CAREER & TECHNICAL EDUCATION PROGRAM GUIDE

GET MORE OUT OF HIGH SCHOOL
Get More Out of High School

Career and technical education helps students get more out of high school. Specifically, more opportunities to learn practical skills, develop leadership ability, secure industry credentials, earn college credit, win scholarships, explore careers, 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 career and technical education programs in five areas of study: Arts & Humanities, Business & Communication Technology, Engineering & Advanced Manufacturing, Health & Human Services and Industrial Technology. We serve students from the following schools:

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<th>HIGH SCHOOLS</th>
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Located in the Schnecksville section of North Whitehall Township, LCTI is a 450,000-square-foot facility that sits on 47 acres adjacent to Lehigh Carbon Community College. We’re the largest career and technical school in Pennsylvania and among the best equipped in the nation.

Safety is our first priority at LCTI. All students receive program-specific safety training. Students in our construction trades programs, for example, are required to complete a 10-hour training course that culminates with an Occupational Safety and Health Administration certification issued by CareerSafe.

Visit lcti.org or call 610-799-1366 to learn more.

Our mission at Lehigh Career & Technical Institute is to prepare all students for successful careers and lifelong learning.

Frequently Asked Questions

1. What is career & technical education?
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**EVERYTHING YOU NEED TO KNOW**

**Q: WHAT IS CAREER & TECHNICAL EDUCATION?**

**A:** Career and technical education, or CTE, provides opportunities for students to develop valuable workforce skills while mastering core academics. CTE links what students learn in the classroom with what they need to achieve real-world success. A study found that 80 percent of high school students who paired academic courses with rigorous CTE met college and career readiness goals, compared to 63 percent of students who focused solely on academics.¹

**Q: WHO CAN ATTEND LCTI?**

**A:** Ninth- through 12th-grade students who live in the Allentown, Catasauqua Area, East Penn, Northern Lehigh, Northwestern Lehigh, Parkland, Salisbury Township, Southern Lehigh and Whitehall-Coplay school districts are welcome to attend LCTI.

**Q: HOW MUCH DOES IT COST TO ATTEND LCTI?**

**A:** Zero, zip, zilch. LCTI is a tuition-free public school thanks to the tax support of citizens and businesses from Lehigh County’s nine school districts. Some LCTI programs may require students to purchase safety equipment, specialized clothing or other supplies.

**Q: HOW DO I APPLY TO LCTI?**

**A:** Making LCTI your school is as easy as 1, 2, 3. First, contact your school counselor and tell them you’d like to attend LCTI. Your counselor can supply an application. Applications are available online, too. Next, identify and rank six career and technical education programs that interest you. Finally, complete the application, including a parent or guardian’s signature, and give it to your counselor. That’s it. You’re ready to attend LCTI!

**Q: DO I HAVE TO BE AN INCOMING FRESHMAN TO ENROLL AT LCTI?**

**A:** No, students may enroll at LCTI as freshmen, sophomores, juniors or seniors. However, students are strongly encouraged to begin a CTE program in ninth grade. Spending four years at LCTI maximizes students’ opportunities to earn industry credentials and college credit, win skills competitions and scholarships and qualify for internships or co-ops that could lead to fulfilling careers.

**DID YOU KNOW?**

- **CTE students have a 93% high school graduation rate, compared to 80% for non-CTE students.²**
- **82% of CTE students say their education gives them the ability to learn real-world skills, compared to only 51% of non-CTE students.³**
- **A person with a CTE-related credential or degree will earn on average $4K to $19K more annually than a person with a humanities degree.²**
**Q: HOW DO STUDENTS GET TO AND FROM LCTI?**

**A:** Students are bused between LCTI and their sending high schools at no additional charge to parents or guardians. Busing schedules vary by school. Upperclassmen with driver’s licenses may drive to LCTI, but must adhere to related policies. Parents or guardians also may provide transportation for students.

**Q: CAN I VISIT LCTI BEFORE ENROLLING?**

**A:** Of course! LCTI hosts fall tours for Lehigh County’s eighth and ninth graders every year, encourages prospective students and their parents to attend the school’s Open House in November and offers Camp LCTI for students in grades five through eight each summer. Also, individual tours are available during the school year. Contact Martha Figueroa at 610-799-1376 or figueroam@lcti.org to schedule an individual tour.

**Q: WHAT ARE MY SCHEDULING OPTIONS AT LCTI?**

**A:** LCTI offers three scheduling options for students: Half day, full day and flex.

- **Half day:** Half day is the only scheduling option available to freshmen and a common choice across all grades. Students focus on career and technical education during a morning or afternoon session at LCTI and on academics at their sending high school for the other half of the day.

- **Full day:** Sophomores, juniors and seniors may opt to spend a full day at LCTI. Instead of going to their sending school for academics after a morning or afternoon of CTE, these students head to LCTI’s Academic Center. Learn more about the Academic Center on page 52.

- **Flex day:** Time-strapped students may be eligible for flex scheduling, a customized option that varies depending on their academic course load and sending school.

**Q: CAN LCTI STUDENTS PARTICIPATE IN EXTRACURRICULAR ACTIVITIES AT THEIRSENDING HIGH SCHOOLS?**

**A:** Yes, LCTI students are encouraged to participate in sports, band and other extracurricular activities at their sending high schools. LCTI also offers a host of cocurricular activities. Learn more on page 58.

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**I think everyone should consider coming to LCTI because there’s something for everybody here.**

Jacqueline Fox — Emmaus High School
FREQUENTLY ASKED QUESTIONS

EVERYTHING YOU NEED TO KNOW

Q: DO LCTI STUDENTS TAKE ACADEMIC COURSES?

A: Yes, all LCTI students take academic courses — English, math, science, social studies, physical education, etc. — in addition to their career and technical education courses. Half-day students take academic courses at their sending high schools. Full-day students take academic courses at LCTI’s Academic Center. Like the offerings at students’ sending schools, Academic Center courses are designed to prepare students for success in college and their careers. Learn more about the Academic Center on page 52.

Q: DO STUDENTS GRADUATE FROM LCTI?

A: No. Students graduate from their sending high schools and are awarded diplomas during June commencements. LCTI celebrates graduating students each May on Senior Recognition Night. Seniors are presented with a certificate indicating they’ve completed a CTE program at LCTI.

Q: DOES LCTI OFFER EXTRACURRICULAR ACTIVITIES?

A: LCTI offers cocurricular activities in the form of six career and technical student organizations: DECA, Future Business Leaders of America (FBLA), Family Career and Community Leaders of America (FCCLA), National FFA Organization, HOSA – Future Health Professionals and SkillsUSA. These organizations complement students’ career and technical education coursework, offering opportunities for leadership training, community service, skills competition, scholarships, professional development and more. Learn more about LCTI’s student organizations on page 58.

Q: DOES LCTI PREPARE STUDENTS FOR SUCCESS IN COLLEGE?

A: Absolutely. In fact, LCTI students can (and routinely do) earn college credit before they graduate high school by completing standard CTE coursework or through dual enrollment. Plus, studies show that students exposed to CTE in high school are likely to perform better in college than peers who were not. Learn more about how LCTI helps students get ahead in college on page 54.

Q: WHAT IS A NOCTI EXAM?

A: The NOCTI® exam is an end-of-program assessment for seniors in the majority of LCTI’s CTE programs. It’s an acronym for National Occupational Competency Testing Institute. Students who perform well on the exam receive a state-issued skills certificate and may be eligible for free college credit through SOAR. Learn more on page 55.

FREQUENTLY ASKED QUESTIONS

EVERYTHING YOU NEED TO KNOW

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EVERYTHING YOU NEED TO KNOW
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FREQUENTLY ASKED QUESTIONS

Q: ARE COLLEGE SCHOLARSHIPS AVAILABLE FOR LCTI STUDENTS?
A: LCTI students are eligible for a host of scholarships funded by individuals, organizations and businesses that support career and technical education. The value of these scholarships vary from hundreds to thousands of dollars and are awarded based on a student’s merit, need, competition performance and other criteria. Learn more online at lcti.org/scholarships.

Q: HOW DO LCTI STUDENTS GAIN REAL-WORLD EXPERIENCE?
A: In addition to tackling class projects that mirror on-the-job challenges, there are three primary ways LCTI students get a sense of what work life is like, test their skills in the real world and gain resume-building experience: job shadows, internships and co-ops at some of the region’s top companies. Learn more on page 56.

Q: WHAT IF I’M NOT SURE WHICH LCTI PROGRAM IS RIGHT FOR ME?
A: LCTI is the perfect place to start for students who aren’t sure what career path to pursue. It’s home to dozens of CTE programs...and nearly as many ways to make choosing the right one less daunting. Here are some of the resources that help students pick a CTE program:

• School counselors: Our school counselors know LCTI inside and out, so they’re well equipped to help students figure out which programs align with their interests, strengths and goals.

• Rotations: Prospective students are asked to list and rank six career and technical education programs that interest them. During their first semester at LCTI, students explore three programs from the list of six and, ultimately, select their “speciality,” or one program to stick with going forward.

• Career Cruising: Career Cruising is career exploration software that helps people answer the question, “What should I do with the rest of my life?” It’s a great resource for middle and high school students who are learning about occupations and making plans for the future.

Q: I HAVE AN IEP; CAN I ATTEND LCTI?
A: Yes, students with IEPs are welcome at LCTI. It’s essential that a special education facilitator from LCTI begin attending these students’ IEP team meetings as soon as enrollment at the school becomes a consideration. Facilitators provide important information and help teams revise students’ IEPs. They also ensure all team members understand and support the expectations that come with program changes.

We study creative design, graphic imaging and the technology behind those processes.
Iljah Mitchell — William Allen High School
INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
• Adobe Certified Associate via Certiport®
• OSHA Certification via CareerSafe®
• Pennsylvania Skills Certificate via NOCTI®

CAREER PATHS

with credentials:
• Graphics Installer
• Screen Printer
• Sign Maker

with associate degree:
• Desktop Publisher
• Production Artist
• Multimedia Illustrator

with bachelor's degree:
• Graphic Designer
• Production Manager
• Art Director

DID YOU KNOW?

As companies step up their digital presence, employment of graphic designers in the computer systems design and related services field is projected to grow 21 percent through 2024.

