
CLARK
STATE
Gear up for your
FUTURE
ENGINEERING, MANUFACTURING,
AND MECHANICAL TRADES

STEPS OF ENROLLMENT

APPLY AND BE AUTOMATICALLY ACCEPTED

Enrolling is easy with Clark State's Admissions Specialists helping you every step of the way! www.clarkstate.edu/apply

APPLY FOR FINANCIAL AID

Learn the steps by going to www.clarkstate.edu/financial-aid/.
Apply at studentaid.gov | **Clark State Code: 004852**

TAKE THE PLACEMENT ASSESSMENT

For details go to www.clarkstate.edu/admissions/placement-assessment/. Be sure to bring a valid ID.

REGISTER FOR CLASSES WITH HELP FROM AN ADVISOR

Create your academic plan and register for classes. www.clarkstate.edu/admissions/academic-advising/

PAY TUITION WITH FINANCIAL AID OR A PAYMENT PLAN

Pay online via Student Finance on the Clark State Portal. Payment is due seven (7) days prior to the semester. For other payment options visit: www.clarkstate.edu/admissions/tuition-and-fees/payment-options/.

Complete the program in four steps!

STEP 1

Apply online at **www.clarkstate.edu** and take your Placement Assessment

STEP 2

Complete a Manufacturing Foundation Departmental Certificate

STEP 3

Complete two Departmental Certificates

STEP 4

Earn a Degree OR Enter the Workforce

Skilled Workers Are In Demand

Introducing the Advanced Manufacturing program at Clark State! You can complete a certificate in only two semesters or continue on to earn a degree. Either way, you will work with state-of-the-art equipment including 3D printers, CNC machines and even a virtual welder.

ADVANCED MANUFACTURING OPTIONS:

- Welding
- Additive manufacturing
- Computer numerical control (CNC)
- Industrial maintenance
- Manufacturing Foundations
- Supervisory control and data acquisition (SCADA)
- Manufacturing
- Computer aided design (CAD)
- Robotics
- Laser Material Processing (LMP)

MECHANICAL TRADES OPTIONS:

- Diesel Technology
- HVAC

Whether your goal is to get into the workforce quickly or to build your current skill set, we can help! *We will Guide you through the process.*

Questions? *We're here to help!*

Dr. Nickey Brown
Assistant Professor, Manufacturing Technology Management
937.328.6010 | brownj@clarkstate.edu

Dr. Farhan Bin Tarik
Assistant Professor, Laser Material Processing (LMP)
937.328.6092 | bintarikf@clarkstate.edu

Nora Hatem
Professor, Engineering Technologies
937.328.6107 | hatemn@clarkstate.edu

Stuart Hess
Instructor, HVAC Coordinator
937.328.6495 | hesss@clarkstate.edu

Manufacturing Foundations and Manufacturing
Short-Term Technical Certificates

The Manufacturing Foundations departmental certificate is the beginning course for all students pursuing a departmental certificate or degree.

Students in the Manufacturing Foundations six credit hour program will learn introductory knowledge in:

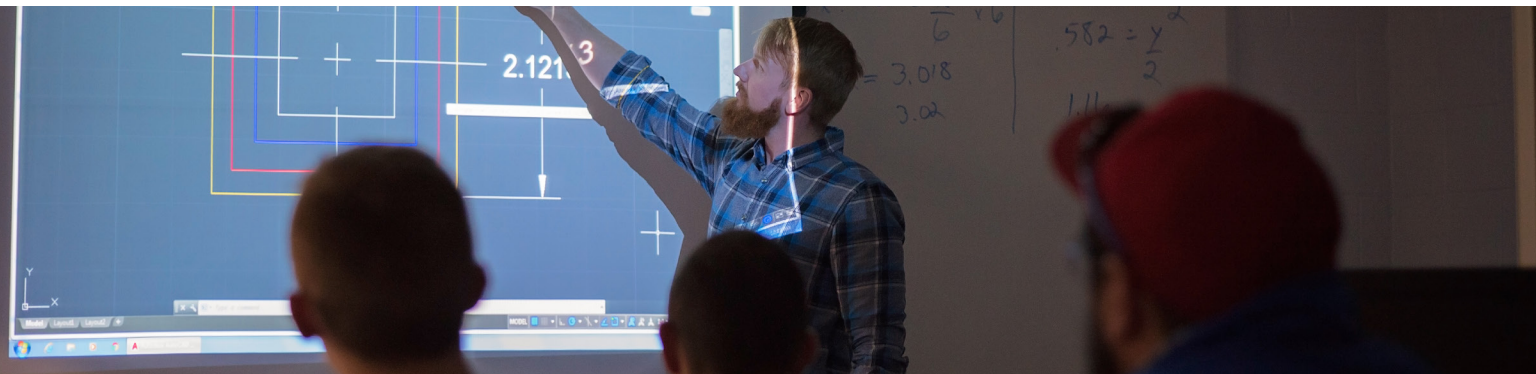
- Industrial and engineering technology and manufacturing
- Employability skills
- Quality control and measuring systems
- General safety training
  (completers receive a 10- hour OSHA General Safety certification)

