# FWD>>CENTER

## FINGER LAKES WORKFORCE DEVELOPMENT CENTER

Powered by **Monroe Community College**

# INDUSTRY 4.0

## CERTIFIED INDUSTRY 4.0 PROCESS CONTROL TECHNICIAN

Certified Industry 4.0 Process Control Technician certification prepares individuals to succeed as an instrumentation technician in modern production environments that use Industry 4.0 technologies. In this role, individuals will install, troubleshoot, repair, and maintain instrumentation and control systems using transducers, transmitters, and PID controllers used to control flow, pressure, temperature and pressure of industrial fluid processes.

This course is based on **240-contact hours** of curriculum developed by Amatrol. This curriculum covers various topics in Advanced Manufacturing and training provides a comprehensive background to the technical aspects of process controls in modern manufacturing. Students will receive certifications per module/per section.

**SACA Core Micro-Credentials:**
C-257 Process Control Systems 1
C-258 Process Control Troubleshooting 1
C-356 Process Control Systems 2

**Job Title Examples:** Process Control Technician, Field Service.

## CERTIFIED INDUSTRY 4.0 CONTROL SYSTEMS SPECIALIST

Certified Industry 4.0 Control Systems Specialist certification prepares individuals to succeed as a controls technician in modern production environments, with skills in installing, troubleshooting, repairing, and maintaining industrial control systems using sensors, programmable logic controllers, and variable frequency drives. Additionally, individuals will perform industrial maintenance with a focus on using mobile/cloud technology, performing preventive maintenance, analyzing machine history, reducing downtime, and using basic trouble shooting skills.This course is based on **240-contact hours** of curriculum developed by Amatrol. This curriculum covers various topics in Advanced Manufacturing Technology, including work area safety, ladder logic programming, troubleshooting programmable logic controllers, Human-Machine Interface (HMI) programs, and Lean production concepts. This training provides a comprehensive background to the technical aspects of control systems in modern manufacturing. Students will receive industry-recognized certifications per module/per section.

**Core Micro-Credentials:**
C-207 Programmable Controller Systems 1
C-208 Programmable Controller Troubleshooting 1

**Job Title Examples:** Control Systems Technician, Field Service

## CERTIFIED INDUSTRY 4.0 OPERATOR

Certified Industry 4.0 Operator prepares individuals to succeed as a team lead operator in modern production environments, with skills in analyzing and modifying control systems, automation technologies, and operating industrial robots. Additionally, individuals will perform automated machine setup and adjustment, operate and monitor system operation, and analyze and optimize system operation.

This course is based on 80-contact hours of curriculum developed by Amatrol. This curriculum covers various topics in Advanced Manufacturing Technology, including work area safety, drive systems, pneumatic power, hydraulic power, basic electrical circuits, electronic sensors, basic programmable logic controller, and basic Robot operations. This training provides a comprehensive introduction to the technical aspects of modern manufacturing. Students will receive certificates per module/section.

**SACA Core Micro-Credentials:**
C-102 Associate-Advanced Operations
C-103 Robot System Operations

**Job Title Examples:** Production Operator, Manufacturing Operator, Machine Operator

## SACA CERTIFICATION C-101 ADVANCED MANUFACTURING

This e-learning per Amatrol Curriculum covers various topics on Advanced Manufacturing such as equipment safety; hand tools; measurement; print reading; mechanical, fluid, pneumatic, and electrical power; robot operations and programming; lean production concepts. Upon passing a proctored exam, on site at the FWD Center, students will receive industry-recognized certification from the Smart Automation Certification Alliance (SACA).

## SACA CERTIFICATION C-211 PRODUCTIVE MAINTENANCE

This e-learning per Amatrol Curriculum covers various topics total productive maintenance management such as cloud-based data acquisition; introduction to machine operation; control system concepts; machine operator functions; machine monitoring; reading pressure and flow; reading level voltage current, and temperature; machine documentation and organization; troubleshooting, equipment effectiveness, and maintenance. Upon passing a proctored exam, on site at the FWD Center, students will receive industry-recognized certification from the Smart Automation Certification Alliance (SACA).