U.S. BUREAU OF LABOR STATISTICS

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

The program also has an articulation agreement with The Art Institute of Pittsburgh.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
• Adobe Certified Associate via Certiport®
• OSHA Certification via CareerSafe®
• Pennsylvania Skills Certificate via NOCTI®

CAREER PATHS

with credentials:
• Photographer’s Assistant
• Photo Retoucher
• Portrait Photographer

with associate degree:
• Industrial Photographer
• Fashion Photographer
• Wedding Photographer

with bachelor's degree:
• Photo Editor
• Photojournalist
• Scientific Photographer

H ave you heard?

“Our students use the latest digital equipment to learn about studio and on-location photography, lighting, processing images, using image browsers, photo retouching and design.”

DAVID ARETZ, PROGRAM INSTRUCTOR

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
I would like to work my way up to becoming a manager in the information technology field.

Corinne Verba — Northern Lehigh High School

Computers are indispensable tools of the modern office. In our Administrative Office Technology/Accounting program, students learn how they’re used to manage an organization’s money, employees and more. Students are introduced to the following concepts, software and skills as they master the clerical and administrative duties that keep an office humming:

- Computer hardware, software, peripheral devices and their roles in the information processing cycle
- Business math and its applications in accounting, financial analysis, inventory management, etc.
- Microsoft® Access®, Excel®, Outlook®, PowerPoint®, Publisher® and Word®, plus Google Apps™
- Create and update business documents, spreadsheets, databases, presentations and publications

By completing assignments comparable to tasks they’d encounter in any office, students learn to organize files, manage correspondence and purchase supplies or equipment. Building skills necessary to deliver presentations and planning everything from staff meetings to international trips are important elements of the program, too. Students explore entrepreneurship by developing business plans. They also study business law and ethics. Upperclassmen are encouraged to test their skills in the real world by securing internships or co-op positions with local companies.

Students can earn the following industry-recognized credentials:

- Microsoft Office® Specialist via Certiport®
- OPAC® Certification
- Pennsylvania Skills Certificate via NOCTI®

This program is part of LCTI’s IT Academy. The academy is designed to prepare students for college degrees and lucrative careers in the rapidly growing field of computer science.

DID YOU KNOW?

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
Daily headlines about hacking are a constant reminder that the convenience of computers comes with pitfalls. In our Computer Information Technology program, students explore what it takes to manage, analyze and secure data as they learn the following software, programming languages and skills:

- Google G Suite and Microsoft Office 365 applications including Access, Excel and Sheets
- SQL, Visual Basic, C++, C# and Java
- Using spreadsheets enhanced with formulas and macros to collect, manipulate and present data
- Applying the three principles of cybersecurity — confidentiality, integrity and availability

Instruction begins with ergonomics, intellectual property, e-commerce models and other fundamentals before moving to advanced topics such as cloud computing, data integration, relational databases and the system development life cycle. Students apply these concepts as they collaborate to design and build databases and database management systems that can be harnessed to yield solutions to real-world problems. In the process, they learn to protect sensitive data by following industry-standard security, backup and recovery procedures.

Based on various end-user needs, students create, test and debug both graphical user interfaces and computer programs. They also learn to troubleshoot common hardware, software and network problems. Practicing business etiquette, time management and conflict resolution are important elements of the program, too.

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- CompTIA A+, Network+, Security+ and Server+ Certifications
- Cisco CCENT and CCNA Certifications
- Pennsylvania Skills Certificate via NOCTI®

**COLLEGE CREDITS**

Students may earn college credit at participating schools for their work in the program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
MARKETING & BUSINESS EDUCATION

Small businesses drive the American economy. In our Marketing & Business Education program, students learn what it takes to run one and give substance to the entrepreneurial spirit. As they tackle the everyday operations of LCTI’s school store, students pick up the following skills:

• Handling purchases, returns and other customer transactions with a cash register
• Ordering and stocking merchandise, tracking sales and other elements of inventory management
• Applying pricing strategies based on break-even point, return on investment and markup calculations
• Speaking effectively with customers, supervisors and vendors

Instruction begins with economic utility, marketing mix and other fundamentals before moving to advanced topics such as visual merchandising and business financing. Often working in teams, students apply these concepts as they conduct market research, plot advertising campaigns and develop business plans. Hands-on training includes designing in-store displays, drafting print advertisements and delivering sales pitches. Peer teaching exercises and on-the-job practice help students develop their communication, customer service, leadership and management skills. Using Microsoft® Office applications to prepare everything from budgets and customer databases to resumes and business proposals are important elements of the program, too.

DID YOU KNOW?

LCTI’s school store has been in operation for more than 40 years and was the first in Pennsylvania to obtain a School-Based Enterprises Chapter Certification-Gold Level from DECA.

LEARN MORE AT DECA.ORG

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LEARN MORE AT DECA.ORG

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

PRINT TECHNOLOGY/GRAPHIC IMAGING

Business cards, catalogs, custom t-shirts — all of these everyday items are products of the graphic communications industry. In our Print Technology/Graphic Imaging program, students explore this multifaceted industry as they learn about graphic design, print production and more. While working in teams to move projects from inception to fulfillment, students are introduced to the following concepts and skills:

• Color theory, typography, layout, design process and their multimedia applications
• Designing with Adobe® applications, including Photoshop®, Illustrator® and InDesign®
• Operating a five-color offset press, a two-color offset press, a folder, a cutter, a booklet maker, etc.
• Operating a platesetter, a digital press powered by Fiery® software, a poster printer, etc.

The program lab doubles as a full-service print shop outfitted with top-of-the-line press, bindery and digital imaging equipment manufactured by C.P. Bourg, GBC, Heidelberg, HP, Konica Minolta, Microtek, Kyobi and other industry-preferred brands. Students hone their skills by churning out everything from letterhead and envelopes to calendars and posters for Lehigh County schools, governments and nonprofit organizations. Students also produce keychains, mugs, T-shirts and more as they practice 3D printing, dye sublimation, foil stamping, screen printing, vinyl cutting and other print processes. Learning about inventory control, production costs, quality control and workplace safety are important elements of the program, too.

DID YOU KNOW?

LCTI’s Print Technology/Graphic Imaging program is PrintED accredited through the Graphic Arts Education and Research Foundation.

LEARN MORE AT GAERF.ORG

CAREER PATHS

with credentials:
Bank Teller
Customer Service Agent
Sales Associate

with associate degree:
Advertising Sales Agent
Personnel Manager
Real Estate Sales Agent

with bachelor’s degree:
Marketing Manager
Public Relations Specialist
Sales Manager

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
• Customer Service Certification via National Retail Federation® Foundation
• Pennsylvania Skills Certificate via NOCTI®

with associate degree:
Bindery Operator
Production Associate
Screen Printer

with bachelor’s degree:
Art Director
Graphic Designer
Production Manager

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
• PrintED®/SkillsUSA Student Certification
• Adobe Certified Associate via Certiport®
• OSHA Certification via CareerSafe®
• Pennsylvania Skills Certificate via NOCTI®

with associate degree:
Desktop Publisher
Prepress Technician
Printing Press Operator

with bachelor’s degree:
Art Director
Graphic Designer
Production Manager

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
Just about everyone and everything has a web presence these days. In our Web Design/Web Programming program, students design and build compelling websites from scratch. As they explore a career field with an employment growth rate nearly four times the national average, students are introduced to the following programming languages software and skills:

- CSS3, HTML5, JavaScript, SQL, and XML
- Adobe® applications including Audition®, Illustrator®, Photoshop®, and Premiere Pro®
- Contract preparation, project management, search engine optimization, storyboarding

After mastering the fundamentals of computer software, hardware, networking and programming, students delve into design, computer graphics and interactive media. Raster graphics, vector animation, video clips and problem-solving algorithms are just some of what they’ll learn to create while developing websites to serve as platforms for everything from e-commerce to online gaming.

Learning to communicate effectively in a professional setting is a core component of the program, so students are routinely tasked with producing multimedia presentations. Upperclassmen select one of four career pathways on which to focus: Computer Programmer, Graphic Designer, Multimedia Animator/Artist and Web Designer. Motivated students may work to cultivate skills associated with multiple pathways.

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- Adobe Certified Associate - Web Communication via Certiport®
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®

**CAREER PATHS**

**with credentials:**
- Computer Support Specialist
- Field Service Technician
- Help Desk Analyst

**with associate degree:**
- Graphic Designer
- Web Designer
- Web Developer

**with bachelor’s degree:**
- Computer Programmer
- Multimedia Animator/Artist
- Web Designer

**HAVE YOU HEARD?**

This program is part of LCTI’s IT Academy. The academy is designed to prepare students for college degrees and lucrative careers in the rapidly growing field of computer science.

**LEARN MORE ON PAGE 20**

**COLLEGE CREDITS**

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
I chose engineering as my program because I’ve always loved all things math and science.

Matthew Rice — Parkland High School

The first step in manufacturing a product or constructing a building is drafting a plan. In our Computer-Aided Drafting & Design program, students explore how architectural, civil and mechanical drafters or engineers move ideas from inception to production. As they learn to compose technical drawings for everything from electronics to skyscrapers, students are introduced to the following skills, software and concepts:

- Manual drawing with industry-standard tools, such as set squares, T-squares and protractors
- Drafting and designing with Autodesk® applications, including AutoCAD®, Inventor® and Revit®
- Orthographic views, isometric drawings, geometric dimensioning and their real-world applications

Students hone their skills by designing and then producing three-dimensional models for machine parts, home additions, bridges and more. In the process, they learn to use 3D and wide-format printers, as well as common model-building materials like foamcore, chipboard and balsa wood.

Students also partner with peers in LCTI’s precision machining and welding programs to reverse engineer products or make those of their own design. Developing portfolios and presentation skills are important elements of the program, too.

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- EM1 - DC Basics via ETA International
- EM2 - AC Basics via ETA International
- EM4 - Digital Basics via ETA International
- Student Electronics Technician via ETA International
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®

The majority of drafters — 49 percent — work for architectural or engineering firms. Another 26 percent are employed by manufacturers and 9 percent work in the construction industry.

