

# ADVANCED MANUFACTURING PATHWAYS

Tennessee's Advanced Manufacturing pathways will equip you with relevant, portable skills in fields that have been identified as rapidly growing and strategically important to our economy. Advanced Manufacturing pathways are designed with flexibility to help communities across Tennessee prepare you for the wide range of high-skill and high-demand jobs available in manufacturing related fields. All careers in Advanced Manufacturing require a strong mechanical ability, specialized skills, communication skills and computation skills.



1

## MACHINING TECHNOLOGY

Machining Technology is designed to prepare you for careers such as machinist, computer-numerical-control (CNC) operator, and machine setter. It focuses on concepts and practices needed to be successful in a production environment supported by advanced machining and engineering facilities.

Upon completion of this pathway, you will have gained experience to pursue post high-school education and certifications related to the metalworking industry.



2

## ELECTROMECHANICAL TECHNOLOGY

Electromechanical Technology is designed for those interested in pursuing careers related to industrial maintenance. The course content focuses on analytical understanding, troubleshooting, operation, and maintenance of electrical, instrumentation, and mechanical systems in typical manufacturing facilities.

Upon completion of this pathway, you will be prepared to pursue post-high school electromechanical programs and entry-level industrial maintenance technology careers.



3

## MECHATRONICS TECHNOLOGY

Mechatronics program content focuses on the components and design of manufacturing systems, electronics, mechanics, fluid power systems, and computer control systems, as well as the collection and analysis of quality data, technical documentation, and troubleshooting.

Upon completion of this pathway, you will be prepared to pursue industry certification and coursework at a technology or community college, or an engineering degree at a four-year university.



4

## WELDING TECHNOLOGY

Welding is designed to prepare you for an entry-level welder certification. Skills in basic shielded metal, gas metal, flux cored, and gas tungsten arc welding are developed over a series of three courses.

Upon completion of this pathway, you will be able to apply quality control methods to the welding process, as well as be eligible to complete the American Welding Society (AWS) Entry Welder qualification and certification.



# CAREER CLUSTER: ADVANCED MANUFACTURING

**1**

**MACHINING** TECHNOLOGY



**2**

**ELECTROMECHANICAL** TECHNOLOGY



**3**

**MECHATRONICS** TECHNOLOGY



**4**

**WELDING** TECHNOLOGY



OPTIONAL RELATED HIGH SCHOOL EXPERIENCES: CAREER EXPLORATION • JOB SHADOWING • WORK-BASED LEARNING: CAREER PRACTICUM • MANUFACTURING PRACTICUM

After you complete an Advanced Manufacturing pathway in high school, you will be prepared to continue courses with one of the following post-high school partners.



**CERTIFICATE**  
TCAT\*\*

**\$21,000 - 37,000\***

- Machine Tool Setter
- Assemblers
- Welders
- Industrial Maintenance

TCAT Athens  
TCAT Chattanooga



**ASSOCIATE**  
COMM. COLLEGE

**\$39,000 - 52,000\***

- CNC Operator
- Machinist
- Tool & Die Makers
- Mechanical Engineering Technician

Chattanooga State  
Cleveland State



**BACHELOR'S**  
UNIVERSITY

**\$46,000 - 93,000\***

- Mechanical Engineer
- Electrical/Electronics Technician
- Industrial Engineer
- Electrical Engineer

UTC - University of  
Tennessee at Chattanooga

FOR MORE INFORMATION CONTACT YOUR SCHOOL COUNSELOR AND VISIT [WWW.SETNPATHWAYS.COM](http://WWW.SETNPATHWAYS.COM).

\*Median wage ranges based on Tennessee Department of Labor & Workforce Development Labor Market Information- June 2014. Job standards, descriptions, and wages vary by company.

\*\*TCAT - Tennessee College of Applied Technology