aspect of writing, including invention and the rhetorical appeals, structure, and style (diction, syntax, figurative language, mechanics). We will do so through use of poetry and prose, as well as critical essays and dramas. There is also a large amount of writing involved in this course and students should expect weekly writing assignments. These assignments may vary from journals to research papers to creative writing assignments. Writings are mostly critical, and ask students to evaluate a literary piece as far as its effectiveness and use of devices. We will revise these works a good deal and work throughout the year to create a writing portfolio. In the process of these workshops, students will be exposed to conscious choice of diction and the appropriate use of words, ability to create varied and effective syntactic structures, capacity for coherence and logical organization, ability to balance generalizations with specific and illustrative details, and, overall, ability to combine rhetorical processes into an effective whole.

The course will cover genres such as poetry, drama, novels and essays. Furthermore, thematic units including all of these within a single course of study will be employed to follow a theme through several types of literature, as well as essays comparing the genres and forms. Students will qualify for this course upon teacher recommendation and a course grade of B or better.

Social Studies

American Historical Studies – 1 credit

This course provides the students at CCTI with a cast of historical personalities, major events, and various conflicts that have shaped the United States as we know it today. Instruction begins at the original population of the Americas, and continues to what is roughly considered to be the dawn of the Modern Era (WWII). Students will be exposed to different texts, small and large group instructional activities, selected primary source readings, and project based learning. Homework assignments will be given, and students will be expected to achieve a progressive level of competency in the field of History. This course is aligned to all required State and National Academic Standards.

Civics & Government – 1 credit

Civics is the study of civilization, and what it means to be a citizen. Here at CCTI, this means students' learning will consist of units on how the Government works, as well as how Economics and World Affairs shape the workings thereof. The purpose of this course is for students to recognize and understand ideas about civic life, politics, and government, so that they can make informed

judgments and decisions. Specifically, we will focus on Local, State and Federal Government's roles, responsibilities, and procedures. The course includes reading and writing in the context of history and civics. On each level (Local, State and National), government studies will allow students to understand the purpose, structure and function of government, from local school district, municipal, and county affairs, to national and global concerns. Students will be expected to identify the citizen's role (rights and responsibilities) within each of those levels. Finally, the students will learn to recognize and understand what it means to function as a responsible citizen in the global society as we study world affairs. In each of these units, reading writing skills will be applied as they relate to the reading of primary sources, as well as historical and governmental documents. This course is aligned to all required State and National Academic Standards.

Modern World – 1 credit
This course provides a study of the United States and world history beginning with the causes of World War I, and continuing to the present day. Students enrolled in this course will be actively engaged in the research and analysis of the historical events of the 20th Century. Formal presentations are a part of this course, as are informal, student-generated discussions. This course offers students an opportunity to develop a better understanding of the people, events, and forces which have shaped the United States as it exists today, as well as how these forces continue to shape our lives and nation. This course is aligned to all required State and National Academic Standards.

Mathematics

Algebra 1 – 1 credit
This course emphasizes fundamental operations, variables, linear and quadratic equations, radicals, inequalities, polynomials, exponents, powers, and exponential growth. Students learn through reading, problem solving, use of technology and hands-on projects. This course highlights applications and integrates statistics, probability and geometry. It is aligned to the PA Academic Standards.

Transitional Algebra – 1 credit (prerequisite Algebra 1)
This course is designed for those students who have difficulty with Algebra I and need reinforcement of the Algebraic concepts before taking Algebra II and/or Geometry. This course reviews basic Algebra, and will continue with topics necessary to be successful in Algebra II and/or Geometry. It is aligned to the PA Academic Standards and Common Core Standards. This course is a remediation course for the Keystone Exams.

Transitional Algebra 2 – 1 credit (prerequisite Algebra I)
This course is designed for those students who have had difficulty with Algebra I and/or II and need reinforcement of the Algebraic concepts before taking Algebra II and/or Geometry. This course reviews and builds upon Algebraic concepts and will continue with topics necessary to be successful in Algebra II and/or Geometry. This course is a remediation course for the Keystone Exams. It is aligned to the PA Academic Standards and Common Core Standards.

Algebra 2 – 1 credit (prerequisite Algebra 1)
This course emphasizes facility with Algebraic expressions and forms, including linear and quadratic forms, powers and roots, matrices and systems, logarithmic, trigonometric, polynomial and other functions, series and combinations. All concepts are examined as tools for modeling "real world" situations. Graphing is emphasized and geometry is applied. The course is aligned to the PA Academic Standards.

Geometry – 1 credit (prerequisite Algebra 1)
This course explores the properties and relationships of lines, rays, angles, triangles, circles, quadrilaterals and other polygons. Deductive and inductive reasoning, as well as algebraic techniques, will be used to solve problems. The focus of the course will be on practical applications of these principles, although geometric proofs will be introduced. The course is aligned to the PA Academic Standards.