## FANUC ROBOTICS HANDLING TOOL OPERATION AND PROGRAMMING (CERTIFICATE)

This course covers the tasks that an operator, technician, engineer or programmer needs to set up and program a FANUC Robotics Handlingtool Software Package. Students are provided online modules at least once a week prior to the training. Hands-on 32-hour training consists of 24 laboratory exercises. Upon successful completion of the course, participants will receive the FANUC Robotics CERT I industry credential.

## UNIVERSAL ROBOTS OPERATOR TRAINING (CERTIFIED)

This course is based on **32-contact hours** of curriculum developed by Universal Robots. Through this course you will have hands-on experience with a UR robot. You will have programmed the robot several times to perform common tasks, including the operation of common peripherals (conveyors, sensors, grippers). You will be able to optimize a pick and place program, perform palletization operations, understand safety concepts, and know the additional resources available to you. After completing the course, you will then be ready to create programs in an industrial setting or continue on with your learning journey and create more complex programming applications.

**You must have completed the UR Academy free e-Learning Core Track before attending this course.**

## STRATASYS OPERATOR (CERTIFIED):

Prepares individuals to succeed as a Stratasys 3D Printing Operator. This training provides a comprehensive background to the technical aspects of the 3D printing technology and specifications; materials; design and fabrication; software processing and communications; and post-processing.

The 40 hours program provides hands on skills for the 3D Printing/Additive Manufacturing Industry and applications as it applies to the Stratasys printers. This level of certification asks examinees to demonstrate mastery of the basics of FDM 3DP technology, software, design, materials, applications and benefits of using Stratasys technology to earn the industry credential of "Stratasys Certified" and be workforce-ready. Students will take a NOCTI exam and upon completion of program and passing, will receive certificates.

**Certificates:** FDM Stratasys 3D Printing Certificate and MCC Certificate of Completion

**Job Title Examples:** 3D Printing Technician, 3D Printing Design Specialist, and 3D Printing Fulfillment Specialist

## FANUC IRVISION SYSTEM OPERATOR (CERTIFIED):

Prepares individuals to succeed as a FANUC iRVision Operator. Recommended safety procedures are integrated into all training exercises. In addition to presentations and demonstrations, this course offers a series of lab exercises for the student to complete. Lab exercises relate directly to the classroom presentations and are intended to reinforce what the student has learned through actual hands-on experience.

The 24 hour course covers the basic tasks and procedures required for an operator, technician, engineer or programmer to set up, teach, test, and modify iRVision applications. Upon successful completion of this course, the student can identify the components of a vision system, install vision hardware, develop an application, program the robot, perform error recovery procedures and follow recommended safety practices. Upon successful completion and passing exam, the student will receive certificates
.
**Audience:** This course is intended for the person who must install, set up, program, and troubleshoot a FANUC America iRVision system.

**Prerequisite:** Completion of a live, FANUC instructor led Operation and Programming course (such as HandlingTool, ArcTool, SpotTool). Completion of an online eLearn Operation and Programming course will not meet this Operation and Programming prerequisite.

**Certificates:** FANUC America iRVision System Certificate and MCC Certificate of Completion.

**Job Title Examples:** FANUC Robot and Vision Operator, Robot Technician iRVision, and Field Service Robot Technician iRVision.



## CERTIFIED INDUSTRIAL CONTROL PANEL TECHNICIAN

certification prepares individuals to succeed as a control panel technician in modern production environments, with skills in electrical wiring , installing control wiring in an electrical panel; installing wiring into limit switches, solenoids, and pressure switches; and understanding the importance of correct wire size, material, and insulation. Prepares individuals to install and test/commission electrical motor control circuits using these electrical components: control cabinet enclosures, 3-phase AC motors, reversing magnetic motor starters with overloads, control relays, timer relays, pushbutton switches, selector switches, limit switches, pressure switches, indicators, electro-pneumatic solenoid valves, safety disconnect switches, and circuit protection. Additionally, individuals will perform industrial maintenance with a focus on using mobile/cloud technology, performing preventive maintenance, analyzing machine history, reducing downtime, and using basic troubleshooting skills.

