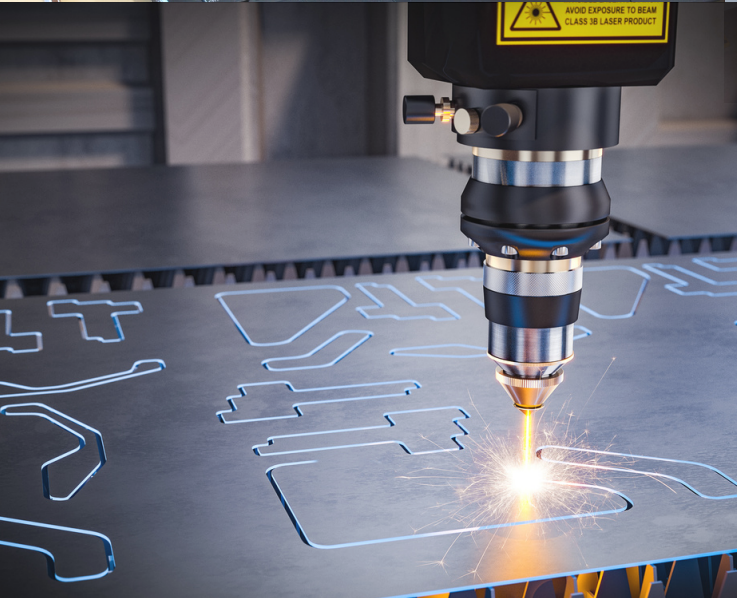
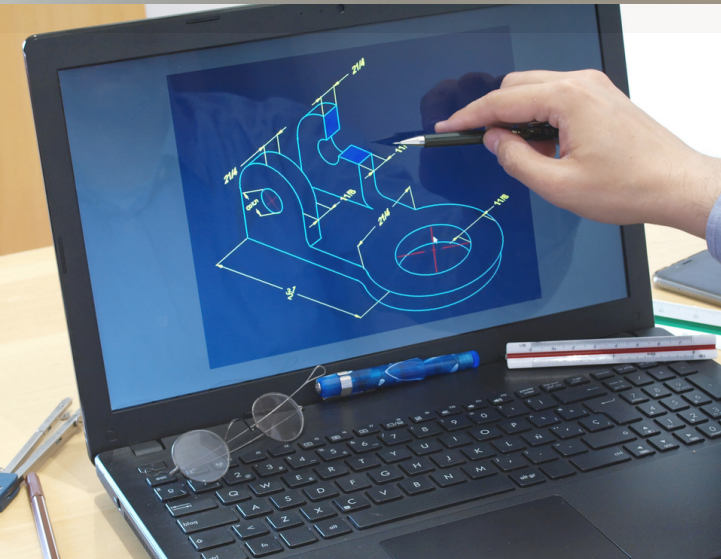
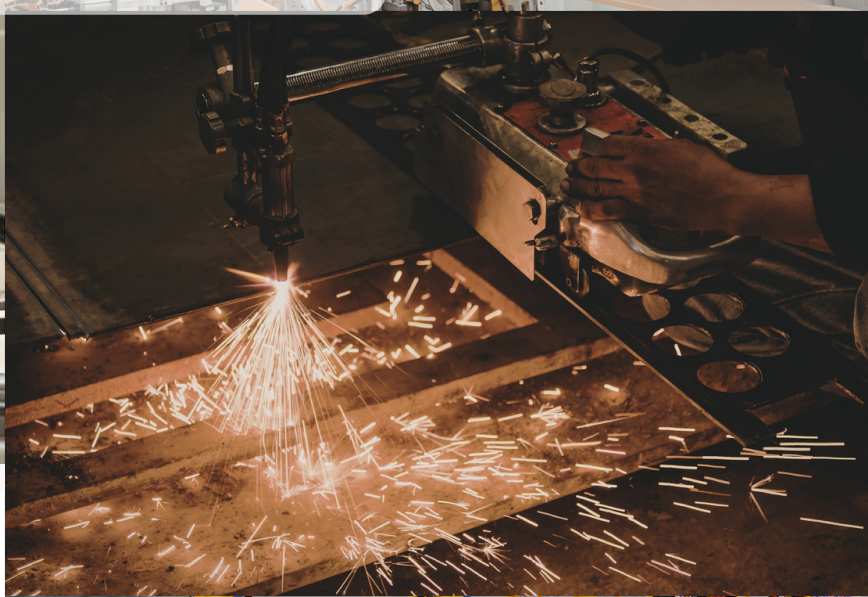