Students will also be exposed to the eight manufacturing areas, and will be prepared to choose which certificates they will pursue. Students with prior coursework or work experience in manufacturing need to consult with the program coordinator to see if any prior credit will transfer into this program.

The Ohio Manufacturing Foundations Short-Term Certificate is an option for students who want additional manufacturing knowledge in the area of computer-aided design, manufacturing processes, and programmable logical controls (PLC) systems.

Learning Objectives:

- Obtain the 10-Hour OSHA General Safety certification
- Create a resume and cover letter
- Develop interviewing skills
- Demonstrate how to use precision measurement tools
- Demonstrate successful print reading and part visualization



Computer Aided Design (CAD) and Additive Manufacturing
Short-Term Technical Certificates

Employers in the biomedical, aerospace and automotive industries are seeking additive manufacturing technicians as this emerging technology revolutionizes prototyping and manufacturing. A great shortage of 3D printer and scanner operators makes graduates highly marketable.

Students pursuing a certificate in Additive Manufacturing will learn:

- Sound design principles and validation
- CAD software to conceptualize objects virtually
- Evaluation for design improvements
- Conceptualization of objects using 3D printers and scanners
- Manufacturing processes, solid modeling and engineering materials

Students pursuing a CAD short-term certificate have two options - manufacturing focus or architectural focus. Students pursuing the CAD - manufacturing option are strongly encouraged to also pursue an Additive departmental certificate. By taking only three additional courses, graduates will be awarded two certificates, making them marketable and eligible to pursue a degree in Manufacturing Engineering Technology.

Career Outlook:

- CAD Drafter - $42,000-60,000/Year
- Mechanical Drafters - $42,000-64,000/Year
- Architectural and Civil Drafters - $43,000-63,000/Year

Computer Numerical Control (CNC)
Short-Term Technical Certificates

Manufacturing is making a comeback in the USA, skilled computer numerical control (CNC) operators programmers are increasingly in demand.

CNC Machining students will be trained on fully modern, real world industrial equipment, learning the fundamentals of programming, milling and turning to create high precision metal parts.

Students will learn modern industrial and manufacturing practices, including:

- Safe manufacturing practices
- Machine programming with current industry software
- Quality measurement instruments to verify specifications on finished parts
- Fundamentals of sound and efficient design

Graduates of the CNC Machining short-term technical certificate will find opportunities in aerospace and automotive manufacturing as well as the agriculture, biomedical, polymers and trucking industries.

Career Outlook

- CNC Tool Operator - $35,000-47,000/Year
- CNC Programmer Tech - $47,000-68,000/Year
- CNC Set-up Machinist - $36,000-44,000/Year

Welding
Short-Term Technical Certificates

Skilled welders are in demand in all areas of industry in the United States! The Welding departmental certificate prepares students for a career in welding and fabrication.

Students will gain hands-on experience and theory-based knowledge in welding, allied processes and related skills, including:

- Shielded metal arc (stick) welding
- Gas metal arc (MIG) welding and flux core arc welding
- Gas tungsten arc (TIG) welding
- Oxygen-acetylene welding and brazing
- Oxygen-acetylene cutting
- Plasma cutting
- Workpiece layout and design
- Metallurgy and material science
- Weld preparation and layout
- Sawing, shearing, shaping and abrasive cutting

Graduates of the Welding departmental certificate will be prepared to enter careers in construction, aerospace, automotive, heavy equipment, maintenance and advanced manufacturing.