This 80 hours program covers various topics in Advanced Manufacturing Technology, including work area safety. This training provides a comprehensive background to the technical aspects of control panel building in modern manufacturing. Passing students will receive industry-recognized certifications from the Smart Automation Certification Alliance (SACA).

**Core Micro-Credentials:**
C-201 Electrical Systems 1
C-206 Electrical Systems Installation 1

**Job Title Examples:** Electricians, Control Panel Technicians, and Industrial Maintenance Technicians

# IT PROGRAMS

**5 Tracks:** Networking, Cybersecurity, Data Analytics & AI, Cloud Computing, Software Development

## CLOUD COMPUTING

### 1. AWS ACADEMY CLOUD FOUNDATION:
*Entry-Level*

AWS Academy Cloud Foundations is intended for students seeking a foundational understanding of AWS cloud computing technology. Taught by tech industry professionals with many years' experience in the AWS environment, this course provides a detailed overview of cloud concepts, AWS core services, security, architecture, pricing and support and prepare for the AWS Certified Cloud Practitioner exam.

**Pre-requisites:** Two or more years as a developer, systems support or administrator. Job Title Examples: Cloud Support Specialist, Cloud Network Technician, AWS Cloud Engineer

### 2. AWS CLOUD PROFESSIONAL – SYSOPS ADMINISTRATOR:
*Intermediate*

The AWS Cloud Professional SysOps certification validates cloud practitioner skills in provisioning/ deploying, operating, managing and maintaining applications running on AWS Cloud. And validates the ability to specify requirements for creating highly available, scalable and secure AWS solutions.

**Pre-requisites:** Minimum of one year of experience with deploying, managing, and operating workloads on AWS and implementing security controls. AWS Cloud Foundation certification highly recommended.

**Job Title Examples:** IT Network Specialist, IT Network Technician, IT Field Technician, NOC Technician

## CYBERSECURITY

### 1. CISCO CERTIFIED CYBEROPS ASSOCIATE:
*Entry-Level*

Cisco Certified CyberOps Associate certification program validates the day-to-day, tactical knowledge and skills that Security Operations Center (SOC) teams need to detect and respond to cybersecurity threats. Students will learn these core skills:

›› Deepen knowledge in how best to detect and respond to security incidents.
›› Gain job-ready, practical skills in cybersecurity operations.
›› Develop critical thinking and problem-solving skills using Cisco Packet Tracer.
›› Prepare for Cisco Certified CyberOps Associate examination

**Pre-requisites:** A background in networking and a working knowledge of Cisco equipment is desirable. Previous CompTIA Network+ or CCT certification is highly recommended.

**Job Title Examples:** IT Associate, Entry Level Consultant, IS Analyst.

### 2. COMPTIA SECURITY+:
*Intermediate*

This program prepares individuals for an exciting and lucrative IT career in cybersecurity with the CompTIA Security+ certification process. It is the first security certification a candidate should earn as it establishes the core knowledge required of any cybersecurity role and provides a springboard to entry or intermediate- level cybersecurity jobs. It is also the most sought-after certification by major corporations and defense contractors. Course topics will cover: Attacks, Threats & Vulnerabilities, Architecture and Design, Implementation, Operations and Incident Response, Governance, Risk, and Compliance.

**Pre-requisites:** Minimum of 1-2 years of working experience in IT as systems or network administrator with a security focus. CompTIA also recommends having an up to date Network+ certification.

**Job Title Examples:** Network Security Associate, Entry Level Consultant, IS Analyst

### 3. CISCO CYBEROPS PROFESSIONAL:
*Intermediate*

This certification gives a student knowledge and skills beyond simple firewalls and antivirus software and become a skilled CyberOps professional. Students will be prepared for Cisco's Performing CyberOps Using Cisco Security Technologies v1.0 (CBRCOR 350-201) exam. This exam tests a candidate's knowledge of core cybersecurity operations including cybersecurity fundamentals, techniques, processes, and automation.

**Pre-requisites:** Some background in IT networking or 2 years of IT industry experience.

**Job Title Examples:** Incident Manager, Cybersecurity Consultant, Cybersecurity Engineer, S O C Analyst

### 4. COMPTIA PENTEST+:
*Intermediate*

CompTIA PenTest+ is for cybersecurity professionals interested in advancing their career in penetration testing. Students will develop the skills required to plan and scope a penetration testing engagement that include vulnerability scanning, understanding compliance requirements and analyzing results. Students will also be prepared for CompTIA PenTest+ exam.