Advanced Manufacturing Micro-Certifications

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Welcome to Advanced Manufacturing

Program Overview

The Advanced Manufacturing Micro-Certification Program gives GJCTC students the opportunity to build additional technical skills that complement their primary CTE program. These hands-on courses introduce students to the technologies used in today's manufacturing, engineering, fabrication, and automation industries.

Students remain enrolled in their primary shop while attending Advanced Manufacturing training throughout the school year. Each course provides practical experience using industry equipment, software, and real-world projects.

Whether you're interested in designing parts, programming robots, building prototypes, or exploring the latest manufacturing technologies, there's a class for you.

Students May Explore

- Computer-Aided Design (CAD)
- CNC Plasma Cutting
- 3D Modeling & 3D Printing
- Industrial Robotics
- Collaborative Robots
- Laser Welding (NEW)
- Manufacturing Design
- Automation Technologies

Students From These Programs Are Encouraged To Participate

Welding

Machine Tool

Graphic Design

Collision Repair

Automotive Technology

Additional CTE programs as opportunities become available

How the Program Works

Flexible Scheduling

The Advanced Manufacturing Micro-Certification Program is designed to complement not replace your primary CTE program.

Students remain enrolled in their home shop and are pulled for Advanced Manufacturing training two days each week. This allows students to continue developing skills in their primary trade while gaining additional experience with advanced manufacturing technologies.

Students spend the remainder of the week learning in their regular CTE program.

Micro-Certification Schedule

Students rotate through the available micro-certification courses during the school year.

CourseTypical Schedule

Course	Typical Schedule
CAD for Manufacturing & CNC Plasma Cutting	2 days/week • Approximately 9 weeks
3D Modeling & Additive Manufacturing (3D Printing)	2 days/week • Approximately 9 weeks
Industrial & Collaborative Robotics	2 days/week • Approximately 12 weeks
Laser Welding Fundamentals	Friday small-group training sessions • Approximately 3~4 weeks

**Course lengths are approximate and may be adjusted due to school schedules, weather delays, or other events.*

Why Take Advanced Manufacturing?

Build Skills Beyond Your Primary Program!

- ✓ Learn equipment used in modern industry
- ✓ Gain experience with advanced manufacturing technologies
 - ✓ Strengthen problem-solving skills
 - ✓ Work on real projects
 - ✓ Prepare for future careers
 - ✓ Stand out to employers

Where Can These Skills Take You?

Students who complete Advanced Manufacturing micro-certifications gain experience that supports careers such as:

- CAD Technician
- CNC Plasma Operator
- Entrepreneur – Custom Metal Products
- Robot Programmer or Robotics Technician
- Manufacturing Technician
- Production Technician
- Fabrication Technician
- Metal Fabricator
- Automation Technician
- Additive Manufacturing (3D Printing) Technician
- Laser Welding Operator

Advanced manufacturing is more than one career. Today's companies rely on teams of skilled professionals, including designers, programmers, machine operators, welders, technicians, and automation specialists to bring products from concept to completion. These micro-certifications introduce students to many of those career pathways while strengthening the skills they learn in their primary CTE program.

CAD for Manufacturing & CNC Plasma Cutting

Course Overview:

Students learn to create professional two-dimensional drawings using AutoCAD before preparing those designs for production on a CNC plasma cutting table.

By turning digital drawings into real metal parts, students experience the complete design-to-manufacturing process used throughout today's fabrication industry.