Career Outlook

- Welding Technician - $39,000-51,000/Year
- Structural Metal Worker - $38,000-48,000/Year

Robotics
Short-Term Technical Certificates

As employers continue to improve processes and automate systems, they will need employees who understand how to troubleshoot, program and operate robots. As technology in manufacturing increases, the demand for highly trained employees will increase as well.

Students in this certificate program will learn:

- History of robots and automated systems
- Basic programming for a variety of commercial robots: *FANUC, Motoman, Universal Robot (collaborative robot)*
- Basic troubleshooting of common tasks
- Basic operations of multiple robots in a work cell
- Integration of robots in other industry disciplines such as CNC and welding

Students can combine robotics with any certificate program to become more marketable, and should expect to find opportunities in automotive and medical device manufacturing as well as distribution and warehousing.

Career Outlook

- Robotics Technician - $35,000-60,000/Year
- Electro-mechanical Technician - $48,000-57,000/Year

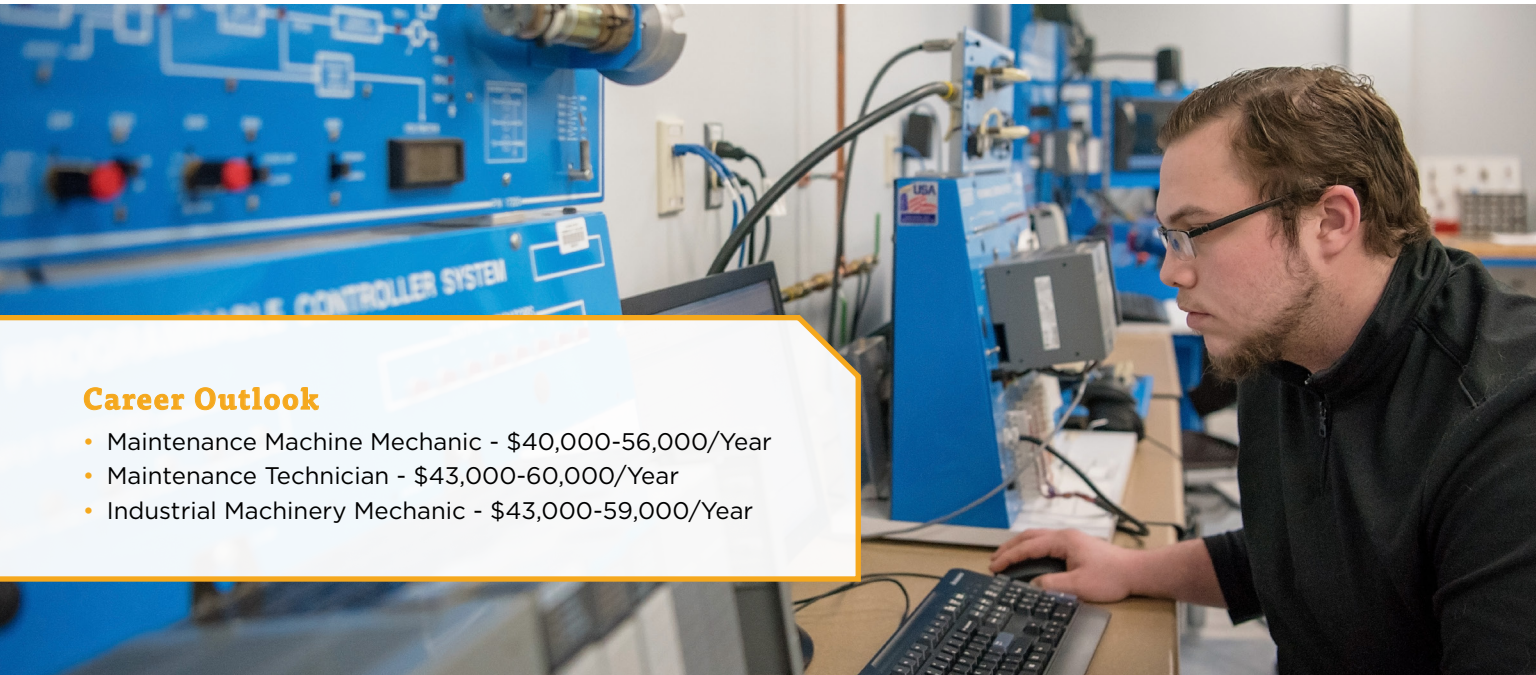
Manufacturing Maintenance and SCADA
Short-Term Technical Certificates

Industrial maintenance is a valuable part of virtually every organization that uses automated systems and machinery. Typical employment placements are in general manufacturing, distribution centers, polymer manufacturing, aerospace and automotive manufacturing and utility companies.