**Pre-requisites:** CyberOps Associate certification or 2 years of experience working as a network or cloud security professional.

**Job Title Examples:** Cybersecurity Consultant, Penetration Tester, IS Associate

## DATA ANALYTICS & AI

### 1. DATA ANALYTICS FOUNDATION COMPTIA DATA:
*Entry-Level*

This a foundation level program prepares individuals for jobs in fast growing areas of data engineering, data mining, statistical data analytics and data visualization. The program also prepares students to successfully complete the CompTIA Data+ certification exam. Students will learn multiple data analysis tools and programming languages such as R, Python, SQL and SPSS in this course.

**Pre-requisites**: None. Familiarity with Microsoft Excel will be helpful.

**Core Micro-Credentials:** 3 Credits towards MCC's Data Analytics micro-credentials

**Job Title Examples:** Data Analyst, Reporting Analyst, Data Quality Analyst, Data Engineer.

### 2. DATA VISUALIZATION USING POWERBI  AND TABLEAU:
*Intermediate*

Power BI and Tableau are two most popular data analytics and Business Intelligence (BI) technologies for the collection, integration, analysis, and presentation of business information. This course will help students develop data engineering and data visualization skills and apply the skills in performing data analysis on large data sets and build compelling visualizations. It is very hands-on and students will work with real industrial data sets from manufacturing and healthcare domains.

**Pre-requisites:** Business/data analysis skills with 12-18 months of professional experience in a management reporting job role and familiarity with data analytical tools such as Excel.

**Core Micro-Credentials:** 2 Credits towards Data Analytics micro-credentials.

### 3. AI SCHOLARS :
*Entry-Level*

In this 25-hour course, we will explore the foundations of machine learning and explore different applications of machine learning models. In the first half of the course, students learn AI's core technologies including applications, foundational concepts, and programming tools through live online lectures and coding labs. In the second half, students will complete an instructor-led group project applying AI to the discipline of their choice (e.g., music, healthcare, astrophysics, finance, etc.), utilizing the programming skills they developed in the first half. The classes will be led by Stanford, MIT graduates and top university researchers. .

**Pre-requisites:** None

**Job Title Examples:** Entry-Level Data Scientist, Machine Learning engineer, AI engineer

### 4. AI CERTIFICATE FOR CORPORATE MANAGEMENT
*Intermediate*

Artificial Intelligence Certificate for Corporate Management is a carefully crafted training program designed to empower executives, managers, and decision-makers with a strategic understanding of AI's transformative potential for their businesses. The 24-hour training program will be conducted through a combination of live lectures, interactive workshops, case studies, and facilitated discussions to ensure maximum engagement and knowledge retention.

**Pre-requisites:** Role as a Manager, Decision-Maker or Business Executive



## NETWORKING

### 1. IT SUPPORT TECHNICIAN :
*Entry-Level*

This program prepares individuals for entry-level work as customer service and help desk professionals in the desktop services and applications domain. Through hands-on experience students will gain skills in installing, maintaining, supporting, and troubleshooting hardware components; deploying desktop operating systems and applications; deploying and maintain networking equipment. Participants are prepared to sit for CompTIA Network +, A+, and Cisco CCST certifications.

**Pre-requisites:** None. The ideal student likes to "tinker" with hardware (e.g. cellphones) Job Title Examples: IT Specialist, IT Service Desk Analyst, IT Associate, IT Technician

2. **CISCO CERTIFIED NETWORK ASSOCIATE (CCNA):**
   *Intermediate*

The Cisco Network Associate certification validates the skills required for entry-level network engineering/technical support/ administration positions. Candidates will gain the knowledge and skill to install, operate and troubleshoot a small enterprise branch network, including basic network security and also successfully complete the CCNA examination.