Example Projects

- Custom signs
- Fire pits
- Brackets
- Shop projects
- Awards
- Fabrication components

Skills You'll Learn

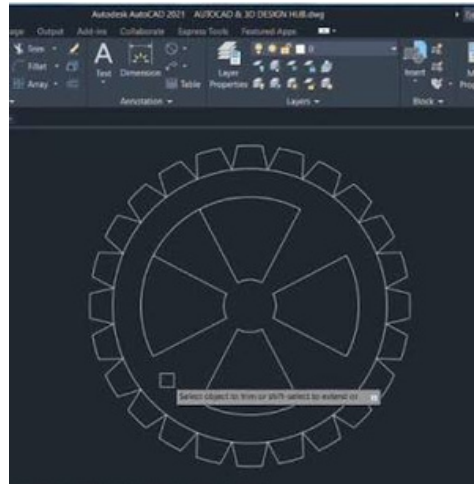
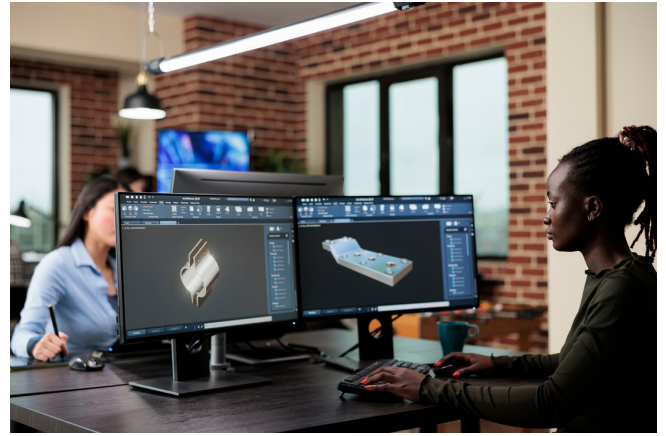
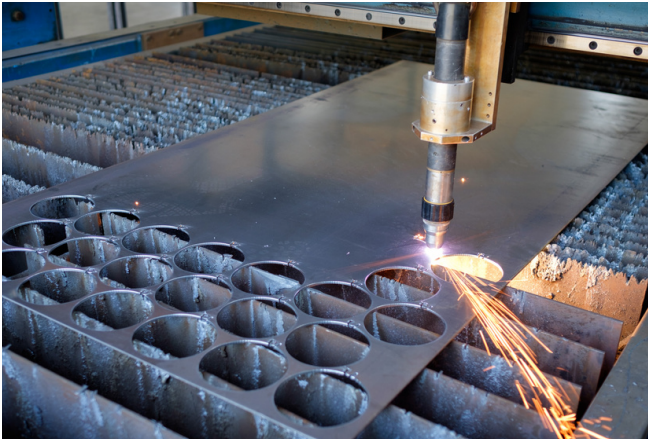
- AutoCAD Fundamentals
- CNC Plasma Table Operation
- Blueprint Interpretation
- Manufacturing Design
- Digital File Preparation
- Problem Solving & Troubleshooting
- Precision Measuring
- Material Planning
- Project Planning
- Entrepreneurship & Custom Product Development



Did You Know?

Many manufacturers hire dedicated CNC Plasma Operators whose primary job is programming and operating burn tables.

CTE Program	How CAD & CNC Plasma Skills Apply
Collision Repair	Design templates, repair patches, brackets, and custom fabrication components used during vehicle restoration and repair.
Graphic Design	Transform digital artwork into custom metal signs, logos, and decorative projects while seeing how graphic design is applied in manufacturing.
Machine Tool	Create accurate part drawings, prototypes, and manufacturing layouts that support precision machining and production.
Welding	Design and prepare parts before fabrication, improve fit-up, and understand the CNC cutting processes used in modern welding shops.



To Sign Up

Students interested in participating in this Advanced Manufacturing Micro-Certification course should complete the information on this attached Microsoft Form. Please scan QR code to complete:



3D Modeling & Additive Manufacturing (3D Printing)

Course Overview:

Bring your ideas to life through 3D design and printing.

This course introduces students to the fundamentals of three-dimensional (3D) modeling using industry-standard CAD software and additive manufacturing technologies. Students learn how digital models are created, prepared for printing, and transformed into physical objects using 3D printers.

From prototypes and custom tools to replacement parts and creative designs, students gain hands-on experience with the same technology used in manufacturing, engineering, product development, healthcare, and many other industries.

Skills Students Develop:

- 3D CAD Modeling
- Product Design
- Additive Manufacturing (3D Printing)
- Rapid Prototyping
- Digital File Preparation
- Printer Setup & Operation
- Design Evaluation & Problem Solving
- Creativity & Innovation

Did You Know?

