



Lehigh Career & Technical Institute

Course Guide

2007 - 2008



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LCTI: EDUCATION AT ITS BEST!

What is career & technical education? It is skills and career education taught by instructors who have spent years training in their field of expertise to provide students with a state-of-the-art education. Where can you get this education? LEHIGH CAREER & TECHNICAL INSTITUTE, THAT'S WHERE!

If you are the type of student who is always trying to figure out how something was built or works, what to make with old engine parts, how to take someone's blood pressure, or dust for fingerprints, then Lehigh Career & Technical Institute (LCTI) has a great opportunity for you! LCTI offers over 40 career and technical program options to choose from! You can earn college credit while you pursue your career through our dual enrollment program. You can take advantage of our tech prep and early college programs and still remain an active participant in your high school's activities. Remember, LCTI is an enhancement to the education you are receiving in your own school district.

Take a few moments and read about all the fabulous choices and options LCTI has which will help you work your way towards a rewarding career. Jump on the LCTI career track and join a team that offers EDUCATION AT ITS BEST!

As you review our course options, you will notice some courses have Tech Prep at the end of the course title. This is an option in twenty-one LCTI courses. This program is for students who excel in academics and technical education and wish to pursue a post-secondary education. Many of the courses allow a student to earn up to 30 college credits towards an associate degree.



LIFELONG LEARNING PARTNERSHIP

LCTI AND PARTICIPATING HOME SCHOOLS

Lehigh Career & Technical Institute is host to programs that provide both career and technical training and academic education to students who desire specialized education for specific careers. Students have the opportunity to attend LCTI as a full-day or half-day student. The full-day option is available to tenth through twelfth graders, and the half-day option to ninth through twelfth graders. Each of the nine sending districts will determine which options are available to each student.

Students enrolled in the full-day program receive both their career and technical training and academics at LCTI. The half-day student receives their standard high school curriculum at their home schools, and their career and technical training at LCTI.

All students have their choice from over 40 career and technical programs, each grounded on a solid academic base. LCTI students progress at the same rate as their peers in the sending school districts, and receive their high school diplomas at the same time, providing all graduation requirements are met. LCTI students can participate in all activities such as sports, clubs, assemblies, dances, and other sending school events. LCTI awards certificates of completion and acknowledges student performance in the national competency testing program during Senior Recognition Evening. After successfully completing both written and practical tests in a program area, students receive a Pennsylvania Skills Certificate. The certificate recognizes high achievement by career and technical students on a national level, indicating to potential employers the skills mastered. All students receive a profile of competencies attained. The partnership between LCTI and the sending schools creates a positive mix for students with the aptitude and interest to attain their career goals.

SENDING SCHOOL
DISTRICTS
Allentown
Catasauqua
East Penn
Northern Lehigh
Northwestern Lehigh
Parkland
Salisbury
Southern Lehigh
Whitehall-Coplay



ENROLLMENT OPTIONS

The Academic Center provides tenth through twelfth grade students the opportunity to attend LCTI for a full-day. Students take both academic and technical classes at LCTI. The Academic Center affords students the opportunity to take advanced coursework at Lehigh Carbon Community College in dual enrollment and middle college courses. Ask your guidance counselor for more information.

Some students will choose to enroll on a half-day basis. Half-day students receive career and technical training at LCTI and core academics at their high schools.

All ninth grade students now have the option of attending LCTI on a half-day basis. Not all program areas are available to ninth grade students; and, they will not have an opportunity to enroll in the Academic Center until tenth grade. Please speak to your guidance counselor for information on available programs.

Flex time enrollment is another option open to all Lehigh County students. Flex enrollment allows traditional education students to enhance their career education by attending LCTI for a semester or one year. Class time is divided into fifty-minute or eighty-minute blocks of time. The program allows for a combination of career and technical and traditional education, providing students with a broader foundation for their career goals.

Which enrollment option is right for you? Parents and students are encouraged to speak with their districts' guidance counseling staff and district officials to determine which enrollment options are available and would best benefit the student.

How do I apply? After you have spoken to your guidance counselor, please complete the application form located at the center of this guide and return it to your sending school guidance office.

OPEN HOUSE

Learn more about Lehigh Career & Technical Institute by visiting our facility. Each fall, LCTI hosts its Open House for parents, prospective students and the general public. Personal invitations are sent to all Lehigh County students in grades 6-8. Call Student Services for more information: 610-799-1340.

ARTS & HUMANITIES

ADVERTISING DESIGN/ COMMERCIAL ART



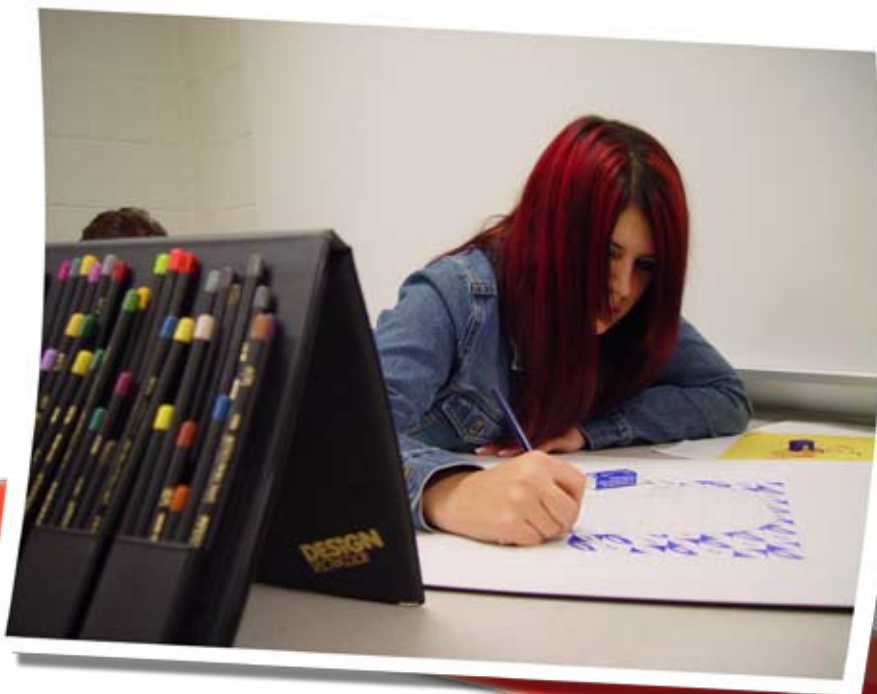
The Advertising Design/Commercial Art Program prepares students for careers as commercial and graphic artists in the fields of advertising, marketing, editorial design and public relations.

The course focuses on drawing, design and layout, graphic design, and illustration using Macintosh G5 computers and traditional media. Students will learn to draw objects in perspective, basic geometric forms in value, and organic forms showing texture and tone. They will make line illustrations using pen and ink techniques, draw objects using elements of design and composition, and use decorative illustration. They will apply anatomy concepts in an illustration drawing, make product illustrations and explore a variety of drawing techniques using color media.

Students will use the Macintosh G5 computer and programs such as Adobe Photoshop, Adobe Illustrator, Adobe InDesign and Quark Xpress for image manipulation, logo design and editorial layout. Students who wish to be a part of the creative process in the world of advertising and commercial art are able to build a solid foundation for themselves by means of LCTI's Advertising Design/Commercial Art program. Students will also be prepared to continue their studies at the college or university of their choice.

EMPLOYMENT OPPORTUNITIES

Advertising Layout Artist
Book Illustrator
Outdoor Marketing Artist
Sign Maker
Magazine Layout Artist
Packaging Artist
Freelance Artist
Newsprint Layout & Design
Advertising Sales



ARTS & HUMANITIES

COMMERCIAL PHOTOGRAPHY/ ELECTRONIC IMAGING

In the Commercial Photography/Electronic Imaging Program, students will receive training in photography, both in the studio and on-location, using the latest digital camera techniques and digital computer technology for processing and printing images.

The course includes professional lighting techniques and design elements for a wide variety of subjects, including wedding and portraiture, products for advertising, as well as photojournalism and editorial markets.

Graduates will be prepared to join the staff of a commercial studio as an entry-level photographer or photographer's assistant, or continue their training by obtaining an Associate or Bachelor's degree.



EMPLOYMENT OPPORTUNITIES

Photographer
Photographic Processor
Photographic Reproduction Technician



ARTS & HUMANITIES

DRAFTING/COMPUTER AIDED DESIGN



Students in the Drafting/Computer Aided Design Technology Program combine their industrial and mechanical interests with their creativity, and work toward successfully moving into mechanical, architectural or civil engineering careers.

The curriculum allows students to expand their knowledge into other industrial areas like CAD/CAM programming and 3-D solid modeling. Students will also assist in the design of the student house project.

The solid foundation LCTI provides will assist its Drafting/CAD students who wish to pursue further education and professional careers.

EMPLOYMENT OPPORTUNITIES

Mechanical Drafter
Architectural Drafter
Construction Drafter
Civil Drafter
Set Designer
Municipality or Zoning
Consultant



ARTS & HUMANITIES

PAINTING AND DECORATING

Stenciling, faux finishes, wallpaper hanging, furniture refinishing, and decorative finishes are just parts of what the Painting and Decorating program is all about.

Students learn all aspects of the decorating craft. Students learn to create and maintain the interiors and exteriors of homes, businesses, and historical buildings. They receive hands-on experience through a variety of projects including the student house project and other community projects.

Through professional techniques, students will learn to use paints, varnishes, glazes, and other coatings on all types of substrates. Venetian plaster and spackling techniques are also taught. Abrasive blast, airless spray, and high volume low pressure spraying are also covered within this course.

Those interested in becoming interior designers, restoration specialists or other home design professionals may continue their education at a college, university or specialty school upon completion of this program.



