



Career Community:

Engineering Technologies,
Industrial, Advanced Manufacturing
and Automotive Technologies



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Critical skills and abilities

- arm-hand steadiness
- control precision
- critical thinking
- operation monitoring
- problem sensitivity

Specialized skills and knowledge

- software such as
 - AutoCAD
 - SolidWorks
 - Creo
 - Lab View
 - Rockwell
 - GPS surveying
- math
- physics

Top hiring industries

- engineering services
- automotive technology
- industrial and heavy equipment
- energy
- consumer goods
- aerospace and defense
- HVAC services
- trucking



Schedule an appointment with
a career specialist to explore
opportunities in these industries.

Do you want to work with your hands, fix technical problems and find better solutions?

These programs lead to careers in advanced manufacturing, automation, automotive, civil engineering, electric power utility, electrical engineering, electrical maintenance, environmental, HVACR (heating, ventilation, air conditioning and refrigeration), industrial technologies, welding and engineering transfer programs.

Majors in this Career Community

EXPLORATORY MAJOR

If you know this career community is the right fit for you but you're unsure of your major, choose the **engineering technology, industrial, advanced manufacturing and automotive technologies exploratory major** to get started in the right direction. Your first 15 credit hours are applicable to all majors within this career community, and you'll get the experience to know which major is right for you.

AUTOMOTIVE AND TRANSPORTATION TECHNOLOGY

AUTOMOTIVE TECHNOLOGY

In our two state-of-the-art automotive facilities, you'll use the latest tools and diagnostic equipment to apply practical service techniques to our fleet of late-model vehicles. You'll build hands-on skills in an accredited curriculum, preparing you to pursue Automotive Service Excellence (ASE) certification. You can select specialty electives in Toyota Technician Training Education Network (Toyota TTEN), Honda Professional Automotive Career Training (Honda PACT), Caterpillar lift truck, automotive aftermarket modifications and ASE test preparation.

GM ASEP

With the General Motors Automotive Service Educational Program (GM ASEP) two-year associate degree, you'll be qualified as a technician at a GM dealership or an approved ACDelco service facility. The GM-specific curriculum provides training credit for more than 56 GM training courses and is accredited by NATEF in all eight ASE certification areas.

Short-term certificates in this Career Community

Automotive and transportation technology

- Automotive aftermarket vehicle modification
- Automotive maintenance and light repair
- Automotive transmission and driveline
- CAT lift truck
- Honda PACT
- Toyota T-TEN
- Toyota T-TEN (electrical manual transmission HVAC)
- Toyota T-TEN (engine repair engine control automatic transmission)
- Toyota T-TEN (electrical brakes steering and suspension)

Engineering technologies

- Advanced CAD (computer-aided drafting)
- Architectural drafting
- AutoCAD
- Civil/surveying
- Civil/surveying drafting
- Construction materials inspection
- Construction technician
- Electrical/electronic troubleshooting
- Industrial controls
- Industrial electricity and electronics
- Machine design
- Mechanical power
- Precision gauging and inspection
- Transportation construction inspection (level I)
- Transportation construction inspection (level II)

ENGINEERING TECHNOLOGIES

CIVIL ENGINEERING TECHNOLOGY

You can be in on the engineering action, helping civil engineers in planning, designing and constructing highways, bridges, dams, tunnels, airports, water supply systems, buildings and other structures. In this accredited program, you'll learn theory along with strong practical lab applications – both indoor and out – as well as the latest computer programs. You also can transfer this associate degree to The University of Akron's construction engineering technology bachelor's degree program.

ARCHITECTURE MAJOR

In the classroom, lab and field, you'll be introduced to the fundamentals of both manual and computer-aided drafting, design, building construction, mechanical equipment and structural engineering. You'll develop marketable talent in drafting/design and an understanding of the principles of engineering as they relate to architecture for working as a technician in architectural and engineering offices, construction estimating, general contracting, drafting, building supply firms, public agencies or technical sales.

CONSTRUCTION MANAGEMENT MAJOR

You'll get technical instruction along with learning management concepts so you'll be ready to take on a supervisory role in the field, whether it's residential or commercial construction.

MECHANICAL ENGINEERING TECHNOLOGY

With a strong emphasis on practical application and experience, you'll learn about mechanical principles involving design, tolerance, stress, strain, friction and vibration. You'll conduct projects, record and represent data, analyze results and prepare formal reports. Your career could be as a mechanical engineering technician, draftsman, metallographer, product development technician, product testing technician, prototype developer, tooling technician, technical designer, technical writer and more. You also can transfer this associate degree to The University of Akron's mechanical engineering technology bachelor's degree program.

