

# understanding career pathways

## An Introduction

Lancaster County's 16 school districts have adopted a common career preparation program called Career Pathways, which is based on the PA State Academic Standards for Career Education and Work. These standards identify the necessary academics and technical requirements for careers of the 21st Century. The Career Pathways model is designed to help students and parents plan for careers using nine main categories of careers/jobs called "Pathways," which are based on national employment trends. These trends are often referred to as "career clusters."

The goal of Career Pathways is for all students to develop a vital and meaningful education and career plan beyond High School graduation and to have a seamless transition to college and career success. This plan may include work based training, skill certification, military, associate's, bachelor's or graduate degree.

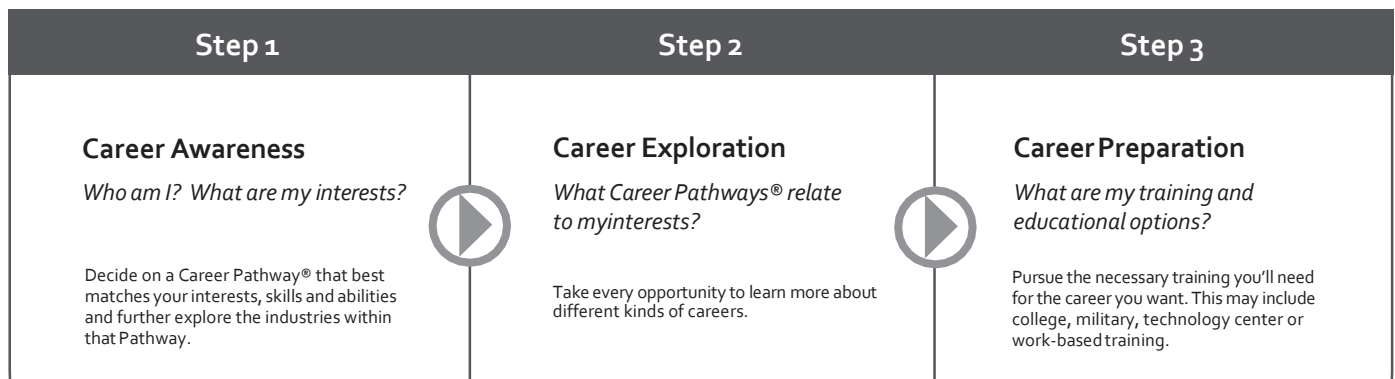
## What are Career Pathways

Think of the sections below as 9 different roads. Each one will bring you a variety of career possibilities that relate to that particular category. By choosing a specific Pathway below, you can take advantage of all the opportunities that best fit your interests, abilities and experiences. This decision not only accelerates the process of developing your career path, but it also prepares you for any number of jobs within that specific Pathway. And remember: If you don't like the Pathway you have chosen, you can change it!




- Manufacturing
- Architecture & Construction
- Business, Management & Administration
- Health Science
- Law, Public Safety & Security
- Transportation, Distribution, & Logistics
- Hospitality & Tourism
- Education & Training
- Agriscience, Food & Natural Resources

## How do I use them?

Finding the right career can be as simple as this 3 STEP PROCESS below:






Lancaster County Career Pathways  
**ADVANCED MANUFACTURING**

Education Level	 <b>Business Management &amp; Administration</b>	 <b>Production, Maintenance &amp; Logistics</b>	 <b>Science, Technology, Engineering &amp; Math</b>
<b>High School or GED and On the Job Training</b>	Administrative Support Customer Service Representatives Warehouse Associates \$ - \$\$	Team Assemblers Machinery Operators Material Handlers Quality Control Inspectors \$ - \$\$	
<b>Certificate, Specialized Training or Apprenticeship</b>		Electricians Machinists Industrial Mechanics Welders \$\$ - \$\$\$	
<b>Associate Degree</b>	Accounting Analysts Administrative Supervisors \$\$	<b>Production Supervisors</b> \$\$ - \$\$\$	Computer Help Desk Specialists Automation Technicians Engineering Technicians Mechanical Drafters \$\$ - \$\$\$
<b>Bachelor Degree</b>	Accountants & Auditors Financial Analysts Marketing Specialists Human Resources Cost Estimator \$\$-\$\$\$\$\$	Material Planners Operations Managers Production Managers \$\$\$-\$\$\$\$\$	Engineers Chemists Computer Network Managers Software Developers \$\$\$-\$\$\$\$\$

		ANNUAL SALARY RANGES
All occupations listed employ more than 100 people. Explore careers in Advanced Manufacturing on <a href="#">Edge Factor</a> . View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.		\$ \$20,000 - \$35,000
		\$ \$35,000 - \$50,000
		\$ \$ \$50,000 - \$75,000
		\$ \$ \$ \$75,000 - \$100,000
		\$ \$ \$ \$ \$ More than \$100,000

For more information about specific occupations, visit [www.onetonline.org](http://www.onetonline.org)

# ARCHITECTURE & CONSTRUCTION

Education Level	 Architecture	 Business Management & Administration	 Construction
High School or GED and On the Job Training		Administrative Support Office Clerks \$\$	Construction Laborers Equipment Operators Painters \$\$
Certificate, Specialized Training or Apprenticeship			Tractor-Trailer Truck Drivers Carpenters Electricians HVAC Technicians Plumbers \$\$ - \$\$\$
Associate Degree	Architectural & Civil Drafters \$\$\$	Accounting Clerks \$\$	Assistant Project Managers Construction Supervisor \$\$-\$\$\$
Bachelor Degree	Architects Civil Engineers Mechanical Engineers Project Engineers \$\$-\$\$\$\$	Cost Estimators General Managers Human Resources \$\$\$ - \$\$\$\$\$	Construction Project Managers Superintendents \$\$\$\$-\$\$\$\$\$




All occupations listed employ more than 100 people. Explore careers in Architecture and Construction on [Edge Factor](#).  
View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.

