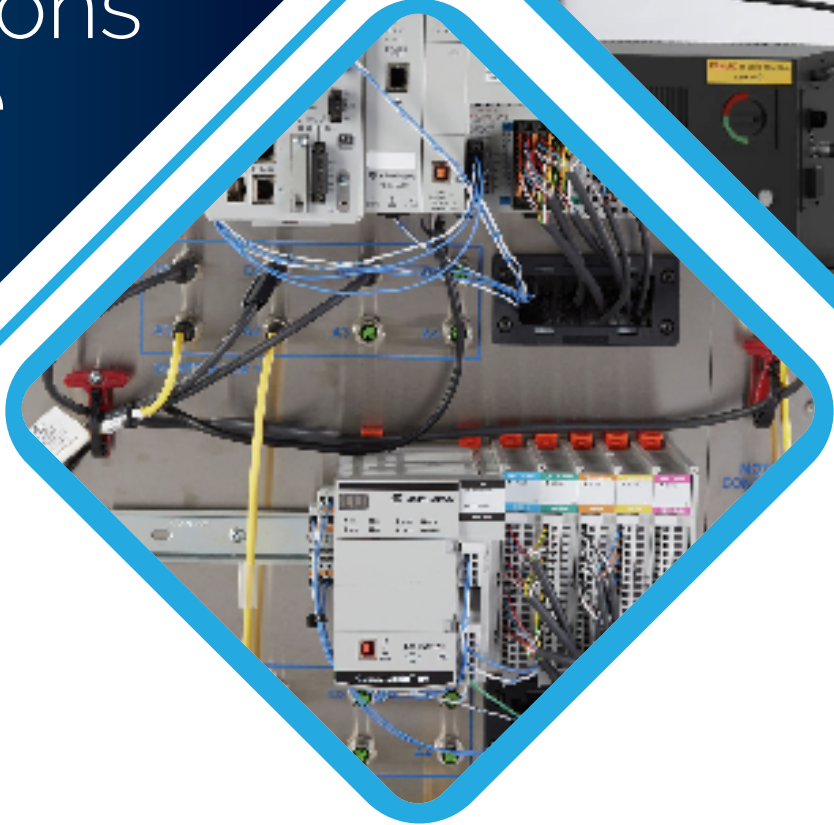


2024-2025
Training &
Innovation
Solutions
Guide



x-cal.us • 1-800-445-1088

Contact

800-445-1088
f. 281-391-1113

Our Sales Team

Warner Brown
c. 281-705-3363
warner@x-cal.us

Jamey Deloney
c. 281-773-0032
jamey@x-cal.us

Joe Carter
c. 303-725-9676
joe@x-cal.us

Robert Neal
c. 817-296-6162
robert@x-cal.us

Craig Sessions
c. 385-222-5819
craig@x-cal.us



X-Cal Corp. is one of three companies founded by Tim and Dede Brown in order to meet the growing need for technical and vocational training. X-Cal operates in New Mexico, Colorado, Utah, Idaho, Montana and Wyoming.

Through our network of manufacturing partners, we provide the most up-to-date curriculum resources, software, equipment, furniture, professional development and customer support available today, for a wide range of STEM and Career and Technical Education areas.



Solutions Center

Our Solutions Center is a 14,000 square foot commercial building that is divided into space for our offices, demonstration areas, and training rooms, as well as a 6,000 square foot warehouse.

At the Solutions Center we showcase the latest equipment. The warehouse provides a demonstration area for our larger pieces of equipment and allows us to keep an inventory of popular products, and spare parts to shorten the delivery cycle and minimize equipment downtime. Additionally, we added state-of-the-art training rooms and a conference center.

We would like to invite you to our new facility to give you a firsthand tour of our comprehensive solutions for Engineering, CTE, Robotics, Additive Manufacturing, Certifications, Industry 4.0, STEM, Medical Simulators and much more!

Mobile Solutions Center

Our Mobile Solutions Center is on the road to give customers a firsthand look at many of our solutions!

Contact us to schedule a hands-on demo of our solutions or to get added to our mailing list for up-coming events.



X-Cal Corporation
P.O. Box 218407
Houston, TX 77218
x-cal.us

Ready to learn more?
Contact your Regional Sales Manager!