Students will learn, through hands-on experience as well as classroom theory-based instruction and interactive simulations, a comprehensive array of topics including:

- Programmable Logic Controls (PLC)
- Hydraulics and Pneumatics
- Mechanical Maintenance and Repair
- Motor and Motor Controls
- Electrical Concepts and troubleshooting

Students pursuing a Manufacturing Maintenance short-term technical certificate are strongly encouraged to also pursue other manufacturing certificates. By completing an additional technical certificate, graduates will be awarded two certificates, making them marketable and eligible to pursue an associates degree in Manufacturing Engineering Technology.



Career Outlook

- Maintenance Machine Mechanic - $40,000-56,000/Year
- Maintenance Technician - $43,000-60,000/Year
- Industrial Machinery Mechanic - $43,000-59,000/Year

Computer-Aided Design, Industrial Technology, or Mechanical Engineering Technology

Associate Degree

Clark State offers associate degrees for students who want to further their education beyond their short-term technical certificate. Specifically, technical certificate holders in CAD and Manufacturing Maintenance can take two additional semesters of coursework and achieve an associate in CAD, Industrial Maintenance or Mechanical Engineering. Please see the Clark State website, www.clarkstate.edu for further details.

Career Outlook

- Mechanical Drafters - $42,000-64,000/Year
- Architectural and Civil Drafters - $43,000-63,000/Year
- Industrial Engineering Tech - $44,000-60,000/Year
- Industrial Machinery Mechanics - $43,000-59,000/Year
- Industrial Machinery Tech - $43,000-60,000/Year
- Engineering Tech - $44,000-64,000/Year
- Electro-mechanical Tech - $48,000-57,000/Year
- Electrical Engineering Tech - $42,000-66,000/Year

Laser Material Processing (LMP)
Short-Term Technical Certificates

The LMP program teaches advanced technology by providing hands-on skills and comprehensive knowledge required to be successful in the evolving Material Processing technology industry. Clark State offers two one-year technical certificate pathways, Laser Machining and Laser Maintenance, that can be pursued to earn an associate degree in Manufacturing Engineering Technology!

In addition, this program also offers the following five short term certificates: Laser Additive, Laser Beam Welding, Laser Foundations, Laser Machining and Laser Maintenance can be achieved en-route upon meeting the certification requirements. Now is the perfect time to enroll and start your Laser Material Processing career!

Students pursing a certificate in Laser Material Processing will learn:

- Fundamentals of laser operation with principles and application
- Academic and industry level laser safety procedures with demonstration
- Preventative maintenance and troubleshooting of a laser system
- Advanced manufacturing techniques including laser marking, cutting, engraving, welding, 3d printing
- Basic interferometry, microscopy, spectroscopy; and software such as Matlab, Word, Excel and Powerpoint

Career Outlook

- Laser Technician (Man/Mait) - $41000-53,000/Year
- CNC Laser Operator - $40,000-52,000/Year
- Laser Welder - $45,000-57,000/Year
- Additive Manufacturing Technician - $39,000-51,000/Year

Manufacturing Engineering Technology Associate Degree
Build Your Own

At Clark State we build our certificates so that they are “stackable,” giving our students the convenience to further their education if they choose.

Should a student decide to pursue an associate degree in Manufacturing Engineering Technology, all previous certificate coursework will transfer to the degree.

Students can mix and match two technical certificates and obtain an associate degree in four semesters with additional coursework, including a required internship. Clark State will assist matching students to an appropriate internship opportunities.