### ANNUAL SALARY RANGES

\$	\$20,000 - \$35,000
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\$\$\$\$\$	More than \$100,000

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# BUSINESS, MANAGEMENT & ADMINISTRATION

Education Level	 <b>Arts, Architecture, &amp; Communications</b>	 <b>Finance</b>	 <b>Professional Services</b>
<b>High School or GED</b>	Groundskeepers Landscapers Printing & Binding Associates Ushers & Ticket Takers \$	Customer Service Representatives Insurance Claims Processors Tellers \$ - \$\$	Laborers Material Movers Quality Control Inspectors Dispatchers \$ - \$\$
<b>Certificate or Specialized Training</b>	Printing Press Operators \$\$	Insurance Appraisers Real Estate Agents \$\$\$	Maintenance & Repair Workers Building Inspectors Construction Inspectors Power Line Workers \$\$ - \$\$\$\$
<b>Associate Degree</b>	Architectural and Civil Drafters Digital Prepress Specialists \$\$ - \$\$\$	Accounting Clerks Administrative Supervisors Loan Officers Compliance Officers \$\$-\$\$\$	Computer Help Desk Specialists Cable Technicians Paralegals & Legal Assistants \$\$ - \$\$\$
<b>Bachelor Degree</b>	Architects Graphic Designers Technical Writers \$\$ - \$\$\$\$	Sales Representatives Accountants & Auditors Insurance Underwriters Personal Financial Advisors \$\$\$ - \$\$\$\$\$	Engineers Software & Web Developers Cyber Security Analysts \$\$\$ - \$\$\$\$\$
<b>Master/ Doctoral/ Professional Degree</b>	Architectural Managers Engineering Managers \$\$\$\$\$	Financial Managers Management Analysts Operations Research Analysts \$\$\$\$ - \$\$\$\$\$	Environmental Engineers Environmental Scientists Lawyers \$\$\$\$ - \$\$\$\$\$



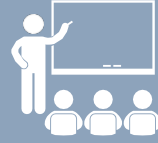
All occupations listed employ more than 100 people. Explore careers in Business Services on [Edge Factor](#). View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.

### ANNUAL SALARY RANGES

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Lancaster County Career Pathways  
**EDUCATION & TRAINING**

Education Level	 <b>Business Management &amp; Administration</b>	 <b>Professional Support Services</b>	 <b>Teaching/ Training</b>
<b>High School or GED</b>	Cafeteria Workers Janitors and Groundskeepers Security & Crossing Guards Administrative Support \$ - \$\$	Daycare Workers \$	Library Assistants Aerobics Instructors \$ - \$\$
<b>Certificate or Specialized Training</b>	Maintenance & Repair Workers Bus Drivers Police Officers \$\$ - \$\$\$		Fitness Trainers Vocational Education Teachers* <small>* Must work toward acquiring PA teaching credentials.</small> \$\$ - \$\$\$
<b>Associate Degree</b>	Accounting Clerks Administrative Supervisors Computer Help Desk Specialists \$ - \$\$\$		Teacher Assistants \$
<b>Bachelor Degree</b>	Accountants & Auditors Administrative Managers \$ - \$\$\$\$\$	Human Resource Specialists Registered Nurses Case Managers Training & Development Specialists \$\$ - \$\$\$\$	School Teachers <i>Elementary School</i> <i>Middle School</i> <i>High School</i> \$\$ - \$\$\$\$
<b>Master/ Doctoral/ Professional Degree</b>	College Administrators Financial Managers School Administrators \$\$\$\$ - \$\$\$\$\$	Counselors School Psychologists Speech-Language Pathologists \$\$\$ - \$\$\$\$	College Professors Curriculum & Instruction Directors Library Directors \$ - \$\$\$\$\$




All occupations listed employ more than 100 people. Explore careers in Education and Training on [Edge Factor](#). View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.

**ANNUAL SALARY RANGES**

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# LAW, PUBLIC SAFETY & SECURITY

Education Level	 Government	 Law	 Public Safety
<b>High School or GED</b>	Direct Support Professionals Highway Maintenance Workers  Administrative Support  \$ - \$\$\$		Security Guards Construction Equipment Operators Construction Laborers Police, Fire & Ambulance Dispatchers  \$ - \$\$\$
<b>Certificate or Specialized Training</b>		Criminal Investigators Detectives Title Clerks  \$\$-\$\$\$\$	Building Inspectors Construction Inspectors EMTs and Paramedics Firefighters Licensed Practical Nurses Police Officers  \$\$ - \$\$\$\$
<b>Associate Degree</b>	Accounting Clerks Office Clerks Grant Writers  Tax Examiners & Collectors  \$\$ - \$\$\$	Legal Secretaries Paralegals & Legal Assistants  \$\$\$	Corrections Officers Fire & Police Supervisors  \$\$\$ - \$\$\$\$\$
<b>Bachelor Degree</b>	Human Resource Specialists Contracts Administrators General Managers  \$ - \$\$\$\$\$		Registered Nurses Civil Engineers Probation Officers  \$\$\$ - \$\$\$\$
<b>Master/ Doctoral/ Professional Degree</b>	Financial Managers Librarians Management Analysts  \$\$\$ - \$\$\$\$\$	Judges Lawyers  \$\$\$\$\$	Physicians & Surgeons  \$\$\$\$\$

	ANNUAL SALARY RANGES	
All occupations listed employ more than 50 people. Explore careers in Government, Law and Public Safety on <a href="#">Edge Factor</a> . View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.	\$	\$20,000 - \$35,000
	\$\$	\$35,000 - \$50,000
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Lancaster County Career Pathways  
**HEALTH CARE**

Education Level	 <b>Business Management, Administration &amp; Finance</b>	 <b>Human Services</b>	 <b>Health Sciences &amp; Patient Care</b>
<b>High School or GED</b>	Medical Receptionists Patient Representatives Billing & Insurance Representatives Scheduling Coordinators	Food Service Workers Home Health Aides Housekeepers Maintenance & Repair Workers	Patient Attendants Sterile Processing Technicians
	\$ - \$\$	\$ - \$\$	\$
<b>Certificate or Specialized Training</b>		Fitness Instructors Massage Therapists Phlebotomists	Certified Nursing Assistants Emergency Medical Technicians Medical and Dental Assistants Paramedics Pharmacy Technicians
		\$\$	\$ - \$\$
<b>Associate Degree</b>	Accounting Clerks Computer Help Desk Specialists Executive Assistants	Occupational Therapy Assistants Opticians Physical Therapy Assistants	Diagnostic Technicians Licensed Practical Nurses Respiratory Therapists
	\$\$-\$\$\$	\$\$ - \$\$\$	\$\$ - \$\$\$
<b>Bachelor Degree</b>	Human Resources Specialists Accountants & Auditors Computer Systems Analysts Health Care Managers Project Managers	Advocates & Caseworkers Athletic Trainers Behavioral Disorder Counselors Substance Abuse Counselors	Registered Nurses Dietitians & Nutritionists
	\$\$\$ - \$\$\$\$\$	\$\$ - \$\$\$	\$\$\$
<b>Master/ Doctoral/ Professional Degree</b>	Health Care Administrators	Crisis Counselors Behavior Specialists Clinical Psychologists Social Workers <i>Child, Family, School</i>	Nurse Practitioners Physician Assistants Physicians & Surgeons Pharmacists
	\$\$\$ - \$\$\$\$\$	\$\$ - \$\$\$\$\$	\$\$ - \$\$\$\$\$