Probability and Statistics — (prerequisite Algebra 2 and Geometry)
The main focus of the course will be exploring data, planning a study, producing models using probability theory, and making statistical inferences. Students will work with statistical measures of centrality and spread, probability, methods of data collection, methods of determining probability, binomial and normal distributions, hypothesis testing, confidence intervals, and technological tools, graphs, and models to analyze statistics.

Pre-Calculus – 1 credit (prerequisite Algebra 2 and Geometry)
This course emphasizes number systems, polynomial arithmetic, synthetic division, zeroes of polynomials, systems of linear equations, matrices with matrix multiplication, trigonometric functions, exponents and radicals, linear and quadratic functions, polynomials and factoring, algebraic fractions and their operations, rational functions, logarithms, and probability. This course is aligned to the PA Academic Standards.

Advanced Placement (AP) Calculus – 1 credit (prerequisite Pre-Calculus)
This is a college-level course in introductory Calculus. The AP Calculus course is equivalent to one-semester of a first year course in college Calculus. Students must take the Advanced Placement Calculus AB Exam to earn the college credit. The course is designed to develop student understanding of Calculus concepts providing experience with methods and applications. The course emphasizes a multi-representational approach to Calculus with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally. It is imperative that both students and parents understand that this course will be taught and graded as a college course due to the heavy emphasis on mathematical concepts and theories. Instruction will focus on the major topics of Calculus in the following areas: Limits and Continuity, Derivatives, Derivative Applications, Definite Integrals, Differential Equations and Applications of Definite Integrals.

Science

Environmental Science – 1 credit
This course emphasizes a conceptual understanding of natural systems and the three foundations of environmental education: relevance of ecology and biology to occupational areas and students' everyday lives, respect for the environment in which they live, and responsibility to make decisions that will help protect the Earth for themselves and future generations. Content covered includes basic principles of ecological and biological science, living and non-living environmental factors, habitats, and population dynamics. The course is aligned with the PA Academic Standards.

Biology 1 – 1 credit
This course is in preparation for the Standardized Biology Keystone exam administered to all Pennsylvania high school students. It is a requirement for graduation. Students will focus on learning about the biology of organisms and cells. According to the PA Department of Education,

Biology "concerns living things, their appearance, different types of life, the scope of their similarities and differences, where they live and how they live. Living things are made of the same components as all other matter, involve the same kinds of transformation of energy and move using the same basic kinds of forces as described in chemistry and physics. Through the study of the diversity of life, students learn how life has evolved. This great variety of life forms continues to change even today as genetic instructions within cells are passed from generation to generation, yet the amazing integrity of most species remain."

Biology 2 – 1 credit (prerequisite Biology 1)
This course is designed for remediation, and is intended to provide additional instructional time to review the topics for the Biology Keystone Exam, required for graduation. Concepts will be taught to prepare for the winter retest and a spring retest if necessary. Additional topics will include an organismal approach through the human body systems in the second half of the course. Students who are successful in this course will demonstrate a thorough conceptual understanding of science content and the application of skills and processes related to biological concepts.

Chemistry 1 – 1 credit
An important part of the Chemistry curriculum is its relevance for both science and technical areas. Thinking skills and problem solving techniques are reinforced along with topics such as measurement, the properties of matter, atomic structure, periodicity, the mole and chemical bonding, chemical relationships and reactions, and the behavior of gases. The students are expected to solve related mathematic, geometric, algebraic, and graphical problems throughout the year. Laboratory investigations and reports will help students with chemistry applications in future endeavors. Safety instruction is integrated into all activities. The course is aligned with PA Academic Standards.

Chemistry 2 – 1 credit (prerequisite Chemistry 1)
In Chemistry 2, the students continue the study of concepts from Chemistry 1 in greater depth, and explore new areas such as acids and bases, equilibrium, nuclear energy, nanotechnology, organic chemistry, and biochemistry. An effort is made to help the student relate chemical knowledge to problems and issues of modern society in regards to their technical area. In class demonstrations, along with traditional and virtual labs, are used to emphasize the experimental nature of chemistry. Safety instruction is integrated into all activities. The course is aligned with PA Academic Standards. *Qualified students may be eligible to take the Lehigh Carbon Community College's Entrance Chemistry Exam at CCTI.*

Physics & Technology – 1 credit
This course is an introduction to the basic science that underscores all other sciences and technology. It focuses on forces, matter, and energy from an engineering and design perspective. After this course students will understand that there is order and regularity to how objects behave because of the laws of mechanics. The objective is to begin to see the world from a different perspective. The coursework is guided by questions like: How does that work? Why does that happen? And what happens if we change this?

Field Biology – 1 credit
This upper level biology course emphasizes the interrelationships between humans and their environments. The main units of study include Forestry, Soil Science, Wildlife Science and Aquatic Biology. Additionally, the state provides a major unit for the course which changes

annually and gives students a chance to investigate a topic in greater depth. The course is defined by the Common Core and Next Generation Science Standards and content focuses on the ecosystems found in Pennsylvania, as well as local ecological concerns. Students who successfully complete this course will be able to make informed decisions as homeowners and landowners, hunters, fishermen, and voters in the state of Pennsylvania. There are five main units: Forestry, Soils and Land Use, Wildlife Science, Aquatic Ecology, Pennsylvania Concerns.