EMPLOYMENT OPPORTUNITIES

Window Display Designer
Interior Designer
Designer's Assistant
Interior Painter/Decorator
Painter's Assistant
Movie Set Designer
Restoration Specialist
Sign Designer
Theatrical Set Designer
Exterior Painter/Decorator
Paper Hanger
Drywall Finisher

BUSINESS & COMMUNICATION TECHNOLOGY

ADMINISTRATIVE OFFICE TECHNOLOGY/ACCOUNTING

Students in the Administrative Office Technology/Accounting Program, are taught computer and accounting applications which provide them with hands-on learning in Word Processing, Database, Spreadsheets, and Presentations, to name a few of the focus areas.

Students develop skills in keyboarding and data entry, and learn to understand basic data entry terminology and procedures.

Students also learn all aspects of word processing, are expected to use and create presentation templates, and use embedded visuals to enhance those presentations.

Students also learn to create queries, maintain databases, create reports and forms, and publish reports to the web.

Students in this course may qualify for the Office Proficient Assessment Certification.



EMPLOYMENT OPPORTUNITIES

- Administrative Assistant
- Data Entry Operator
- Word Processing Operator
- Computer Specialist
- Data Entry Supervisor
- Executive Clerk
- Accounting Clerk
- Customer Service
- Word Processing Supervisor

BUSINESS & COMMUNICATION TECHNOLOGY

COMPUTER MAINTENANCE TECHNOLOGY



Students in the Computer Maintenance Technology Program prepare for careers in PC Technical Support, Network Management, Computer Security Specialist, Computer Science, and Computer Forensics. The curriculum initially focuses on computer hardware and operating systems in preparation for the CompTIA A+ Service Technician Certification. Students go beyond the basics and learn hardware and software operation and design concepts. This gives students the skills they need to be able to diagnose and resolve real-world PC problems with a variety of configurations and operating systems.

Students advance to Computer Network design and maintenance concepts and practices to prepare for the CompTIA Network+ Certification. They practice managing a range of equipment that includes both wired and wireless networks in a mixed hardware / software environment. This program relates closely to the Cisco program at area colleges and universities.

The Computer Maintenance Technology program provides a solid foundation for post-secondary education and offers exceptional career options for our students.



EMPLOYMENT OPPORTUNITIES

Computer Maintenance Technician
Help Desk Support Technician
Technical Sales Specialist
Residential Network Specialist
Network Administrator
Computer Security Specialist

BUSINESS & COMMUNICATION TECHNOLOGY

MARKETING AND BUSINESS EDUCATION



Students in the Marketing & Business Education Program focus on marketing, promotions, business operations, finance, and banking, while gaining practical experience managing the school store.

Students learn to operate a Point-of-Sale system, teaching them how to enter and track inventory, record sales, itemize sales by item and department, track employees and sales trends, and prepare purchasing information reports.

A Sports and Entertainment Virtual Business Simulation Program and Virtual Business Retailing and Management systems teach students the necessary skills to become entrepreneurs and business leaders.

Students in the program may qualify for their National Professional Customer Service Certification.

EMPLOYMENT OPPORTUNITIES

- Entrepreneur/Manager
- Account Representative
- Advertising Representative
- Sales Associate/Manager
- Travel & Tourism Representative
- Customer Service Representative/Manager



BUSINESS & COMMUNICATION TECHNOLOGY

MATERIAL HANDLING/ LOGISTICS TECHNOLOGY



The Material Handling/Logistics Technology Program actively engages students in the processes of receiving, shipping, order picking, and operation of numerous types of material handling equipment.

Students choose from a hierarchy of career objectives, helping them obtain gainful employment at all levels within an organization. Students learn in a working, state-of-the-art 17,000 square foot distribution center which houses today's most contemporary technology: a computer-controlled warehouse management system; computer-controlled vertical and horizontal carrouseles, and a computer-controlled integrated conveyor system.

All supply chain processes are replicated within the facility including receiving, put away, replenishments, order picking, value added packing, and shipping. Students may obtain the National Safety Council Material Handling Equipment Certification.

EMPLOYMENT OPPORTUNITIES

- Forklift Operator
- Materials Handler
- Order Selector
- Reach Truck Operator



BUSINESS & COMMUNICATION TECHNOLOGY

PRINT TECHNOLOGY/ GRAPHIC IMAGING



Students in Print Technology/Graphic Imaging prepare for careers as press operators, pre-press technicians and digital imagers. The curriculum includes electronic page layout, offset press operation, color scanning, digital imaging and bindery operations.

Students learn to design and layout books, magazines, signs, and newspapers, using the most current versions of Adobe Indesign, Quark and Photoshop software.

Some of the areas covered in the Platemaking and Press sections of the course are exposing, processing and storing metal plates; making additions/deletions/repairs to offset plate, making a step/repeat using pin register system, preparing a plate for multiple exposure on one side, making plates for multi-color work, determining grain directions of paper, mix and test ink for printing using ink color chart, mixing fountain solutions using appropriate ratios, setting-up paper systems, inking systems and dampening systems; and printing single and two color jobs.

This program is certified by the Graphic Arts Technical Foundation and the Printing Industry of America.



EMPLOYMENT OPPORTUNITIES

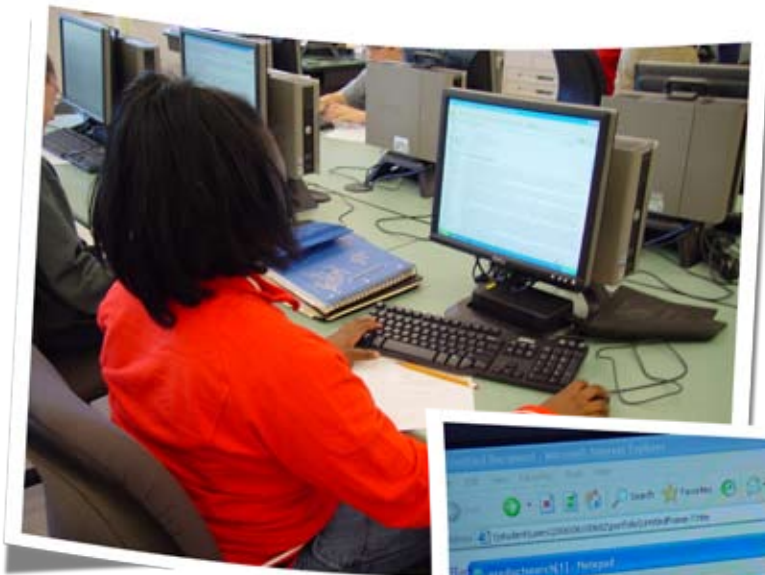
Offset Press Operator
Digital Prepress Operator
Computer Operator
Estimator
Proofreader
Designer
Layout Artist
Book Binder

BUSINESS & COMMUNICATION TECHNOLOGY

WEB DESIGN / WEB PROGRAMMING

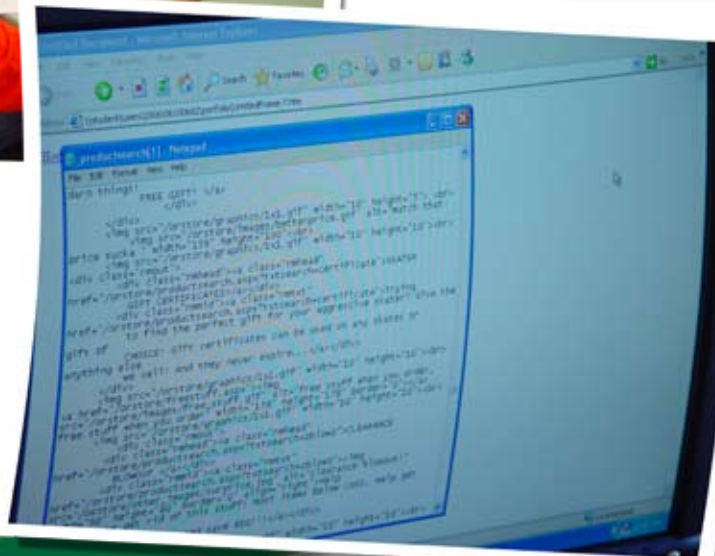
Web Design/Web Programming helps students learn how to design and implement attractive web sites with a good understanding of web page design fundamentals. They also develop a proficiency in HTML (HyperText Markup Language) coding techniques and a working knowledge of a variety of web page development tools. All web pages depend, to a great extent, on HTML to organize and display everything including tests, graphics, and multi-media (video and sound clips) through web browsers.

Students are taught basic server-side programming techniques such as CGI/Perl, JavaScript, XML, XHTML, and DHTML to handle everything from basic forms transmittal, building dynamics, interactive web pages to intranets, extranets and e-commerce applications. Since most forms and e-commerce applications depend on access to database information, students will learn the fundamentals of ODBC compliant databases such as MS Access, and SQL databases such as MS SQL, Oracle and IBM DB2.



EMPLOYMENT OPPORTUNITIES

- Web Site Designer
- Internet Technology
- Graphics Design
- Multi-Media Applications
- Web Site Administration
- Web Page Coder
- Web Programmer
- IT Instructor



ENGINEERING & INDUSTRIAL TECHNOLOGY

Transportation Section

AUTO BODY/COLLISION REPAIR TECHNOLOGY



There are forty-three areas of study in the Auto Body/Collision Repair Technology Program taught at LCTI. The volumes of information students learn during their course of study and the number of skills they master enable them to step into the workforce immediately after graduation. Students also will be able to continue their development at post-secondary levels.

In the AutoBody/Collision Repair Technology program students begin by learning basic non-structural repair, panel replacement and alignment, and continuing their education with spray booth operation, including surface preparation, tinting, and finish application, trim and detailing, sanding and filling, damage analysis, welding and much more.

The program is certified by Automotive Service Excellence (ASE) and the National Automotive Technicians Education Foundation (NATEF).



