



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 troubleshooting skills. This course is based on 188-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.

SACA Core Credentials:
C-202 Electric Motor Control Systems 1
C-203 Variable Frequency Drive systems 1
C-207 Programmable Controller Systems 1
C-208 Programmable Controller Troubleshooting 1

Job Title Examples: Control Systems Technician, Field Service

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. In this role, individuals will install, troubleshoot, repair, and maintain instrumentation and control systems using transducers, transmitters, and PID controllers used to control flow, level, temperature, and pressure of industrial fluid processes. This course is based on 188-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 Credentials:
C-270 Process Control Systems 1 – Level and Flow
C-271 Process Control Systems 2 - Temperature
C-274 Process Control Troubleshooting

Job Title Examples: Process Control Technician, Field Service.

CERTIFIED STRATASYS OPERATOR:

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 ROBOTICS HANDLING TOOL OPERATION AND PROGRAMMING (CERTIFICATE)

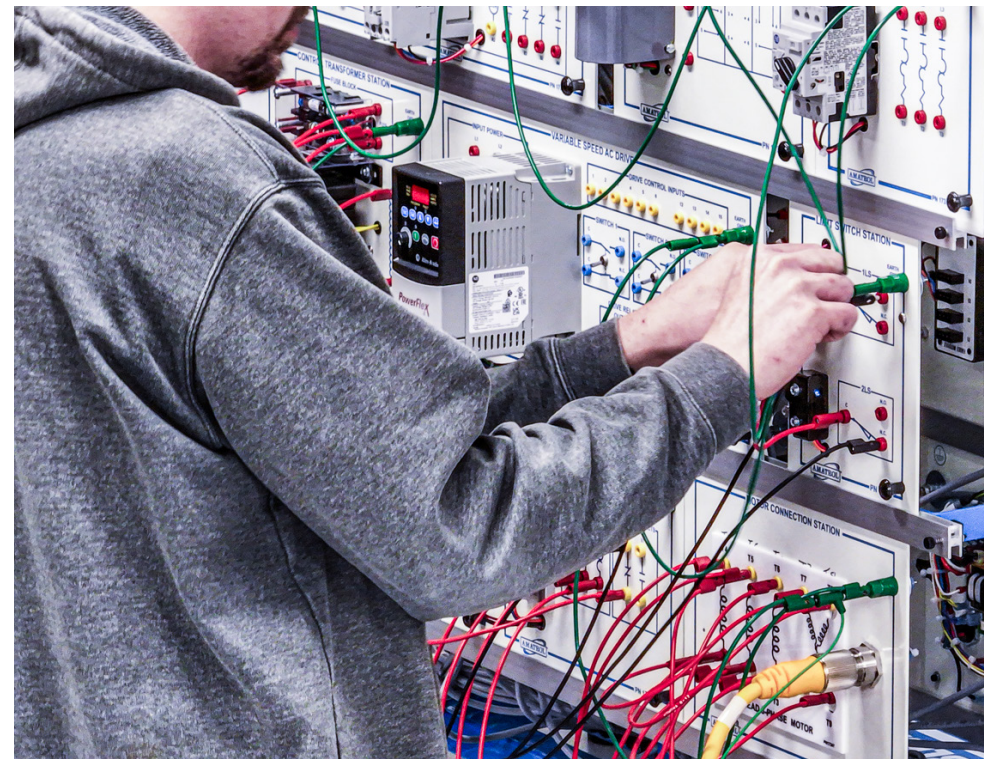
This course covers the tasks that an operator, technician, engineer or programmer needs to set up and program a FANUC Robotics HandlingTool Software Package. Students are provided online modules at least once a week prior to the training. Hands-on 32-hour training consists of 24 laboratory exercises.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

FANUC IRVISION SYSTEM OPERATOR:

Prepares individuals to succeed as a FANUC iRvision Operator. This 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 [FANUC America iRvision System Certificate and MCC Certificate of Completion].

Prerequisite: Completion of the live, FANUC instructor led Handling Tool Operation and Programming course.

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



CERTIFIED INDUSTRIAL CONTROL PANEL TECHNICIAN

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, electropneumatic solenoid valves, safety disconnect switches, and circuit protection. This 40-contact hour 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).

SACA Core Credentials:
C-206 Electrical Systems Installation 1

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

FWD CENTER OFFERS PROGRAMS IN:

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.

ADVANCED MANUFACTURING / INDUSTRY 4.0

Willis Major
Manager, Advanced Manufacturing
wmajor@monroecc.edu
585-685-6238

INFORMATION TECHNOLOGY

Parul Patel
Director, Information Technology & Software
ppatel@monroecc.edu
585-685-6172

FWD CENTER

FINGER LAKES WORKFORCE DEVELOPMENT CENTER

Powered by Monroe Community College



FWD CENTER
321 State Street, 5 & 6 Floors
www.FWD-Center.com
585-685-6FWD

IT PROGRAMS

Certification Tracks: 1. Cloud Computing w AWS, 2. Cybersecurity, 3. Data Analytics & AI, 4. Networking, 5. Software Development

Foundation Class for IT PROGRAMS:

IT FUNDAMENTALS COMPTIA ITF+ CERTIFICATION

Entry-Level

CompTIA IT Fundamentals (ITF+) is an introductory level certification course that helps someone to build some basic understanding of IT and determine if they have the aptitude and motivation for a career in IT.