All occupations listed employ more than 100 people. Explore careers in Health Care on <a href="#">Edge Factor</a> . View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.	ANNUAL SALARY RANGES	
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Lancaster County Career Pathways  
**HOSPITALITY & TOURISM**

Education Level	 <b>Business Management &amp; Administration</b>	 <b>Food &amp; Beverage Services</b>	 <b>Travel, Tourism, Lodging &amp; Recreation</b>
<b>High School or GED</b>	Sales Workers Security Guards Administrative Assistants  \$ - \$\$	Warehouse Associates Cooks Food Service Managers Waiters & Waitresses  \$ - \$\$\$	Amusement Ride Operators Cashiers Front Desk Agents Groundskeepers Housekeepers  \$ - \$\$
<b>Certificate or Specialized Training</b>	Maintenance Technicians  \$ - \$\$	Bartenders Personal Chefs  \$ - \$\$	Aerobics Instructors Fitness Trainers Gaming Dealers  \$ - \$\$
<b>Associate Degree</b>	Accounting Clerks Administrative Supervisors Office Clerks  \$\$-\$\$\$	Chefs and Head Cooks  \$\$\$	Landscape Foremen Travel Agents  \$\$ - \$\$\$
<b>Bachelor Degree</b>	General Managers Marketing Specialists Sales Representatives  \$ - \$\$\$\$\$		Activities Coordinators Hotel Managers  \$ - \$\$\$

All occupations listed employ more than 100 people. Explore careers in Hospitality and Tourism on [Edge Factor](#). View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.




**ANNUAL SALARY RANGES**

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*For more information about specific occupations, visit [www.onetonline.org](http://www.onetonline.org)*



# TRANSPORTATION, DISTRIBUTION, & LOGISTICS

Education Level	 <b>Business Management &amp; Administration</b>	 <b>Distribution &amp; Logistics</b>	 <b>Transportation</b>
<b>High School or GED</b>	Customer Service Representatives Receptionists Administrative Assistants  \$ - \$\$	Material Movers Order Fillers Forklift Operators Repair Workers, Technicians  \$ - \$\$\$	Delivery Drivers Dispatchers  \$ - \$\$\$
<b>Certificate or Specialized Training</b>		Maintenance & Repair Workers Maintenance Managers Maintenance Mechanics  \$\$ - \$\$\$	Tractor-Trailer Truck Drivers Aircraft Mechanics Automotive Mechanics  \$ - \$\$\$
<b>Associate Degree</b>	Accounting Clerks Computer Help Desk Specialists Administrative Managers Executive Secretaries  \$\$ - \$\$\$\$\$	Medical Equipment Technicians Office Machine Repairers  \$\$ - \$\$\$	Commercial Pilots  \$\$\$\$
<b>Bachelor Degree</b>	Human Resource Specialists Sales Representatives  \$\$\$ - \$\$\$\$\$	Supply Chain Analysts  \$\$\$\$	Logistics Managers Warehouse Managers  \$\$\$\$\$
<b>Master/ Doctoral/ Professional Degree</b>	Financial Managers Management Analysts  \$\$\$\$\$	Pharmacists  \$\$\$\$\$	

All occupations listed employ more than 100 people. Explore careers in Transportation, Distribution and Logistics on [Edge Factor](#). View career profiles, virtual workplace tours, and watch STEAM come to life in the real world.

### ANNUAL SALARY RANGES

\$	\$20,000 - \$35,000
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# Lancaster County Career & Technology Center

## Program Offerings

### Full Day Programs

Brownstown Campus	Mount Joy Campus	Willow Street Campus
<u>Architecture &amp; Construction</u> Architectural CAD – Design Cabinet Making & Wood Technology Electrical Construction Technology Heavy Equipment Operation & Basic Maintenance HVAC/R Painting & Interior Finishes Plumbing  <u>Business Services</u> Computer Systems Technology Commercial Art Digital Design/Print Media Interactive Media & Web Design Photography & Digital Imaging	<u>Manufacturing</u> Electro-Mechanical Engineering Technology Metal Fabrication Welding Technology Precision Machining & Computer-Aided Manufacturing  <u>Architecture &amp; Construction</u> Carpentry Technology  <u>Education &amp; Training</u> Early Childhood Education  <u>Hospitality &amp; Tourism</u> Baking & Pastry Arts Culinary Arts/Chef  <u>Law, Public Safety &amp; Security</u> Protective Services Academy	<u>Agriscience</u> Animal Production Science & Technology Veterinary Assistant  <u>Health Care</u> Patient Care Technician Dental Assistant Medical Assistant Nursing Assistant/Home Health Aide  <u>Transportation, Distribution, &amp; Logistics</u> Automotive Technology Collision Repair Diesel Equipment Technology Power Sport Technology  <u>Advanced Manufacturing</u> Welding Technology (3-year program)  *Full Day Semester Based

### Part Day Programs

Grades 10 & 11	Senior Only	Grades 10 & 11
Intro to Construction Careers Intro to Culinary Careers Intro to Health Careers Intro to Manufacturing Careers Intro to Transportation Careers Intro to Visual Communication Careers	Advanced Health Careers <u>Grades 10 &amp; 11</u> Intro to Construction Careers Intro to Culinary Careers Intro to Health Careers Intro to Manufacturing Careers Intro to Transportation Careers	Intro to Construction Careers Intro to Culinary Careers Intro to Health Careers Intro to Manufacturing Careers Intro to Transportation Careers Intro to Visual Communication Careers

### General Information:

#### Full Day Programs

High school students spend the day at one of the three Lancaster County Career & Technology Centers, Brownstown, Mount Joy or Willow Street Campus. Students participate in a comprehensive technical or career-oriented program. The full-day program allows more usable time for instruction and enables students to gain insight into daily work patterns. In full-day programs an LCCTC student may earn college credits toward an associate degree at two year colleges. Through partnerships with area colleges, LCCTC provides a variety of dual enrollment courses. The LCCTC also has articulation agreements with 2-year colleges and technical schools. Dual enrollment and articulation offer college-level segments that give students an additional head start toward their future career and life-long learning.