EMPLOYMENT OPPORTUNITIES

Collision Repair Technician
Spray Booth Painter
Metal Sander/ Refinisher
Industrial Spray Painter
Welder and Fabricator
Sheet Metal Worker
Frame Straightener
Repair Estimator
Insurance Adjuster

ENGINEERING & INDUSTRIAL TECHNOLOGY

AUTO TECHNOLOGY



Transportation Section

Students with an interest in automobiles and a desire to repair high tech vehicles should take a look at LCTI's Auto Technology Program. The program is designed to prepare students to work in the automotive service industry repairing and servicing vehicles, and/or to work for a dealership.

This program prepares students to apply technical knowledge and skills to service and maintenance of all types of automobiles and light trucks. This program includes instruction in the diagnosis and testing, including computer analysis, of malfunctions in and repair of engines, fuel, electrical, cooling and brake systems and drive train and suspension systems.

Instruction is also given in the adjustment and repair of individual components and systems such as cooling systems, drive trains, fuel system components and air conditioning and includes the use of technical repair information and the state inspection procedures.

The program is certified by Automotive Service Excellence (ASE) and the National Automotive Technicians Education Foundation (NATEF).

EMPLOYMENT OPPORTUNITIES

Automotive Technician
Specialty Technician
Service Manager
Automotive Salesperson
Lubrication Specialist
Auto Technology Instructor
Service Station Manager
Independent Garages
Manufacturer's Rep



ENGINEERING & INDUSTRIAL TECHNOLOGY

Transportation Section

DIESEL MEDIUM AND HEAVY TRUCK TECHNOLOGY



The U.S. trucking industry is thriving with nearly 10 million employees, more than 1.5 million tractors and annual revenues in excess of \$400 billion. Lehigh Career & Technical Institute's Diesel/Heavy & Medium Truck Technology Program prepares students for terrific positions in this continually growing field.

Students in the Diesel/Medium and Heavy Truck Technology Program at LCTI are preparing to enter an exciting part of the workforce with the necessary technical expertise to succeed. This program prepares individuals to apply technical knowledge and skills to the specialized maintenance and repair of trucks, buses, and other commercial and industrial vehicles. Instruction includes diesel engine mechanics, suspension, steering, brake systems, electrical, electronic systems, preventive maintenance inspections, drive trains, gasoline engine mechanics, HVAC systems, and auxiliary equipment installation & repair.

Attendance in the Diesel/Heavy and Medium Truck Technology Program at Lehigh Career & Technical Institute will involve students in a bumper-to-tail light set of courses. In addition, students can earn up to 30 college credits at Lehigh Carbon Community College (LCCC) through our ACES Program.

This program is certified by National Automotive Technicians Education Foundation (NATE F) and the instructor is certified with Automotive Service Excellence (ASE).



EMPLOYMENT OPPORTUNITIES

- Customer Service Representatives
- Diesel Truck Master Technicians
- Parts Salespersons
- Gasoline Engine Technicians
- Diesel Engine Technicians
- Drive Train Technicians
- Brake Technicians
- Hydraulic Technicians
- Suspension & Steering Technicians
- Electrical/Electronic Systems Technicians

ENGINEERING & INDUSTRIAL TECHNOLOGY

SMALL GAS ENGINES/ RECREATIONAL VEHICLE REPAIR

Transportation Section

The Small Engines/Recreational Vehicle Repair Program at LCTI is a thorough course of study that is designed to produce small engine repair specialists.

Students are taught to understand Fuel, Ignition and Exhaust Systems, Manual Starters, Electrical and Cooling Systems, Clutches and Drive Mechanisms, Small Engine Overhaul, Welding, Lawn and Garden Equipment Repair, Chain Saw and String Trimmer Repair, Outboard Motor Repair, Motorcycle and All-Terrain Vehicle Repair.

In the Small Engines Overhaul section of the course, students will learn how to inspect engine components, ridge ream a cylinder, grind valves and valve seats, inspect and repair valve guides. They will also deglaze and clean a cylinder, replace damaged threads using a tap and die set, helicoils or inserts, and remove and inspect and/or replace a crankshaft. Students will inspect and install piston rings and connecting rod assembly, inspect and install valve lifters, camshafts, oil dippers, slinger or pump, and a crankcase cover.

EMPLOYMENT OPPORTUNITIES

- Motorcycle Technician
- Lawn & Garden Equipment Repair Specialist
- Dealership Sales Representative
- Parts Person
- Boat Engine Technician
- Recreational Vehicle Repair Specialist



ENGINEERING & INDUSTRIAL TECHNOLOGY

CABINETMAKING & MILLWORK

Construction Section

Participation in the Cabinetmaking & Millwork Program is an excellent opportunity to become part of a long tradition of skilled tradespersons whose craftsmanship is sought out by people who love and appreciate quality.

Students in the Cabinetmaking & Millwork program will learn wood technology, product fabrication, finishing, and cabinet installations. Students will receive occupational applied instructions for the safe operation of hand tools, power tools, and trade-related machinery. In addition, solid surface fabrication and CNC technology are recent additions to the curriculum.

Post-secondary opportunities may be pursued through trade schools, community colleges, or universities offering wood technology, furniture manufacturing, design and construction engineering or management. Highly skilled woodworkers and those trained in computer-controlled machinery operation will be in the highest demand over the next several years.

The Cabinetmaking & Millwork program students' skills are integrated into the design, construction, and installation of kitchens and bathrooms at the LCTI house project as well as to sending school and personal construction items.

EMPLOYMENT OPPORTUNITIES

- Production Managers/Supervisors
- Cabinetmaker/Bench Carpenter
- Finish Carpenter
- Machinery Operator
- Furniture Finisher
- Kitchen & Bath Design Consultant
- Sanders
- Production Worker



ENGINEERING & INDUSTRIAL TECHNOLOGY

CARPENTRY



Construction Section

The Carpentry Program at LCTI provides an opportunity for students to gain a solid background in; print-reading, the safe and effective use of hand, portable power, and stationary power tools, scaffolding and specialty tools used in the trade. Additionally, the program provides an opportunity for students to learn about the materials and processes used in residential construction.

Students will receive instruction in print-reading, site preparation, building layout, footer and basement wall forming, concrete flatwork, floor/ wall/ ceiling, and roof framing, shingle roofing, installing windows and exterior doors, siding and exterior finish, insulation, drywall, interior finish, and stair construction.

Students' skills are initially developed through hands-on projects in the lab. As the students' skill levels progress, they will have the advantage of participating in the construction of a student-built House Project. This award-winning program provides students the opportunity to reinforce learned carpentry skills by applying them to the construction of a real house on a residential lot in the Schnecksville area.

Carpentry Program completers may choose to enter directly into the workforce or continue their education at a college or post-secondary trade school. Many local contractors hire LCTI program graduates. The LCTI Carpentry Program has agreements with several institutions of higher learning whereby graduates can receive advanced standing and/or college credit for work completed while in the Carpentry Program.



EMPLOYMENT OPPORTUNITIES

Contractor
Construction Superintendent
Carpenter
Finish Carpenter
Rough Carpenter
Drywall Applicator
Sider
Roofer
Carpenter's Assistant

ENGINEERING & INDUSTRIAL TECHNOLOGY

ELECTRICAL TECHNOLOGY

Construction Section

Students who have an interest in residential, commercial, and industrial electrical and Fluid Power Technology planning or wiring would be wise to consider the Electrical Technology Program at LCTI.

In this program, students learn how to prepare Non-Metallic (NM) Cable for connection to devices. They are taught to install a duplex and split wired duplex receptacle, a single pole switch, 3-way and 4-way switch, and a Ground Fault Circuit Interrupter (GFCI) in the Switches and Receptacles portion of their course.

In the Electrical Wiring Commercial and Industrial portion of the course, students must demonstrate cutting, cleaning, threading ridge metal raceway and the four major bends used for conduit raceways. They must install a surface mounted wiremold raceway system and a nonmetallic raceway PVC system. Students are taught to interpret commercial and industrial building plans and specifications, install three-phase service panels, demonstrate three-phase GFCI protection, wire an industrial control center, and demonstrate hydraulic tool systems and core-hole drilling.

This program is certified by the National Center for Construction Education and Research and the ABC Apprenticeship program.

Students can complete the Electrical Technology Program and then move into the Electro-mechanical Automated Systems Technology Program for training in the industrial area. Students completing these two programs will have specialized skills that are needed in today's workforce.



EMPLOYMENT OPPORTUNITIES

- Electrical Technician
- Power Distribution Technician
- Industrial Electrician
- Commercial Electrician
- Residential Electrician
- Maintenance Electrician
- Electrician's Helper
- Electrical Supply Technician

ENGINEERING & INDUSTRIAL TECHNOLOGY

ELECTRO-MECHANICAL AUTOMATED SYSTEMS TECHNOLOGY



Construction Section

Automated manufacturing is now a standard process in most industries. The Electro-mechanical Automated Systems Technology program provides a solid foundation in basic electricity, industrial electricity, industrial electronics, and automated manufacturing.

Students also study motors, generators, transformers, motor controls, programmable logic controllers, hydraulics, pneumatics, AC/DC drives, mechanical drive systems, and robotics.

Program completers will be prepared to enter the world of work as an apprentice technician or continue their post-secondary education at a college, university or trade school.

EMPLOYMENT OPPORTUNITIES

Automated Manufacturing
Technician
Industrial Maintenance
Technician
Electrical/Electronic Technician
Mechanical Technician
Engineering Technician



ENGINEERING & INDUSTRIAL TECHNOLOGY

PLUMBING AND HEATING

Construction Section

A career in plumbing and heating encompasses much more than unplugging drains and repairing broken pipes. Students in LCTI's Plumbing & Heating Program are taught to understand and appreciate the entire scope of the industry as they acquire the skills necessary to be successful. The process takes them beyond the repair aspect, and expands into planning, installing and assembling heating and plumbing systems, including hydronic heating systems.