Health and Wellness and Special Programs

Wellness Education/ Physical Education/Keystone Tutorial – 1 credit
The program goal is to teach health and fitness concepts and principles, which will enable students to adopt favorable health behavior patterns, meet their own health needs intelligently, and utilize health resources that are available to them.

Imbedded Safety – 1 credit
Each student will receive a 1/4 credit per year for safety instruction in grades 10 and 11 delivered as a part of their career and technical studies. This allows students to focus on issues of safety unique to their program of study.

Cooperative Education
This program offers students the opportunity to work at a career occupation during part of their school day. It is a unique plan of education designed to integrate theoretical classroom and technical studies with supervised practical experience in selected educational assignments. This employment experience will assist students in establishing and achieving goals appropriate to their employment needs.

Area employers who participate have the opportunity to train highly motivated students. This in turn establishes a pool of potential permanent employees who have demonstrated their abilities. Ultimately, this school-to-work method of education provides the community with a more mature and experienced graduate to consider for permanent employment.

At CCTI, all qualified school students are eligible for and expected to participate in the Capstone program. Capstone students receive a cooperative education experience through a community employer in their area of study. Through cooperative education, these students "cap-off" their experiences at a school-approved station.

Alternative High School Diploma Program
This program serves young adults ages 16-20 of Carbon County who have dropped out of high school or have documented family or personal situations which makes traditional high school attendance infeasible. Residents ages 21 and older must pay tuition in order to attend the program. The program design allows a chance for individuals to earn a high school diploma at their own pace, at a time convenient for them. Students may enter at any time of the year, attend classes on a flexible schedule while holding a job (minimum 15 hours per week), and graduate when they have met the requirements. Employment is required under the Diversified Occupations Program.

Graduation Requirements

A student must attain a minimum of twenty-five (25) credits in order to graduate from CCTI. In addition, senior students must successfully complete a graduation project. Students failing to meet these requirements will not be eligible for graduation.

Graduation requirements will reflect Chapter 4 regulations. The requirements at the present time are:

6 credits of Career and Technical Education
4 credits of English
4 credits of Math
4 credits of Science
3 credits of Social Studies
2 credits of Arts & Humanities/CTE
2 credits of Wellness/Physical Education/Keystone Tutorial/Safety

Student Organizations

Aevidum – Aevidum is a student organization whose goal is to create positive mental health environments where all students feel accepted, appreciated, acknowledged, and cared for in schools and communities across the nation. The word Aevidum, which means "I've got your back," was created by students in 2004 after their classmate died by suicide. The Aevidum message is delivered creatively through a series of student-generated materials, interactive displays, high energy assemblies, community events, music, artwork, stories, PSAs, etc. At the core of Aevidum is an educational philosophy that empowers students to take responsibility to make a difference. Aevidum students are encouraged to use their gifts and talents and to recognize the gifts and talents of their peers to create cultures of care and advocacy in their schools and communities.

Class Officers – Upon entering CCTI, sophomores are given the opportunity to run for a class office. The students who are interested will obtain the signatures of their teachers, and their names will be placed on a ballot. Members of the sophomore class will then vote for their officers. These officers will remain in office for the next three years. Class officers are responsible for providing leadership, participation in student negotiations, representing their respective class in any issues of concern, and overseeing the financial affairs of the class.

DECA – Distributive Education Clubs of America is an international association of Marketing students open to high school, CTE, and college students who have an interest in business marketing, management, and entrepreneurship, as well as management related careers. The mission of DECA is to enhance the co-curricular education of students with interest in marketing, management, and entrepreneurship. Students who avidly participate will be eligible to apply for DECA scholarships through PA DECA and various colleges. Through leadership conferences and competitions, students will put their skills and knowledge to the test as they compete against students in our district and across PA. This organization is available to all students attending CCTI.

HOSA – Health Occupations Students of America is a national student organization that provides a unique program of leadership development, motivation and recognition exclusively for secondary, post-secondary, collegiate, and adult students enrolled in health occupations education courses or instructional programs. HOSA is an integral part of approved health occupation programs. Health Occupations Education (HOE) students who become active members in a local HOSA chapter are eligible for membership in state and national HOSA.

Interact Rotary Club – CCTI Interact Rotary Club is a student organization open to all CCTI students, who want to connect with others in their community or school. Objectives are based on Rotary International, which is a worldwide organization. The main objective of Rotary is "Service Above Self". Interact club members have fun while carrying out service projects and learning about the world. The Interact club organizes at least two service projects a year: one that benefits their community and one that encourages international understanding. While Interact clubs receive guidance from individual Rotary clubs, they govern and support themselves.
National Technical Honor Society – The purpose of this organization shall be to promote the ideals

of honesty, service, leadership, career development, and skilled workmanship among the career and technical students of America, to reward meritorious achievement in career and technical education, to encourage and assist career and technical students in their pursuit of educational and career goals, to develop awareness within the American business, industry, and service communities about the talents and abilities of students engaged in career and technical education, and to provide career and technical students with a greater awareness of the world of work.