#### Part Day Programs

Part day programs enable college bound seniors and students in grades 10 or 11 the opportunity to explore different aspects of a career field. The senior part day programs enable students to explore a career area for a few hours during each school day. Since the programs meet for only a part of a day, students can gain technical skills at LCCTC while meeting academic requirements for college at their sending schools. Since the programs meet for only a part of a day, students can gain technical skills at LCCTC while meeting academic requirements for college at their sending schools. The 11th grade programs allow students to explore a variety of careers within an occupational cluster and are designed for students who plan to apply for one of the full-time Lancaster County Career & Technology Programs during their senior year.

More information about Lancaster County Career & Technology and its programs can be found at [www.lancasterctc.edu](http://www.lancasterctc.edu). For enrollment and application information, please contact your school counselor.



# Advanced Manufacturing

## Electro-Mechanical Engineering Technology

The Electro-Mechanical Engineering program is designed as a pre-engineering program with an industry driven curriculum developed by leaders in the field. This program combines mechanics, control, electronic and electrical engineering, computer science, and systems design to create useful products. Examples of Electro-Mechanical systems include robots, digitally-controlled combustion engines, and machine tools with self-adaptive tools, contact-free magnetic bearings, and automated guided vehicles. In such systems, software has become an integral part of the product itself, an actual "machine element" necessary for proper function and operation. The Electro-Mechanical Engineering program includes an innovative curriculum. Students will gain knowledge and skills in: blueprint reading, mechanics, pneumatics, hydraulics, electricity, electronics, motors, motor control, programmable logic controls, robotics and motion control, process control instrumentation, and computer integrated manufacturing.

## Metal Fabrication

This program teaches skills necessary for construction of metal roofing, siding, spouting, welding application, and the layout, fabrication and installation of heating, ventilation and air conditioning (HVAC) ductwork along with other custom applications used in manufacturing and construction fields. In addition to lab work, sheet metal students create HVAC ductwork and flashing work for the student-built house project. The program is nationally certified by the National Center for Construction Education and Research (NCCER) which is recognized by the Associated Builders and Contractors (ABC). Students learn how to set up and operate major fabricating machines, such as shears, brakes, presses, and forming rolls. These machines cut, bend, form or strengthen materials. Sheet metal jobs may require considerable bending, lifting, standing and squatting. Workers need good hand-eye coordination, manual dexterity and measurement skills, plus the ability to visualize three dimensional projects.

## Precision Machining & Computer Aided Manufacturing

Every machine needs the skilled hand of a good operator. In the metal fabrication industry, you might find yourself working with a press brake to cut large sheets of metal to size before they go into the production line. You can operate a rolling machine to transform flat material into a specific curved configuration or angle roll the metal. Shearers cut material into specified shapes. The operator controls the process and makes sure that the work is up to company standards. The program will prepare students in the use of metal working, CNC machining and areas of welding for employment and post-secondary technical training.

## Welding Technology

Welders apply intense heat to metal pieces to join, melt and fuse them to form a permanent bond. Students in the program learn the techniques of Oxyfuel, Arc, Mig and Tig welding processes necessary for a variety of construction and repair projects such as building bridges, automobiles and other manufactured products. The Welding Technology program is nationally accredited by the American Welding Society (AWS/SENSE) and introduces students to both welding and cutting. Welders and cutters need manual dexterity, strength to lift heavy objects, measurement skills, good eyesight and hand-eye coordination. They should be able to concentrate on detailed work for long periods and be able to bend, stoop and work in awkward positions.

## Welding Technology (Willow Street Campus/3-year program)

Welders apply intense heat to metal pieces to join, melt and fuse them to form a permanent bond. Students in the program learn the techniques of Oxyfuel, Arc, Mig and Tig welding processes necessary for a variety of construction and repair projects such as building bridges, automobiles and other manufactured products. The Welding Technology program is nationally accredited by the American Welding Society (AWS/SENSE) and introduces students to both welding and cutting. Welders and cutters need manual dexterity, strength to lift heavy objects, measurement skills, good eyesight and hand-eye coordination. They should be able to concentrate on detailed work for long periods and be able to bend, stoop and work in awkward positions.

Welding Technology will take place at our Willow Street Campus in a 3-year program model. Students will enter the program as sophomores and attend for a full-day for one semester (Fall or Spring). This format will continue for the students junior and senior year. For the senior year, students may be eligible to participate in work-based cooperative education during their program semester at the CTC.



# Agriscience

## Animal Production Science & Technology

This program introduces students to the exciting and dynamic Agriscience industry while preparing them with the knowledge, hands-on training, and technical skills to successfully enter the career ladder in production animal science. The program covers topics including anatomy and physiology, reproduction, veterinary care, handling and restraint, nutrition, agriculture law compliance, biosecurity, genetics, and laboratory procedures. Students in this program will have the opportunity to do both theories in the classroom and hands-on education in the lab and on curriculum trips. Students will be exposed to cows, horses, sheep, goats, alpacas, and poultry. There is a demand for skilled workers with a strong work ethic. Graduates will have employment options in the expanding and diverse field of large animal sciences.

## Veterinary Assistant

The program combines classroom theory and laboratory experience on topics including small animal veterinary care, surgical assisting, laboratory testing, cleaning and feeding techniques. A career as a Veterinary Assistant encompasses all parts of veterinary medicine and assists Veterinary Technicians and Veterinarians in the care of animals. Common duties would include animal restraint, receptionist tasks, surgical assisting, setting up for laboratory procedures, grooming, exercising animals and cleaning. Students learn hands on skills with dogs and cats. Graduates could obtain employment in veterinary hospitals, animal training facilities, boarding kennels, grooming parlors or any business that houses or cares for animals. This program has an affiliation with the Lancaster Humane League and they perform low cost spay and neuter surgeries for the public once a week. This is the only program in the state that has students practicing surgical assisting tasks on a weekly basis. The demand for trained veterinary assistants has steadily increased over the past decade and this growth is expected to continue.



