



Career and technical education, or CTE, helps students get more out of high school. Specifically, more opportunities to master practical skills, secure industry credentials, earn college credit, win scholarships, explore careers, develop leadership ability and gain real-world experience. That's why Lehigh Career & Technical Institute is the smart choice for students who want to be college and career ready when they graduate.

Operating with the support of all nine Lehigh County school districts, LCTI offers dozens of CTE programs taught by industry experts in five areas of study: Arts & Humanities, Business & Communication Technology, Engineering & Advanced Manufacturing, Health & Human Services and Industrial Technology.

We are the largest career and technical school in Pennsylvania and, thanks to the support of our education and industry partners, among the best equipped nationwide. LCTI's campus is adjacent to Lehigh Carbon Community College in the Schnecksville section of North Whitehall Township and boasts a 450,000-square-foot facility outfitted with the latest software, tools and equipment

ENROLLMENT OPTIONS

Academic Center: The Academic Center provides students in **grades 9-12** with the option of taking both their academic and career & technical course work at LCTI as full-day students. These rigorous academic courses will satisfy graduation requirements as well as complement the career & technical major of each student. Students will still graduate from their resident school districts and are encouraged to participate in extracurricular activities back at their sending school. Students will be able to register for the full-day program during their school district's regular course registration time.

Half-day enrollment: Students in **grades 9-12 may** choose the half-day enrollment option. The half-day option provides students with career & technical education at LCTI and the required academics at their respective school districts. Students are encouraged to take high-level coursework at the sending district which will provide the academic background necessary to be successful in today's highly technical careers.

Flex time enrollment: Another option that may suit students' individual needs is the flex-day program. The flex program is designed to provide students with technical coursework on a limited schedule. Students may choose to come to LCTI for one or more periods per day depending upon their needs. Students may attend one or both semesters and may attend for multiple years. Many students use this technical educational training as a jump start to a technical degree in a four-year institution. Both the half-day and flex-day options may be chosen during the regular course registration process.

ACADEMIC CENTER COURSE OFFERINGS

All courses in the LCTI Academic Center are college-preparatory and meet graduation requirements. Courses are assigned based on classes completed at the sending district prior to attending LCTI. All science courses are lab-based and a graduation project is required for all Academic Center students. The courses offered in the Academic Center are listed below.

English	Mathematics	Science	Social Studies	Other
ELA I	Algebra I	Principles of Scientific Inquiry	American Studies I	
ELA II	Geometry	Biology	American Studies II	Wellness/ Fitness 11
ELA III Accelerated ELA III	Algebra II	Chemistry	World Cultures	Wellness & Fitness 12
ELA IV Accelerated ELA IV	Pre-Calculus	Physics I Physics II	American Government/ Civics/Economics Accelerated American Government/Civics/Economics	
LCCC English Course	Calculus	Environmental Science		
	LCCC Academic Courses			

Lehigh Career & Technical Institute Academic Center Course Schedule 2022-2023

Grades	Semester I	Semester II
9	Math	Math
	Science	Science
	ELA I	ELA I
	American Studies I	American Studies I
10	Math	Math
	Science	Science
	ELA II	ELA II
	American Studies II	American Studies II
11	Math	Math
	Science	Science
	ELA III	ELA III
	*World Cultures or *Wellness/Fitness	*World Cultures or *Wellness/Fitness
12	ELA IV	ELA IV
	American Government/Civics/Economics	American Government/Civics/Economics
	Wellness & Fitness	Wellness & Fitness
	Math or Science	Math or Science

*Semester Course

LCTI ACADEMIC OPTIONS FOR HALF-DAY STUDENTS

Lehigh Career & Technical Institute (LCTI) provides academic courses to some half-day students who attend the school. It is very important for students to be successful in both their academic and technical course work. The courses taken at LCTI are necessary to meet the student's graduation requirements. If a student does not complete an academic course with a passing grade, the course must be retaken. LCTI does not offer a summer school; however, this option may be available through the sending high school. It may also be possible for courses to be made up during the students' senior year; however, make up courses scheduled in the senior year can cause the student to lose the opportunity for a Cooperative Education job placement. If the coursework is not made up, graduation from high school may be jeopardized.