Table of Contents

| | |
|--|-----------|
| Industry-Based Certification Programs ... | 4 |
| MSSC, NIMS, Welding, Industry 4.0, Automotive Technology, Electronics, 3D Printing | |
| Industrial Skills Trainers | 9 |
| Advance Manufacturing, Process Control, Industrial Maintenance, Mechatronics, Portable Trainers, Smart Factory, Industry 4.0, eLearning, High School Learning Programs, Renewable Energy, Safety | |
| 3D Printers | 22 |
| PolyJet, FDM, Additive Manufacturing, P3™ and SAF Technology, Stereolithography, 3D Scanners, Laser Cutters & Engravers, Fume Extractors | |
| Medical Simulation | 28 |
| Task Trainers, EMT Trainers, Veterinary Science | |
| CNC & Robotics Training | 31 |
| Construction | 37 |
| HVAC/R, Virtual Reality Training, Heavy Equipment | |
| STEM | 41 |
| Robotics, Drones, and Electric Car Labs & Curriculum; STEM Design, Engineering, Career Exploration | |
| Transportation & Logistics..... | 44 |
| Automotive Technology, Diesel Engines, Hybrid & Electric Vehicle, Collision Repair, Heavy Equipment, Maritime, Port Crane | |
| Welding | 51 |

Limited Training Space?

Check out Amatrol's portable learning systems!



See page 12

Skill Boss

Performance-Based Assessment & Hands-On Training

Required by MSSC for CPT+ Certification Assessment



See page 6

Industry-Based Certification Programs

Smart Automation Certifications | Industry 4.0

SACA's Smart Automation Certifications use a modular structure that fits various individual needs, industries, and educational environments.

SACA offers four categories of certifications: Associate, Specialist, Professional and Micro. Each certification is stackable allowing individuals to start with one certification and add other certifications to customize their documented skills. Certifications are occupationally focused so they prepare individuals for specific occupations in Industry 4.0.



Associate

The Associate certifications certify that individuals are prepared to succeed as production technicians in an Industry 4.0 manufacturing environment. These certifications are also ideal for IT professionals seeking to become prepared to apply their IT skills in a modern plant floor environment and incumbent industrial maintenance technicians seeking to acquire Industry 4.0 skills.

Specialist

The Specialist certifications certify Industry 4.0 technical skills in troubleshooting, programming, maintaining, and integrating systems.

The specialist certifications are modular certifications consisting of a series of micro credentials, each with its own examination. Once an individual has obtained enough micro credentials, a Specialist certification is granted by SACA.

Professional

The Professional certification is an engineering level certification that focuses on design and optimization of Industry 4.0 systems. It is designed in a modular format, similar to the Specialist certifications, but with a larger number of elective credentials and fewer core credentials to enable the certification to be further adapted to specific needs.

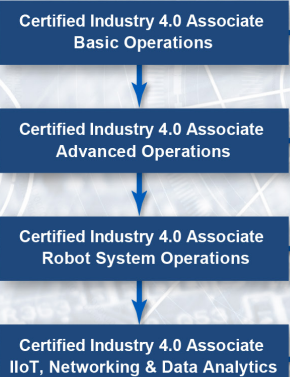
SACA Micro-Credentials

SACA's Micro-Credentials can be attained to prove efficiency in very specific applications or combined to attain a full SACA Specialist Certification. These certifications are in a modular format, so that workers could earn stackable micro-credentials that will enable them to start a successful career before earning a full certification.

Industry-Driven Industrial Certifications

SACA certifications are industry-driven, developed for industry by industry. They are developed through a rigorous process that begins with the creation of truly international skill standards, endorsed by leading experts in Industry 4.0 technologies. Certification examinations are created based on these standards, pilot tested, and statistically analyzed to ensure quality. Each certification includes a proctored hands-on evaluation and an online test to ensure that candidates for certification can "do" as well as "know." SACA uses an annual review process for all certifications to ensure that standards and examinations remain current and relevant.

ASSOCIATE CERTIFICATIONS



SPECIALIST CERTIFICATIONS



PROFESSIONAL CERTIFICATION



Industry-Based Certification Programs

Manufacturing Skills Standards Council

Overcoming the Skills Gap through Industrial Certifications

The nationwide MSSC certifications, based upon industry-defined and federally-endorsed national standards, offer both entry-level and incumbent workers the opportunity to demonstrate that they have acquired the knowledge and skills needed in technology-intensive advanced manufacturing and logistics jobs.



MSSC has developed nationally portable certifications:



Certified Production Technician (CPT): Addresses the core technical competencies of higher skilled production workers in all sectors of manufacturing. MSSC awards certificates to individuals who pass any of its *five Production Modules*: Safety, Quality Practices & Measurement, Manufacturing Processes & Production, Maintenance Awareness and Green Production and a full CPT Certification to those who pass all four core modules (Note: Green is not required for full-CPT certification.)