## Architectural CAD – Design

The Architectural CAD–Design program offers a foundation of basic CAD (Computer-Aided Drafting) skills and knowledge, preparing students to attend a two or four-year institution of higher learning or to begin a career as an entry level drafter and/or CAD operator. Students learn techniques through a self-paced program of instruction that includes instruction in Auto CAD software and other architectural concepts. Architectural draftsperson prepare accurate architectural working plans, cross-sections and details for engineering drawings. They may be required to make mathematical calculations, and to estimate both the quantity and cost of materials needed for a project. The program content consists of detailed instruction in basic house design, room planning, floor plans, elevations and preparation of working drawings and details.

## Cabinet Making & Wood Technology

The Cabinet Making and Wood technology program provides skill training in the manufacturing of custom furniture, cabinetry and mill work. Student will operate state-of-the-art industrial machinery, computer-controlled equipment, hand and power tools as part of this statewide Program of Study. In addition, students may earn the opportunity to work with skilled workforce veterans in the field in one of the many robust local operations. Students earn credentials in NCCER, as well as OSHA.

## Electrical Construction Technology

The Electrical Construction Technology program is recognized by the Associated Builders and Contractors (ABC) and taught by a certified National Center for Construction Education and Research (NCCER) instructor. The program prepares individuals for employment in today's residential, commercial and industrial electrical industries. Instruction includes electrical principles and theory, residential and commercial wiring, electrical maintenance, basic motor control systems and transformers. Electricians install, connect, test and maintain electrical systems for a variety of purposes. Electricians follow the requirements of the National Electrical Code (NEC) specifications and procedures. Students learn these guidelines and how to navigate the NEC. Excellent reading and math skills are necessary, as well as good eyesight with normal color vision to distinguish color codes on wires.

## HVAC/R

From furnaces to refrigeration units, systems that control heating, ventilation, air conditioning and refrigeration are important components of today's residential, commercial and industrial buildings. The HVAC/R program prepares students to install, repair and maintain this equipment. The program is nationally certified by HVAC Excellence and by the National Center for Construction Education and Research (NCCER), and is recognized by the Associated Builders and Contractors (ABC). Curriculum studies include: HVAC equipment line voltage circuits, 24-volt control circuits, electric schematics, air distribution and duct work, air conditioning, heat pumps, electric heat, gas heat, oil heat, hydronics and blueprint reading. Lab includes basic HVAC industry entry level skills of the following: electric circuits, soldering, brazing, black iron piping, sst piping, sheet metal duct, basic fiberglass duct, air conditioning, heat pumps, gas furnaces, oil furnaces, boilers. Employees in this field need a strong mechanical aptitude, and solid reading and math skills are needed to understand technical manuals.

## Painting & Interior Finishes

This program teaches the basics of residential, commercial and industrial painting and flooring. Lessons include fundamentals of color theory, using tools, estimating material amounts, using scaffolding and ladders, reading blueprints. The program is certified by the National Center for Construction Education and Research (NCCER) and is recognized by the Associated Builders and Contractors (ABC). The curriculum covers various painting/finishing techniques including exterior and interior painting, wood finishing and spray painting. Instruction in wall covering installation includes preparing drywall and hanging wallpaper around doors, windows, inside and outside corners, and archways. Students learn how to apply finishes to both antique and new furniture. Flooring lessons include the installation of ceramic tile and vinyl. Students use a wet saw, tile cutter and trowels to prepare and lay ceramic tile for floors, counter tops, back splash, tub surrounds and shower stalls. Work in this field requires bending, kneeling, crawling, working on ladders and the flexibility to maneuver in confined areas.

## Plumbing

The high-paying field of plumbing involves the installation and repair of water, drainage, waste disposal and gas systems in residential, commercial and industrial buildings. Plumbers also install fixtures, such as bathtubs, sinks and appliances including dishwashers and water heaters. The Plumbing program is certified by the National Center for Construction Education and Research (NCCER) and recognized by the Associated Builders and Contractors (ABC). The program covers blueprint reading, residential systems, fixture and equipment installation, system maintenance, repair and troubleshooting. Other areas include plumbing rough-in, PVC and metal piping, water heater service and system installation, system performance, estimations, soldering, drain line work and using trade tools and equipment.

## Carpentry Technology

Our Residential Carpentry class encompasses a wide variety of skills necessary for employment as a Carpenter Apprentice. With an emphasis on personal safety, students are trained to read a blueprint, make precise measurements, estimate materials and do rough framing. They will also learn to use power tools, do exterior and interior finishing, concrete forming, roof framing, hardwood floor installation and stair construction just to name a few. Seniors are given the opportunity to apply their hands-on knowledge at an off-campus job site where, under careful supervision, they will participate in residential renovation and construction using the latest green technology. On completion of projects, students are asked to focus on the accuracy of their work. Our program is recognized by the Associated Builders and Contractors (ABC) and certified by the National Center for Construction Education and Research (NCCER).



# Education & Training

## Early Childhood Education

This program is designed to train and prepare students for employment in the early learning field and provides the foundation for study in higher education. Early Childhood students receive hands-on experiences at the state-of-the-art Early Learning Center located on the Mount Joy campus, at the on-site Head Start program, and at a local elementary school. A graduate of this program who meets the requirements can qualify as an assistant group supervisor in Early Learning centers throughout Pennsylvania. In addition, students can prepare for the nationally recognized Child Development Associate credential. The students study all phases of child development: physical, social, emotional, and intellectual. Instruction is provided in health, safety, development, learning environments, guidance, classroom management, and observation and learning activities. This program's curriculum is aligned with several college courses at local post-secondary schools. This allows students to earn college credits towards degrees in related occupations, such as: Elementary Education, Early Childhood Education, and Human Development and Family Studies.



## Hospitality & Tourism

### Baking & Pastry Arts

The Baking and Pastry Arts program is equipped with the same state-of-the-art tools and machines used in industry settings. The program teaches the functions of ingredients in products, recipe conversions, sanitation, equipment safety and proper food handling. Students gain experience by preparing desserts, pastries and breads, which are sold or served in the Culinary Arts Center restaurant and store. Some of these products include tortes, flans, chocolate specialties, Danish, puff pastries, pies, mousses, specialty cookies, sauces, custards, puddings, icings and a wide variety of both breads and decorated cakes.