The course will cover the following topics modules:

IT Concepts and Terminology Module • Infrastructure and Networking Module • Applications and Software Module • Software Development Module • Database Fundamentals Module • Security

Students will also be prepared to write the CompTIA ITF+ exam. However, the course fee does not include voucher for the CompTIA exam.

Prerequisite: None

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.

Prerequisites: 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.

Prerequisites: 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

Prerequisites: 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: Cybersecurity Analyst, IT Security Support Specialist, Incident Response Technician, Threat Monitoring Specialist

2. CYBERSECURITY FOUNDATION: COMPTIA SECURITY+ CERTIFICATION:

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.

Prerequisites: 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. 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.

Prerequisites: 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. 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

2. 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.

Prerequisites: None. Familiarity with Microsoft Excel will be helpful.

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

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

3. DATA ENGINEERING USING PYTHON & AI

Intermediate

This program is intended for Data Engineers and Data Scientists working towards building skills in AI and Machine Learning. Through hands-on labs and programming exercises this course helps students build a strong foundation in mastering the entire data pipeline - data preparation, standardization, transformation, data warehousing and analytics.

The following topics will be covered in this course:

• Data Structure and Data Lifecycle • Operational Systems • Analytical Systems • Data Warehouse/Data Mart/Data Lakes • Users in the Data Platform • Introduction to coding Python with AI • Using AI to build Models for analytics • ETL Transformations • Pipeline Concepts and scheduling overview • Usage of Analytical systems for Data Analysis and Machine Learning

Prerequisites: IT Fundamentals CompTIA ITF+ Certification

Job Title Examples: Data Analyst, Data Engineering Assistant, ETL Developer, Business Intelligence

(BI) Assistant, Data Quality, Reporting Analyst, Machine Learning Assistant

4. 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.

Prerequisites: 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.

Job Title Examples: Data Analyst, Business Intelligence (BI) Assistant, ETL/ Data Pipeline Technician, Data Quality Technician, Operations Data Support Specialist

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

NETWORKING

1. 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 certification will need to complete sequence of 3 hands-on intensive courses:

1. Introduction to Networking

Introduction to Networks, the first course in the series. From understanding network architectures and protocols to mastering IP addressing and Ethernet fundamentals, you'll develop foundational knowledge and build your networking basics. This course also includes interactive labs and real-world scenarios to help you gain practical experience in building local area networks (LANs), implementing network security measures, and configuring routers and switches.

Prerequisites: Familiarity with computer networking. Preferred: completion of the ITF+ Certification.

2. CCNA 2 - Switching, Routing and Wireless Essentials

Switching, Routing and Wireless Essentials is the second course in the CCNA series. This course covers topics in switching and routing, and delves into wireless local area networks (WLANs), and security concepts. After completing this course, you'll understand network operations and be capable of performing network configuration, troubleshooting, and mitigation of LAN security threats.

Prerequisites: CCNA 1 - Introduction to Networking, WITP 366

2. CCNA 3 - Enterprise Networking, Security and Automation

Enterprise Networking, Security and Automation is the third and final course in this three-course CCNA series. This course will give you the knowledge needed to thrive as a network administrator or engineer. This course covers the architectures and considerations involved in designing, securing, operating, and troubleshooting enterprise networks. You will also explore wide area network (WAN) technologies, quality of service (QoS) mechanisms, and software-defined networking (SDN) concepts.

Prerequisites: CCNA 2 - Switching, Routing and Wireless Essentials, WITP 367

Job Title Examples: Cybersecurity Analyst, IT Security Support Specialist, Incident Response Technician, Threat Monitoring Specialist

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

2. CISCO CERTIFIED SUPPORT TECHNICIAN - IT SUPPORT:

Intermediate

This program prepares individuals for entry-level opportunities in IT as customer service and help desk professionals. It is designed to give participants hands-on experience in developing skills in areas such as installing, maintaining, supporting, and troubleshooting hardware problems; deploying desktop operating systems and applications; deploying and maintaining networking protocols and topologies; and designing desktop and network security.

Participants are also prepared to sit for Cisco's CCST ITS exam that tests candidates' foundational knowledge and skills related to the following topic areas:

IT Support Job Tasks & Responsibilities • Hardware issues • Connectivity and resource access

issues • Common threats and preventions • Job tools

Prerequisites: Familiarity with IT concepts. Preferred: completion of the CompTIA ITF+ Certification.

Job Title Examples: IT Support Specialist, Help Desk Technician, Technical Support Representative,

Desktop Support Technician, IT Service Desk Analyst, Computer Support Specialist

SOFTWARE DEVELOPMENT

The Front-end Developer Career-Ready Professional Certification program is offered as a set of 3 stackable or 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 browsers.

1.) FRONT-END DEVELOPER FOUNDATION

Entry-Level

2) FRONT-END DEVELOPER ADVANCED

Entry-Level

3) FRONT-END DEVELOPER PROFESSIONAL

Intermediate

ADVANCED MANUFACTURING

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).

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 Credentials:

C-102 Associate-Advanced Operations

C-103 Robot System Operations

Job Title Examples: Production Operator,

Manufacturing Operator, Machine Operator

INTRO TO ADVANCED MANUFACTURING

This 80-contact hour course covers various topics on Advanced Manufacturing and the opportunity to receive industry-recognized certifications. Course consists of 50 hours of Amatrol Curriculum that 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. Universal Robot operator training provides 16 hours hands-on activities on the UR robot. Students will have programmed the robot