DESIGN MAJOR

Turn rough sketches, specs and calculations into detailed drawings that make parts and assembly happen using traditional methods as well as using the latest CAD softwares, including AutoCAD, SolidWorks, Inventor and Pro/ENGINEER (Creo Parametric). You'll also learn how to apply CAD solid modeling into 3D prints and scans. You might specialize in designing tools, machines or products for structural, electrical, civil and mechanical systems while making ideas visual through both CAD and traditional drawings. Our accredited MET-design major program gets regular input from local business and industry, so you'll get an education tailored to the job market.

Industrial technologies

- Automation and robotics
- Automation and robotics specialist
- Basic industrial maintenance
- Basic robotics
- CAD/CAM (computer-aided drafting/computer-aided machining) specialist
- CDL (commercial driver's license)
- Computer numerical control (CNC)
- HVAC technician (level I)
- HVAC technician (level II)
- Industrial maintenance
- Mechanical drive systems
- Precision machining and CNC programming
- Titanium/stainless steel welding
- Welding Technology American Welding Society certification exam preparation general MIG, TIG, aluminum and oxyfuel welding (general AWS D1.1 exam prep)
- 3G (pipe) welding certification exam preparation
- 6G (pressure vessel/nuclear) welding certification exam preparation



PRE-ENGINEERING

Take the first step to earning a bachelor's degree in engineering. When you choose Stark State's associate of science degree in pre-engineering in electrical, mechanical or civil fields, you'll be prepared to transfer into bachelor's degree programs in engineering as a junior at The University of Akron or the University of Mount Union.

ELECTRICAL/ELECTRONIC ENGINEERING TECHNOLOGY

Trained electrical and electronic engineering technicians bring theoretical knowledge of the field and extensive hands-on experience with lab techniques and equipment. Our accredited program includes electronic courses along with electrical power, machines, robotics, automation, PLCs and controls training. You'll be ready for a career as an electronic technician, industrial process control technician, electrical contractor, project manager, electrical technician, engineering assistant or service technician. You also can transfer this associate degree to The University of Akron's electronic engineering technology bachelor's degree program.

ELECTRO-MECHANICAL MAJOR

As an electro-mechanical major, you'll learn about PLCs and industrial controls, robotics and programming logic and its application to PLCs and industrial controls, and wiring systems design. Coursework focuses on electrical applications, materials, stress, strain, heat, friction and vibration.

INDUSTRIAL TECHNOLOGIES

ADVANCED MANUFACTURING TECHNOLOGY

Today's manufacturing jobs require higher skill sets from workers – especially those jobs within the automotive, aerospace, electronics, medical devices, plastics, food and beverage and defense/military sectors. This major focuses on using cutting-edge technology, innovative applications and best practices to improve processes and deliver more complex and highly functional products to meet today's workforce needs. You'll become familiar with 3D printing, CNC (computer numeric controlled) operation/programming, simulation and analysis, high-precision machining, robotics and other intelligent production systems.

AUTOMATION AND ROBOTICS TECHNOLOGY

Acquire the latest skills needed for today's increasingly automated manufacturing and production. No longer confined to the automotive industry, automation is now implemented in all types of U.S. industry, including the food processing, medical, farming, electronic assembly and product packaging industries. You'll get hands-on training with automated equipment, including learning to program and set up Allen/Bradley programmable logic controllers (PLCs) and Fanuc robots. Your coursework also will build skills for using AutoCAD, industrial sensors and computer programming.

ELECTRICAL MAINTENANCE TECHNOLOGY

If you're looking for hands-on field work in the world of electricity, this program will provide a solid understanding of electrical terminology and major electrical components ranging from electronics to power distribution. You'll be prepared for electrical contract work and industrial maintenance positions, with the skill sets to properly install, maintain, repair and troubleshoot electrical systems.

HVACR TECHNOLOGY

Your technical problem-solving, communication and customer relations skills are an important part of today's technologically complex heating, ventilation, air conditioning and refrigeration (HVACR) industry. We offer labs in commercial/industrial, residential and sheet metal, and you'll also have the opportunity to earn HVACR certifications. You'll be qualified for a job as a technical representative, sales professional, system design technician, customer service manager, project estimator, project manager, dealer field service technician and more. Stark State HVACR grads can go on for a four-year HVACR degree from Ferris State University.

INDUSTRIAL MAINTENANCE

If you're looking to start a new career or are a veteran, an industrial maintenance program is your opportunity to be trained in a growing technology. This major and certificate – developed through a collaboration with Stark State and area manufacturing companies such as Alcoa – prepares you with essential skills for front-line industrial maintenance personnel in for a variety of jobs, including maintaining, troubleshooting and improving existing complex machines and industrial systems; systems integration management, including conveying systems, multi-axis machines, robotic arms, and hydraulic and pneumatic lifts; and technology integration and process improvement by updating systems currently in place with newer technology.