### Culinary Arts/Chef

In the Culinary Arts/Chef program, students learn how to prepare soups, sauces, meat entrees, vegetable dishes, salads and dressings as well as herb and spice identification. Students prepare menu items ranging from local favorites to classical and international cuisine. Other areas covered include fresh pasta preparation, fabrication of beef, pork and poultry, seafood identification and preparation, appetizers, desserts, plate presentation, garnishing, beverage creation, and restaurant service. Course work also includes purchasing, inventory, menu planning, nutrition, recipe costing and customer service. A major emphasis is placed on sanitation and use and care of kitchen equipment. A pleasant attitude and neat appearance are important when dealing with customers. Individuals need stamina to stand for long periods of time, excellent hand-eye coordination and a keen sense of taste and smell. Students will participate in a variety of serving techniques ranging from beverage service to in room dining to fine dining. An array of customer service skills and techniques will also be evaluated and practiced by each student.



## Health Care

### Patient Care Technician

This challenging program prepares students to work as nursing assistants in acute care settings (Hospital, Home Health Agency, Physician Office). A nursing assistant provides direct patient care while utilizing technical skills in tasks assigned by a registered nurse. This individual completes and documents patient care activities. This program is certified by the National Health Career Association (NHA). The curriculum includes medical terminology, anatomy and physiology, medical law and ethics, math, nutrition, growth and development, critical thinking skills, pathophysiology, bedside care, personal care, ECG, phlebotomy, emergency skills, home health aide skills, and medical assisting skills including front office skills. This theory-intensive program includes a significant amount of reading from college level textbooks. The physical ability to move patients, excellent hand dexterity, and good hand-eye coordination are a must. This program offers a clinical internship in a hospital setting, preparing students for nursing programs and other health care careers.

### Dental Assistant

The Dental Assistant program integrates lectures, demonstrations and hands-on experiences to teach students a variety of dental-related subjects. The major areas of study include anatomy and physiology, chairside dental assisting, radiology, dental materials and microbiology/sterilization. The program also covers pharmacology, oral pathology, dental anatomy, computer introduction, medical/dental emergencies, dental office business procedures, legal/ethical management and communications. During the second half of the year, students participate in clinical rotations in private dental offices, clinics and hospitals. Experience gained in the Dental Assistant program prepares students to take the Dental Assisting National Board in Dental Radiology Health and Safety required by the Commonwealth of Pennsylvania. The program's textbook is written on a college level, requiring that students entering the program possess excellent reading/comprehension skills. The coursework is a stepping stone to furthering your education as an EFDA, Dental Hygienist or Dentist.

### Medical Assistant

Medical assistants are professional, multi-skilled individuals who perform administrative and clinical duties in health care settings. The program includes studies in anatomy and physiology, health insurance coding and billing, medical math, medical terminology, medical law and ethics, pharmacology, clinical and administrative skills. In addition, curriculum includes clinical skills such as phlebotomy, laboratory tests, minor surgical procedures, medication administration and performing electrocardiograms. During the fourth making period, students who have successfully completed program requirements may participate in a six-week clinical experience in a physician's office. The National Health Career Association (NHA) participates with the program to allow medical assistant students to receive certification through this agency. Students who participate in clinical may be eligible to sit for the exams to become certified as a clinical medical assistant, administrative medical assistant, phlebotomist and/or EKG technician. Students planning to pursue further health care training after high school should take the SAT or ACT testing during their junior year.

### Nursing Assistant/Home Health Aide

This rewarding program prepares students to work as nursing assistants in long-term care facilities and/or as an aide in the home care environment. A nursing assistant provides direct patient care while utilizing technical skills in tasks assigned by a licensed nurse in the long term care setting. Nursing assistants complete and document patient care activities. This course is approved by the Pennsylvania Department of Education. This course will offer CNA training as well as Home Health Aide training. The curriculum includes medical terminology, anatomy and physiology, legal aspects of health care, math, nutrition, growth and development, critical thinking skills, pathophysiology, and bedside care, as well as home health care. The physical ability to move patients, good hand-eye coordination, dependability, and compassion are required. This program offers students the ability to participate in clinical rotations at long-term care facilities. After clinical completion students are eligible to take the Red Cross certification test. Additional certifications include: American Heart Association First Aid, and Personal Care Home/Direct Care Staff Certification, American Heart Association Healthcare Provider CPR.



# Government, Law, & Public Safety

## Protective Services Academy

The Protective Services programs prepare individuals to apply technical knowledge and skills required to perform entry-level duties in law enforcement, firefighting, emergency medical services, and other public safety services. This program stresses the techniques, methods, and procedures specific to the areas of criminal justice, fire protection, and emergency medical services especially in emergency and disaster situations. Physical development and self-confidence skills are emphasized due to the nature of the specific occupation(s). In addition to the application of mathematics, communication, science, and physics students receive training in social and psychological skills, map reading, vehicle and equipment operations, the judicial system, fire fighting, pre-hospital emergency medical care and appropriate emergency assessment, treatment and communication.



# Transportation, Distribution, & Logistics

## Automotive Technology

With each new model year, automobile systems become more sophisticated. The Automotive Technology program prepares students for entry-level dealership or Independent shop employment and to continue their training at a post-secondary school. The National Automotive Technicians Education Foundation (NATEF) has certified this program in four areas: brake systems, steering and suspension, electronics/ electricity, and engine performance. In addition to these areas, the program includes instruction in automotive fundamentals, customer relations, engine management systems, and Pennsylvania State Inspection and Emissions Inspection procedures. Qualified students may participate in the Auto YES Program (Automotive Youth Educational Systems). This intensive program allows students to continue to learn technical skills as they work side-by-side with an experienced technician at a local dealership. Points on a student's driver's license may prevent him/her from being hired by dealerships as a new technician.

## Collision Repair

Motor vehicle accidents occur frequently, and while some vehicles are damaged beyond economical repair, most receive only minor damages. Collision Repair Technicians examine these damages and use tools to straighten bent vehicle bodies, remove dents and replace parts so that vehicles operate properly and look like new. The Collision Repair program trains students in this field, covering areas such as safety, estimating, hand and power tool usage, frame repair, body alignment, refinishing, and customer relations. Curriculum also includes metal straightening, Mig welding, metal cutting, glass and accessory service, measurement, panel replacement and alignment, servicing doors, surface preparation, cosmetic repairs and the selection of automotive paint finishes. Collision repair requires good color discrimination capabilities, excellent eye- hand coordination, stamina to stand for long periods of time, and a good understanding of measurement and ratios. Qualified students may participate in the Auto YES Program (Automotive Youth Educational Systems). This intensive program allows students to work side-by-side with an experienced technician at a local dealership.