Some plumbing professionals focus their expertise in the field of plumbing while others choose to specialize in providing service repair and installing heating systems. Whatever students' career objectives are in the area of Plumbing and Heating, LCTI's instructors help their developing masons achieve them through a comprehensive program that includes Steel/Iron Pipe, Copper Pipe and Tubing, Cast-Iron Pipe, Plastic Pipe, Rough Plumbing, Plumbing Codes, Finished Plumbing, Fundamentals of Electricity, Draft and Combustion Heating Systems.

This program is certified by the National Center for Construction Education and Research and the ABC Apprenticeship program.

EMPLOYMENT OPPORTUNITIES

- Service Repair Plumber
- Heating Repair Technician
- Oil Delivery Service
- Bathroom Installer
- Kitchen Plumbing Installer
- Service Engineer
- Fixtures Sales Representative
- Heating Systems Sales Representative



ENGINEERING & INDUSTRIAL TECHNOLOGY

MASONRY

Construction Section

The comprehensive Masonry Program at LCTI teaches students how to read sketches, practice plumbing and level a small project and become familiar with all types of masonry materials. Students learn to work with tile, brick, concrete, block and stones on their way to becoming entry-level masons. Students apply their growing expertise on masonry requirements of the Student House Project.

In the Basic Processes of Masonry aspect of the course, students learn to spread mortar on brick and block, bond masonry units, apply head joints to brick, make head joints and bed joints for concrete block, cut brick with a brick hammer, chisel, power saw, or splitter. Students will also learn to cut tile, apply concave jointing to brick and block, apply raked and raised bead jointing to stone, apply jointing to ceramic tile, set up (place brick on the job site or work station), properly construct and set scaffold to meet O.S.H.A. regulations, and use a cleaning agent when removing excess mortar and stains from brick work.

In the Masonry Bonding section of the course, students construct brick and stone veneer walls, use the basket weave pattern for brick paving, demonstrate proper adhesive of mortar, use the herringbone pattern in brick paving, and use interlocking concrete pavers.

The Masonry Program at LCTI provides a solid foundation for those students desiring to enter the workforce as entry-level masons immediately, and for those who want to continue their education on a post-secondary level.



EMPLOYMENT OPPORTUNITIES

- Bricklayer
- Plasterer
- Tile Setter
- Stone Mason
- Estimator
- Contractor
- Concrete Finisher
- Mason Tender
- Firebrick Bricklayer

OPPORTUNITIES AVAILABLE AT LEHIGH CAREER & TECHNICAL INSTITUTE

With the completion of the modernization/expansion of Lehigh Career & Technical Institute, a variety of options will be available to the students in the nine districts of Lehigh County. The following is a brief description of the opportunities currently available.

Half-day Option

Students enrolled in the half-day program will receive their academic coursework in the sending district and will receive their technical coursework at LCTI. This option will be open to ninth through twelfth grade students. Ninth and tenth grade students will attend either AM or PM session, depending on LCTI and sending district scheduling needs. At this time, there is no district quota limit for eligible spaces for students enrolled in the half-day option.

Full-day Option (Academic Center option)

This option will begin September, 2006. Students enrolled in the full-day program will receive both their academic coursework and their technical coursework at LCTI following the same half-day schedule. An approved joint district graduation requirements has been established. When requirements are met, students will graduate from the sending district. Districts will be provided eligible space quotas each November for the following school term. These quotas will be determined by a formula utilizing a combination of market shares and enrollment history. A maximum of 1600 students can be educated in the Academic Center. Once enrolled, a student maintains his/her placement for three years or until graduation or exiting the program. All academic classes are regular education courses. Special education students will be supported through the co-teaching method.

Career Academy Program

The Career Academy program is operated as a separate program for at-risk, disruptive youth requiring an alternative education setting. All students enrolled in this program must meet the Act 30 Guidelines for the Alternative Education. The program is operated as a school within a school. This program operates on a one-week of academic course offerings to two weeks of career and technical coursework. A joint graduation requirement for students enrolled in the Career Academy Program has been established and will begin in the 2005-06 school year. All potential students and their parent(s) must attend an in-take conference to determine entrance into the program. Approximately 200-210 students are enrolled yearly in the program. There are no district quotas for the program. **DO NOT USE THE ATTACHED APPLICATION FOR THIS PROGRAM, PLEASE CALL 610-799-1491 FOR MORE INFORMATION ON THE CAP APPLICATION PROCESS.**

Flex Program

The flex program is designed to provide technical coursework to students on a limited schedule. Students typically attend one hour each day at LCTI. Students may attend one or both semesters and may attend for multiple years. Flex students do not attend academic courses at LCTI.

More detailed information about LCTI's enrollment options is contained within the pages of this course guide.

ACADEMIC CENTER COURSE OFFERINGS

ENGLISH

AMERICAN LITERATURE

This is a survey course in classical and contemporary literature.

The student will:

- * Improve communication skills in reading, writing, speaking, and listening
- * Increase comprehension through reading apprenticeship strategies
- * Evaluate historical and social influences that impact American literature
- * Develop test taking strategies
- * Create, compose, and revise/finalize technical writing
- * Prepare a research paper according to MLA/APA guidelines

BRITISH & WORLD LITERATURE

The senior year focuses on the study and interpretation of British and World Literature (the influence of history upon literature is also considered), research-based oral and written presentations, communication skills refinement, expository and creative writing, and vocabulary study. Oral and written presentations are related to practical communication skills needed in the working world.

ENGLISH II

This is an integrated course in general literature, composition, and oral communication in which students master Pennsylvania's eligible content. Throughout the school year, students will continue their in-depth study of a variety of literature. Students will also continue to develop their vocabulary and writing skill. Literature study will cover a wide variety of genres to improve comprehension and appreciation through a range of reading assignments. Students will continue to develop their composition skills by using the writing process. Teachers will review the conventions of writing. Instruction will also be delivered in the domains of focus, content, organization, and style.

MATHEMATICS

ALGEBRA I

This course is designed to apply, integrate, and connect Algebraic concepts to real world situations. Topics include: Variables and Expressions, Solving and Graphing Linear Equations and Inequalities, Ratio and Proportion, Systems of Equations, Monomials, Polynomials, Factoring Polynomials, and Statistics and Probability, Incorporated within the course is the use of technology, hands-on activities, and problem solving strategies.

ACADEMIC CENTER COURSE OFFERINGS

MATHEMATICS (CONT)

ALGEBRA II

This course is a continuation of the study of algebra concepts and is designed to include real world applications. Concepts include: Analyzing, solving and graphing linear relations, functions, and inequalities; Solving systems of linear equations and inequalities; Using matrices; Exploring polynomials, radical expressions, quadratic functions and inequalities, rational expressions, and exponential functions.

ALGEBRA III/TRIGONOMETRY

Algebra 3 and Trigonometry is the study of functions and their relationships. Linear, Polynomial, Rational, Exponential, Logarithmic, and Trigonometric Functions will be explored. Also included is the study of Trigonometric Identities and Equations. Modeling, technology, and real-world applications will be incorporated in every unit.

STANDARD GEOMETRY

Standard Geometry is the study of mathematics of the physical world. This course emphasizes the practical application of the concepts without the use of formal proof. Many hands-on activities are included to discover and apply the concepts. The topics covered include Basic Concepts; Angles; Reasoning; Line Relationships; Triangles; Right Triangles; Polygons; Perimeter, Circumference and Area; Similarity; Surface Area and Volume.

ACADEMIC GEOMETRY

Academic Geometry is the study of mathematics of the physical world. This course emphasizes the connection between theory and the practical/technical application with the inclusion of some formal proof and the use of algebra in problem-solving. Many hands-on activities are included to discover and apply the concepts. The topics covered include Reasoning in Geometry; Line Segments; Angles; Parallel and Perpendicular Lines; Triangles; Quadrilaterals; Other Polygons; Similarity; Perimeter; Circumference and Areal Surface Area and Volume; and Circles, as time permits.

SCIENCE

BIOLOGY

The biology course has been developed to meet the Pennsylvania State Standards for Science & Technology and Ecology & Environmental Science. Biology is a lab-based course designed for the college-bound student. Students will perform various hands-on applications of course concepts and experiments. Students will then be required to display mastery of these concepts in formal assessments, lab reports, group activities, and various classroom activities.

ACADEMIC CENTER COURSE OFFERINGS

SCIENCE (CONT)

CHEMISTRY

The chemistry course has been developed to meet the Pennsylvania State Standards for Science & Technology. Chemistry is a lab-based course designed to incorporate the discussion of measurements, periodic table, equations, stoichiometry, phases of matter, and other important concepts. Students will perform various hands-on applications of course concepts and experiments. Students will then be required to display mastery of these concepts in formal assessments, lab reports, group activities, and various classroom activities.

EARTH & SPACE SCIENCE

This curriculum is designed to provide exposure to real world connections through hands-on labs and investigations, as well as help students experience Earth science as vital, engaging, and relevant to the processes that affect it.

PHYSICS

The real-world applications of matter and energy will be introduced to students in this course. The class topics include mechanics, including rotation and torque, waves, sound, light, and electrostatics. These topics are studied qualitatively and quantitatively through lab applications. Experiments with calculations are integral parts of this course.

Applications of algebra are used through Physics class.

Prerequisite: Recommended grade of "C" or better in Algebra I with concurrent enrollment in Algebra II.

SOCIAL STUDIES

GOVERNMENT/CIVICS & ECONOMICS

Government Segment Description: American Government is a survey course that will give the student a basic understanding of the functions and the services of our democratic system. To facilitate such understanding, we will engage in a topical study of our government. First, we will examine how our democratic system developed. Second, we will explain the election process and the party system. Third, we will investigate the specific rights guaranteed to each citizen by our Constitution. The fourth, fifth and sixth areas involve the three branches of the Federal Government, their functions in the democratic system, and their responsibilities in the country. Finally, if time permits, we will examine state and local governments and the services these governments provide to their citizens.