**DID YOU KNOW?**

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ELECTROMECHANICAL/MECHATRONICS TECHNOLOGY

Some of the biggest names in Lehigh Valley manufacturing rely on automation to drive production. In our Electromechanical/Mechatronics Technology program, students learn how electrical and mechanical systems combine to automate industry. As they explore the increasingly high-tech world of advanced manufacturing, students master the following skills:

- Read blueprints and schematics for electrical, electromechanical and electronic systems
- Measure voltage, amperage and resistance; build series and parallel circuits
- Connect, operate and troubleshoot commercial and industrial motors
- Build two- and three-wire motor control circuits, as well as sequential control circuits
- Connect, operate and troubleshoot mechanical power transmission and fluid power systems

Instruction begins with Ohm’s Law, Watt’s Law, the National Electrical Code® and other fundamentals before advancing to logic gates, robotics and workcells, for example. The program’s lab is outfitted with dozens of Amatrol trainers that help students develop practical knowledge of everything from electrical wiring to hydraulics.

Collaboration and project-based learning are important elements of the program, too. Students team up to build trainers that help students develop practical knowledge of everything from electrical wiring to hydraulics. Some of the biggest names in Lehigh Valley manufacturing rely on automation to drive production. In our Electromechanical/Mechatronics Technology program, students learn how electrical and mechanical systems combine to automate industry. As they explore the increasingly high-tech world of advanced manufacturing, students master the following skills:

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Television, laptops, cellphones — electronics technology is all around us. In our Electronics Technology/Nanofabrication program, students learn about the inner workings of high-tech devices we rely on for work and play. As they design and assemble FM radios, digital thermometers, alarm systems and more, students are introduced to the following skills:

- Using multimeters, function generators, frequency counters, ohmmeters and oscilloscopes
- Soldering, desoldering, through-hole soldering and surface-mount soldering
- Building series, parallel and series-parallel circuits with direct and alternating currents

Instruction begins with Ohm’s Law, Watt’s Law, Kirchhoff’s laws and other fundamentals before advancing to topics like transistors, diodes, integrated circuits and other elements of semiconductor theory. Students apply these concepts during hands-on training that includes designing simple circuits, assembling circuits based on schematic diagrams, testing and troubleshooting circuits and replacing defective electronic components.

Nanotechnology is also part of the curriculum, so the program lab is equipped with an industry-standard clean room where students make solar cells and more. Upperclassmen routinely participate in LCTI’s rotational internship program and local manufacturers like Lutron Electronics Inc. often recruit them for co-op positions that lead to employment after high school or college.

Television, laptops, cellphones — electronics technology is all around us. In our Electronics Technology/Nanofabrication program, students learn about the inner workings of high-tech devices we rely on for work and play. As they design and assemble FM radios, digital thermometers, alarm systems and more, students are introduced to the following skills:

- Using multimeters, function generators, frequency counters, ohmmeters and oscilloscopes
- Soldering, desoldering, through-hole soldering and surface-mount soldering
- Building series, parallel and series-parallel circuits with direct and alternating currents

Instruction begins with Ohm’s Law, Watt’s Law, Kirchhoff’s laws and other fundamentals before advancing to topics like transistors, diodes, integrated circuits and other elements of semiconductor theory. Students apply these concepts during hands-on training that includes designing simple circuits, assembling circuits based on schematic diagrams, testing and troubleshooting circuits and replacing defective electronic components.

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INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- NIMS® Machining Level I Certifications
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NIMS

LEARN MORE AT NASAHUNCH.COM

If you dream it, the students in our Precision Machine Tool Technology program can machine it. That’s why the Lehigh Valley’s biggest manufacturers begin vying for their attention as early as 10th grade, often hiring them for internship or co-op positions that lead to well-paying jobs after graduation. Program students develop the following skills and more as they learn to turn raw materials into precise parts:

- Program and operate computer numerical control or CNC machines
- Operate a drill press, using it to center drill, drill, countbore and countersink
- Operate a surface grinder, using it to grind surfaces flat and parallel, square or with precision angles
- Operate a milling machine, using it for face, plain, angular and form milling
- Operate a lathe, using it for facing, knurling, tapping, turning, threading and boring

Students hone their skills on the latest Haas CNC machining centers, as well as manual machines from Clausing, Kingston and Sharp, some retrofitted with ProtoTRAK equipment. After mastering the production of simple items like dice, spinning tops and wrenches, students tackle projects that require more accuracy, like automotive parts, bicycle sprockets and cellphone cases.

They often partner with peers in other LCTI programs — auto technology, engineering, drafting, etc. — to design and make custom parts. Benchwork, blueprint reading, machine maintenance, metallurgy, safety and learning to use Mastercam software are important elements of the program, too.

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through local and statewide articulation agreements. Learn more on page 54.

PRE-ENGINEERING & ENGINEERING TECHNOLOGY

Engineers are the world’s problem solvers. Students learn how they combine scientific knowledge with technical skill to find solutions in our Pre-Engineering & Engineering Technology program. As students prepare to pursue careers and college degrees in engineering, they’re introduced to the following skills:

- Using Autodesk Inventor, Mastercam, NI Multisim, SmartDraw and SolidWorks software
- Measuring voltage, amperage and resistance; building series and parallel circuits
- Connecting and operating mechanical power transmission and fluid power systems
- Programming and operating computer numerical control or CNC machines

Instruction begins with schematics, iterative design, modeling and other fundamentals before advancing to computer-assisted manufacturing, energy conversion and total quality control, for example. Students grow their knowledge and skill in a high-tech program lab outfitted with 3D printers, a laser cutter and more.

Collaboration and project-based learning are important elements of the program, too. Working in teams, students design a public water system, build an autonomous VEX® robot and assemble a hovercraft. Along the way, they gain a better understanding of everything from engineering notation to kinematics. Upperclassmen routinely participate in LCTI’s rotational internship program and companies like H.T. Lyons often recruit them for co-op positions that lead to employment after high school or college.

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
SUPPLY CHAIN MANAGEMENT & LOGISTICS TECHNOLOGY

The Lehigh Valley is among the country’s fastest-growing logistics hubs, adding hundreds of new jobs to the region’s economy on an annual basis. Our Supply Chain Management & Logistics Technology program is the perfect launching pad for anyone interested in pursuing employment or a college degree in this multifaceted field after high school. Students develop the following skills as they learn firsthand how a distribution center runs:

- Picking, packing, shipping and other order fulfillment activities
- Procurement, receiving, stocking and replenishment operations
- Operating sit-down counterbalanced forklifts, pallet jacks, order pickers and stand-up reach trucks
- Operating clamp, single-double and slipsheet forklift attachments
- Using warehouse management systems, RF scanners and UPS Trackpad® technology

Working daily in one of the nation’s only fully functional distribution and transportation center to offer secondary-level training, students gain real-world experience by fulfilling supply orders for Lehigh County school districts. The high-tech, 22,000-square-foot center is equipped with vertical lift modules, horizontal carousels, flow racking, drive-through racking and a forklift simulator.

Along with the physical aspects of warehousing, students practice their communication, customer service, management and logistics skills. Upperclassmen are encouraged to secure internships or co-op positions with UPS and other local employers.

WELDING TECHNOLOGY

Sedans and trucks, railroads and bridges, airplanes and trains — welders help make them all. In our Welding Technology program, students explore how these skilled workers shape the nation and its economy. They master the following skills while learning about the indispensable roles welders play in construction, manufacturing and other industries:

- Shielded metal, gas metal, flux cored and gas tungsten arc welding
- Manual oxyfuel and mechanized oxyfuel gas cutting
- Manual plasma and manual air carbon arc cutting
- Silver oxyfuel brazing and silver soldering

Instruction begins with safety, metallurgy and joint geometry as students gear up to practice welding butt joints, corner joints, T-joints, lap joints, edge joints. Before advancing to more complex techniques, they learn to recognize welding symbols and interpret drawings or sketches.

Working in a program lab outfitted with Air Concoa, ESAB, Lincoln Electric, Miller, Thermal Dynamic and Victor welding and cutting equipment, students develop their skills through a combination of expert instruction and hands-on training. They routinely team up with peers in other LCTI programs — precision machining, engineering, etc. — to design and fabricate custom parts. Plus, upperclassmen are encouraged to bolster their skills and their resumes by securing internships or co-op positions with local companies.

CAREER PATHS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

COLLEGE CREDITS

Students can earn the following industry-recognized credentials:

- Certified Logistics Associate via Manufacturing Skill Standards Council
- Certified Logistics Technician via Manufacturing Skill Standards Council
- Forklift Operator via National Safety Council

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Certified Welder via American Welding Society
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®

The basic skills of welding are similar across industries, so welders can easily shift from one industry to another — manufacturing to oil and gas, for example — depending on where they are needed most.

HAVE YOU HEARD?

U.S. BUREAU OF LABOR STATISTICS

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U.S. BUREAU OF LABOR STATISTICS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

The program also has an articulation agreement with Triangle Tech.
Even though there’s a structured curriculum, students still have the freedom to pursue their own interests.

Janell McCarroll — Northern Lehigh High School

Folks rely on green industry professionals for everything from the perfect prom corsage to HGTV-worthy curb appeal. In our Applied Horticulture program, students learn how a green thumb paired with technical savvy can lead to a fruitful career in this fertile field. As they study botany and related sciences, students develop the following hands-on skills:

- Produce perennials and annuals in a greenhouse for use in outdoor planting and as cut flowers
- Design, install and maintain landscapes featuring trees, shrubs, perennials, annuals, bulbs, etc.
- Create floral arrangements with fresh, silk and dried flowers, as well as houseplants
- Establish and maintain turfgrass through soil amendment, seasonal care and pest control

The program lab is outfitted with floral coolers and other industry-standard equipment. Using computer-aided design software, students plan landscaping projects and bring them to life on LCTI’s 47-acre campus with plants from the school greenhouse. In the process, they learn to operate tractors, skid steers, backhoes and other tools.

Exploring entrepreneurship and business operations are important elements of the program, too. Students oversee the sale of seasonal floral arrangements and are required to develop a horticultural business plan.

Students can earn the following industry-recognized credentials:

- OSHA Certification - Agriculture via CareerSafe®
- Pennsylvania Pesticide Applicator Certification via Pa. Department of Agriculture
- Pennsylvania Skills Certificate via NOCTI®

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

The program also has an articulation agreement with Delaware Valley University.

The demand for groundskeepers and landscapers is growing. These and similar occupations are projected to grow at a much-faster-than-average rate of 14 percent through 2024.