Students Against Destructive Decisions (SADD) – This club is available to all students attending our school who believe that "friends do not allow friends to drink and drive." Members must sign a "S.A.D.D. Contract for Life" in which they agree to not allow anyone to drive while intoxicated. Parents of the participating students' co-sign the contract and agree that they will escort said drivers home without questions. Various activities are planned to help the students to become extremely aware of the dangers of substance abuse and its effects, not only on driving, but also in their everyday lives. The support gained as a charter member will help these students to share this vital information with their family and friends.

Skills USA – Skills USA is a national organization serving high school and college students and instructors who are enrolled in training programs in technical, skilled, and service occupations, including health occupations. It provides quality education experiences for students in leadership, teamwork, citizenship, and character development. It builds and reinforces self-confidence, work attitude, and communication skills. It emphasizes total quality at work: high ethical standards, superior work skills, life-long education, and pride in the dignity of work. It also promotes understanding of the free enterprise system and involvement in community service. By becoming a member of this organization, a student has the opportunity to represent his/her technical area in district competition against other career and technical schools in the region. A student also has the opportunity to represent the school in state and national competitions, where scholarships and awards are presented. This organization is available to all students attending CCTI.

Student Council – This organization sponsors a wide variety of services and activities throughout the year to promote citizenship, leadership, human relations, and cultural values. Student Council consists of two representatives from each career and technical area. Every year a president, vice-president, secretary, treasurer and publicity agent are elected by the teachers.

Yearbook – The school produces its own yearbook, The Craftsman. The Yearbook Staff is open to all students who wish to gain valuable experience in art, photography, journalism, advertising and sales while helping to develop this publication. Through the years our Yearbook staff and its advisors have developed a yearbook of high quality and provided it at a very moderate price. We encourage you to join the Yearbook Staff and to purchase a copy when they are available.

Student Support Services

SAP (Student Assistance Program) - The SAP team consists of CCTI personnel who systematically work with students and their families to assist them in the removal of barriers which enable them to become a school success. It is a school-based program that does not engage in diagnosis or treatment. Students may be referred to SAP by fellow students, teachers, support staff, parents, or through self-referral. Oversight for SAP is an approved program provided by the PA Department of Education, Health, and Public Welfare.

Transition Team – The team, consisting of various staff members, meets on a regular basis to:

- monitor the progress of students in CTE and academic subjects, as well as school adjustment
- identify students experiencing difficulty of any kind, gather relevant data and information, and team each student
- make appropriate interventions of a wide variety as needed

The team will also meet with parents of specific students if deemed necessary.

Extra Help and Tutoring

In order to ensure the success of every student to the fullest possible extent, CCTI utilizes and Extra Help program throughout the year. The Extra Help program is offered to all CCTI students and is held after school on most Mondays and some Thursdays from 2:10-3:30 PM. Students are recommended to the program by their teachers, parents and the CCTI Transition Team, as well as requesting the help on their own. Its purpose is to increase student achievement and increase the level of success within their academic and vocational classes. Staff members work with the students in their areas of need. Students are provided transportation home.

In addition to the Extra Help program, CCTI offers tutoring to all of its students. The students are tutored by staff members and certified tutors, in their academic and vocational programs. In addition to tutoring for their academic and vocational programs, the tutoring services focus strongly on student progress with key exams, such as the Keystone, NOCTI, NIMS, industry certification exams, AP, ASVAB, PSAT and SAT preparation, and other postsecondary and employment related exams

Cooperative Education Employers

AG Equipment Specialties
American True Value Hardware
Frank Arieta Plumbing Heating & Fuel
Beers Tooling & Machining Inc.
Blue Mountain Machine
Burger King
Burkholder HVAC
C.F. Martin & Co. Inc.
Carquest Auto Parts
Celebrations Hair & Tanning Salon
Country Junction
Dunkin' Donuts
Eckley Miner s' Village
Four Season Climate Control
Frable & Son Electrical Services
George J. Hayden Electric, Inc.
George's Plumbing & Heating
Great Western Service s Inc.
Hair Mechanics
Hair Patterns
Heritage Sign & Display
Highwood USA
Holiday Hair
Hydra Tech Pumps
K & K Oil
Keystone Harley-Davidson
Kmart
Kovatch Collision Center
L & S Electrical
Lehighton Kia
Mauch Chunk 5 & 10
Mahoning Valley Nursing & Rehab Center
McDonald's
New England Motor Freight
Pencor Services Inc.
Penn Forest Garage
Quality Collision Inc.
R. F. Ohl
R. A. Fritz Plumbing & Heating Inc.
R.E.M.C.O. Inc.
Rentschler Chevrolet
Rumors Beauty Salon
Shawn Kresge Electric & AC Inc.
Sheehan Plumbing Heating & Air Conditioning
SmartStyle Hair Salon
SMF Inc.
Split Rock Resort
Subway
Switchback Medical Center
TN Printing
Valley Athletic Supply
Volkert Electric
Wayne K. Smith General Contractor
WB Electric Inc.
Wentz Auto Body
Worth & Co. Inc.
Yusella Plumbing & Heating

Cooperative Education... What do our employers say?