Certified Logistics Technician (CLT): Addresses the core technical competencies of higher skilled, frontline material handling workers in all supply chain facilities: in factories, warehouses, distribution centers and transportation companies. MSSC awards the foundational-level Certified Logistics Associate (CLA) certificate and the mid-level CLT certification. CLA is a prerequisite for CLT.



CPT and CLT are the only national industry certifications for manufacturing and logistics, accredited under ISO 17024 (personnel certification) and endorsed by the National Association of Manufacturers.

Certified Technician Supply Chain Automation (CT-SCA): The purpose of this program is to prepare technicians who install, operate, support, upgrade, and maintain the automated material handling equipment and systems which support the supply chain.



Certified Forklift Technician (CFT): MSSC and MHEDA have partnered to develop the CFT program which provides basic skills needed to maintain and repair systems for most forklift vehicles. CFT includes 55+ hours of instructor-led computer-based training.

MSSC benefits to employers include:

- A pipeline of skilled workers by embedding MSSC certification training into schools
- Decreased recruitment costs by providing job candidates with industry-recognized credentials
- Elimination of remedial training costs by providing well prepared workers
- A new ISO standard in certificates companies can use as a common practice throughout their global operations
- Increased ROI for training by targeting it against the gaps identified by the MSSC Diagnostic Tool
- An aid to attracting, motivating and retaining qualified employees



Go to x-cal.us/mssc for more information!

Industry-Based Certification Programs

Certified Production Technician Program

The Certified Production Technician (CPT) program enables students to build foundational skills, work effectively with others, identify and solve problems, and continue to acquire the necessary skills for successful careers.

The program's interactive multimedia curriculum uses a competency-based instructional design that teaches MSSC's nationally-recognized standards.

Amatrol's turn-key program includes:

- Four Certification Areas
 - Safety
 - Quality Practices & Measurement
 - Manufacturing Processes & Production
 - Maintenance Awareness
- 224 Industry/Career Skills
- 140+ Hours of Learning
- 39 Self-Paced Learning Units
- 25 Seats per Production Module



Skill Boss Logistics

Amatrol's Skill Boss Logistics offers material handling organizations performance-based assessment for evaluating the skill levels and competencies of future supply chain automation technicians.

This system is a working automated distribution system that performs real-world operations, such as package tracking, automatic package queuing and priority release, electro-pneumatic sorting, and much more!

In addition to industrial-relevant training, the Skill Boss Logistics is the required assessment device for three of MSSC's Certified Technician – Supply Chain Automation (CT-SCA) certifications:

- Equipment Maintenance (CTSCA-EM)
- Equipment Repair (CTSCA-ER)
- Network Repair (CTSCA-NR)

Individuals who earn all three certifications receive a full "Automation Master" recognition award.



The federal National Skill Standards Board formally recognized MSSC as the standards and certification "Voluntary Partnership" for all manufacturing sectors in 1998 and officially endorsed MSSC's national standards in 2001. MSSC has since been used by the U.S. Departments of Labor, Education, Defense and Veterans Affairs, as well as Job Corps and both Federal and State Prison Systems. MSSC is a Founding Partner in the National Association of Manufacturers (NAM)-endorsed Skills Certification System, which has endorsed both CPT and CLT.

Industry-Based Certification Programs

National Certifications for Robotics and Advanced Automation Manufacturing

FANUC Certified Robot Operator Certifications

Students with this level have a basic understanding of robot operations and programming, material handling and its components, and introduction to Roboguide simulation software. These certification programs are focused on the core Robot Operator skills needed by entry level or incumbent workers.

FCR-O1 FANUC Certified Robot Operator-1

Written assessment for an entry level position as a robotics associate in manufacturing. The assessment exams allow the candidate to demonstrate their knowledge in: Robot operations, frame setup, writing, modifying and executing basic motion programs, program offsets, backups and restorations, creating and modifying simulations.

FCR-O2 FANUC Certified Robot Operator-2

Performance assessment for an entry level position as a robotics associate in manufacturing. The performance exams allow the candidate to demonstrate their hands-on skills in: Robot operations, frame setup, writing, modifying and executing basic motion programs, program offsets, backups and restorations, creating and modifying simulations.



FANUC Certified Robot Technician Certifications

Students with this level have a more advanced understanding of robot operations and programming, material handling techniques, technical system components, and 2D integrated robot vision guidance and part inspection process, as well as Roboguide simulation software skills required for Robotic Technicians to enter automation manufacturing, production operations, and robotic systems engineering.