U.S. BUREAU OF LABOR STATISTICS

DID YOU KNOW?

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

The program also has an articulation agreement with Delaware Valley University.

CAREER PATHS

with credentials:
- Floral Designer
- Groundskeeper
- Nursery Worker

with associate degree:
- Agricultural Technician
- Greenhouse Manager
- Landscape Designer

with bachelor's degree:
- Agricultural Engineer
- Forester
- Landscape Architect

INDUSTRY CREDENTIALS

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U.S. BUREAU OF LABOR STATISTICS

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The program also has an articulation agreement with Delaware Valley University.
Looking good never goes out of style and that’s great news for anyone intent on pursuing a career in the beauty industry. In our Cosmetology program, motivated students who invest the requisite time can earn a license from the Pennsylvania State Board of Cosmetology for a fraction of what they’d pay to attend beauty school after graduation. As students learn the ins and outs of this ever-evolving industry, they’ll master the following skills:

• Shampooing, haircutting and styling hair, as well as installing hair extensions
• Coloring, highlighting, perming, relaxing and otherwise chemically treating hair
• Cleaning, shaping and polishing fingernails and toenails while performing manicures and pedicures
• Performing facials, applying makeup and removing unwanted hair with tweezers and wax

Using industry-standard equipment, tools and products, students develop their skills by working on mannequin heads, practice fingers and their peers. Later, under the supervision of licensed instructors, students gain real-world experience by serving clients in LCTI’s salon. Upperclassmen are encouraged to take it a step further by seeking co-op positions at local salons.

Students also learn about tracking client information, promoting services and products, hiring personnel and everything else it takes to manage a salon. Anatomy, bacteriology, physiology and hands-on training in sanitation and sterilization are important elements of the program, too.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

• Cosmetologist License via Pennsylvania State Board of Cosmetology
• Pennsylvania Skills Certificate via NOCTI®

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

The program also has an articulation agreement with The Restaurant School at Walnut Hill College.

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• Pennsylvania Skills Certificate via NOCTI®

COLLEGE CREDITS

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The program also has an articulation agreement with The Restaurant School at Walnut Hill College.
Law enforcement is an essential component of the criminal justice system. In our Criminal Justice program, instruction focuses on the daily duties of police officers and other professionals committed to keeping our communities safe. As they learn what it takes to protect and serve, students are introduced to the following concepts and skills:

- Handling phone and radio calls; conducting and documenting interviews and interrogations
- Performing CPR, applying a tourniquet and providing other forms of basic life support
- Securing a crime scene and collecting fingerprints, hair, blood or other physical evidence

Through role play with instructors and peers, students explore the real-life applications of Pennsylvania law and policing policies. They practice foot patrols, responding to emergencies, making arrests and forensic investigations, as well as writing reports about their experiences.

The program lab is equipped with a use-of-force simulator, a driving simulator, composite drawing software, and other high-tech tools that enhance students’ training. The judicial system, corrections and private security are important elements of the program, too.

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- NIMS IS 100, 200, 700 and 800 Certifications via Emergency Management Institute
- MDTS, MOAB, OCAT, PATH and PPBT Certifications via Personal Protection Consultants Inc.
- Hazardous Materials Response-Awareness Certification via Michigan State University
- Pennsylvania Skills Certificate via NOCTI®

In May 2016, the median annual wage for police officers and law enforcement workers was $61,600 and $53,240, respectively, well above the average of $37,040 for all occupations.

**H ave you heard?**

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**CULINARY ARTS**

Any classically trained chef will tell you that the best meals begin with good stock. Our Culinary Arts program is the perfect stock for students looking to cook up rewarding careers in the hospitality industry. While staffing LCTI’s restaurant and cafeterias, they’ll master the following skills:

- Prepare proteins, fruits and vegetables, cereals and grains, beverages, etc.
- Develop and execute menus for breakfasts, lunches, dinners, receptions, etc.
- Use and maintain industry-standard kitchen equipment, such as ranges, ovens, slicers, mixers, etc.
- Price menu items based on production cost calculations; manage inventory
- Maintain sanitary and safe food production facilities in keeping with government requirements

Working as an instructor-led team, students sharpen their culinary skills by catering buffets and multiple-course meals at LCTI’s 80-seat restaurant, Salt & Pepper. They also prepare dishes served daily in the school’s two student cafeterias, as well as take-home meals sold during fundraisers. Students polish their customer service skills by acting as hosts, servers, bussers and cashiers in the restaurant, which routinely hosts special events and is open to the public on select days. Nutrition, food allergies and culinary sustainability are important elements of the program, too.

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- Certified Junior Culinarian via American Culinary Federation
- ServSafe Food Protection Manager Certification
- S/P2 Culinary Certificate
- First Aid Certification via American Red Cross

LCTI’s Commercial Baking & Culinary Arts programs are accredited by the American Culinary Federation Education Foundation.

**D ID YOU KNOW?**

LCTI’s Commercial Baking & Culinary Arts programs are accredited by the American Culinary Federation Education Foundation. Learn more at acfchefs.org

**CAREER PATHS**

**with credentials:**

- 911 Dispatcher
- Correctional Officer
- Security Guard
- Paralegal Assistant
- Paramedic
- Police Officer
- Forensic Science Technician
- Fish & Game Warden
- Special Agent

**with associate degree:**

- Executive Chef
- Food Science Technician
- Restaurateur

**with bachelor’s degree:**

- Food Scientist
- Nutritionist
- Registered Dietician

**with credentials:**

- Certified Junior Culinarian via American Culinary Federation
- ServSafe Food Protection Manager Certification
- S/P2 Culinary Certificate
- First Aid Certification via American Red Cross

**with associate degree:**

- Executive Chef
- Food Science Technician
- Restaurateur

**with bachelor’s degree:**

- Food Scientist
- Nutritionist
- Registered Dietician
Dental professionals make the world a better place one smile at a time. In our Dental Technology program, students learn the science and skills behind good oral health. As they prepare to pursue employment or postsecondary education in the field of dentistry, students master the following skills:

- Check vital signs, record dental/medical histories and practice standard patient care
- Sterilize instruments, disinfect equipment and implement other infection control measures
- Prepare for and assist with checkups, cleanings, operative dentistry procedures and orthodontics
- Take maxillary, mandibular and panoramic X-rays with traditional and digital equipment

Working in a state-of-the-art program lab outfitted with seven exam stations, students hone their chairside skills by practicing on dental mannequins and each other. They also perform lab duties such as taking impressions, pouring models, trimming casts and making temporary crowns. Later students participate in clinical training at local dental practices and upperclassmen are encouraged to secure internship or co-op positions. Hands-on training is augmented by instruction on anatomy, pharmacology and physiology. Students also explore dental specialties including oral surgery and pedodontics. Learning to use Eaglesoft, a popular dental practice management software, is an important element of the program, too.

EARLY CARE & EDUCATION OF YOUNG CHILDREN

The men and women who staff daycare centers, preschools and elementary schools play a vital role in shaping children’s futures. In our Early Care & Education of Young Children program, students learn how to meet youngsters’ basic needs while providing a safe environment that fosters growth and development. As they prepare to pursue careers in education or the daycare industry, students practice the following skills:

- Performing infant and child CPR, as well as providing pediatric first aid
- Implementing infection control and illness prevention policies by sanitizing toys, etc.
- Planning and preparing nutritious, age-appropriate meals and snacks
- Supervising children and using positive reinforcement to guide their behavior
- Communicating with parents about children’s activities, interests and progress

Students team up to draft daily lesson plans based on curriculum goals and the developmental characteristics of children at various ages. Supervised by staff, they present lessons to youngsters at LCTI’s daycare, World of Imagination. Lesson activities include arts and crafts, puppet shows, science experiments, storytime and more. Students also learn how to observe, record and analyze children’s behavior, a three-step practice that helps caretakers refine their lesson activities, for example, or identify developmental problems. Passing a physical and a criminal background check (for students 16 and up) are important elements of the program, too.

H ave you heard?

Dental hygienists earn an annual median pay of $72,910 or roughly $35 per hour and their rate of employment is expected to grow 19 percent — much faster than average — through 2024.

U.S. BUREAU OF LABOR STATISTICS

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Basic Life Support Healthcare Provider via American Heart Association
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®
- Radiation Health & Safety via Dental Assisting National Board

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Child Development Associate-Ready Certificate
- Infant and Child CPR Certification via American Red Cross
- OSHA Certification via CareerSafe®
- Pediatric First Aid Certification via American Academy of Pediatrics

Students are prepared to work in a variety of settings, including daycares, preschools, schools and hospitals.

DID YOU KNOW?

With at least 100,000 projected job openings in the daycare industry through 2026, qualified candidates will have no trouble finding work.

U.S. BUREAU OF LABOR STATISTICS

CAREER PATHS

Students may enter the workforce with credentials:

- Dental Assistant
- Dental Lab Technician
- Dental Office Receptionist

with associate degree:

- Dental Hygienist
- Local Anesthesia
- Public Health

with doctoral degree:

- General Dentist
- Orthodontist
- Oral Surgeon

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

COLLEGE CREDITS

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COLLEGE CREDITS
HEALTH & HUMAN SERVICES

EMERGING HEALTH PROFESSIONALS

Physician assistant, nurse practitioner, physical therapist — those are the job titles for three of the nation’s Top 5, best paid and most-wanted professionals. All three earn a median annual salary of $85,000 or (much) more. Our Emerging Health Professionals program is a must-consider for rising high school seniors interested in these and other medical professions.

The intensive, dual-enrollment program is designed to give students a head start on college and expose them to a variety of health care careers through hands-on training and clinical study at Lehigh Valley Health Network facilities, among others. In order to be eligible for this distinguished program, students must:

- Be rising seniors with a GPA of 3.0 or better and an excellent attendance record
- Have completed biology and chemistry, each with grades of B or better
- Have either scheduled trigonometry or completed it with a grade of B or better
- Meet academic prerequisites for Lehigh Carbon Community College and Penn State Lehigh Valley
- Submit an application and a written recommendation from their high school counselor

In a typical school week, students spend one half day immersed in the program curriculum at LCTI, two half days in science courses at LCCC or PSU and two half days shadowing health professionals or participating in other activities at LVHN’s campuses. Successful participants complete the program with at least eight readily-transferable college credits. Students also have opportunities to earn industry credentials that signal their readiness for higher learning to college admissions officers and prepare them to work in the health care field.