"We enjoy our partnership with CCTI. Our co-op students are well prepared in basic food preparation, sanitation and customer service skills. The fact that the students are "ServSafe" certified is an added bonus. We are proud to be a partner in furthering the students' training and education in the food service industry."

Lori Teel and Gail Paules, Owners
Subway

"The partnership between CCTI and B.T.M. is very successful. The co-op students have always arrived prepared and willing to advance their machining skills. Man of our co-op graduates are employed full time at B.T.M."

Dave Henritzy, Operations Manager
B.T.M. Incorporated

"Our co-op students have proven to be an asset to our business over the years, providing support in critical areas of our operation. We count on them for strong work ethic and a professional approach to customer service. We are a proud partner and enjoy helping the students grow and further their Marketing Education."

Rob Schneider, Owner
Valley Athletic Supply

"The Cooperative Education Program partnership that we have with CCTI has been a vital path for our company to find prepared and motivated employees. The skills that the students learn in school translate directly to accomplishing many tasks at TPEI, and give a strong base on which to continue the learning process. The "NIMS" certification program allows the employer to know each students' specific skill level, so we can utilize those skills effectively and continue the training and development in machining."

William Marks, Shop Supervisor
Technical Process & Engineering Inc.

More Employer Comments

The following community employers have volunteered these positive comments on behalf of the CCTI students whom they have employed:

Natasha, Health/Medical

"Natasha is kind and caring. She is conscientious, and an asset to our staff."

Susan Hart RN, ADON
Mahoning Valley Nursing & Rehab

Keith, Precision Machining

"Keith does a good job. He shows interest in the work he completes and it shows in the end product."

Gerald D. Bollinger
Northeastern Machine & Fabrication

Brittany, Graphic Design

"Brittany has excellent clerical knowledge and skills, always exceeds supervisors expectations."

Paul Hoherchak
Highway Equipment Manager
PennDOT (Lehighton)

Clayton, Auto Collision & Repair

"Clayton is an excellent employee with good skills, and will excel in this field."

Daniel Carrano
Plant Manager
New England Freight INC.

Post Secondary Opportunities

Students can earn **FREE** college credits while attending CCTI. CCTI has partnered with post secondary institutions, providing articulation credits (college credits).

Articulation Credit

An articulation credit allows high school students to receive college credit for technical courses they completed while in high school. The articulation process eliminates the need for duplication of courses at the college level, so that students can seamlessly continue their education in a related program at a postsecondary institution. Our technical programs are organized so that students may choose from a variety of post-secondary options, including technical or business schools, community college, or a four-year college program. Having earned articulation credits will save time and money. Articulation credit is absolutely **FREE.**

Articulation Credits are received through an agreement between CCTI and a post secondary institution. CCTI currently has Articulation Agreements with: Lehigh Carbon Community College (LCCC), Northampton Community College, Pennsylvania College of Technology, Johnson & Wales University, Universal Technical Institute, and many more.

We encourage you to examine the following websites relating to articulation credits and career resources: PATrac.org, PACareerStandards.com, PACareerZone.org, GettingThemThere.com and PACollegeTransfer.com.

CCTI College/Dual Enrollment Classes

Students attending CCTI have the opportunity to take college level courses for half the college tuition price. The dual enrollment program is provided through Lehigh Carbon Community College (LCCC). This opportunity provides an insight into the college atmosphere, while still being supported in the high school environment. Students learn, gain knowledge and expectations for post secondary education. Full college credit is earned at a substantial savings. An additional benefit is that CCTI students have the opportunity to add these credits to their earned articulation credits.

Any and all expenses (1/2 price tuition & books) are the responsibility of the student/parent. Transportation for these classes is also the responsibility of the student/parent. The fees for these courses are set by LCCC.

Industry Certification – All of CCTI's technical programs are Industry Certified. Students can earn certifications in their approved career technical education (CTE) programs.

Autobody/Collision and Repair Technology/Technician
- S/P2 – Automotive

Auto Service and Technology
- Automotive Service Excellence Certificate - NATEF
- PA State Certified Safety Inspector, Cat 1
- MACS 609

Computer Engineering Technology
- A+
- Network +
- Security+
- Customer Service Specialist (CSS)
- Computer Service Technician (CST)
- Computer Network Systems Technician (CNST)
- IC3 - Internet & Computing Core Certification
- Microsoft - MTA Networking Fundamentals
  - MTA Windows Operating System Fundamentals
  - MTA Server Administration Fundamentals
  - MTA Security Fundamentals
  - Microsoft Office Specialist
  - Microsoft Certified Professional (MCP)
  - CompTIA IT Fundamentals
  - CompTIA IT Server+

Cosmetology
- PA State Board Cosmetologist License

Culinary Arts/Quantity Foods
- PA Food Employee Certified
- American Culinary Certification
  - National Restaurant Association