Economics Segment Description: The study of the allocation of scarce resources and the implication of choices involved. The capacity of society to produce goods and markets used for distribution of goods will be examined. National issues such as GDP, unemployment, and inflation will be studied. The appropriate level of government involvement in the economy as well as taxes and spending will be analyzed.

Financial markets, capital formation, and international trade will wrap-up the course.

ACADEMIC CENTER COURSE OFFERINGS

WELLNESS/FITNESS

This fitness component of this course is designed to acquaint students with the benefits of physical activity in their lives. This course will include fitness components such as; cardiorespiratory endurance, strength and conditioning, weight training, flexibility, body composition, and various technology based exercises. This course will include fitness testing, development of a personal training program, and much more. The wellness portion of the course will be based on the components of health: Mental, social, and emotional health, relationships, violence, nutrition, anatomy, first aid, community health, human sexuality, disease, tobacco and alcohol, and legal/illegal drugs.

ENRICHMENT COURSES

LITERACY ADVANTAGE

Literacy Advantage is designed to enable students to become engaged, fluent, and competent readers of the variety of texts that they will have to understand in their personal, academic, and professional lives. Students will be learning strategies to improve their understanding of a variety of texts within three thematic units through the use of extensive reading, writings, and discussions.

MATH APPRENTICESHIP

Students enrolled in Math Apprenticeship will examine and apply the four heuristic steps to problem solving with an emphasis on reading strategies for understanding word problems and the following problem solving strategies: work backwards, data table, guess and check, reduction/expansion, use of manipulative or dramatization, draw a picture/diagram, logical reasoning, organized list, algebraic modeling, look for a pattern, estimation, dimensional analysis, and using formulas. Students will be given the opportunity to apply the above mentioned problem solving strategies to solve problems from their career and technical classes.

PSSA MATH SEMINAR

PSSA Math Seminar is designed to help students prepare for the 11th grade Mathematics PSSA. Aligned to the Math Assessment Anchors, the content includes review of mathematical concepts and practice with problems written in the same formats as the Mathematics PSSA. Technologies incorporated into the course include the use of scientific calculators and Study Island (an online program).

PSSA SCIENCE SEMINAR

This course has been developed to help students build their science skills by reviewing learning standards and skills common to science curricula and standards in Pennsylvania. Diagnostic testing is used to help identify students' strengths and weaknesses, This allows the professional staff to provide the appropriate instruction for each student to develop the skills needed to demonstrate proficiency in standardized tests. Each class provides application and problem-solving opportunities. PSSA Science Seminar is designed to help students prepare for the 11th grade Mathematics PSSA.

ADMISSIONS INFORMATION AND PROCEDURES

Application Procedures:

Students must have successfully completed the eighth grade in order to begin an LCTI program in grades 9, 10, 11 or 12. Each student must complete the attached Student Application form and the appropriate signatures must be included. Completed and signed applications can be returned to your high school guidance office. A transcript of grades will be requested. Additional applications may be obtained from each high school's guidance office, by calling the Student Services Department at LCTI at 610-799-1340, or visit www.lcti.org, Offices, Departments, Student Services, Admissions Information to print a copy of the application form.

Placement Procedures:

LCTI staff members and high school counselors evaluate all applications based on all supplied information. If the selected program has space available, students will be notified of acceptance and placement. Every effort is made to honor all requests and preferences. On occasion when a program's popularity causes full enrollment, the student and high school guidance office will be notified of any openings in the program(s) as they become available.

Tuition and Costs:

Lehigh Career & Technical Institute is supported by the school districts of Lehigh County. There are no tuition costs for students, however, some career programs require students to purchase safety equipment, tools and uniforms. In these instances, the students and their parents and guardians may be responsible for the cost.

Discrimination Policy:

Lehigh Career & Technical Institute does not discriminate on the basis of sex, handicap, national origin or race in its programs or employment as required by Title IX, Section 504 and Title VI. Inquiries about this policy should be directed to the Lehigh Career & Technical Institute Compliance Officer at 610-799-1357. The information contained in this book is subject to change. Contact Student Services for more information.

Open House:

Learn more about Lehigh Career & Technical Institute by visiting our facility. Every fall LCTI hosts its annual Open House for parents, prospective students and the general public. Personal invitations are sent to all Lehigh County students in grades 6 - 8. Call Student Services for more information at 610-799-2300.

How do I apply to Lehigh Career & Technical Institute?

1. Complete the attached application.
2. Complete the student information.
3. Complete the parent information.
4. Parent and student signatures are required to process the application.
5. Select six labs, number them 1 through 6 by level of interest.
6. Select either the Academic Center, full day option for 10th - 12th grades only **OR** Half-day Program, 9th - 12th grades
7. Remember to have your high school guidance counselor complete and sign the back of the application.
8. If you have questions please contact your high school guidance counselor.

LEHIGH CAREER & TECHNICAL INSTITUTE - STUDENT APPLICATION

Student Information - Please print

| | | | |
|------------------------|-------------------------------|-------------------------|--------------------|
| Last Name | First | MI | Birth Date |
| Street Address | City | State | Zip |
| Social Security Number | Phone | Parent's E-mail Address | |
| High School | High School Student ID Number | School District | Grade in 2006-2007 |

PARENT INFORMATION (please print)

Father/Guardian (circle one) Name: _____

Employer and Telephone Number: _____

Mother/Guardian (circle one) Name: _____

Employer and Telephone Number: _____

I agree to encourage effort, punctuality, and attendance. I also agree to provide lab clothing as required, and I understand that such items are the personal property of the student, who must be responsible for their safekeeping.

Parent/Guardian Signature _____ Date _____

Student Signature _____ Date _____

FOR LCTI STAFF USE:

LCTI Student No: _____

Lab Code(s) _____ Grade: 9 10 11 12 Adult Ed.

Level 1 2 3 4 Session: AM PM FLEX SOC DCO

Entry Date: _____ Day #: _____

LCTI Counselor: _____

| | Arts & Humanities | Code |
|--|---|------|
| | Advertising Design/Commercial Photography | ADV |
| | Commercial Photography/Electronic Imaging | PHT |
| | Drafting/Computer-Aided Design | DFT |
| | Painting and Decorating | PNT |
| | Business & Communication Technology | |
| | Administrative Office Technology/Accounting | AOT |
| | Computer Maintenance Technology | CMT |
| | Marketing and Business Education | MKT |
| | Material Handling/Logistics Technology | MAT |
| | Print Technology/Graphic Imaging | PRI |
| | Web Design/Web Programming | WEB |
| | Engineering & Industrial Technology | |
| | Auto Body/Collision Repair Technology | ABT |
| | Auto Technology | AUT |
| | Cabinetmaking/Millwork | CAB |
| | Carpentry | CAR |
| | Diesel Medium and Heavy Truck Technology | DHT |
| | Electrical Technology | ELT |
| | Electro-mechanical Automated Systems Technology | EMC |
| | Electronics Technology/Nanofabrication | ENT |
| | Heating/Air Conditioning and Refrigeration | HAC |
| | Heavy Equipment Operations/Preventive Maintenance | HEQ |
| | Landscape Construction/Environmental Design | LND |

| | Engineering & Industrial Technology | Code |
|--|---|------|
| | Masonry | MAS |
| | Plumbing and Heating | PLB |
| | Precision Machine Tool Technology | PMT |
| | Pre-Engineering/Engineering Technology | PRE |
| | Small Engines/Recreational Vehicle Repair | SEG |
| | Welding Technology | WID |
| | Health & Human Services | |
| | Cosmetology | COS |
| | Commercial Baking | BAK |
| | Culinary Arts | CUL |
| | Dental Technology | DEN |
| | Early Care & Education on Young Children | ELE |
| | Floral Design/Greenhouse Management | FLD |
| | Health Occupations/Health Related Technology | HLO |
| | Law Enforcement/Security Systems | LAW |
| | Special Programs | |
| | Diversified Career Occupations | DCO |
| | Service Occupations Cluster | |
| | Academic Center - Full Day (10th - 12th only) | |
| | Half-day Program (9th - 12th) | |

LCTI ACADEMIC APPLICATION

Half-day students only - To be completed by High School counselors. Courses offered according to school agreements.

| | |
|--------------------------------|---|
| _____ American Studies II | _____ Request Senior Recovery Courses (must be discussed & approved by LCTI Counselor) |
| _____ Wellness & Fitness | _____ Counselor Signature |
| _____ No Academic Class Needed | _____ Date |

Academic Center Courses Only: To be completed by H.S. counselor - attach transcript & credit checks

| |
|--|
| <u>10th grade courses</u> |
| English II (all students - single period) |
| Math (select only one - double period) |
| _____ Algebra I |
| _____ Algebra II |
| _____ Geometry |
| _____ Algebra III/Trigonometry |
| Science (select two - double period) |
| _____ Earth & Space (1 semester) |
| _____ Biology (1 semester) |
| _____ Chemistry (1 semester) |
| Literacy Advantage (all students - 1 semester) |
| Math Apprenticeship (all students - 1 semester) |

| |
|--|
| <u>11th grade courses</u> |
| Integrated American History & Literature (all students - single period) |
| Math (select only one - double period) |
| _____ Algebra II |
| _____ Geometry |
| _____ Algebra III/Trigonometry |
| _____ Other |
| (This option must be discussed with & approved by LCTI counselor) |
| Science (select two semesters or 1 full year) |
| _____ Earth & Space (1 semester) |
| _____ Biology (1 semester) |
| _____ Chemistry (1 semester) |
| _____ Physics (full year) |
| _____ Chemistry (full year) |
| PSSA Science & Math Survey (1st semester) |
| Wellness & Fitness (2nd semester) |

| |
|---|
| <u>12th grade courses</u> |
| British Literature (all students - single period) |
| Select either one math or science (single period) |
| _____ Algebra II |
| _____ Algebra III/Trigonometry |
| _____ Biology (full year) |
| _____ Chemistry (full year) |
| _____ Earth & Space (full year) |
| _____ Physics (full year) |
| _____ Other |
| Economics/Government/Civics (all students - single period) |
| Wellness & Fitness (all students - full year) |

| |
|---|
| <u>Request credit recovery</u> |
| (This option must be discussed with and approved by LCTI counselor or LCTI administrator) |
| <u>Dual Enrollment</u> |

Equal Opportunity Statement:

Lehigh Career & Technical Institute has a policy not to discriminate on the basis of age, sex, handicap, national origin, color or race in its programs or employment as required by Title IX, Section 504 and Title VI, Age Discrimination Act, and Boy Scouts Act. Inquiries about this policy should be directed to Lehigh Career & Technical Institute's Compliance Officer at (610) 799-1357.

