



## CERTIFICATES

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### ■ ARCHITECTURE AND CONSTRUCTION

#### Refrigeration Service | 9 credits

Learn the fundamentals of refrigeration by exploring the refrigeration cycle, refrigerants, components, controls and electricity basics. Dive into topics including system pump down, leak checking and recharging units. Practice soldering, brazing and piping techniques and learn important diagnostic and troubleshooting skills.

### ■ GRAPHIC COMMUNICATIONS

#### Digital Photography | 15 credits

Learn digital photography basics including lighting and image editing using state-of-the-art Canon camera models. Develop the skills that businesses seek when looking to integrate digital production methods into their operations.

#### Digital Production/DTP | 15 credits

Gain skills to prepare electronic files for publication including page layout, illustration and image editing software packages. Ensure that jobs can be run correctly on printing and digital presses by learning to preflight, trap and impose documents. You'll learn on Apple computers while completing a variety of hands-on projects.

#### Marketing Media | 24 credits

Explore marketing and web design basics to communicate effectively with customers. Learn to use product, price, promotion and distribution strategies to sell goods and services to key customers. Design webpages using the latest software, and develop cross-media strategies using social media, public relations and traditional advertising to attract new customers.

#### Web Design | 17 credits

Design and build professional, user-friendly websites using HTML and CSS. Learn how to code while developing engaging and intuitive interfaces. Work in Adobe Dreamweaver, Photoshop, Illustrator and Animate. If you already have experience in graphic design and want to explore web design, this certificate is perfect for you.

### ■ MANUFACTURING

#### Automation - Industrial PLCs | 8 credits

Learn the newest programming language using cutting-edge hardware automation controller platforms. Explore practical digital electronics and advanced programming topics including binary number systems, basic logic components, multiplexers and de-multiplexers, and analog/digital and digital/analog converters.

#### Automation - Control and Interface | 11 credits

Explore the fundamentals of electronics, current circuits, semiconductor materials and component operation. Study power distribution circuits including in-plant distribution, transmission substation and distribution substation. Explore operational controls, characteristics, functionality and interfacing of DC and AC drives. Practice drive set-up and wiring, and develop an understanding of industrial sensors.

#### CNC Operator | 14 credits

Explore machining and Computer Numeric Controlled (CNC) manufacturing by learning the basics of machine tool operations, CNC fundamentals, blueprint reading skills and related industrial math.

#### FCAW/Fabricator | 9 credits

Study metal fabrication basics and Flux Core Arc Welding (FCAW) to prepare for American Welding Society entry-level certifications. Learn metal preparation processes, equipment set-up, welding techniques and positions and safe production practices.

#### GTAW/Fabricator | 9 credits

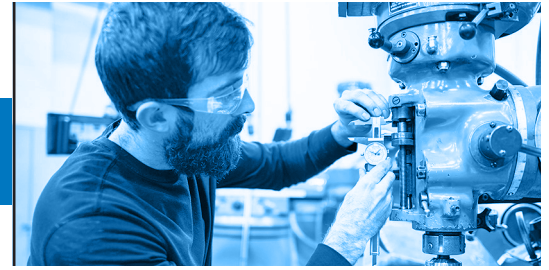
Learn Gas Tungsten Arc Welding (GTAW) and prepare for American Welding Society entry-level certifications. Build on the basics of Welder/Fabricator 1, and apply welding and metal fabrication techniques to a variety of projects.

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### ■ MANUFACTURING (CONTINUED)

#### Industrial Laser Operator | 9 credits

Develop skills in laser cutting technology with hands-on practice in CO2 industrial laser operation, blueprint reading, laser safety and computer-assisted programming. This program is ideal for production workers and machine operators interested in laser operation.

#### Maintenance Technician 1 | 13 credits

Learn to maintain machines and keep the shop operating smoothly with maintenance fundamentals including electricity, stressing units, series and parallel circuits, magnetism, inductance, capacitance, generators, motors and basic AC circuits.

#### Maintenance Technician 2 | 9 credits

Learn to handle, analyze, troubleshoot, maintain and repair complex machine equipment through hands-on experience in mechanical power transmissions, v-belt and chain drives, flat belts, gears and couplings. Explore electrical control devices and circuitry, and study pneumatic components and their functions in modern industrial settings.

#### Maintenance Technician 3 | 12 credits

Gain advanced skills in machine maintenance using the latest technology. Explore electronic devices, basic digital logic, programmable controllers and troubleshooting techniques. Study the principles and daily applications of liquid flow, plus hydraulic components and their operational functions.

### ■ SCIENCE, TECHNOLOGY, ENGINEERING AND MATH (STEM)

#### Mechatronics for Electronic Technicians | 17 credits

If you're an electronic technician looking to gain an understanding of statics, basic mechanisms, strength of materials and Computer-Aided Design (CAD), our Mechatronics for Electronic Technicians certificate is a perfect resource.

#### Mechatronics for Mechanical Designers | 13 credits

If you're a mechanical designer looking to gain basic skills in digital electronics, PLCs, electrical power controls and motors, our Mechatronics for Mechanical Designers certificate is a perfect resource.

### ■ TRANSPORTATION

#### Automotive Basics | 8 credits

Explore the basics of automotive repair, maintenance and the auto service industry. You'll learn to diagnose and repair systems including braking, steering and suspension, plus how to safely use the most common tools of the auto industry.

#### Automotive Leaders | 12 credits

Become a leader in the automotive service industry with skills to maintain customer satisfaction and increase loyalty. Practice communication, team development and conflict resolution while exploring emerging automotive technologies and basic physics concepts.