Drafting & Design Technology
- Autodesk Certified User
  - Certified Drafter

Electrical Dist. & Automation/ Electrician
- National Center for Construction
- Education Registry (NCCER)
- OSHA 10 Hr. Certification
- High School Technical Program
- Certification for Residential Electric
  - Residential Construction Academy (RCA) National Registry

Electronics
- Student Electronics Technician (SET)
- Certified Electronics Technician Associate (CETa)
- Certified Electronics Technician Journeyman (CET)
- Customer Service Specialist (CSS)
- Computer Service Technician (CST)
- CompTIA IT Fundamentals
- MTA: Operating System Fundamentals
- MTA: Networking Fundamentals
- MTAInternet and Computing Core Certification (IC3)
- Residential Systems Integrator (RESI)
  - EM1 – C Basics
  - EM2 – AC Basics
  - EM4 – Digital Basics
  - Strata

Graphic Design
- Adobe Certified Associate-Visual Communication

Health/Medical Assistant/Aide
- BLS Healthcare Provider
- Nurse Aide Registry
  - Heartsaver AED
  - Heartsaver CPR
  - Heartsaver First Aid
  - Personal Care Home Direct Care Staff

Heating, Air Conditioning, Ventilation & Refrigeration Maintenance
- EPA 608 Certification
- Industry Competency Exam
  - Residential Air Conditioning & Heating
  - NORA (Oil Heat)
  - OSHA Certification

Marketing/Distributive
- A*S*K Certification
- National Retail Federation Foundation

Precision Machine Technology
- National Institute for Metalworking Skills, Inc. (NIMS)
- Level 1 – CNC Milling, Manual Milling, Manual
- Level 1 - Turning, Manual Drill Press Operations, Measurement, Materials & Safety, Planning Benchwork Layout
  - Level 1 – Entry Welder
  - Level 11 – Advanced Welder

Welding Technology/Welder
- American Welding Society – Level 1 – Entry Welder
- American Welding Society – Level 11– Advanced Welder

PERF

CCTI Guidance: CT Area _____
___ Half-time ___a.m. ___p.m. ___SE

Carbon Career & Technical Institute
www.carboncti.org

Application for Admission - complete form, sign, date and return to your ***sending school*** guidance counselor.

Technical Program: We will attempt to place each new student in his/her first choice of a technical program; however, due to state requirements, some of our program areas are limited in the number of students allowed into the program. Please indicate a first, second and third choice.

First Choice: _____ Second Choice: _____

Third Choice: _____ FLEX: _____

Student Information: (please print all information legibly)

Last Name: _____ First Name: _____ MI: _____

DOB: _____/_____/_____ Social Security #: _____-_____-_____ Grade entering CCTI: _____

Gender: _____ Race:_____ School District: _____

Current Program: ___ Regular Ed. ____ Special Ed. Home Phone: _____

Phone number for automated calling system if other than the home phone number: _____
List only one phone number

Student lives with: ____Both Parents ____Mother ____Father ____Foster ____Custodial Agency

____Other – please specify: _____

Home Address: _____ City: _____ Zip: _____

Mailing Address – if different than above: _____

Student Email: _____

Parent/Guardian Information: Relationship: _____

Last Name: _____ First Name:_____

Address - If different than the student's address above:

_____

Place of Employment: _____ Work Phone: _____

Cell Phone:_____ Email: _____

Parent/Guardian Information: Relationship: _____

Last Name: _____ First Name:_____

Address - If different than student's address above:

_____

Place of Employment: _____ Work Phone: _____

Cell Phone: _____ Email:_____

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If not living with parent/guardian: Relationship: _____

Last Name: _____ First Name: _____

Place of Employment _____ Work Phone: _____

Cell Phone: _____ Email: _____

If you lived outside of PA, what was your entry date into PA:_____

Have you ever been previously enrolled at Carbon Career &Technical Institute? _____ If so what Year?_____

Parents/Guardians: Read and Sign

For Health and Safety purposes safety shoes and glasses (provided by CCTI) will be **required** in the industrial program areas of the Carbon Career & Technical Institute. Other programs may require a uniform and the purchase of a tool kit.

All information contained in the CCTI student files is strictly confidential; however, if at any time you wish to review the information about your son/daughter, the guidance counselor will meet with you to do so. Some information we request is personal, but it is vitally important as we care for and assist your son/daughter in realizing their career goals.

I have examined the information on this application and agree to the selections my son/daughter has made. I certify that I am a bona fide resident of the (**circle one**) Jim Thorpe / Lehighton / Palmerton / Panther Valley / Weatherly School District and that I am the natural parent or legal guardian of the student making application to the Carbon Career & Technical Institute. I understand that my residency in district is necessary for my son/daughter to attend CCTI.

_____
Parent/Guardian Signature

Release of Information:

I authorize _____ to release grades, PSSA and Keystone Exam scores for my son/daughter to CCTI.
Name of sending school

_____
Parent/Guardian Signature

It is the policy of the Carbon Career & Technical Institute not to discriminate in its educational programs, activities or employment practices based on race, color, national origin, gender, sexual orientation, disability, age, religion, ancestry, union membership, or any other legally protected classification. Assurance is given that services, activities and facilities are accessible to and usable by disable persons. As per Federal Funding Guidelines a "Perkins Act Appeals Procedure" has been developed.