The following academic courses for half-day students may be required while attending LCTI.

American Studies II

The American Studies II course addresses the development of the United States throughout the twentieth century. This course is aligned to the Pennsylvania Core Standards for Social Studies as well as Reading, Writing, and Listening and Speaking. Through various activities and lessons, these standards will be met to understand the development of the United States as a world power; focusing on economic and industrial development, political trends, society and cultural problems and achievements. The students will develop an understanding of the progress of technology and social groups. They will be expected to evaluate the changes of culture in society and analyze the political contributions of individuals and events of the periods studied. American Studies assignments also include the integrated concepts between this history course and various Career & Technical Labs. Students will be assessed formally and informally to determine mastery of the content for the duration of the academic year.

Wellness & Fitness

Course Overview: The Wellness Program provides students with life-changing information on nutrition and various techniques on stress management that they can use throughout life. The most common mental disorders will be researched and students will receive training on suicide prevention. During nutrition, students will investigate the harmful ingredients found in the foods they eat on a daily basis, analyze products served by several fast food chains and research healthy alternatives.

The Fitness Program is designed to acquaint students with the benefits of physical activity in their lives and to promote life-long wellness and fitness. The course, which is held in the state-of-the-art LCTI Fitness Center, will feature various strength and conditioning principles, such as specificity, progression and overload, along with multiple training techniques, such as CrossFit, Tabata, Yoga, and an assortment of technology-based exercises.

LCTI CAREER & TECHNICAL EDUCATION OPTIONS

At Lehigh Career & Technical Institute, students learn by doing. Teachers guide students from instruction to action, helping them tackle projects that mirror on-the-job challenges as they develop the knowledge and skill necessary to secure industry credentials, earn college credit or both. For example, marketing students manage a store on their way to earning National Retail Federation certification. Programs are identified as either Program of Study (POS) or Career & Technical which designates the type of postsecondary credit options available. Students who participate in the POS programs have the ability to earn advanced college credits through SOAR (Students Occupationally and Academically Ready) or through articulation credit with a specific post-secondary school. Career & Technical programs only offer articulation credit where available.

LCTI's programs fall into five areas of study:

ARTS AND HUMANITIES

Advertising Design/Commercial Art: Students will learn the latest Adobe graphic design software currently used in the professional workplace. The emphasis of the program is based on Adobe Photoshop, Illustrator and InDesign and creating a printed and electronic portfolio of work produced through these programs. Students are able to receive certification for Adobe Photoshop, Illustrator and InDesign through Adobe endorsed Certiport. In addition to the Adobe Creative Cloud, students will learn traditional illustration skills such as pencil drawing and shading, water color, color pencil, scratch board and various other mediums. Photography for advertising is used in class and students will learn the use of a Digital Single Lens Reflex camera and the setup of strobe lights. Students are able to concentrate in three different career objectives which are Graphic Design, Sign-Making or Illustration. **(POS)**

Emerging Digital Media & Social Communications: Social media is big business and video content is king. In our Emerging Digital Media program, students learn about the creative and technical processes that drive video production for multimedia platforms ranging from Snapchat and TikTok to YouTube and Netflix. They also explore deejaying and electronic dance music production as they master a variety of concepts, software and skills. **(POS)**

BUSINESS AND COMMUNICATION TECHNOLOGY

Computer Information Technology: Students will be at the forefront of cyber-security related issues as a means to safeguard sensitive data and preserve confidentiality. CIT challenges students to develop meaningful business solutions through computer programming in Visual Basic, C+, C#, and Java. Students learn to use data in order to produce information that moves organizations forward and solves problems. *This program participates in the IT Academy* **(POS)**

Computer & Networking Technology: Students are prepared for advanced network training and the industry standard CompTIA **A+** and **Network+** Service Technician certifications. The program takes students from basic PC hardware through operating systems and networking. Students will also learn the MS Office Suite, customer service and support, and advanced network support. Students have the opportunity to participate in dual enrollment coursework for college credit; additionally, satisfactory completion of the program may grant college course credit through articulation agreements with LCCC.. *This program participates in the IT Academy* **(POS)**