ENGINEERING & INDUSTRIAL TECHNOLOGY

HEATING/AIR CONDITIONING AND REFRIGERATION

Construction Section



The regular use of heat, air conditioning and refrigeration conveniences in the United States produces a demand for skilled technicians to install and repair equipment in homes, offices, factories, warehouses, stores and restaurants. The country's diverse climate makes employment in the Heating/Air Conditioning and Refrigeration field attainable in virtually any area students may ultimately reside.

Skilled technicians install/repair equipment, read/interpret blueprints and drawings, prepare their own working diagrams, cut/solder/fit various types of pipes, and cut/fabricate fiberglass and sheet metal ducts to allow for airflow throughout buildings, all of which make for a work environment that is both challenging and rewarding.

Graduates of LCTI's Heating, Air Conditioning & Refrigeration course of study are able to continue their education at a college or specialty school, and ultimately become respected professionals in the field. Post-secondary education is becoming the standard for technicians in HVAC/Refrigeration, and LCTI's education provides the foundation upon which successful careers can be established.

This program is certified by the National Center for Construction Education and Research, the ABC Apprenticeship Program, Environmental Protection Agency, Freon Certification, Industry Certification Exam and Gastight CSST Piping Certification.

EMPLOYMENT OPPORTUNITIES

Sheet Metal Worker
Estimator
Heating Technician
Inspector
Climate Control Engineer
Oil Burner Service Technician
Heat Pump Service Technician
Refrigeration & AC Mechanic
Sales Representative



ENGINEERING & INDUSTRIAL TECHNOLOGY

HEAVY EQUIPMENT OPERATIONS & PREVENTIVE MAINTENANCE

Construction Section

Residential and commercial construction continues to be one of the fastest growing industries nationally, and skilled Heavy Equipment Operations/Preventive Maintenance graduates are in high demand.

The Heavy Equipment Operations/Preventive Maintenance Program offers students a diverse and fast-paced work environment where they will learn safety, maintenance and operating techniques for a wide variety of earthmoving equipment.

Student will learn about soils, erosion and sediment control, site preparation, aggregate production, concrete and asphalt paving, surveying and grading, and utility installation.

Students will also learn machine systems, parts identification and ordering, and preventive maintenance techniques in a state-of-the-art facility.

EMPLOYMENT OPPORTUNITIES

- Civil Engineering Technician
- Excavating and Loading Machine Operator
- Mobile Heavy Equipment Mechanic
- Surveying Technician
- Construction and Building Inspector



ENGINEERING & INDUSTRIAL TECHNOLOGY

LANDSCAPE CONSTRUCTION/ ENVIRONMENTAL DESIGN

Construction Section

For students who enjoy being outdoors and are looking for ways to combine creativity with an appreciation for environmental protection/improvement, LCTI's Landscape Construction/Environmental Design satisfies those requirements.

From planning to planting, students are exposed to hands-on opportunities right on the grounds of Lehigh Career & Technical Institute. They learn the most up-to-date features in landscape technology, arbor culture, turf management and grounds maintenance. In addition, students are taught safe operation of tractors, front-end loaders, soil augers and tree digging equipment.

The program is divided into seven subject areas allowing students to experience a broad and in-depth view of the "green industry", with plant identification, equipment operation, nursery production, and pest management being the most in-depth subject areas.

Students in this program also participate in LCTI's student-built house project and many other community service projects, allowing them to showcase their skills.

EMPLOYMENT OPPORTUNITIES

- Landscape Designer
- Landscape Contractor
- Greenskeeper
- Arborist
- Entomologist
- Landscape Consultant
- Plant Pathologist
- Horticulture Instructor
- Nursery Employee



ENGINEERING & INDUSTRIAL TECHNOLOGY

ELECTRONICS TECHNOLOGY/ NANOFABRICATION



Manufacturing Section

It is difficult to think of an occupation that does not use electronics. From audio systems to the latest nanotechnology advances, electronics affects every part of our lives.

While the electronics industry covers a wide range of occupations, these occupations have some things in common. All electronics workers share a language of terms and symbols, plus the knowledge of certain theories and essential skills. This course will introduce these basic electronic terms and theories.

Students in the Electronics Technology/Nanofabrication program will begin their studies with simple circuits and progress to the complexity of nanofabrication. Nanofabrication is used in the production of semiconductor devices. In addition, this course teaches hands-on applications of electronics and troubleshooting.

Students' skills are enhanced through hands-on experimentation, leading to enhanced troubleshooting and problem solving skills. A state-of-the-art cleanroom provides a live work environment where students may practice many skills taught.

Students may obtain their IPC Solder Certification and Mobile Electronics Certified Professional Certification, and may continue their post-secondary education at most colleges and universities.

EMPLOYMENT OPPORTUNITIES

Electronics Technician
Repair Person
Engineering Technician
Electronics Production
Engineer's Assistant
Cleanroom Maintenance



ENGINEERING & INDUSTRIAL TECHNOLOGY

Manufacturing Section

PRECISION MACHINE TOOL TECHNOLOGY



In the Precision Machine Tool Technology Program, students are tasked in the following areas: General Machine Shop Competencies, Lathe, Bridgeport Milling Machine, Pedestal Grinding, Surface Grinding, Tool and Cutter Grinding, Drill Press, Semi-Precision and Precision Measurement, Blueprint Reading, Bridgeport Mill CNC Programming, Fanuc OT Lathe CNC Programming, Mastercam (Software) CAM Programming and Related Math.

Within each of the above areas, there are between two and fourteen skills LCTI students master. In the Bridgeport Milling Machine section of the class alone, students are taught to select and mount vertical mill cutters; calculate and set speeds and feeds; mount and align work holding devices and secure the work piece; power feed mill surfaces flat and square on six sides; end mill shoulders; find edge and locate centers of work; drill a bolt hole circle pattern on the vertical mill; tap a hole on the vertical mill; mill slots and keyways on the vertical mill; index work on the vertical mill; and mill a slot with a slitting saw.

LCTI has been selected as a Haas Technical Education Center which is a partnership between LCTI and the Lance Haas Factory Outlet. This partnership provides students with the opportunity to receive instruction on the latest CNC machines which will provide them with extensive applications-based laboratory activities, projects and assignments.

The Precision Machine Tool Technology Program at LCTI is nationally certified and accredited by the National Institute for Metalworking Skills (NIMS).

EMPLOYMENT OPPORTUNITIES

- Machinist
- Tool and Die Operator
- Millwright
- Inspector
- Machine Tool Operator
- Model Maker
- Manufacturing Technician
- CNC Programmer
- Process Technician



ENGINEERING & INDUSTRIAL TECHNOLOGY

PRE-ENGINEERING AND ENGINEERING TECHNOLOGY



Manufacturing Section

Pre-Engineering and Engineering Technology is an exploratory program designed to teach students the basics of engineering and technical design with the help of industry-quality computers, software applications and training equipment. Our program uses the *Project Lead the Way* (PLTW) curriculum as its foundation, incorporates Amatrol's *Integrated Technology Concepts* (ITC) Program to enhance the learning process, and mixes in a lot of hands-on, design and build projects to keep the class challenging and engaging.

In addition to the core topics like materials, pneumatics, and electronics, students will explore one of three different focus fields each year: civil engineering and architecture, computer-aided design, and manufacturing and robotics and automation.

In their senior year, students will be able to take college classes, participate in a co-op work program, and/or work with industry mentors to design and construct a senior design project in their chosen fields of focus. Through articulation agreements and dual enrollment opportunities with local colleges, many Pre-Engineering students will graduate high school with college credits.



EMPLOYMENT OPPORTUNITIES

Machine Design
Electrical Design
CNC Machining
Robotics



ENGINEERING & INDUSTRIAL TECHNOLOGY

Manufacturing Section

WELDING TECHNOLOGY



Enrollment in the Welding Technology Program at LCTI will provide students with a proper foundation for welding careers. The program operates under Entry Level Certification authorized by the American Welding Society.

Classes are designed to prepare students for the American Welding Society Entry Level and Advanced Level Welder Certifications. The nine performance tests required for the Entry Level Welder are Shielded Metal Arc Welding 2G and 3G position on Mild Steel, Gas Metal Arc Welding Short Circuit Transfer Mode on Mild Steel and Spray Transfer Mode on Mild Steel, Flux Cored Arc Welding Self Shielded and Gas Shielded on Mild Steel, Gas Tungsten Arc Welding Plain Carbon Steel, Stainless Steel, and Aluminum.

Students are also taught Oxyfuel Gas Cutting Principles and Practices (Manual and Machine), Arc Cutting Principles and Practices (Air Carbon Arc Cutting and Plasma Arc Cutting), Welding Inspection and Testing Principles.

This program is certified by the American Welding Society.



EMPLOYMENT OPPORTUNITIES

- Welder's Helper
- Arc Welder
- Combination Welder
- Pipe Welder
- Welding Technician
- Automotive Repair Shops
- Building Restoration
- Metal Fabricators
- Shipbuilding Companies



HEALTH & HUMAN SERVICES

COMMERCIAL BAKING

Commercial Baking teaches students the fundamental principles and procedures for preparing baked goods, pastries and desserts. With its attention to both theory and practice, the course is designed to equip students for above entry-level positions in the food service area with special emphasis in commercial baking.