Students may earn additional college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- BLS Healthcare Provider and Heartsaver First Aid via American Heart Association®
- Personal Care Home - Direct Care Staff Certification via Pa. Dept. of Human Services
- OSHA Certification via CareerSafe®

CAREER PATHS

Health Educator
Medical Technologist
Registered Nurse
Nurse Practitioner
Occupational Therapist
Physician Assistant
Medical Scientist
Physician Surgeon

with bachelor's degree:
Health Educator
Medical Technologist
Registered Nurse

with master's degree:
Nurse Practitioner
Occupational Therapist
Physician Assistant

with doctoral degree:
Medical Scientist
Physician Surgeon

DID YOU KNOW?
The health care needs of a growing older population are expected to fuel a 30 percent spike in employment for physical therapy aides and assistants through 2026.

U.S. BUREAU OF LABOR STATISTICS

EXERCISE SCIENCE & REHABILITATION SERVICES

Health care is among the nation’s fastest growing industries and offers a broad range of professional opportunities. In our Exercise Science & Rehabilitation Services program, students explore medical science and its practical applications. As they prepare to launch careers in health care or pursue postsecondary degrees, students master the following skills:

- Using personal protective equipment; applying infection control principles
- Performing CPR with an AED and administering basic first aid
- Measuring and recording patient height, weight and vital signs
- Assisting colleagues with patient exams; moving, lifting and positioning patients
- Assisting patients with personal hygiene and grooming

Working in a high-tech program lab outfitted with seven patient beds, a rehabilitation room and an operating room, students develop their bedside manner by practicing with simulation mannequins, synthetic cadavers and each other. They also have opportunities to shadow clinical experts in the field and upperclassmen may pursue internship or co-op positions with local employers.

Students learn medical terminology, the human body’s systems and its diseases while studying patient response to prescribed exercise, various rehabilitation methods and the management of chronic conditions. The industry imperatives of effective communication, empathy, professionalism and quality care for all patients are emphasized throughout the program curriculum.

Students may earn the following industry-recognized credentials:

- Basic Life Support Healthcare Provider via American Heart Association
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®

CAREER PATHS

with credentials:
Massage Therapist
Physical Therapy Aide
Athletic Trainer
Exercise Physiologist
Speech Therapist

with associate or bachelor's degree:
Personal Trainer
Restorative Aide
Occupational Therapy Assistant
Physical Therapy Assistant

with master's or doctoral degree:
Physical Therapist
Occupational Therapist
Speech Therapist

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

HEALTH & HUMAN SERVICES
I chose LCTI because I wanted to further my education in the automotive field. My goal is to be a NASCAR technician.

Brian Romig — Parkland High School

The average driver is involved in three to four fender benders during their driving lifetime. That’s bad news for drivers and good news for anyone considering a career in the collision repair industry. In our Auto Body/Collision Repair Technology program, students are introduced to the following skills as they learn what it takes to return crash-damaged vehicles to pre-accident condition:

- Removing and installing panels, wheel assembly, wheels and tires: aiming headlights
- Removing and installing interior and exterior trim and hardware, such as seats and emblems
- Removing and installing door regulators, moveable glass and stationary glass
- Attaching structural components with adhesives and by welding
- Preparing vehicles and equipment for refinishing; applying paint and detailing

Students hone their skills through a combination of expert instruction and hands-on training in a program lab outfitted with Welbilt spray booths, a Chief Goliath™ frame rack and other industry-standard equipment. Once they’ve mastered fundamentals like replacing damaged parts, students advance to metal finishing, applying body fillers, frame pulling and more.

The proper use of safety equipment, conducting damage analysis, producing damage estimates and customer service are important elements of the program, too. Upperclassmen are encouraged to bolster their skills and experience by securing internships or co-op positions with local body shops and auto dealerships.

CAREER PATHS

with credentials:
- Automotive Glass Installer
- Collision Repair Technician
- Refinish Technician
- Service/Parts Clerk
- Service Writer

with credentials & experience:
- Auto Body Shop Owner
- Custom Painter
- Insurance Adjuster
- Manufacturers’ Representative
- Service/Parts Manager

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
- ASE Student Certification via NATEF
- AYES Certification via Automotive Youth Educational Systems
- S/P2 Automotive Certification via S/P2

DID YOU KNOW?

LCTI’s Auto Body/Collision Repair Technology program is accredited by NATEF, the National Automotive Technicians Education Foundation.

LEARN MORE AT NATEF.ORG

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through local and statewide articulation agreements. Learn more on page 54.

The program also has an articulation agreement with Automotive Training Center.
For many Americans, cars are an essential part of daily life. In our Auto Technology program, students learn how automotive technicians maintain these complex machines. While exploring the increasingly high-tech systems that work in concert to keep a car running, students master the following skills:

- Servicing and repairing or replacing suspension and steering systems or their components
- Servicing and repairing or replacing brake systems or their components
- Servicing and repairing or replacing electrical and electronic systems or their components
- Servicing and repairing or replacing engines or their components
- Servicing and repairing or replacing transmissions and other drivetrain components
- Servicing and repairing or replacing heating and air conditioning systems or their components

Other important elements of the program include auto shop safety, work station organization, auto shop management, and customer service. Students develop their skills through a combination of expert instruction and hands-on training in a state-of-the-art program lab outfitted with 10 hydraulic vehicle lifts, a wheel alignment machine and a chassis dynamometer.

Students gain real-world experience by servicing and troubleshooting LCTI maintenance vehicles, as well as school staffers’ cars. Through Automotive Youth Education Systems, or AYES, upperclassmen are encouraged to secure internships or co-op positions at local auto shops and dealerships. Competition is also a big part of the school staffers’ cars. Through Automotive Youth Education Systems, or AYES, upperclassmen are encouraged to secure internships or co-op positions at local auto shops and dealerships. Competition is also a big part of the school staffers’ cars. Through Automotive Youth Education Systems, or AYES, upperclassmen are encouraged to secure internships or co-op positions at local auto shops and dealerships. Competition is also a big part of the school staffers’ cars. Through Automotive Youth Education Systems, or AYES, upperclassmen are encouraged to secure internships or co-op positions at local auto shops and dealerships. 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Through Automotive Youth Education Systems, or AYES, upperclassmen are encouraged to secure internships or co-op positions at local auto shops and dealerships. Competition is also a big part of the school staffer...
Carpenters play crucial roles in every step of construction. In our Carpentry program, students learn how these skilled tradespeople build homes and other structures from foundation to roof. As they prepare to launch careers in the construction trades or pursue postsecondary education, students develop the following skills:

- Read blueprints, building specifications, section views and elevation views; draw plans to scale
- Perform sitework such as staking out buildings and constructing footers, foundations and slab forms
- Frame floors, walls, ceilings and roofs
- Construct and install exterior finish, including windows, doors, siding, roofing, gutters and downspouts
- Construct and install interior finish, including drywall, door trim, window trim, flooring and baseboards

Working in a program lab outfitted with the latest industry-standard equipment, including SawStop saws for enhanced safety, students first master fundamentals like using hand and power tools, building walls and hanging doors. Later, they advance to installing siding, framing staircases and estimating material costs. Along the way, they learn how concepts like green building and universal design are applicable in the field.

Upperclassmen gain real-world experience by tackling carpentry projects for community schools or nonprofit organizations and securing co-op positions with local contractors. Practicing job site safety, learning to work in teams and adhering to building codes, zoning regulations and Americans with Disabilities Act requirements are important elements of the program, too.

**CARPENTRY**

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®
- Pennsylvania Builders Association® Skills Certificate
- Residential Construction Academy National Registry

**COLLEGE CREDITS**

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through local and statewide articulation agreements. Learn more on page 54.

Farmers, commercial truck drivers and firefighters are among the many who rely on diesel-powered vehicles and mobile equipment to do their jobs. In our Diesel Medium & Heavy Truck Technology program, students learn how diesel technicians keep harvesters, truck tractors, fire trucks and other big machines rumbling the right way. They master the following skills while working with vehicles manufactured by Freightliner, Kenworth, Mack Trucl, Navistar, Peterbilt, Volvo and many others:

- Inspect suspension and steering systems; repair or replace their components
- Inspect brake systems and drivelines; repair or replace their components
- Inspect diesel engines; repair or replace their components
- Inspect air intake, exhaust and fuel systems; repair or replace their components
- Inspect cooling, electrical and electronic systems; repair or replace their components

Guided by a curriculum developed with industry input, students sharpen their skills in a program lab outfitted with fixed and mobile hydraulic vehicle lifts, a gantry crane, a computerized diagnostic system and other industry-standard equipment. Instruction begins with shop safety, proper tool use and other fundamentals before advancing to activities like performing a diesel engine tune-up or replacing a cylinder head.

Supervised by their instructor, students gain real-world experience by servicing vehicles for local fire and ambulance companies, as well as LCTI’s adult education programs. Upperclassmen are encouraged to further develop their skills by seeking internships or co-op positions with local trucking companies or dealerships.

**DIESEL MEDIUM & HEAVY TRUCK TECHNOLOGY**

**INDUSTRY CREDENTIALS**

Students can earn the following industry-recognized credentials:

- S/P2 Heavy-Duty/Diesel Technology via S/P2
- Certified Safety Inspector via PennDOT
- ASE Student Certification via NATEF
- Shop Foreman

**DID YOU KNOW?**

LCTI’s Diesel Medium & Heavy Truck Technology program is accredited by NATEF, the National Automotive Technicians Education Foundation. LEARN MORE AT NATEF.ORG

**COLLEGE CREDITS**

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through local and statewide articulation agreements. Learn more on page 54.
INDUSTRIAL TECHNOLOGY

ELECTRICAL TECHNOLOGY

Electricians light up American homes and businesses. In our Electrical Technology program, students learn how these highly skilled men and women literally electrify the nation and much more. They develop the following skills while exploring the ins and outs of residential, commercial, industrial, and communication wiring:

- Install non-metallic, metal-clad and Cat 5 cables; install telephone and television circuits
- Install single-pole, three-way and four-way switches; install duplex, GFCI and AFCI receptacles
- Install EMT, PVC, surface metal, nonmetal and liquid-tight flexible metal conduit raceways
- Install light fixtures, smoke detectors and doorbells; install rough and finish wiring in homes
- Use multimeters, continuity testers, plug-in circuit testers and clamp-on ammeters

Working in a program lab outfitted with Amatrol trainers and industry-standard equipment, students tackle projects that mimic real-life situations on a daily basis. Instruction begins with fundamentals like job-site safety, National Electrical Code® requirements and blueprint reading before advancing to the installation of electrical service, optical fiber connectors and home theater systems.