Marketing & Entrepreneurship: Students learn about finance, retail marketing, banking, entrepreneurship, promotions and other important aspects of marketing through virtual business software and retail experience in the school's store. They examine what is necessary to run a business, promote a product or manage a department. Practical experience is available through the student-managed school store and by participating in community internship opportunities. **(POS)**

Print Technology/Graphic Imaging: Students creatively design printed materials such as full-color books, posters, packaging, displays, stationary, as well as specialty items like mugs and shirts. Using the most current versions of Adobe Creative Cloud software on Apple Macintosh computers, students then reproduce their attractive projects on state-of-the-art copiers, printing presses, and bindery machines in a real production environment. **(POS)**

Web Design/Web Programming: Students learn the fundamentals related to web page design and website development, graphics, multi-media and HTML coding. Students are taught the tools for rapid web page production and basic server-side programming techniques to handle everything from forms transmittal to building dynamic interactive web pages, intranet, extranet and e-commerce applications. . *This program participates in the IT Academy* **(POS)**

ENGINEERING & ADVANCED MANUFACTURING

Automated Industrial Technologies: Students learn an innovative curriculum which combines hands-on training with real world industrial equipment and software. Students get a solid background in industrial, electrical and electronic systems, A.C. and D.C. motors, motor controls, power distribution systems, programmable controllers, hydraulics, pneumatics, mechanical drives, transformers, process control systems and troubleshooting. **(POS)**

Electronics Technology: Students are taught the principles of electronics. From DC Circuits to Semi-Conductive Devices they learn to design, build, and test electronic circuits. LCTI has a fully functioning Class 1000 fabrication room (cleanroom) where students create the silicon chips that are the foundation of the information age and the heart and soul of modern electronics. **(POS)**

Engineering Drafting & Design: Students utilize computer-aided drafting and design software to create accurate representations of solutions to engineering design challenges. They hone their skills by designing and then producing three-dimensional models for machine parts, home additions, bridges and more. In the process, students learn to use 3D and wide-format printers, as well as common model-building materials. **(POS)**

Precision Machine Tool Technology: LCTI's Precision Machine lab is recognized as a Haas Technical Education Center and incorporates lessons and demonstrations, as well as extensive applications training in reading blueprints, operating a digital lathe, milling machine, drill press and other machine shop operations in the curriculum. Students train on state-of-the-art CNC machine tools placed in the lab by Haas Automation. **(POS)**

Pre-Engineering & Engineering Technology: This pre-engineering program is a sequence of courses which, when combined with traditional mathematics and science courses, introduces students to the world of engineering. Students study the principles of engineering, engineering design, digital electronics and computer integrated manufacturing. **(POS)**

Supply Chain Management & Logistics Technology: Students learn inventory control, purchasing, receiving, shipping, equipment operation and maintenance in a state-of-the-art 17,000 square foot distribution center. Students train with current industry technology including handle-held track pads and computers, vertical and horizontal carousels, a computer-controlled conveyor and a computer-integrated warehouse management system. Students explore the supply chain of products from their global origin to the consumer including modes of transportation. **(POS)**

Welding Technology: This course teaches students shielded metal arc welding, gas metal arc welding, flux cord arc welding, welding inspection, testing, and safety/emergency procedures. The program operates under entry level certification authorization by the American Welding Society and a special arrangement with Lehigh Carbon Community College permits students to earn a national skills certificate and an Associate Degree. **(POS)**

HEALTH AND HUMAN SERVICES

Animal Sciences: The Animal Sciences program provides high school seniors with the opportunity to explore a variety of veterinary and animal-centric careers in a professional setting while taking Lehigh Carbon Community College science courses for college credit. In a typical school week, students spend one half day immersed in the program curriculum at LCTI, two half days in dual enrollment courses (Fundamentals of Biology, Introduction to Veterinary Technology, and Veterinary Terminology) at LCCC and two half days shadowing professionals or participating in other activities at Lehigh Valley Zoo and local veterinary clinics. Successful participants complete the program with at least seven readily-transferable college credits. Students also get the chance to earn industry credentials that signal their readiness for higher learning to college admissions officers. **This program is only available to senior students. (POS)**