## Diesel Equipment Technology

As the diesel equipment industry continues to expand, the demand for mechanics and technicians to repair and maintain diesel equipment grows. The program instructs students in personal and workplace safety practices, tools, measuring devices and fasteners, basic engine principles, preventive maintenance and inspection. Study also includes electrical and electronic systems, truck brake systems, suspension and steering systems, and diesel engine rebuilding. The program is NATEF (National Automotive Technicians Education Foundation) certified in the following areas: diesel engine, brakes, electrical/electronic systems, preventive maintenance inspection, suspension and steering. Mechanics and technicians require a driver's license and a clean driving record. Due to federal regulation, mechanics must undergo drug and alcohol testing when hired and be able to pass random drug and alcohol testing even after continued employment. Qualified students may participate in the API Program (Advanced Placement Internship) and/or cooperative education. The intensive API program allows students to work side by side with an experienced diesel technician.

## Heavy Equipment Operation & Basic Maintenance

This program is designed to provide students with the technical and job-related skills to work in the field of heavy equipment operation and maintenance. Students learn skills that prepare them to be heavy equipment operators for excavation and construction. When weather conditions permit, students practice their operation techniques at a training site. Skills are relevant to excavation, site layout, use of transit/laser/ hand levels. The program is certified by the National Center for Construction Education and Research (NCCER) and recognized by the Associated Builders and Contractors (ABC) and also the Associated Pennsylvania Construction Contractors. The course and its curriculum have been developed in conjunction with the Pennsylvania Department of Transportation.

## Power Sport Technology

From lawn and garden equipment, such as lawn mowers, lawn and garden tractors, chain saws, leaf blowers, and string trimmers, to vehicles such as motorcycles, dirt bikes, 4-wheelers, and snowmobiles, small engines power many machines that make our lives more fun and convenient. The RV and Outdoor Power Equipment program offers both classroom and lab experience in all phases of repair and maintenance work on outdoor power equipment and recreational vehicles. The program is nationally certified by the Equipment and Engine Training Council (EETC); Outdoor Power Equipment (OPE). It provides instruction and practice in the areas of diagnosis of malfunction, four and two-stroke engines, disassembly of engines, examination of parts, and reassembly of engines, hydrostatic and manual drive units and state inspection. Study includes various systems including fuel, electrical, lubricating, governing, steering, suspension, and braking systems. Students use an assortment of technical manuals, testing and diagnostic equipment, hand tools and power tools. During the school year, students have the opportunity and training to take EETC exams and the PA State Inspection written and performance tests for motorcycles.



## Commercial Art

The Commercial Art program is designed to introduce students to necessary tools and skills that will help advance their training in Graphic Design, Illustration, Web Design, Fashion/Interior Design, Advertising Art Direction, Animation, and Film. The Commercial Art program stresses craft, concept and professionalism. The program focuses on traditional board work, layout composition, illustration, elemental photography and production art. Program coursework continues with training on Apple® workstations and Adobe® Creative applications as students study computer graphics, typography and production basics. Students entering the Commercial Art program should have a background in several types of art with at least basic computer experience. Drawing ability, creativity, color keenness and the ability to sit at a workstation for extended periods of time, while meeting strict deadlines, are necessary aptitudes. The Commercial Art program is an excellent prelude to advanced post-secondary training at both colleges and art schools. It allows students to prepare an extensive portfolio and even obtain college credit with participating post-secondary schools.

## Computer Systems Technology

Computer Systems Technology includes courses in CompTIA A+ and Network+. In the A+ course, students learn about computer hardware and software such as motherboards, hard drives, operating systems, printers, customer service and troubleshooting in preparation for the CompTIA A+ certification exams. In the Network+ course, students learn advanced networking skills such as sub-netting and routing in preparation for the CompTIA Network+ certification exam. Once these courses have been mastered, various vendor-specific product certifications may be taken in order to give the student more specific skills, such as AMP/Tyco cabling certification. Students acquire an in-depth understanding of the planning, installing, configuration and maintenance of computer systems. Instruction includes knowledge of server-level hardware implementations, data storage and data recovery. The program follows standards set forth by CompTIA, AMP/Tyco, and CISCO.

## Digital Design/Print Media

This program provides a comprehensive approach to the printing industry. From the beginning concept to final product, students take print jobs through the entire production process from electronic files to complete prepress, through offset, digital, screen and other printing processes and professional finishing. This program provides a national certification for all students through the Graphic Arts Education and Research Foundation (Print ED/GAERF). Through this comprehensive exploration of graphics and desktop publishing, students cover the fundamentals of page layout, job work flows to digital printers, CTP platemaking, offset press operation and finishing operations in addition to the repurposing of digital information using the Adobe® Creative Suite for the visual communications industry.

## Interactive Media & Web Design

This is an instructional program that prepares individuals to apply HTML, XML, JavaScript, graphics applications and other authoring tools to design, edit and publish (launch) documents, images, graphics, sound and multimedia products on the World Wide Web. This program includes instruction in internet theory, webpage standards and policies, elements of webpage design, user interfaces, vector tools, special effects, interactive and multimedia components, search engines, navigation, morphing, e-commerce tools and emerging web technologies. Web architects or programmers are responsible for the overall technical construction of the website. They create the basic framework of the site and ensure that it works as expected. Web architects also establish procedures for allowing others to add new pages to the website and meet with management to discuss major changes to the site. Students will have the choice to focus career opportunities in areas of Web Design, Web Development or Client Relations.

## Photography & Digital Imaging

The Photography and Digital Imaging program has a carefully structured curriculum that allows students to gain real world experience in digital media while encouraging students to specialize in the medium of their choice. Students begin their photographic education by developing an understanding of the basic technical skills, along with using their own individual creative talent. Beginning with the camera, students learn the understanding of aperture, ISO, shutter speeds, focal length and depth of field. Students enrolled in this course will gain competency in capturing and producing photographs, using several different digital image file formats (JPG, TIF, RAW). Each individual student will acquire the knowledge to properly prepare and produce digital files, using postproduction software along with the printing of a finished product. The use of different lighting techniques will be taught using both traditional hot lights along with Commercial Studio Strobes. Successful students will acquire and show a formal knowledge of photography through the production and presentation of their own portfolio at the end of the course, along with designing and making their own logo, business card, letterhead and resume.