Career Outlook

- Calibration Technologists and Technicians - $50,000-73,000/Year
- First-line Supervisor (Production/Operating) - $45,00-70,000/Year
- Manufacturing Production Technician - $44,000-60,000/Year
- General and Operations Manager - $48,000-108,000/Year
- Industrial Production Manager - $68,000-107,000/Year
- Supply Chain Manager - $59,000-101,000/Year

Manufacturing Technology Management
Bachelor of Applied Science Degree

Rapid societal changes in advanced technology, globalization, and the shifting landscape of culture and social values call for a specialized form of leadership in the field of manufacturing. Clark State's bachelor of applied science degree in Manufacturing Technology Management provides a broad spectrum of creative problem-solving skills, transformative leadership skills, and in-demand industry-recognized credentials (Lean Six Sigma, Yellow and Green Belt and OSHA 30), built directly into the curriculum.

Students will learn to communicate effectively, use logic and reason to facilitate change, and coach, mentor and motivate technical professionals.

Our program is:

- Uniquely structured to integrate management and technical manufacturing skills, allowing students to quickly complete courses while gaining meaningful experience.
- Supportive. Don't waste time and money revisiting skills you already have. Get credit for manufacturing skills, knowledge, and competencies obtained through experience through our Prior Learning Assessment program.
- Transfer friendly. If you have earned college credit from an accredited institution transfer those credits to Clark State! Our advisors will evaluate them, and they could count towards the bachelor's degree.

Career Outlook

- General and Operations Manager: $48.52/Hour
- Industrial Production Manager: $49.70/Hour
- Supply Chain Managers: $51.67/Hour

Paths to take your career to the NEXT LEVEL!

END HERE! Bachelor of Applied Science Manufacturing Technology Management

Manufacturing Engineering Technology
Associate Degree

Additive Certificate
CAD - Manufacturing Certificate
CAD - Architectural Certificate
CNC Certificate
Industrial Maintenance Certificate
Laser Material Processing Certificate
Manufacturing Certificate
Robotics Certificate
SCADA Certificate
Welding Certificate

PICK ANY TWO

CAD
Associate

CAD - Manufacturing
Certificate
CAD - Architectural
Certificate

Industrial Technology
Associate

Industrial Maintenance
Certificate

Mechanical Engineering Technology
Associate

Prior Learning Experience

Demonstrate college level knowledge acquired through work experience, military experience and industry training.

START HERE! Manufacturing Foundations Certificate

Questions? *We're here to help!*

Dr. Nickey Brown
Assistant Professor, Manufacturing Technology Management
937.328.6010 | brownj@clarkstate.edu

Nora Hatem
Professor, Engineering Technologies
937.328.6107 | hatemn@clarkstate.edu

Mechanical Trades

Heating, Ventilation, Air Conditioning, and Refrigeration

Departmental Certificate

The Heating, Ventilating, Air Conditioning and Refrigeration Technology Program will prepare you with the troubleshooting, critical thinking, and technical skills needed for employment now. The HVAC industry presents students with an exciting professional path that promises job security and excellent earnings potential.

Students will learn to:

- Thermodynamics, heat, fluids, and pressures for refrigeration and EPA compliance.
- Procedures for making electrical measurements.
- Diagnostics and repair of gas, electric, fuel oil furnaces, and air conditioners.
- Testing, analyzing, and troubleshooting the combustion process.

Diesel Technology Program

The Diesel Technology program is a comprehensive sequence of courses that combine theory and practical applications. This associate degree program provides the hands-on skills and comprehensive knowledge required to be successful in the fast growing diesel technology industry. The degree program contains one or more embedded certificates which represent work-ready skills and knowledge in order to begin earning while you learn.

Students will learn to:

- Diagnose and repair medium and heavy- duty truck engines, suspension and steering systems, drivelines and fluid power systems.
- Diagnose and repair medium and heavy-duty truck brake systems and electrical/electronic systems.
- Perform preventative maintenance and inspections on medium and heavy-duty trucks.
- Diagnose and repair medium and heavy-duty truck heating, ventilation and air conditioning systems.

Career Outlook

- Farm Equipment Mechanics and Service Technicians: $36,000-49,000/Year
- Truck Mechanics and Diesel Engine Specialists - $41,000-53,000/Year
- Heavy Vehicle and Mobile Equipment Mechanics - $41,000-53,000/Year
- HVAC Mechanics and Installers - $41,000-56,000/Year

Springfield | Beavercreek | Bellefontaine | Xenia | Online