Commercial Baking: Cake decorating, breads, rolls, sweet goods, pastries, pies, doughnuts and nutrition are all part of this course. Students learn the fundamental principles and procedures of operating a fully functioning bakery and retail bake shop, including preparation, display and management. With attention to both theory and practice, this course is designed to prepare students for entry-level positions in the commercial baking industry. LCTI's program is certified by the American Culinary Federation and is nationally recognized as exemplary in all areas of the curriculum. **(POS)**

Cosmetology: Students learn hair styling, hair cutting, hair coloring, chemical texturizing, nail/skin care and salon business operations. Students learn these skills through clinical practices offered at the school salon. Preparation for the Pennsylvania State Board Examination will enable students to become licensed as a cosmetologist and will allow them to work in a challenging and creative profession. **(CAREER & TECHNICAL)**

Criminal Justice: Students learn Pennsylvania criminal and traffic laws, the legal use of force, search/seizure/evidence procedures, arrests and other aspects of law enforcement. Students also train in a fire arms simulator and conduct mock disaster drills to gain practical emergency skills. The program includes opportunities to earn Emergency Medical Responder (EMR) and Emergency Medical Technician (EMT) certifications. **(POS)**

Culinary Arts: Stocks, soups, sauces, appetizers, desserts, main dishes, menu planning and nutrition are just some of the aspects of this program. Students learn front of the house and back of the house skills working in the school restaurant. LCTI's program is certified by the American Culinary Federation and is nationally recognized as exemplary in all areas of the curriculum. **(POS)**

Dental Technology: Students who enroll in this program learn a variety of skills that will enable them to become a dental assistant, dental laboratory technician, and/or pursue a career as a dental hygienist. The major areas of study in the course include: dental radiology, oral pathology, chair-side dental assisting, anatomy and physiology, dental materials, sterilization, and dental office business procedures. **(POS)**

Early Childhood Education: Students who enroll in this program prepare for careers as caretakers and teachers for young children. As students move through the program curriculum, they will: deliver quality child care that meets youngsters' physical needs and supports their development; collaborate with peers to create safe, engaging play environments for young children; lead fun, educational activities for preschool kids in an on-site child care center. **(POS)**

Emergency Health Services: Students who enroll in this program prepare for careers as first responders and more. As students move through the program curriculum, they will: master CPR and other first-aid while earning emergency medical services certifications; train with an ambulance simulator, medical manikins and other high-tech equipment; collaborate with other future first responders and health care providers during simulated emergencies. **(POS)**

Emerging Health Professionals: The Emerging Health Professionals Program provides high school seniors with an opportunity to experience a variety of health care careers in a hospital setting and take Penn State/Lehigh Carbon Community College science courses for college credit. Students spend one day a week rotating among various departments of a hospital. Students will experience these departments throughout the three Lehigh Valley Hospital & Health Network facilities, St Luke's University Health Network Allentown Campus, Country Meadows, and Good Shepherd Rehabilitation Network. The hospital portion of the program provides students with observational experience that enables students to observe various health care professionals as they work with patients. Also, students have the opportunity to meet various health career professionals during presentations within the LVHN community. In addition to these experiences, students are given an overview of the health care industry and all that it entails throughout their coursework at LCTI. **This program is only available to senior students. (POS)**

Future Educators: This dual-enrollment program is designed for 12th graders who aspire to be educators. It gives students a head start on college while exposing them to a variety of education careers. Students job shadow or train with teachers at LCTI and other Lehigh County schools. They also earn seven credits by taking Foundations in Education, Introduction to Special Education and Careers in Education courses at Lehigh Carbon Community College. **This program is only available to senior students. (POS)**

Health & Medical Sciences: Health care is among the nation's fastest growing industries and offers a broad range of professional opportunities. In our Health & Medical Sciences program, students learn about the practical applications of medical science as they explore careers in physical therapy, athletic training and comparable fields. Students can earn CPR, AED and other certifications through the American Heart Association and may pursue internship and co-op positions at local health care facilities. **(CAREER & TECHNICAL)**

Teacher Education: Students studying childcare will learn child and staff health, child development, early childhood education, elementary education, special education, discipline and guidance of children, childcare program development and professional development. **(POS)**