INDUSTRIAL TECHNOLOGY

The industrial technology program offers many career paths, from industrial or facilities supervision to skilled mechanical or electrical maintenance. You'll find a curriculum that includes both basic and advanced manufacturing techniques as well as skilled mechanical and electrical maintenance principles and applications. You'll learn traditional manufacturing methods as well as state-of-the-art and emerging technologies, such as robotics, precision machining, CNC, welding, hydraulics/pneumatics, pumps, pipefitting, mechanical and electrical skilled maintenance and computer control automation.

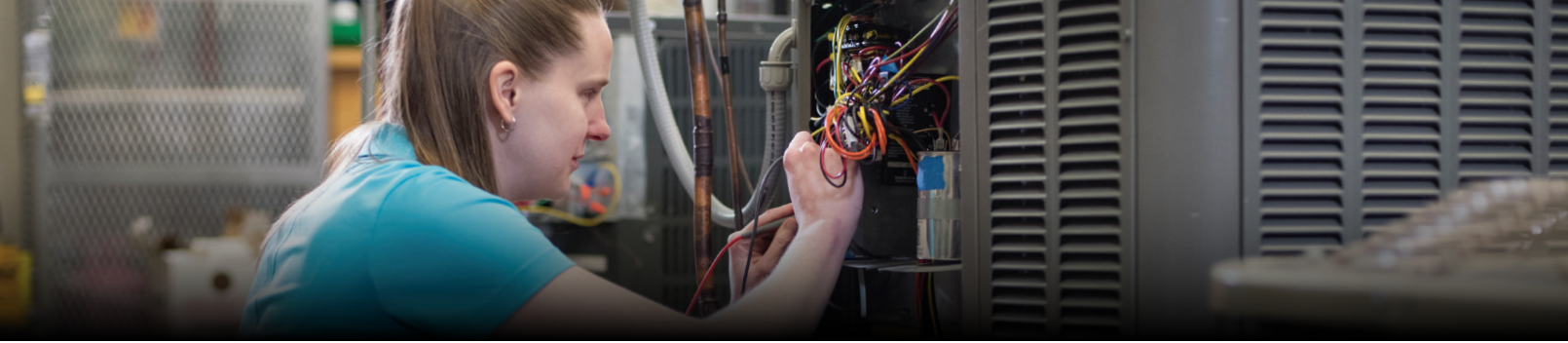
Many of our engineering technology degrees seamlessly transfer to bachelor degree programs at The University of Akron and the University of Mount Union.

Consider these and other careers

job title/description	Canton/Akron entry-level annual earnings	Canton/Akron average annual earnings
automotive service technician and mechanic diagnose, adjust, repair or overhaul automotive vehicles	27,368	45,880
civil engineering technologist and technician apply theory and principles of civil engineering in planning, designing and overseeing construction and maintenance of structures and facilities under the direction of engineering staff or physical scientists	37,326	61,908
electrical and electronic engineering technologist and technician apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, adjust and modify electrical components, circuitry, controls and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions	41,781	71,482
first-line supervisor of construction trades and extraction worker directly supervise and coordinate activities of construction or extraction workers	42,804	71,599
heating, air conditioning, and refrigeration mechanic and installer install or repair heating, central air conditioning, HVAC or refrigeration systems, including oil burners, hot-air furnaces and heating stoves	34,301	54,609
heavy and tractor-trailer truck driver drive a tractor-trailer combination or a truck with a capacity of at least 26,001 pounds gross vehicle weight; may be required to unload truck; requires commercial drivers' license; includes tow truck drivers	32,990	51,953
industrial engineering technologist and technician apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff; may perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency	38,575	55,457
mechanical engineering technologist and technician apply theory and principles of mechanical engineering to modify, develop, test or adjust machinery and equipment under direction of engineering staff or physical scientists	37,987	57,320
multiple machine tool setter, operator set up, operate or tend more than one type of cutting or forming machine tool or robot	29,428	38,953
tool and die maker analyze specifications, lay out metal stock, set up and operate machine tools and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, gauges and machinists' hand tools	35,701	52,890
welder, cutter, solderer and brazer use hand-welding, flame-cutting, hand-soldering or brazing equipment to weld or join metal components or to fill holes, indentations or seams of fabricated metal products	37,174	46,833

careers represented may require further education; an advisor will help you determine your pathway

source: Team NEO (Lightcast Data 2024)




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Some careers represented in this viewbook may require further education. The information provided is based on regional data and subject to change. Please see an SSC advisor to make sure you're on the path to success. / Accredited by the Higher Learning Commission / Stark State College is committed to non-discrimination. For the full policy: starkstate.edu/non-discrimination