3D printing is no longer just for prototypes. Today, manufacturers use additive manufacturing to produce custom tooling, replacement parts, production components, and specialized equipment used in industries such as aerospace, healthcare, automotive, and manufacturing.

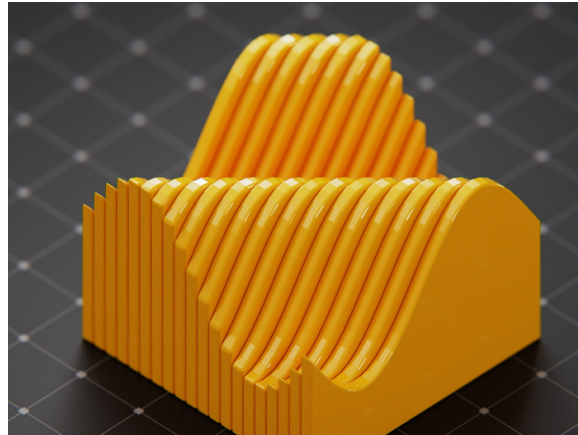
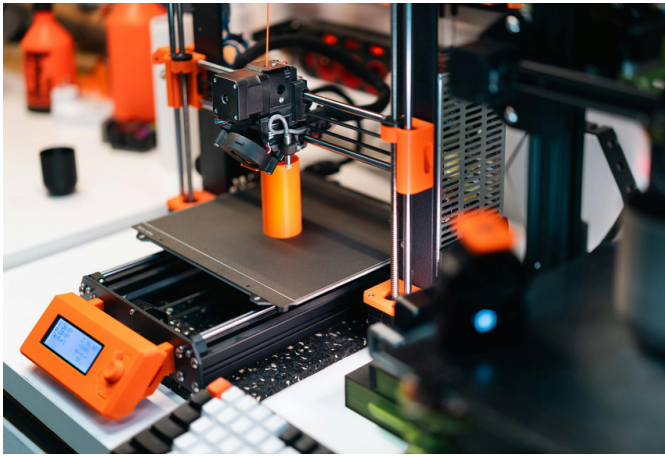
Example Projects:

Students may design and produce items such as:

- Prototype parts
- Replacement components
- Personalized products
- Tool holders and organizers

These skills are commonly used in engineering, product development, manufacturing, and prototyping industries, helping students understand how digital design supports modern production methods.

CTE Program	How 3D Modeling & Printing Skills Apply
Collision Repair	Create specialty tools, mock-up parts, clips, fixtures, and replacement components used during repairs.
Graphic Design	Turn digital artwork into physical prototypes, product concepts, logos, and display pieces while exploring how design moves beyond the computer screen.
Machine Tool	Prototype parts before machining, evaluate designs, and create custom fixtures or tooling.
Welding	Design and print welding fixtures, jigs, gauges, and fabrication aids to improve accuracy and efficiency.



To Sign Up

Students interested in participating in the 3D Design Advanced Manufacturing Micro-Certification course should complete the information on this attached Microsoft Form. Please scan QR code to complete:



Industrial & Collaborative Robotics

Course Overview:

Automation is transforming today's manufacturing industry, and robots are used in everything from material handling and assembly to welding and quality inspection.

In this course, students gain hands-on experience with both industrial robots and collaborative robots. Students learn how robots are programmed, how they move, and how they improve efficiency, quality, and safety in modern manufacturing environments.

Using FANUC industrial robots, collaborative robots, and robotic welding technology, students develop foundational programming skills while exploring real-world manufacturing applications. Students who successfully complete the course have the opportunity to earn the FANUC HandlingTool Operations & Programming Certification, an industry-recognized credential recognized by manufacturers around the world.

Skills You'll Learn

- Industrial Robot Safety
- Teach Pendant Operation
- Robot Programming Fundamentals
- Coordinate Systems
- Robot Motion & Positioning
- Collaborative Robot Programming
- Manufacturing Automation
- Robotic Welding Fundamentals
- Problem Solving & Troubleshooting

Example Activities

- Programming pick-and-place operations
- Material handling exercises
- Collaborative robot programming
- Robot simulation using ROBOGUIDE
- Programming industrial robot movements
- Introduction to robotic welding



CTE Program	How Robotics Skills Apply
Collision Repair Automotive Technology	Discover how industrial robots are used for robotic welding, automated paint application, material handling, and other manufacturing processes used throughout the automotive industry.
Machine Tool	Explore how robots automate machine tending, material handling, and manufacturing processes commonly used alongside CNC equipment.
Welding	Learn how industrial robots and robotic welding systems improve weld quality, consistency, safety, and productivity in modern manufacturing.