Veterinary Technology: Students who enroll in this program prepare for careers in animal care and veterinary medicine. As students move through the program curriculum, they will: care for gerbils, guinea pigs, and rabbits while studying animal anatomy; assist with veterinary procedures and grooming for staff members' dogs and cats; examine animals for behavior and symptoms that could indicate illness or injury. **(POS)**

INDUSTRIAL TECHNOLOGY

Auto Collision Repair Technology: Students learn about the tools and equipment associated with the collision repair industry, while learning welding, non-structural and structural damage analysis, estimating, and repair techniques, along with paint preparation and refinishing systems used on today's technologically advanced automobiles. This comprehensive course of study and the volume of exposure students receive allows them to step into the workforce immediately following graduation or continue studies at the post-secondary level. **(POS)**

Auto Technology: Students in this program are prepared to diagnose and repair automobile systems including electrical systems, ignition and emission systems, engine cooling and lubrication, front ends, air conditioning, brakes, transmissions, engines and drive trains. Students participate in the nationally recognized Automotive Youth Education Systems (AYES) industry partnership. The program teachers are Master Certified ASE Technicians who utilize state-of-the-art equipment to prepare students to become automotive technicians. **(POS)**

Cabinetmaking & Millwork: Cabinetry, wood products design and layout and construction open the world of cabinetmaking & millwork to students. Students are taught to read blueprints, make shop drawings, and produce components with trade-related hand and power tools and machinery. The newly expanded lab and curriculum provides knowledge of lumber products adhesives, fastener, finishing, 32mm cabinets and counter top fabrication. Technology has entered this rewarding construction trade with the addition of CNC router technology. **(POS)**

Carpentry: Blueprints, site work, construction footings, framing floors/walls/ceilings/roofs, radon control, insulation and power tools are some of the areas taught in Carpentry. Students participate in the LCTI Student House Project where a home is built and sold at auction upon its completion. Students learn how the building industry works, its standards, and what is required to complete a project on time and at cost. **(POS)**

Diesel Medium & Heavy Truck Technology: Students gain experience with drive trains, clutch assemblies, transmissions, diagnostics, steering and other aspects of this industry. Students also study suspension, diesel engines, gasoline engines, bearings and seals. The trucking industry needs professionals to service the truck fleet that keeps industry and commerce moving in the United States. LCTI can provide students with the necessary expertise they need to succeed in this industry. **(POS)**

Electrical Technology: Students learn residential, commercial, and industrial electrical wiring, as well as fluid power technology planning and wiring. Students are taught to install duplex and split wired duplex receptacles, single pole switches, 3-way and 4-way switches and Ground Fault Circuit Interrupters. **(POS)**

Heating/Air Conditioning & Refrigeration: Students learn to install, troubleshoot and repair air conditioning, heat pumps, commercial refrigeration units and gas and oil heating equipment. Skilled technicians are proficient in reading electrical diagrams, diagnosis of electrical problems, air distribution designs, copper and steel pipe cutting, soldering and fabricating fiberglass and sheet metal duct systems. **(POS)**

Heavy Equipment Operations & Preventive Maintenance: As a student in this fast-paced and diverse program, you will learn the safety, maintenance and operating techniques for a wide variety of earthmoving equipment. Students will also receive instruction in soils, erosion and sediment control, site preparation, aggregate production, concrete and asphalt paving, surveys and grades, and utility installation. In addition, students will have the opportunity to learn machine systems, parts identification and ordering, and preventative maintenance techniques in a state-of-the-art facility. **This program is not available to ninth grade students. (CAREER & TECHNICAL)**

Masonry: Students will learn various layouts and pattern designs using brick, concrete masonry units, stone and ceramic tile. This comprehensive program teaches students how to correctly use the necessary tools and equipment to build simple wall structures, fireplaces and brick sculptures. Ceramic tile installation and thin stone veneer applications are also included in the curriculum. Students also participate in the student-built house project. **(POS)**

Painting & Design: Students learn to refresh and highlight interior and exterior spaces (residential and commercial) as well as improve and restore historical buildings. Painting, wallpaper hanging, furniture refinishing, line striping, staining and spraying are among some of the topics emphasized in this program. **(CAREER & TECHNICAL)**