Subjects in theory include measurements, understanding ingredients and product problem solving. Students are exposed to practical tasks that include decorated cakes, breads and rolls, sweet goods, Danish pastries, pies and doughnuts. A uniform consisting of a chef coat, chef pants and a hat are required daily in the Commercial Baking program.

Some areas of study include Nutrition, Principles of Bakery, Operation and Maintenance of Equipment, Description and Function of Ingredients, Cake Decorating, Product Merchandising, Buffets and Banquets, and Science of Food Technology.



EMPLOYMENT OPPORTUNITIES

- Pastry Chef
- Head Baker
- Baker's Helper
- Caterer
- Cake Decorator
- Food Salesperson

HEALTH & HUMAN SERVICES

COSMETOLOGY



LCTI's Cosmetology Program includes the study of hair, skin, manicuring and pedicuring, and facial services, where students learn in a live work environment lab. The Cosmetology lab does provide services to the public, and all work is completed by our highly skilled students.

Hair Styling skills include using the computer imaging system, setting and combing out, using pin curls/roller curls, performing special occasion styles and blow-dry styling techniques, styling hair with thermal iron, performing thermal hair straightening, braiding the hair, cleaning/shaping/styling a wig, and fingerwaving.

Facial treatment skills include plain facial with a facial pack, proper operation of skin care equipment, applying makeup to enhance a patron's features, arching eyebrows using tweezers, performing hair removal using wax depilatory, using facial bleach and chemical facial depilatory, and the application of artificial eyelashes.

This program is certified by the PA State Board of Cosmetology in the areas of manicurist, cosmetician and cosmetologist.

EMPLOYMENT OPPORTUNITIES

Cosmetologist
Manicurist
Wig Stylist
Salon Manager
Salon Owner
Nail Technician
Makeup Artist
Platform Artist
Retail Specialist



HEALTH & HUMAN SERVICES

CULINARY ARTS



LCTI's Culinary Arts Program was one of seven chosen out of the 170 programs in the United States to be awarded "Exemplary" status. It was the only culinary program in the state of Pennsylvania to be so honored.

The Culinary Arts Program at LCTI starts out with Occupational Procedures where students learn kitchen safety, sanitation, the use of major equipment, hand tools and more. This is followed by Cooking Methods or Techniques, which focuses on cutting techniques, different cooking methods, weights and measures, recipe conversion and adjustment and food service terminology.

Front of House topics include rules of table settings, duties of the food and beverage manager, sales techniques for service personnel (including menu knowledge and suggestive selling), and inter-relationships and work flow between dining room and kitchen operations.

Back of House topics include identifying and preparing breakfast items, identifying components of sandwich preparation, demonstrating cold sandwich, hot sandwich and short-order preparation, and experiencing various positions of the brigade system and components of institutional food preparation.

This program is certified by the American Culinary Federation, and students may earn their SERVSAFE certification.



EMPLOYMENT OPPORTUNITIES

- Chef
- Specialty Cook
- Short Order Cook
- Server
- Meat Cutter
- Caterer
- Cake Decorator
- Meat Packer
- Food Salesperson

HEALTH & HUMAN SERVICES

DENTAL TECHNOLOGY

LCTI's Dental Technology Program provides students with a variety of skills that will enable them to become a dental assistant, dental laboratory technician, and/or pursue a career as a dental hygienist.

Students train in a state-of-the-art facility allowing them to become skilled on the latest industry technology.

The major areas of study in the course include dental radiology, oral pathology, chair-side dental assisting, anatomy and physiology, dental materials, sterilization, and dental office business procedures.

Eventually, students may have the opportunity to be certified in dental radiology. And, the course of study in the program provides a very strong segue into dental hygienist programs at community colleges.

EMPLOYMENT OPPORTUNITIES

Dental Assistant
Dental Laboratory Technician
Medical Secretary



HEALTH & HUMAN SERVICES

EARLY CARE & EDUCATION OF YOUNG CHILDREN



Early Care & Education of Young Children prepares students for employment in early childhood education and services for early childhood development. This program provides the foundations for study in higher education, leading to early childhood education and child-related careers.

The course of study includes, but is not limited to, planning and guiding developmentally appropriate activities for young children; developmentally appropriate practices of guidance and discipline; overview of management and operation of licensed child care facilities; Pennsylvania child care regulations and licensing requirements; and employability skills. Once acquiring their clearances, students participate in the education of the pre-school age children who attend an onsite day care facility



EMPLOYMENT OPPORTUNITIES

Teacher's Aide
Assistant Group Supervisor
Group Supervisor
Director
Classroom Teacher
Developmental Counselor
Child Care Specialist
Family/Parenting Advisor

HEALTH & HUMAN SERVICES

EMERGING HEALTH PROFESSIONALS



The Emerging Health Professions Program provides high school seniors with an opportunity to experience a variety of health care careers in a hospital setting and take Penn State science courses for college credit. Students spend three days a week rotating among various departments of the hospital working with staff. Students will experience these departments throughout the three Lehigh Valley Hospital & Health Network facilities.

The hospital portion of the program provides students with instruction in a variety of patient care skills and hospital procedures, enabling them to participate in patient care activities during the clinical portion of the program. In addition to these basic skills, students are given an overview of the health care professions, different health care systems, health insurance and other health-related issues.

The solid foundation the program provides will assist its Emerging Health Professionals students who wish to pursue further education and professional careers.

This program requires an application evaluation and committee review.



HEALTH & HUMAN SERVICES

FLORAL DESIGN / GREENHOUSE MANAGEMENT

LCTI's Floral Design/Greenhouse Management Program gives students the opportunity to merge their creativity with a sense of business and service as they learn about growing, marketing and designing with flowers or plants.

The program is approved by the Lehigh Valley Florist Association, and through optional internships with local florists and greenhouses during the holiday seasons and throughout the year, students gain valuable experience in the floral and greenhouse workplace.

In the program, students learn about Processing Cut Flowers and Greens, Constructing Floral Arrangements, and Constructing Silk and Dry Arrangements, Flowers to Wear, Wedding Flowers, and Sympathy Flowers.

Students are also taught Retail Flower Shop Selling, Plant Identification, Greenhouse Management, Plant Production, Propagation, Greenhouse Maintenance, Preparing Mediums and Mixes, Pest Management and Environmental Control.

EMPLOYMENT OPPORTUNITIES

- Floral Shop Manager
- Gardener
- Salesperson
- Floral Designer
- Interior Landscaper
- Greenhouse Worker
- Marketing Manager
- Production Supervisor
- Maintenance Foreman



HEALTH & HUMAN SERVICES

HEALTH OCCUPATIONS/HEALTH RELATED TECHNOLOGY



The Health Occupations/Health Related Technology Program is for students interested in careers in the medical and rehabilitation fields. It provides the student with the opportunity to learn about the various diversified health careers. The world of medicine and science changes and grows virtually every day, and subsequently the number of jobs in the health field grows as well.

Students learn about human anatomy, medical terminology, basic nutrition, patient care delivery and employability skills. As a Pennsylvania Department of Education OBRA approved nurse aide program, successful students are eligible to take the Pennsylvania Nurse Aide Competency Test. Additionally the student has the opportunity to obtain his or her American Heart Association basic life support CPR/AED certificate as well as the First Aid Certificate.

Nurse Aide students learn basic nursing tasks which include: Role and Function, Communication, Safety, Infection Control, Mental Health and Care of the Cognitively Impaired, Restorative Nursing Skills, and Personal Care Skills. Examples of hands on skills include hand washing, measuring and recording temperature, pulse, respiration, blood pressure, and bandaging to name a few.

In the Medical Assistant/Medical Secretary portion of the course, students are responsible for both clerical and medical tasks. Skills include taking, relaying and charting messages; using the telephone and intercom; processing correspondence; dictation; transcription; billing and coding; overall management of patient records; hearing testing; phlebotomy and sterilization are some examples.

Employment Opportunities: Home Health Aide, Pharmacy Technician, Physical Therapy Aide, Occupational Therapy Assistant, and Surgical Technologist

Certifications available include: PA Nurse Aide Registry, American Heart First Aid and CPR and AED BLS Provider.

EMPLOYMENT OPPORTUNITIES

Medical/Dental Assistant
Medical Technician's Aide
Hospital Records Clerk
Laboratory Aide
Physical Therapy Aide
Nursing Assistant
Recreation Therapy
Respiratory Aide
Occupation Therapy Aide



HEALTH & HUMAN SERVICES

LAW ENFORCEMENT/ SECURITY SYSTEMS



The Law Enforcement/Security Systems Program begins with the focus on Law Enforcement in Society. Students are taught the historical basis of the American criminal justice system and the place of law enforcement within the framework of that system. They examine the impact of constitutional guarantees on the performance of law enforcement and security personnel.

The program also covers Pennsylvania Criminal and Traffic Law. Students learn to differentiate between criminal and civil law, felonies, misdemeanors and summary offenses. They are expected to know the purpose of the Pennsylvania Crimes Code and utilize it to determine appropriate criminal infractions.

A portion of the course deals with the Legal Use of Force where students learn the elements of the "Use of Force Continuum," the difference between the use of force and the use of deadly force, and the basic principles of unarmed confrontation.

Upon successful completion of coursework, students can be certified in handcuffing, OC spray use, baton use, first aid and CPR, dispatching, private security and corrections. Students will also be prepared to enter a college criminal justice program.



EMPLOYMENT OPPORTUNITIES

- Retail Store Security
- FBI
- Home Security Specialist
- Commercial Security
- Security Sales
- Police Officer
- Probation Officer
- Lawyer
- Bailiff

SPECIAL PROGRAMS

CAREER ACADEMY PROGRAM

The Career Academy Program (CAP) provides at risk students from the nine participating school districts with an alternative education that will help them receive a high school diploma, and work toward a career goal in a program of choice.