For information regarding civil rights and grievance procedures, contact the Principal, Title IX and Section 504 Coordinator at the Carbon Career & Technical Institute, 150 West 13th Street, Jim Thorpe, PA, 18229. Telephone: 570-325-3682. Fax: 570-325-3737. Revised 2/24/04

Student Signature: _____ Date: _____

Parent Signature: _____ Date: _____

Guardian Signature:_____ Date: _____

PERF

Sending School Counselor Section

***Sending School Counselor Section*:**

PA 9th Grade Entry Date: _____ **PA Secure ID Number**: _____

Non Resident: _____

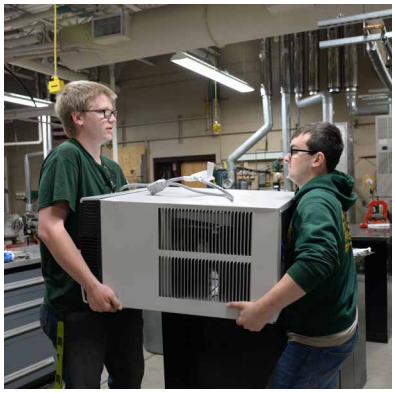
Check-off List - application packet to include the following:

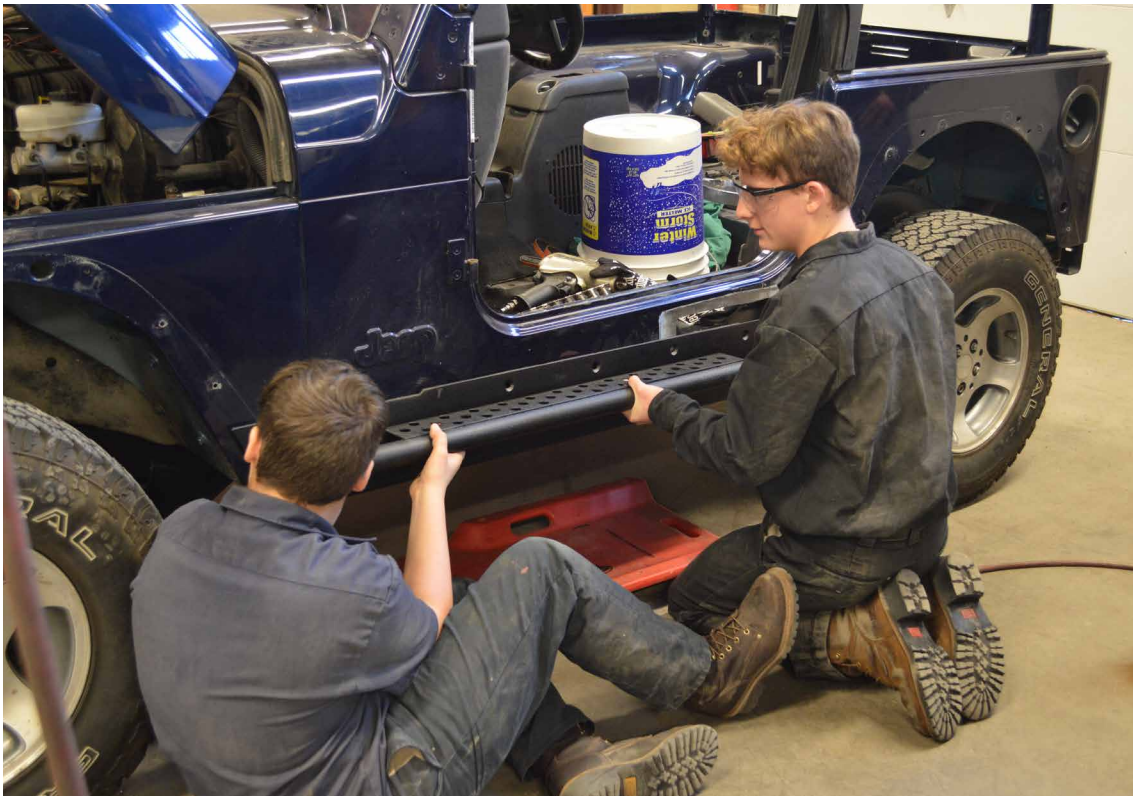
1. _____ Attendance report
2. _____ Discipline report
3. _____ Report card at time of application
4. _____ Report card or transcript for grade(s) completed prior to current year
5. _____ Grade 8 PSSA Score report
6. _____ Keystone exam(s) score report(s)
7. _____ IEP/ER/504
8. _____ELL _____ Other placement: _____
9. _____ Completed immunization record and health records
10. _____ Parent Registration Statement (transfers only)
11. _____ Act 26 report included (if applicable)
12. _____ Guidance Counselor Review of application completed

*NOTE: SEND FINAL REPORT CARD FOR CURRENT YEAR AT END OF YEAR.