Plumbing & Heating: In this high priority occupation program, Students will learn the basic to the advanced skills of Plumbing & Pipe Fitting. Repairing and installation of items such as, but not limited to; Faucets, Bathtubs, Toilets, Sump Pumps, Sewage Pumps, Water Heaters, Boilers, Water Softeners, Well Pumps, Solar Heating Systems, Chilled Water, Air Conditioning and Radiant Heating Systems. This lab will teach skills such as but not limited to; brazing, soldering, threading, pressed, rolled/grooved, flared, pipe fitting and measurement and fused joints. Students will work with PEX, Copper, Steel, Cast Iron, PP-R, PVC and CVPC Pipe and Tubing. This program incorporates a multi-level and fast paced, technology enriched learning environment. **(POS)**

Small Engines/Recreational Vehicle Repair: Students will learn to diagnose and repair lawn mowers, chain saws, jet skis, motorcycles and go-karts. Students will learn about the small engine and the vital components to effectively make the engine perform to maximum efficiency. Students will also learn about brake systems, transmissions, hydraulics,

hydrostatics and drive systems. Students will learn skills that involve welding, cutting with a torch, cylinder honing and boring. (POS)

OTHER PROGRAM OPTIONS

Service Occupations Cluster: Five curricular areas are offered in this program: Auto Specialization Technology, Building Trades Maintenance, Food Services, Indoor/Outdoor Maintenance, and Supply Chain Management & Logistics Technology. Each area is designed to help the student transition from basic entry-level skill development to more advanced technical training or directly into the workforce. A skills screening will be done to determine the readiness and interest of the student. Results of the screening will be provided to the student's IEP team.

Career Academy Program: Provides the nine participating school districts of Lehigh County an alternative for at-risk students to receive a high school diploma and work toward a career goal in their program of choice. Selected technical programs at LCTI are available to Career Academy Program (CAP) students. They receive academic instruction in English, mathematics, social studies, science, health/wellness, physical education, job readiness, and enrichment coursework. The program operates on a three-day rotation schedule with two out of three days focused on Career & Technical Education Programs. Programs include: Applied Horticulture, Building Trades Maintenance, Electrical Technology, Graphic Communications and Office Systems Technology.

School-To-Career

- **Job Shadow** Students accompany employees through part of a typical day and learn about the varied aspects of their job and skills required to work in the field.
- **Internship** Students may participate in a business match program that allows them to spend a period of time working in their field of study.
- **Cooperative Education** Students in 11th and 12th grade may participate in a business match program that allows them to spend a portion of the school year working in their field of study. Students pursue their academic coursework on a half-day schedule and report to their place of employment for the remainder of the day.

DUAL ENROLLMENT PROGRAM

Did you know you can take college classes while attending LCTI?

Opportunities to earn college credit while still in high school

You won't have to break the bank to attend college. Each credit course at Lehigh Carbon Community College (LCCC) costs about half the regular tuition rate and less than a fourth of the cost for a comparable credit course at any one of Pennsylvania's State universities.

What is a placement test? A placement test is given to students who are interested in taking college courses at LCCC. Students must obtain a minimum score to be eligible for college classes. More information regarding placement testing can be found on lccc.edu.

Dual Enrollment requirements? Students must be Level II or higher in their lab programs and maintain a minimum of a "B" average to participate in Dual Enrollment. Students must also have good attendance and no discipline referrals. The tuition and associated costs for dual enrollment courses must be paid by the student/parent.

Want to see if Dual Enrollment is right for you? Our free, one credit course "The College Experience" is an opportunity to explore dual enrollment. In "The College Experience" you'll learn what to expect if you go to college, as well as what will be expected of you. Upon completion of the course, students have the option of taking a placement test to determine eligibility for future classes at a reduced rate paid by the student/parent.

Lehigh Career & Technical Institute has a policy not to discriminate on the basis of race, color, national origin, sex, disability, or age in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. Inquiries may be directed to LCTI's Title IX and Section 504 Coordinator for students at 4500 Education Park Drive, Schnecksville PA, 18078 or 610-799-1357 (title9@lcti.org) or LCTI's Compliance Officer for personnel at 610-799-1385 (title9@lcti.org).