FANUC HandlingTool Operations & Programming Certification

Students enrolled in this course have the opportunity to earn the FANUC HandlingTool Operations & Programming Certification, an industry-recognized credential that demonstrates competency in industrial robot operation and basic programming.

Certification training includes:

- Robot safety
- Teach pendant operation
- Program creation and editing
- Coordinate systems
- Motion programming
- Program troubleshooting

FANUC Certification Attendance Requirement

Because the FANUC certification follows a structured training sequence, each required hands-on lab must be completed before students move to the next training objective.

If a student misses a scheduled FANUC lab, the missed training must be completed during a make-up session before continuing with the certification program. Students who do not complete all required FANUC training modules may not be eligible to attempt the FANUC HandlingTool Operations & Programming Certification exam.

To Sign Up

Students interested in participating in this Advanced Manufacturing Micro-Certification course should complete the information on this attached Microsoft Form. Please scan QR code to complete:



💡 Did You Know?

Industrial robots are no longer found only in automotive factories. Today, robots are used in manufacturing, food production, warehousing, medical device manufacturing, logistics, and many other industries.

Robot programmers and automation technicians are in high demand, with many positions earning between \$65,000 and \$90,000+ per year, depending on experience, industry, and location.

As automation continues to grow, employees who understand how to program and work alongside robots are becoming increasingly valuable.

Laser Welding Fundamentals

Course Overview

Experience one of the newest technologies in modern manufacturing.

This course introduces students to the fundamentals of handheld fiber laser welding, an emerging process that is becoming increasingly common throughout manufacturing and fabrication industries.

Students will learn proper safety procedures, equipment setup, material preparation, and basic laser welding techniques while gaining hands-on experience with industry equipment.

Training is conducted in small groups to maximize hands-on experience while maintaining a safe learning environment. Through instructor demonstrations and guided practice, students will compare laser welding to traditional welding processes and explore where each process is used in today's workforce.

Skills You'll Learn

- Laser Welding Safety
- Equipment Setup & Operation
- Material Preparation
- Joint Fit-Up
- Basic Laser Welding Techniques
- Weld Quality & Inspection
- Process Comparison (Laser vs. MIG, TIG & Stick)
- Problem Solving & Troubleshooting

Training Format

- Small-group instruction
- Friday afternoon training sessions
- Direct instructor supervision
- Individual hands-on practice
- Safety training required before equipment operation

Laser Welding Safety

Safety is the highest priority in this course. Before operating the laser welder, students must successfully complete instructor-led safety training covering:

- Laser hazards and safe operating procedures
- Required personal protective equipment (PPE)
- Safe work area setup
- Equipment inspection and startup procedures
- Emergency stop procedures
- Safe material handling

Students will observe instructor demonstrations and demonstrate competency in all required safety procedures before participating in hands-on laser welding activities.

Failure to follow safety procedures or instructor directions may result in removal from laser welding activities.

CTE Program	How Laser Welding Skills Apply
Collision Repair	Explore laser welding technology used in today's automotive manufacturing and discover how advanced joining processes continue to shape the collision repair industry.
Welding	Learn one of the newest welding technologies used in modern manufacturing, precision fabrication, and production welding while expanding your knowledge beyond traditional welding processes.

Students from all CTE programs are encouraged to participate. While this course has direct applications to the programs listed above, laser welding technology continues to expand across many manufacturing industries.

To Sign Up

Students interested in participating in this Advanced Manufacturing Micro-Certification course should complete the information on this attached Microsoft Form. Please scan QR code to complete:



☀ Program Spotlight

GJCTC is excited to introduce Laser Welding Fundamentals as one of the newest Advanced Manufacturing Micro-Certifications. Students will gain hands-on experience with emerging technology that is becoming increasingly common throughout today's manufacturing and automotive industry.