Students also learn to design residential security systems, configure home automation modules and set up industrial motor control systems. The latter skill makes program students a hot commodity among Lehigh Valley manufacturers, who compete to fill their internship and co-op positions with LCTI’s upperclassmen.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Various NCCER® certifications
- OSHA Certification via CareerSafe®
- Pennsylvania Builders Association® Skills Certificate
- Pennsylvania Skills Certificate via NOCTI®

HEATING/AIR CONDITIONING & REFRIGERATION

No matter the weather, heating and cooling systems keep homes, offices and schools at the optimal temperature. Students learn how HVAC technicians install, maintain and repair these complex and increasingly high-tech systems in our Heating/Air Conditioning & Refrigeration program. As they explore a career field with an employment growth rate that’s three times the national average, students are introduced to the following skills:

- Cut and assemble various piping materials, including ACR copper tubing, CSST and PVC pipe
- Wire series, parallel and series-parallel circuits; install electric disconnects, circuit breakers and fuses
- Install and service a variety of cooling, heating and refrigeration systems, as well as their components
- Fabricate air ducts; evaluate ventilation systems’ performance by measuring air velocity, volume, etc.

Instruction begins with job-site safety, tool use, blueprint reading and other fundamentals before moving to advanced tasks like gas furnace maintenance, refrigerant recovery and heat pump installation. Working in a program lab equipped with appliances made by Carrier, Goodman, Honeywell, Trane and other industry-recognized manufacturers, students collaborate to complete projects that mirror on-the-job tasks.

First- and second-year students, for example, wire thermostats, add ductwork to an existing ventilation system and install condensate, gas and refrigerant lines. Third- and fourth-year students, meanwhile, build a sealed HVAC system, troubleshoot an ice machine and install a geothermal unit. Upperclassmen are encouraged to further develop their skills by securing internship or co-op positions with local companies.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Various NCCER® certifications
- Various Air Conditioning & Refrigeration Institute certifications
- OSHA Certification via CareerSafe®

The program also has an articulation agreement with University of Northwestern Ohio. Learn more on page 54.

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

LCTI’s Heating/Air Conditioning & Refrigeration program is accredited by NCCER, the National Center for Construction Education & Research. Learn more at NCCER.ORG

LEARN MORE AT NCCER.ORG

LCTI.ORG • 44

DID YOU KNOW?

LCTI’s Heating/Air Conditioning & Refrigeration program is accredited by NCCER, the National Center for Construction Education & Research. Learn more at NCCER.ORG

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

The program also has an articulation agreement with University of Northwestern Ohio.
HEAVY EQUIPMENT OPERATIONS & PREVENTIVE MAINTENANCE

Building a home, installing a sewer line and widening a road are a few examples of the myriad tasks that require heavy equipment. In our Heavy Equipment Operations & Preventive Maintenance program, students explore the diverse employment opportunities for heavy equipment operators. As they learn about the role of mobile machinery in various industries, students master the following skills:

- Operating articulated dump trucks, bulldozers and excavators
- Operating backhoe loaders, crawler loaders, skid-steer loaders and wheel loaders
- Inspecting equipment systems and performing preventive maintenance
- Using hand and electric or gas power tools ranging from hammers to jackhammers
- Surveying, site preparation and grading; employing erosion and sediment control

Instruction begins with job-site safety, blueprint reading, equipment rigging, and other fundamentals before advancing to activities like building a pad, backfilling a trench and slot dozing. Working in one of the nation’s best-equipped program labs of its kind, students learn to use more than 20 machines made by Case, Caterpillar, John Deere, Volvo and other big-name manufacturers.

Exercises on virtual equipment simulators are followed by plenty of practice with the real thing on an expansive outdoor training course. Students gain real-world experience by assisting with maintenance projects on the school’s 47-acre campus and off-site jobs supervised by their instructor.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
- Flagger Training via Associated Pennsylvania Constructors
- OSHA Certification via CareerSafe®
- Flagger Training via Associated Pennsylvania Constructors
- Pennsylvania Skills Certificate via NOCTI®

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54. This program also has an articulation agreement with the Automotive Training Center.

MASONRY

Some of the world’s most famous structures — the Colosseum, the Egyptian pyramids and the Taj Mahal, to name a few — were built by masons. In our Masonry program, students explore the age-old trade while learning how today’s masons build modern masterpieces. As they grow familiar with the tools and diverse materials of the trade, students master the following skills:

- Build solid masonry and veneer walls; install openings for windows and doors, plus flashing
- Build various brick features, including arches, chimneys, columns, corbels and fireplaces
- Prepare and form for concrete; place, reinforce and finish concrete; patch old concrete work
- Lay brick pavers in basketweave and herringbone patterns; lay interlocking concrete pavers
- Build with or install ceramic tile, glass block, stone, stone veneer and other masonry materials

Instruction begins with cutting bricks and blocks, mixing mortar, laying courses with a variety of brick bonds and other fundamentals before advancing to activities like stone work and tile work. Practicing job-site safety, students learn about the role of mobile equipment. In our Masonry program, students explore the age-old trade while learning how today’s masons build modern masterpieces. As they grow familiar with the tools and diverse materials of the trade, students master the following skills:

- Build various brick features, including arches, chimneys, columns, corbels and fireplaces
- Prepare and form for concrete; place, reinforce and finish concrete; patch old concrete work
- Lay brick pavers in basketweave and herringbone patterns; lay interlocking concrete pavers
- Build with or install ceramic tile, glass block, stone, stone veneer and other masonry materials

Students develop their skills through hands-on training in a program lab outfitted with laser levels, mortar mixers, masonry saws and other industry-standard equipment. They often team up with peers in LCTI’s carpentry programs to work on projects for community schools and nonprofit organizations. In addition, upperclassmen are urged to line up internship or co-op positions with local contractors.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:
- OSHA Certification via CareerSafe®
- Pennsylvania Builders Association® Skills Certificate
- Pennsylvania Skills Certificate via NOCTI®

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
INDUSTRIAL TECHNOLOGY

PAINTING & DECORATING

Brighten a drab room, highlight a home’s architectural detail or launch a rewarding career. In our Painting & Decorating program, students discover how paint can do it all. As students learn to create inviting interiors and exteriors for residential and commercial structures, they’re introduced to the following skills:

- Stripping, spackling and otherwise preparing surfaces for paint
- Applying paint using a variety of brush, spray and faux finishing techniques
- Removing and hanging wallpaper and other wall coverings
- Staining and finishing wood, as well as varnishing and restoring furniture
- Color coordination and interior decorating

Practicing on-the-job safety, developing product knowledge and producing cost estimates are important elements of the program, too. Students hone their skills through a combination of expert instruction and hands-on training with industry-standard equipment. Training includes on-campus maintenance projects and off-campus activities like painting a youth recreation center.

Upperclassmen are encouraged to test their skills by securing resume-building internships or co-op positions. They might help with activities like painting a youth recreation center. First- and second-year students team up to tackle an industrial piping project, for example, while third- and fourth-year students focus on designing and installing bathrooms. Job shadows, internships and cooperative education are integral to the program; upperclassmen routinely secure positions with Deluxe Plumbing and Heating, Elek Plumbing, H.T. Lyons and Schuler Service among other local employers.

Students in our Plumbing & Heating program master the following skills as they prepare to launch careers in this lucrative field:

- Read and interpret blueprints, pipe system sketches and plumbing specifications
- Measure, cut and join a variety of metallic pipe/tubing, including copper, steel and cast iron
- Measure, cut and assemble a variety of plastic pipe/tubing, including PVC, CPVC, PEX, PE and HDPE
- Rough in water supply lines, waste lines and vents for various fixtures and appliances
- Install and repair various fixtures and appliances

Instruction begins with job site safety, power tool use and other fundamentals, but quickly advances to soldering, brazing, threading and pressing pipe/tubing. Working in a program lab outfitted with custom-made trainers and industry standard equipment from RIGID, Uponor, Viega and other manufacturers, students hone their skills by completing assignments that mimic real-life residential, commercial and industrial plumbing challenges.

Students have their skills through a combination of expert instruction and hands-on training with industry-standard equipment. Training includes on-campus maintenance projects and off-campus activities like painting a youth recreation center.

CAREER PATHS

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Various NCCER® certifications
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®
- Pennsylvania Builders Association® Skills Certificate

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

PLUMBING & HEATING

With a median annual salary of $52,590 and skyrocketing demand, plumbers, pipefitters and steamfitters are among the highest paid and most sought after professionals in the construction trades. Students in our Plumbing & Heating program master the following skills as they prepare to launch careers in this lucrative field:

- Install and repair various fixtures and appliances
- Rough in water supply lines, waste lines and vents for various fixtures and appliances
- Read and interpret blueprints, pipe system sketches and plumbing specifications
- Measure, cut and join a variety of metallic pipe/tubing, including copper, steel and cast iron
- Measure, cut and assemble a variety of plastic pipe/tubing, including PVC, CPVC, PEX, PE and HDPE

Instruction begins with job site safety, power tool use and other fundamentals, but quickly advances to soldering, brazing, threading and pressing pipe/tubing. Working in a program lab outfitted with custom-made trainers and industry standard equipment from RIGID, Uponor, Viega and other manufacturers, students hone their skills by completing assignments that mimic real-life residential, commercial and industrial plumbing challenges.

First- and second-year students team up to tackle an industrial piping project, for example, while third- and fourth-year students focus on designing and installing bathrooms. Job shadows, internships and cooperative education are integral to the program; upperclassmen routinely secure positions with Deluxe Plumbing & Heating, Elek Plumbing, H.T. Lyons and Schuler Service among other local employers.

CAREER PATHS

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Various NCCER® certifications
- OSHA Certification via CareerSafe®
- Pennsylvania Skills Certificate via NOCTI®
- Pennsylvania Builders Association® Skills Certificate

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.