High School Counselor Signature: _____ Date: _____

Revised 7/2018

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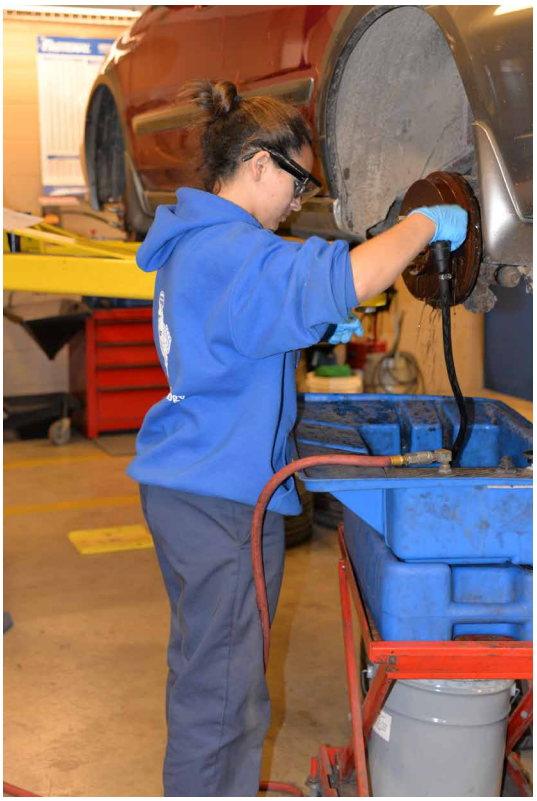
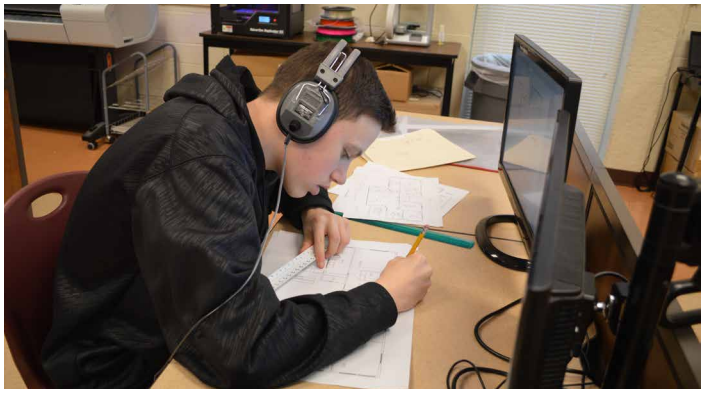
Storm





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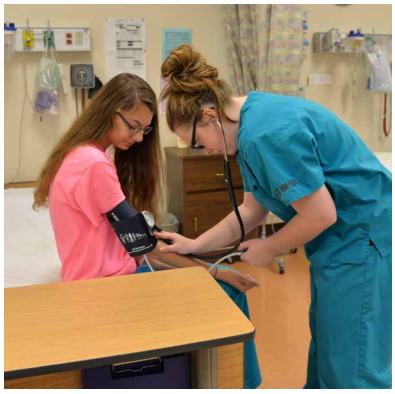

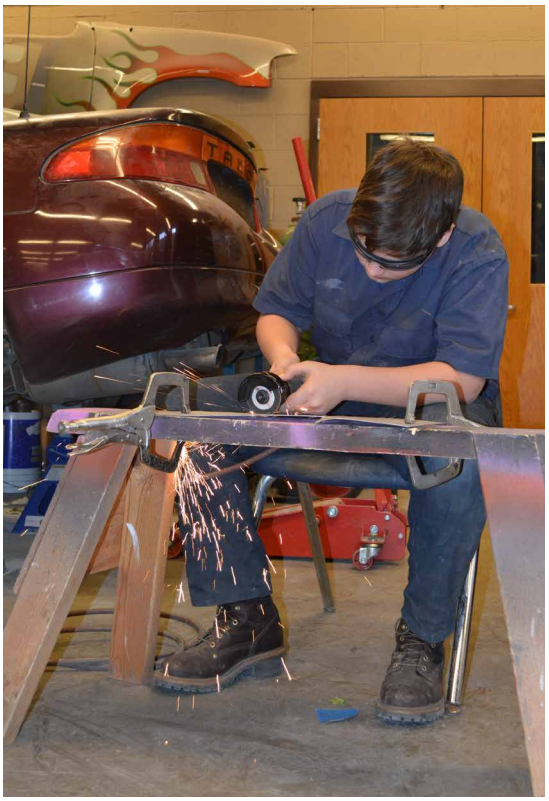

Notes

Non-Discrimination Policy

It is the policy of the Carbon Career & Technical Institute not to discriminate in its educational program, activities, or employment practices, based on race, color, national origin, sex, sexual orientation, disability, age, religion, ancestry, union membership, or any other legally protected classification.

Announcement of this policy is in accordance with state and federal laws, including Title VI of the Civil Rights Act of Amendments of 1972, Title IX of the Educational Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, the Immigration Reform and Control Act of 1986, and the Americans with Disabilities Act of 1990.

Assurance is given that services, activities and facilities are accessible to and usable by disabled persons.

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