LCTI instructors, teachers' assistants and a guidance counselor help CAP students develop skills vital to securing a job immediately after high school graduation. The program can also help students continue their education on a post-secondary level.

CAP students receive academic instruction in English, mathematics, social studies, science, health and wellness, physical education, career education, and computer applications. The week-long academic sessions are part of a three-week rotation process--one week of academic study followed by two consecutive weeks of occupational education.

CAP career and technical programs include Auto Specialization Technology, Building Trades Maintenance, Carpentry, Early Care & Education of Young Children, Electrical Construction, Home Health Services, Office Systems Technology, and Small Gas Engines/Recreational Vehicle Repair.



SPECIAL PROGRAMS

AUTOMOTIVE SPECIALIZATION TECHNOLOGY

The Automotive Specialization Technology program is designed to prepare students to service cars and light trucks. Students learn preventive maintenance, engine/chassis diagnosis and repair. They also learn how to service and repair automotive drive trains, electrical systems, cooling systems, brakes, steering, and suspensions, and perform general detailing and reconditioning.

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CARPENTRY

In the Carpentry program students will learn how the building industry operates, its standards and what is required to complete a project on time and at cost. Students will receive instruction in blueprint reading, site work, construction footing and framing, and insulating while participating in various community projects.

BUILDING TRADES MAINTENANCE

In the Building Trades Maintenance program, students will have the opportunity to develop skills in carpentry, masonry, electrical wiring, plumbing, and painting. Students gain experience in both the classroom and through community service projects.

SPECIAL PROGRAMS

ELECTRICAL CONSTRUCTION

In the Electrical Construction program, students will learn residential, commercial, and industrial wiring, as well as telecommunications cabling. You'll be taught to install duplex and split wire receptacles, single pole switches, 3 and 4-way switches, and ground fault circuit interpreters, as well as participate in various community projects.

OFFICE SYSTEMS TECHNOLOGY

In the Office Systems Technology program, students study computer applications such as word processing, creating spreadsheets and databases, how to develop computer generated presentations and desktop publishing. Through office simulation activities students develop skills in office procedures such as filing, telephone technique, data entry, financial recordkeeping, proofreading, and personal information management systems.

HOME HEALTH SERVICES

In the Home Health Aide program, students will learn medical terminology, anatomy, physiology, and how certain diseases affect patients. Students will also be able to complete CPR and First Aid training, and prepare for the state board examinations for the nurses aide program.



SPECIAL PROGRAMS

SERVICE OCCUPATIONS

Six curricular areas are offered in the Service Occupations program: Building Trades Maintenance Custodial Maintenance, Grounds Maintenance and Landscaping, Food Service, Material Handling and Hospitality Services. Each area is designed to help the student transition from basic entry-level skill development to more advanced technical training leading directly to the workforce. A skills assessment will be done to determine the readiness and interest of the student. Results of the assessment will be provided to the student's IEP team.

BUILDING TRADES

MAINTENANCE

The Students in the Building Trades Maintenance/Custodial Maintenance program introduces students to the carpentry, electrical, plumbing and masonry trades. The development of work readiness skills are stressed in this program.

HOSPITALITY SERVICES

Students selecting the Hospitality Services program will learn the skills necessary to prepare them to work in the hospitality areas of house person, breakfast attendant, hospitality worker and laundry attendant. The development of work readiness skills are stressed in this program.

MATERIAL HANDLING

Students in the Material Handling program learn the safe use of tools and equipment, keyboarding, inventory and stock control, order picking and packaging. The newly completed distribution center will allow students to be exposed to state-of-the-art equipment and job practices, developing work readiness skills.

FOOD SERVICE

Students in the Food Services program will learn basic cooking techniques and the importance of food presentation and safety. Students are required to complete and pass the OSHA assessment for teens. The development of work readiness skills are stressed in this program.

INDOOR/OUTDOOR

MAINTENANCE

Students in the Grounds Maintenance and Landscaping program train for entry-level employment in the custodial field, and for positions as landscapers and grounds keeping laborers through hands-on training and skills preparation. Students are trained on a variety of equipment including mowers, trimmers and leaf blowers. Students are taught safety and health regulations learn to plan their work, to interact positively with people, and to work without supervision.

SPECIAL PROGRAMS

MIDDLE COLLEGE/DUAL ENROLLMENT PROGRAM

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

LCTI and LCCC have created a dual enrollment program called “Middle College.” It’s designed for students who may or may not be sure whether they want to go on to college once they’ve finished high school. The Middle College program will allow you to test drive the college experience while you’re in high school. In fact, in just three years, hundreds of students have earned over 400 credits through the program.

Here’s how the program works. Along with your LCTI technical high school classes, you can take college courses during your junior and senior years. You get to choose classes related to your career pathway. You’ll learn about some of the hottest job fields and whether you would want to pursue one of them. Plus, you can earn an entire semester’s worth of credits toward an Associate’s or Bachelor’s degree. You can earn more credits if you take summer courses.

You won’t have to break the bank to attend. Each course credit at LCCC Middle College costs about half the regular tuition rate less than one fourth of the cost for a comparable course credit at any one of Pennsylvania’s state universities.

What’s so special about LCCC Middle College?

The job market is incredibly competitive. Having more education will always help you. More education will advance you in a career and make you more adaptable to changing job markets. In fact, attending LCCC Middle College is like getting a 25-lap head start at the Indy 500 or a 10-yard head start in a 100-yard dash.

With Middle College under your belt, you can accelerate your post-high school education, already having credit for some introductory courses at a traditional community college or four year college.

And, even if you decide not to pursue college once you graduate from high school, your Middle College experience still gives a boost to your earning potential.

College is your best chance of earning more money. Attending college takes time and money, but statistics show it’s well worth the investment. According to the U.S. Census Bureau, workers with an Associate’s degree will a 31 percent higher salary throughout their careers than high school graduates. And, workers with a Bachelor’s degree will earn 62 percent more throughout their careers than high school graduates.

SPECIAL PROGRAMS

SCHOOL-TO-CAREER

School-To-Career coordinators take a student's educational path and enhance it with work-based opportunities through paid job experiences, internships and connections to business and industry through job shadowing and guest speakers. Eligible students may participate in one or more of these extended learning opportunities.

Summer internships between grades 11 and 12 are offered as a point of entry into high skill, high wage career pathways to students who meet the eligibility requirements. Successful completion of a summer internship program may allow students early entrance to a cooperative education placement in their senior year. Internships may be paid or unpaid work experiences.

The Cooperative Education Program (Co-op) allows students who have met eligibility requirements to enhance their learning by working in their chosen field, typically during their senior year. All work-based experiences are monitored by certified school-to-work coordinators. Employers provide a formal evaluation of the student's performance.

The Automotive Youth Educational System (AYES) is a program for students in the automotive industry. LCTI is certified by Automotive Service Excellence (ASE) to offer the AYES program in partnership with local employers.

The Accelerated Career Education System (ACES) allows LCTI students, in partnership with Lehigh Carbon Community College (LCCC), to earn up to 30 college credits toward an Associate of Applied Science degree. By combining academic and technical courses with worksite learning, students can earn a national skill certificate, credits toward a degree, and the opportunity for a high wage career.

SPECIAL PROGRAMS

DIVERSIFIED CAREER OCCUPATIONS (DCO)

LCTI offers the Diversified Career Occupations (DCO) Program to qualified students as an alternative method of earning credits toward graduation while gaining valuable workplace experience. The DCO program is delivered through a balanced combination of weekly classroom instruction and work-based experience, along with completion of weekly requirements. Students in 11th and 12th grade may be recommended by their high school guidance department to participate in the program.

Students traditionally work half days in entry-level positions. Jobs are in occupational areas that may not be offered at LCTI or at county high schools. Students work under the supervision of a work-site mentor who will share his or her expertise and provide training through an Occupational Training Plan. The employer is responsible to evaluate the student's performance on the job and to track attendance in the workplace.

An LCTI-certified coordinator is responsible to deliver related competency-based classroom instruction on a weekly basis at the student's high school and to conduct monthly visits with the student at their place of employment. Students will be formally evaluated and will receive a grade based on a combination of their workplace evaluation and their grade earned in classroom instruction.

DCO can benefit a variety of students, including those who have earned sufficient credits for graduation and may have free periods in their schedule. Work-based experience is a valuable tool to prepare for both full time employment and for post-secondary education.

DCO can assist students who may be considering withdrawing from school because of financial, domestic or scholastic challenges. Early workforce training in a supervised environment provides a solid basis for developing a positive work ethic and a pathway for future success in the workplace. DCO is also beneficial to local employers, providing an avenue to recruit new workers who will be prepared to accept the challenges of today's workforce.

SPECIAL PROGRAMS

ADULT EDUCATION

The Adult & Continuing Education Department of Lehigh Career & Technical Institute offers adult learners a variety of skills training programs both onsite and at various locations throughout the Greater Lehigh Valley.

Tractor Trailer Driver Training – CDL Class A and B

Heavy Equipment Operations

Heavy Equipment/CDL Transportation Services

Diesel Mechanic/CDL Transportation Services

Logistics & Forklift Safety Training/CDL Transportation Services

Logistics & Forklift Safety Training

Industrial Lift Truck Technician

Electromechanical Automated Systems Technology
Industrial Maintenance Training

PA State Inspection and Emissions Certification

Basic Chef Program

Day School Slot Purchase

(Full or half day sessions of career & technical programs)

Employee Assessments & Certifications

GED Test Center Customized Job Training / Specialty Courses



For more information, please contact the Adult & Continuing Education Department at 610-799-1372 or visit us at www.lcti.org.



Lehigh Career & Technical Institute
4500 Education Park Drive Schnecksville, PA 18078
610-799-2300 www.lcti.org

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