DID YOU KNOW?

Fuelled by new construction and building maintenance, employment of plumbers, pipefitters and steamfitters is projected to grow 16 percent through 2026, much faster than the average for all occupations.

U.S. BUREAU OF LABOR STATISTICS

CARERE PATHS

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Allentown Master Plumbers Association First-Year Pa. Apprenticeship Certificate
- EPA Section 608 Technician Certification
- OSHA Certification via CareerSafe®
- Pennsylvania Builders Association® Skills Certificate

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54.
SMALL ENGINES/RECREATIONAL VEHICLE REPAIR

All-terrain vehicles, jet skis and chainsaws — they serve different purposes but share a key characteristic: small engines! In our Small Engines/Recreational Vehicle Repair program, students learn how small engine technicians keep the vehicles Americans use on the job and at play in top form. They master the following skills while working with everything from Briggs & Stratton-powered push mowers to Harley Davidson motorcycles:

- Servicing and repairing two-cycle and four-cycle gas engines; overhauling four-cycle engines
- Servicing and repairing starting systems, plus ignition and charging systems
- Servicing and repairing electronic, mechanical and GDiesel® fuel systems, as well as governors
- Servicing and repairing braking systems, clutches and equipment drives
- Servicing and repairing liquid cooling, lubrication and exhaust systems

Instruction begins with shop safety, proper tool use and other fundamentals before advancing to activities like troubleshooting an electrical starting system and engine overhauls. Students hone their skills with hands-on training in a program lab outfitted with nine hydraulic vehicle lifts, a chassis dynamometer and other industry-standard equipment.

Supervised by their instructor, students gain real-world experience as they service outdoor power equipment for LCTI’s Applied Horticulture and Indoor/Outdoor Maintenance programs, as well as school staffers. Upperclassmen are encouraged to secure internships or co-op positions at local shops and dealerships.

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Certified Emissions Inspector & Certified Safety Inspector via PennDOT
- Apprentice, Technician & Certified Technician via Honda Engines
- Various certifications via Briggs & Stratton, ECHO and STIHL

LCTI’s Small Engines/Recreational Vehicle Repair program is accredited by EETC, the Equipment & Engine Training Council.

HAVE YOU HEARD?

LCTI’s Small Engines/Recreational Vehicle Repair program is accredited by EETC, the Equipment & Engine Training Council.

LEARN MORE AT EETC.ORG

CAREER PATHS

Motorboat Technician
Motorcycle Technician
Power Equipment Technician

with credentials:

with experience:
Managers’ Representative
Motorcycle Shop Owner
Service/Parts Manager

INDUSTRY CREDENTIALS

Students can earn the following industry-recognized credentials:

- Certified Emissions Inspector & Certified Safety Inspector via PennDOT
- Apprentice, Technician & Certified Technician via Honda Engines
- Various certifications via Briggs & Stratton, ECHO and STIHL

with postsecondary training or college degree:

Aircraft Technician
Mechanical Engineering Technician
Mechanical Engineer

COLLEGE CREDITS

Students may earn college credit at participating schools for their work in this program by scoring well on an end-of-program assessment and through a statewide articulation agreement. Learn more on page 54. The program also has an articulation agreement with the Motorcycle Mechanics Institute.

I love all of the teachers. Because the classes are a lot smaller, they’re able to to focus on you more.

Samantha Weikel — Emmaus High School
Academic Center courses meet graduation requirements set by LCTI's sending schools, preparing students for success in college and beyond. Plus, academic lessons complement the career and technical programs at LCTI, employing hands-on activities and encouraging problem solving.

**INTEGRATED CURRICULUM**

Academic Center courses meet graduation requirements set by LCTI’s sending schools, preparing students for success in college and beyond. Plus, academic lessons complement the career and technical programs at LCTI, employing hands-on activities and encouraging problem solving.

**CHALLENGING COURSEWORK**

Students in grades 10-12 may choose to attend LCTI for a full day. In addition to CTE programs, full-day students take their academic courses — English, math, science, social studies and physical education — in the Academic Center. Less time in transit means students have more time to focus on learning.

Like the offerings at students’ sending high schools, Academic Center courses are rigorous and designed to prepare students for future success in college and their careers. Some full-day students are eligible for dual enrollment and may earn college credit by taking classes at nearby Lehigh Carbon Community College. Learn more about dual enrollment on page 54.

**HAVE YOU HEARD?**

Academic Center class sizes typically range from 20 to 25, so students get plenty of one-on-one time with teachers.

Academic Center students spend all day at LCTI, but are encouraged to participate in activities and special events at their sending schools.

**ACADEMIC CENTER**

**THE BEST OF BOTH WORLDS**

Rather than splitting the day between Lehigh Career & Technical Institute and their sending high schools, students who enroll in our Academic Center spend all day at LCTI. They get the best of both worlds — traditional academic courses and career and technical education programs — in one place.

**TRADITIONAL COURSES & DUAL ENROLLMENT**

The Academic Center offers the following English, math, science, social studies and physical education courses:

**ENGLISH**
- English Language Arts II
- English Language Arts III
- English Language Arts IV
- Accelerated English Language Arts III
- Accelerated English Language Arts IV

**MATH**
- Algebra II
- Geometry
- Pre-Calculus
- Calculus

**SCIENCE**
- Biology
- Chemistry
- Environmental Science
- Physics I

**SOCIAL STUDIES**
- American Studies II
- World Cultures
- American Government/Civics/Economics
- Accelerated American Government/Civics/Economics

**PHYSICAL EDUCATION**
- Wellness/Fitness 11
- Wellness/Fitness 12

**ACADEMIC CENTER**

To be named to the Academic Center honor roll’s highest ranks, students must have at least a 4.0 GPA in their academic courses and a 90% in their CTE program.
EARN COLLEGE CREDIT IN HIGH SCHOOL

LCTI maintains articulation agreements with 20 postsecondary institutions, including Lehigh Carbon Community College. These agreements allow students to earn credit toward college degrees or advanced industry credentials for completing one of a dozen eligible career and technical education programs.

Articulation Agreements

Through SOAR, or Students Occupationally and Academically Ready, students who complete career and technical education programs at LCTI can earn free college credit for their work at more than 40 postsecondary institutions in Pennsylvania. To qualify, students must (1) maintain a 2.5 GPA in their CTE program, (2) complete the program task list at or above the proficient level, (3) score proficient or advanced on an end-of-program assessment, (4) earn a high school diploma and (5) matriculate at a participating college, university, career and technical center or institute. The following schools accept SOAR credits:

- Allegany College of Maryland
- Bucks County Community College
- Butler County Community College
- CTC of Lackawanna County
- Central Pa. Institute of Science & Technology
- Clarion University
- Commonwealth Technical Institute
- Community College of Allegheny County
- Community College of Beaver County
- Community College of Philadelphia
- Crawford County CTC
- Delaware County Community College
- Fayette County CTC
- Greater Altoona CTC
- Greater Johnstown CTC
- Greene County CTC
- Harcum College
- Harrisburg Area Community College
- Huntington County CTC
- Johnson College
- Lackawanna College
- Lancaster County CTC
- Lehigh Carbon Community College
- Lenape Technical School
- Luzerne County Community College
- Manor College
- Mercyhurst University
- Montgomery County Community College
- Mount Aloysius College
- Northampton Community College
- Northern Tier Career Center
- Orleans Technical Institute
- Pierce College
- Pennsylvania College of Technology
- Pennsylvania Highlands Community College
- Pennsylvania Institute of Technology
- Reading Area Community College
- Rosedale Technical College
- SUNY College of Agriculture & Technology
- Thaddeus Stephens College of Technology
- Western Area CTC
- Westmoreland County Community College
- Wilkes-Barre Area CTC

Thanks to ACES, or Accelerated Career Education System, students can earn up to 30 tuition-free Lehigh Carbon Community College credits by completing one of eight eligible CTE programs at LCTI with a B average or better, scoring proficient or advanced on an end-of-program assessment and matriculating at LCCC. Eligible programs include Auto Body/Collision Repair Technology, Auto Technology, Carpentry, Cosmetology, Diesel Medium & Heavy Truck Technology, Precision Machine Tool Technology and Welding Technology. Students may apply the college credits toward an Associate of Applied Science from LCCC and a Bachelor of Applied Science in Technical Leadership from Bloomsburg University.

Accelerated Career Education System

BACHELOR OF APPLIED SCIENCE IN TECHNICAL LEADERSHIP

Through dual enrollment, articulation agreements or both, LCTI students can begin accumulating credits for an Associate of Applied Science from Lehigh Carbon Community College in high school. Once they’ve completed the A.A.S. at LCCC, students transfer to Bloomsburg University with half the credits necessary to earn a Bachelor of Applied Science in Technical Leadership. This program, made possible by a partnership between LCTI, LCCC and Bloomsburg, provides students with an affordable path toward a bachelor’s degree.
Upperclassmen are encouraged to participate in the cooperative education and internship program administered by LCTI’s School-To-Career Office, which maintains relationships with hundreds of Lehigh Valley businesses. Internship and co-op positions serve as excellent opportunities for students to develop their technical and employability skills in a real-world setting.

Instead of going to their CTE program lab after taking academic courses in the morning, students who’ve secured co-op positions head to work. Employers pair students with mentors, who provide support and supervision. Every month, LCTI’s school-to-career coordinator visits students’ work sites and collects performance evaluations from their mentors. All mentors are required to obtain federal and state clearances.

Co-op positions are paid, typically last all school year and often lead to job offers for graduating seniors. Internships can be paid or unpaid and usually span a few months during the school year or summer, but are otherwise similar to co-op positions. To qualify for the program, students must (1) be recommended by their instructor, (2) be in good academic standing, (3) have a good attendance record and (4) have no discipline referrals.