This is a 3-part hands-on intensive course:
   CCNA-1: Introduction to Networks
   CCNA-1: Switching, Routing and Wireless Essentials
   CCNA-3: Enterprise Networking, Security and Automation

**Pre-requisites:** A background in networking and a working knowledge of Cisco equipment is desirable.

**Core Micro-Credentials:** 9 Credits towards A.S degree in Information & Networking Technology
CPT 115 − Introduction to Networks
CPT 215 − Routing Fundamentals
CPT 219 − Enterprise Networking

**Job Title Examples:** IT Network Specialist, IT Network Technician, IT Field Technician, NOC Technician

## SOFTWARE DEVELOPMENT

1. **FRONT-END DEVELOPER FOUNDATION:**
   *Entry-Level*

The Front-end Developer Career-Ready Professional Certification program is offered as a set of stackable 3 standalone courses that together will allow you to master the range of technologies used to develop high-quality web and mobile applications that work seamlessly on mobile, tablet, and desktop browser.

This first course will teach the essential tools that every web page coder needs to know: HTML5, CSS3, SVG, and the DOM. Students will be introduced to JavaScript and gain familiarity with web development tools such as a Text Editor like VSCode, git version control, GitHub.com, web browsers and their dev tools, accessibility validators, and more..
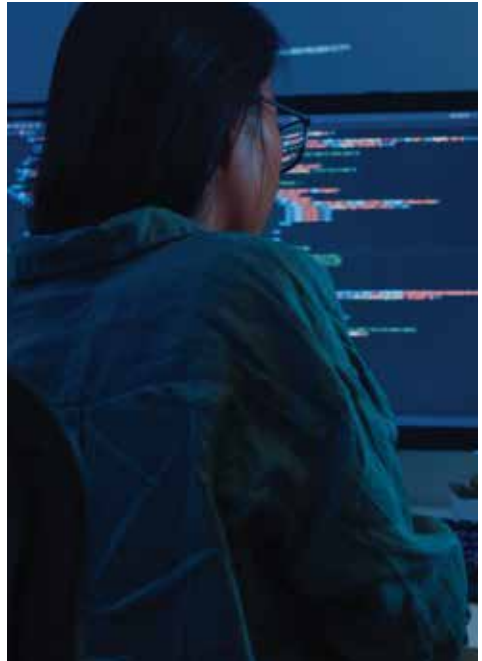
**Pre-requisites:** None.

**Job Title Examples:** N/A

2. **FRONT-END DEVELOPER ADVANCED**
   *Entry-Level*

This second course for the Front-end Developer Career-Ready Professional Certification program will dive into JavaScript and Software Design patterns for the web. Students will learn code organization and application design patterns such as Model-View-Controller and Web Component hierarchies and how to send and receive data asynchronously over the HTTP/S protocol.

**Pre-requisites:** Front-end Developer Foundation or some web development experience.

**Job Title Examples:** Web developer, Front-end developer



3. **FRONT-END DEVELOPER PROFESSIONAL:**
   *Intermediate*

Currently, the most popular Front-End rendering framework that companies are recruiting for is React, a framework that uses component hierarchies. This third course for the Front-end Developer Professional Certification program will dive into basic and advanced use-cases for React and introduce students to the vast landscape of JavaScript frameworks. They'll also go into more advanced language features of JavaScript, including new JavaScript build-tools, and leverage a few Back-End tools such as Node.js and a NoSQL database-as-a-service platform to help create a fully functioning, interactive web application.

**Pre-requisites** Ideal student has completed Front-end Developer Advanced course.

**Job Title Examples:** Entry-Level Software engineer, Full-stack developer

Automation

Augmented And Virtual Reality

Industrial- Focused Smart Technologies

Information Technology

Robotics And Cobots

Process Controls

Programmable Logic Controllers

Skilled Trades
(Construction Essentials, Electrical, Plumbing)



## WHAT SERVICES ARE OFFERED AT THE FWD CENTER?

The FWD Center strives to create connections to employment that lead to sustainable careers and wage progression for students and graduates over time. Services include:

» Work-based learning opportunities (full time / part time) that are aligned to a career pathway.
» On-site job placement assistance.
» Career Exploration.
» Access to wrap around supports such as: counseling, tutoring, food supports, and bus passes.

### INDUSTRY 4.0

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### INFORMATION TECHNOLOGY

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