# Part Day Programs

## Advanced Health Careers

The Advanced Health Careers Program at the Lancaster County Career & Technology Center is a half-day academic program for seniors, allowing students to attend both the LCCTC and their sending high school to fulfill college preparatory academic requirements. The program gives students an overview of the health care system and an introduction to health care careers. Through an affiliation with Harrisburg Area Community College, the College in the High School program provides students the opportunity to earn six college credits, transferable to a college of their choice. A unique feature of the program is that health care professionals from the Lancaster Regional Medical Center, Ephrata Community Hospital, The Heart of Lancaster, Lancaster General Suburban Outpatient Pavilion, Schreiber Pediatrics, Lancaster Cancer Center, Susquehanna Valley Emergency Medical Services, and other health/medical facilities provide job shadowing opportunities and career information. Classroom instruction includes anatomy, physiology, medical terminology, medical law, ethics, history of health care, health care economics and safety. Classroom activities and job shadowing provide practice or observation in core skills required in a clinical setting. Students must have excellent reading skills and a good foundation in algebra, chemistry and biology.

## Introduction to Construction Careers

Intro to Construction is a half-day, foundational program, which introduces students to careers in the construction industry. Students receive basic instruction in carpentry and construction practices, painting and finishing, electricity, masonry, and plumbing. This program is open to students in grades ten or eleven who plan to apply for admission into one of the full-day senior programs in the Construction Technologies Center. In addition to learning basic skills related to the construction trades, students learn the basics of hand and power tools, power equipment, blueprint reading, and trade-related math. The program offers students exposure to site work, concrete forming, rough framing, exterior and interior finishing, energy conservation, drywall installation, residential and commercial painting, and wood finishing. Students are also exposed to basic electricity and plumbing. Masonry instruction includes the development of clay and shale brick and concrete block, paving with masonry materials, and preparing and pouring concrete. This program stresses problem solving and employability skills necessary for career success.

## Introduction to Culinary Careers

Intro to Culinary is a half-day foundational program of study which introduces students to the culinary related career areas of cooking, baking, restaurant service techniques, and the hospitality industry. This program is offered to students in grades ten or eleven who plan to apply for admission into one of the full day senior programs at the Culinary Arts Center located at the Mount Joy Campus. Students learn baking techniques by preparing quick breads, cakes, pies, and cookies. Students also learn basic cooking methods, breakfast preparation, soups, salads, sandwiches, fast foods, stocks, basic meat cutting, and the presentation of food. Students also learn retail skills by selling foods that they prepare in class. Working in the food service industry requires excellent hygiene and an emphasis on safety and sanitation (lab cleanup). For success in Intro to Culinary, an individual must have excellent hand-eye coordination, good arithmetic skills to measure ingredients accurately, the ability to work quickly, strength to lift heavy pots and pans, ability to work with others, and the stamina to stand for long periods of time.

## Introduction to Health Careers

The Health Careers program is a foundational program offered on a half-day basis to students in grades ten or eleven. This program is extremely valuable for students who want to pursue a career in the health care field and is especially important for those who are trying to decide which health career path to select. The program is intended for students who plan to apply for a full-day Health Care Center program for their senior year of high school. Many health careers involve direct interaction with patients, which requires excellent communication skills. Health care professionals typically work as part of a team to provide care. They must pay close attention to details to ensure the good health of their patients. Students learn basic clerical and clinical skills. They study anatomy and physiology, medical terminology, medical law and ethics, history of health care, effective teamwork, communication skills, health care financing, and health care safety.

## Introduction to Manufacturing Careers

Intro to Manufacturing program is a foundational program offered on a half-day basis to students in grades ten or eleven. The program focuses on necessary core metalworking skills and prepares students for admission into one of the full-day senior programs at the Advanced Manufacturing Center at the Mount Joy Campus. Students gain useful knowledge of hand tools and machine tools and learn a variety of metal forming processes. The program is designed to allow students the opportunity to explore employment possibilities in metalworking. Students investigate four areas of study, including precision machining, electro-mechanical engineering technology, sheet metal fabrication, and welding. In the electro-mechanical engineering technology phase, students gain experience in basic maintenance and repair, electronics, and sensor technology. The sheet metal fabrication phase introduces students to various skills used in the layout, cutting, forming, and joining of sheet metal. Skills gained in this area are used in employment as a sheet metal mechanic working in roofing, siding, spouting, HVAC ductwork, and custom metal fabrication. The welding phase provides basic training in Tig, Mig, oxyacetylene, and electric arc welding, which may lead to employment in industrial fabrication, custom welding applications, and repair work.

## Introduction to Transportation Careers

Intro to Transportation is a half-day foundational program of study designed for students in grades ten or eleven who plan to apply for a full-day Transportation Technologies Center program at the Willow Street Campus during their senior year. Instructors combine classroom training and hands-on experiences to prepare students in three areas related to transportation: auto mechanics, diesel mechanics, and small engine mechanics. The study of auto and diesel mechanics covers electrical, cooling, exhaust systems, tires and wheels, seals and gaskets, and preventive maintenance. During the small engine curriculum, students learn disassembly of engines and examination of parts, reconditioning and replacement of parts, diagnosis of malfunctions, and adjustment and repair of fuel systems. All three areas include safety instruction, identification, use of hand and power tools, and use of various fasteners. This program is designed as an entry-level, preparatory program, which has been developed specifically to provide students with the basic skills needed to apply for admission to one of the LCCTC full-day Transportation Technologies Center senior programs and give students skills they will use for their entire life.

## Introduction to Visual Communications Careers

Intro to Visual Communication is a foundational program offered on a half-day basis to students in grades ten or eleven. This program is extremely valuable for students who want to pursue a career in the visual communications field. Students explore and learn specific skills related to a variety of visual communications careers. It is especially important for those who plan to apply for a full-day Visual Communications Center program at the Brownstown Campus during their senior year of high school. Students learn visual and graphic design basics, web design principles, desktop publishing, electronic imaging, color theory, basic drawing, typography, plate making, offset press operation, bindery, pre-press procedures, photography, video-editing and production. This program is designed as an entry-level, foundational program, which has been developed specifically to provide students with the basic skills needed to apply for admission to one of these LCCTC full-day senior programs: Commercial Art, Digital Design/Print Media, Interactive Media and Web Design or Photography and Digital Imaging.