Here are some of the companies that hire LCTI students for co-ops and internships:

| Allentown Chiropractic Center | G Technology Inc. |
| Allentown Electric Inc. | Grothouse Inc |
| Appalachian Electric LLC | Hassler Diesel Performance |
| B & F General Machine Inc. | Identity Group LLC |
| B. Braun Medical | Innovation Studios LLC |
| Bashore Electric Inc. | Jack Williams Tire |
| Bennett Toyota | JDL Plumbing LLC |
| Big Boys Hydraulics | Kermit K. Kistler, Inc. |
| Bihler of America | KSE Engineering PC |
| Canns-Bilco Distributors Inc. | Lam’s Machine Inc. |
| Chevrolet 21 Inc. | Lehigh Heavy Forge |
| Choice Precision Machine | Lehighтон Ford Inc. |
| Coopersburg Auto Enterprise | Long’s Water Technology Inc. |
| David J. Hohenshilt Welding LLC | Latron Electronics |
| Deluxe Plumbing & Heating LLC | M & M Motors |
| Dental Dreams LLC | Mainz Home Services |
| DDP Enterprises | Navio Tire |
| East Penn Harding Flooring Corp. | Michael Torres Hardware Flooring |
| East Penn Manufacturing Co Inc. | Miller’s Supply Ace Hardware |
| Framework Technologies Inc. | Newton Engineering |
| Northampton Country Club | O’Boyle Plumbing |
| O’Boyle Plumbing | On The Spot Tool Sharpening Inc. |
| On The Spot Tool Sharpening Inc. | Phoebe Allentown |
| Precision Dealer Services | Reeb Millwork |
| Rothrock Motor Sales | Scheuermann Excavating Inc. |
| S. J. Schmoyer Co. Inc. | Scott Cars Inc. |
| Siri Family & Cosmetic Dentistry | SmithHain Co. |
| SmitHahn Co. | Solar Technology |
| Solar Technology | Swagelok Allentown |
| Swagelok Allentown | The Closet People |
| The Dining Dog & Friends | The Dining Dog |
| TJ’s Automotive | Traci’s Learning Center |
| Traci’s Learning Center | United Parcel Service |
| United Parcel Service | Victaulic |

For upperclassmen interested in career and technical skills training unavailable at LCTI, the Diversified Career Occupations program may be a good fit. The program allows students to split their time between academic courses at their sending high schools and part-time work in career fields that interest them. Most students take academic courses in the mornings and work in the afternoons. Students are required to meet weekly with an LCTI instructor who helps them develop 21st century skills, such as collaboration, critical thinking and problem solving. Employers pair students with mentors, who are required to obtain federal and state clearances. In addition to providing support and supervision, mentors submit monthly performance evaluations.

I got accepted into Johnson & Wales University. I’m furthering my studies with molecular gastronomy.

Jasmine Kutzura — Whitehall High School
Career & Technical Student Organizations are a key component in strong career and technical education programs. Lehigh Career & Technical Institute is home to the following six CTSOs: DECA, FBLA, FCCLA, FFA, HOSA and SkillsUSA.

DECA, formerly the Distributive Education Clubs of America, is a global organization that prepares emerging leaders and entrepreneurs for careers in marketing, finance, hospitality and management. DECA members typically include LCTI’s Advertising Design/Commercial Art, Marketing & Business Education, Supply Chain Management & Logistics Technology and Web Design/Web Programming students.

FBLA, Future Business Leaders of America – Phi Beta Lambda, or FBLA, is dedicated to helping students prepare for successful careers in business and business-related fields. FBLA members typically include LCTI’s Administrative Office Technology, Computer Information Technology, Computer & Networking Technology, Marketing & Business Education and Web Design/Web Programming students.

FCCLA, Family, Career and Community Leaders of America, or FCCLA, is a national organization for students interested in addressing important personal, work and societal issues through Family and Consumer Sciences education. FCCLA members typically include LCTI’s Commercial Baking, Culinary Arts, Early Care Education of Young Children, SOC Food Services and SOC Hospitality Services students.

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FCCLA, Family, Career and Community Leaders of America, or FCCLA, is a national organization for students interested in addressing important personal, work and societal issues through Family and Consumer Sciences education. FCCLA members typically include LCTI’s Commercial Baking, Culinary Arts, Early Care Education of Young Children, SOC Food Services and SOC Hospitality Services students.

The National FFA Organization, formerly Future Farmers of America and commonly referred to as FFA, is a group for students interested in agriculture and leadership who aspire to become farmers, teachers, doctors, scientists, business owners and more. FFA members typically include LCTI’s Applied Horticulture and SOC Indoor/Outdoor Maintenance students.

HOSA, formerly Health Occupations Students of America, is an international organization with a two-fold mission of promoting career opportunities in the health care industry and enhancing the delivery of quality health care for all people. HOSA participants typically include LCTI’s CAP Health Occupations, Dental Technology, Emerging Health Professionals and Exercise Science students.

SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA provides educational programs, events and competitions that support career and technical education in the nation’s classrooms. Students from all of LCTI’s CTE programs are members of the school’s SkillsUSA chapter.

It takes a lot of patience and concentration, but by the time I finish the program I’ll have nine certifications.

Jason Ziegler — Southern Lehigh High School

These service-based organizations’ offerings complement career and technical education coursework, extending learning beyond the classroom with innovative programs and community partnerships. All LCTI students are eligible for membership in CTSOs and those who join them benefit from leadership training, community service, skills competition, professional development and much more.

For many LCTI students, travelling for special events is the highlight of CTSO participation. In recent years, they’ve visited Anaheim and San Diego, California, Louisville, Kentucky, Nashville, Tennessee, Orlando, Florida and dozens of cities closer to home, including New York and Philadelphia.
SPECIAL PROGRAMS

CAREER ACADEMY PROGRAM

LCTI’s Career Academy, or CAP, is a full-day program that combines academic credit recovery with career and technical education for students struggling to meet graduation requirements. Students spend two-thirds of each week immersed in skills training. Students must be referred to CAP programs, which include:

AUTO SPECIALIZATION TECHNOLOGY: The CAP Auto Specialization Technology program prepares students for careers in the automotive service industry. Students explore the complex systems that combine to keep vehicles running as they learn the skills required to maintain and repair them. Students gain real-world experience by servicing and troubleshooting LCTI maintenance vehicles, as well as school staffers’ cars. They’re also encouraged to pursue co-op positions.

BUILDING TRADES MAINTENANCE: The CAP Building Trades Maintenance program equips students with the skills they need to launch careers in the construction industry. Students explore the work of carpenters, electricians, masons and plumbers as they learn to frame structures, wire electrical outlets, lay brick and more. Tool use, blueprint reading and job-site safety are important elements of the program, too. Students can earn industry credentials and pursue co-op positions.

ELECTRICAL TECHNOLOGY: The CAP Electrical Technology program prepares students for careers as electricians in a variety of settings. As they study the National Electrical Code®, students learn to install everything from switches and receptacles to telephone and television circuits. Mastering the use of multimeters, ammeters and similar tools also is an important element of the program. Students have opportunities to earn industry credentials and gain real-world experience, too.

GRAPHIC COMMUNICATIONS: The CAP Graphic Communications program prepares students for careers in an industry that encompasses graphic design, print production and more. While studying color theory and the design process, students learn to use Adobe® applications including Photoshop® and Illustrator®. They gain real-world experience by working in a program lab that doubles as a full-service print shop. Students can earn industry credentials, as well.

HEALTH OCCUPATIONS: The CAP Health Occupations program prepares students for a broad range of professional opportunities in one of the nation’s fastest growing industries: health care. As they study medical terminology and the human body, students learn to check patients’ vital signs, perform CPR with an AED, assist patients with personal hygiene and other hands-on skills. In addition, students can earn industry credentials and gain clinical experience.

OFFICE SYSTEMS TECHNOLOGY: The CAP Office Systems Technology program prepares students to flourish in any office setting. As they work toward mastery of Microsoft Office and Google applications, students create spreadsheets, databases, presentations and more. They also learn to maintain filing systems, communicate effectively with colleagues or customers and plan meetings. Plus, students can earn industry credentials and gain resume-building experience.

For more information about the Career Academy Program, contact CAP Principal Darin Van Norman at 610-799-1491 or vannorman@lcti.org.

SERVICE OCCUPATIONS CLUSTER

LCTI’s Service Occupations Cluster, or SOC, is designed to help students transition from basic, entry-level skill development to more advanced technical training that leads them directly to the workforce. Students must be referred to SOC programs, which include:

BUILDING TRADES MAINTENANCE: The SOC Building Trades Maintenance program introduces students to the carpentry, electrical, masonry and plumbing trades through guided practice and class projects. After mastering the basics, students tackle LCTI maintenance projects, such as replacing light fixtures. They also take on community projects and recently built a Lehigh Valley Zoo ticket booth. Safety training and work readiness are emphasized in this program.

AUTO SPECIALIZATION TECHNOLOGY: The SOC Food Services program prepares students for entry-level positions in the food service industry. Students learn to measure and combine ingredients, use commercial kitchen equipment and maintain sanitary food production facilities. They also practice basic food preparation and cooking techniques for a restaurant or cafeteria. Advanced students work in LCTI’s restaurant and cafeterias. All students must pass an OSHA safety assessment.

HOSPITALITY SERVICES: The SOC Hospitality program prepares students for entry-level positions in restaurants, assisted living facilities and hotels. Students learn to clean rooms, prepare and serve food, operate commercial laundry machines and communicate clearly with customers or guests. They develop their skills by cleaning LCTI’s fitness center and staffing the school laundry room. Following safety and security procedures are important elements of the program, too.

INDOOR/OUTDOOR MAINTENANCE: The SOC Indoor/Outdoor Maintenance program prepares students for entry-level employment in the janitorial and landscaping fields through hands-on skills training. Students are trained on a variety of equipment, including floor/carpet machines, mowers, trimmers and leaf blowers. Students learn to follow health and safety rules, plan their tasks, interact positively with others and work independently in LCTI’s greenhouse.

SUPPLY CHAIN MANAGEMENT: Students learn to pick, pack, ship and more in the SOC Supply Chain Management & Logistics Technology program. They develop their skills by filling and delivering orders for teachers and other staff at LCTI. Students are exposed to state-of-the-art material handling equipment and learn to use it safely in the school’s fully functional distribution center. Advanced students handle merchandise and pack orders for schools throughout Lehigh County.

For more information about the Service Occupations Cluster, contact Supervisor of Special Education Kristin Jachowicz at 610-799-1340 or jachowiczk@lcti.org.

VISIT LCTI.ORG OR CALL 610-799-1366 TO LEARN MORE ABOUT LCTI’S PROGRAMS & UPCOMING EVENTS.