Industry 4.0 Fundamentals (I4F)

Course 1
Introduction to Mechatronics

38 Lessons

Topics Include:
- Introduction to Industry 4.0
- Safety
- Hand Tools
- Measurement
- Print Reading
- Precision Measurement
- Mechanical Drives
- Fluid Power
- AC/DC Electricity
- Electrical Relay Control
- Robotics Programming
- Electronic Sensors

Course 2
Introduction to Industrial Control Systems

33 Lessons

Topics Include:
- Industry 4.0 Principles
- Mechanical Drives
- Hydraulics Fluid Power
- Pneumatics
- Robotics Programming
- Electrical Relay Control
- Electronic Sensors
- Ethernet Network Communications
- Programmable Controllers
- CNC Programming
- Mechatronic Systems

Course 3
Robot Operation & Programming

Topics Include:
- Robotic Safety & Components
- Frames
- Program Development
- Inputs, Outputs, and Macros

And More!

Certified Production Technician

Topics Include:
- Safety
- Quality Practices & Measurement
- Manufacturing Processes & Production
- Maintenance Awareness

And More!

Course 4
Introduction to Industrial Internet of Things

28 Lessons

Topics Include:
- Advanced Programmable Controllers
- Data Analytics 1
- Variable Frequency Drives
- Bar Code Production Identification
- Mechatronics: Motors & Conveyors
- Ethernet Network 2
- RFID Product Identification
- Smart Sensors
- Programmable Controllers
- System Optimization
- Mechatronics: Communication & ASRS
- PLC Troubleshooting

Prepare for Industry 4.0 Careers

Is your local workforce prepared for Industry 4.0? Or is your area mired in a skills gap crisis with available, high-quality careers but too few qualified candidates? Amatrol's Industry 4.0 Fundamentals (I4F) is a program that prepares students for high-paying Industry 4.0 careers in local industries.

What is Industry 4.0?

Industry 4.0, also referred to as Smart Factory, the Industrial Internet of Things (IIoT), and other names, is the interconnection of industrial technologies to produce big data analytics, which promotes applications like predictive analysis (technology alerts you to a problem before it happens), prescriptive analysis (technology allows you to generate solutions before a problem occurs), and more.

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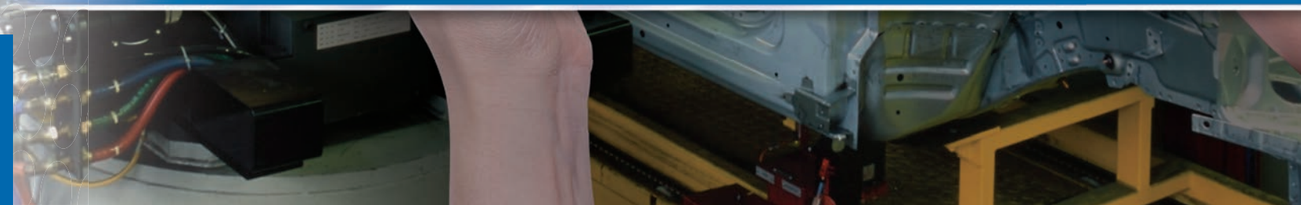
INDUSTRY 4.0 FUNDAMENTALS (I4F)

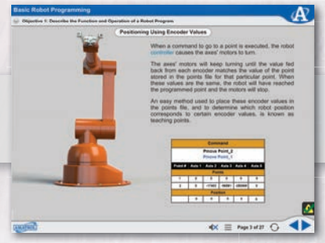


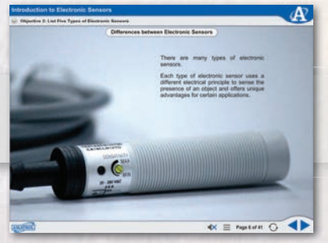
I4F Provides Multimedia Curriculum, Hands-On Skills, Virtual Training, and Skill Assessment

I4F combines various learning methods to provide a robust experience in both theoretical knowledge and hands-on Industry 4.0 skills.

Interactive Multimedia Curriculum

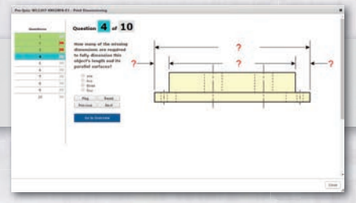
I4F's eLearning curriculum offers 24 x 7 access to strong technical content with eye-popping graphics, 3D simulations, videos, and interactivities to develop technical skills for modern Smart Factory manufacturing training.

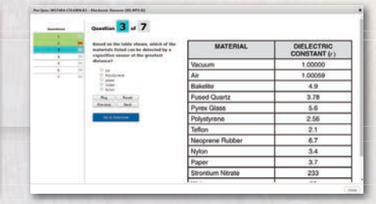




Assessment

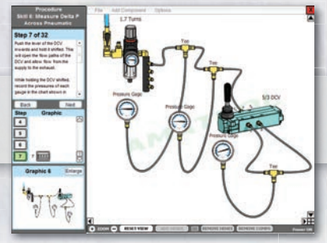
I4F provides pre- and post-lesson quizzes to gauge competency & retention, as well as classroom-based skills performance assessment.

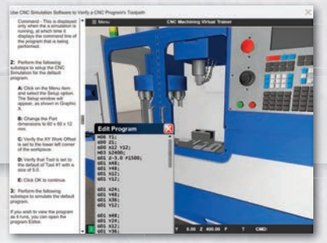


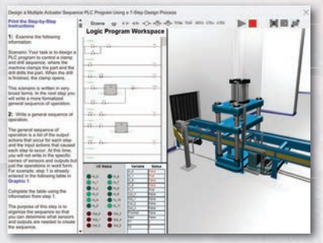


Virtual Training

I4F uses virtual simulators that replicate hands-on equipment and tasks in great detail. These virtual systems are helpful when classroom space is limited or when multiple people must practice skills.







Hands-On Industrial Training

Amatrol's systems are loaded with real-world, industrial components for the closest possible experience to working on-the-job. They are heavy-duty and ready to stand up to frequent use and inexperienced users.

Tabletop Smart Factory

Skill Boss

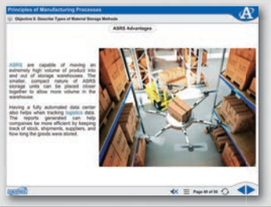
How Can I4F Prepare the Workforce in My Area?

Developed by subject matter experts with real-world feedback from industry & educational institutions , I4F begins with basics like safety, hand tool skills, etc. & builds to PLC troubleshooting, smart sensors, network security, & data analytics. This four semester program prepares learners for the latest Industry 4.0 career opportunities.

Course 1

Introduction to Mechatronics

This course is designed to introduce the basic tools and processes of mechatronics technology used in Industry 4.0. Lessons include: machine safety, dimensional measurement, mechanical power, basic electrical circuits, electrical control diagrams, basic robot programming, etc.



Introduction to Industrial Control Systems

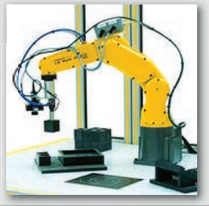
This course is designed to control systems of mechatronics technology used in Industry 4.0. Lessons include: manufacturing metrics, power efficiency, fluid force and frictions, basic material handling, PLC project development, PLC motor control, CNC machining, PLC event sequencing, etc.

Course 2

Course 3

Robot Operations & Programming / Certified Production Technician

This course can follow two separate paths. The first path cover robot programming and operations of an industrial robot. The second path uses MSSC's certified production technician training to cover topics like safety, quality practices & measurement, manufacturing processes & production, maintenance awareness.



Introduction to Industrial Internet of Things

This course covers how to collect from manufacturing processes and use the data to adjust, control, and improve the processes. Lessons include: lean production concepts, VFD operation and control, network security and preferences, database concepts, ASRS, PLC diagnostic indicators, etc.

Course 4