FCR-T1 FANUC Certified Robot Technician-1

Written assessment for technical level position as a robotics engineering associate in manufacturing. The assessment exams allow the candidate to demonstrate their knowledge in: Single axis mastering on all six axis, how to create and execute a pick and place program for load and unload applications, and how to set up and program 2D Integrated Vision for part offset and inspection,

FCR-T2 FANUC Certified Robot Technician-2

Performance assessment for technical level position as a robotics engineering associate in manufacturing. The assessment exams allow the candidate to demonstrate their skills in: Single axis mastering on all six axis, how to create and execute a pick and place program for load and unload applications, and how to set up and program 2D Integrated Vision for part offset and inspection.

**Collaborative
Educational
Package**

FANUC

Welding / AWS SENSE Program

SENSE is a comprehensive set of minimum standards and guidelines for welding education programs. Schools can incorporate SENSE into their curriculum to help attain Perkins funding and help ensure an education consistent with other SENSE schools nationwide. The American Welding Society fully supports this program.



Industry-Based Certification Programs

CERT Education

FANUC CERT Program Robot Cells Made for Classrooms

Industrial robotics training in the classroom can safely be achieved through the CERT program. FANUC America provides the necessary training to the instructor as well as a curriculum to introduce students to robot applications including: integrated vision systems (iRVision), programming a logic controller, and using ROBOGUIDE simulation software. To accompany the CERT program, an eligible school can purchase a new innovative educational tooling package. With this package, students will utilize the same robots and software that are used in industry. Schools can use the new package to integrate robot training into their programs and initiatives.



CNC Training Solutions

FANUC America is partnering with educational institutions to develop programs, curriculum, software and teaching tools that provide students with the knowledge and skills that employers need. The goal of this program is to make students more marketable and valuable in the workplace by having the knowledge and skills needed to set up and run the most advanced CNC systems.

Desktop CNC Simulator

Affordable and portable training solution on 'real' FANUC hardware.



Industrial Learning System (ILS)

- Add up to 12 modules
- Integrate to any FANUC robot using a PLC-to-ethernet IP; with an ethernet cord or 2 of the wireless module options, one for the robot and one for the PLC
- Purchase a blank panel and create your own board
- Fits through standard doorway



Machine Tending Educational Cell (MTEC)

- Qualifies for FANUC educational CERT program (LR Mate only)
- Integrated with FANUC Robot and ROBO DRILL
- Optional iRVision



We'll help you find the best FANUC CERT product to help fit your needs.

Industrial Skills Trainers: *Advanced Manufacturing*

Electrical

- AC/DC Electrical
- Motor Controls & VFD's
- Power Distribution & Wiring



Mechanical

- Mechanical Drives
- Vibration Analysis
- Laser Alignment



Fluid Power

- Basic Hydraulics & Pneumatics
- Advanced Fluid Power and Troubleshooting



Electronics

- AC/DC Drives
- Power & Control Systems
- Motion Control
- Programmable Logic Controllers (PLC)



Smart Factory

- Automation
- Electrical
- Electronics
- Fluid Power
- Process Control
- Machining



Automation

- Robotics
- PLC's
- Mechatronics



See page 14.

Process Control



See page 15.



Many of Amatrol's learning systems use FaultPro, the industry's only electronic troubleshooting system, to offer hands-on troubleshooting skills like in-circuit component testing methods and universal digital controller troubleshooting training.



LEARN MORE

Industrial Skills Trainers: *Electronics Training*

Smart Controls Troubleshooting (895)

Future-Ready Skills: Pave the Way for Industry 4.0 Careers

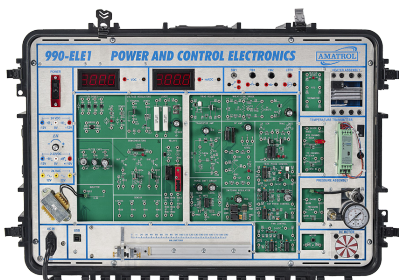
Amatrol's innovative workstation is designed to empower users with hands-on programmable logic controller (PLC) troubleshooting skills essential for careers within Industry 4.0. The workstation covers a diverse range of applications, allowing users to gain expertise in operating, programming, and troubleshooting PLCs interfacing with electro-pneumatics, motor control, temperature control, variable frequency drives, smart sensors, process control, and I/O Link communications.

This compact tabletop system offers a practical learning environment with authentic components, including three prominent Allen-Bradley PLC models (ControlLogix, CompactLogix Modular, and CompactLogix), distributed I/O utilizing Ethernet/IP communications through industrial managed switches, smart sensors, smart motor drives, intelligent interface terminals, wireless Ethernet communications, and various process control applications. Students delve into industry-relevant scenarios, acquiring hands-on skills that establish a solid foundation for a successful career across diverse industries leveraging advanced Industry 4.0 smart controls technologies.



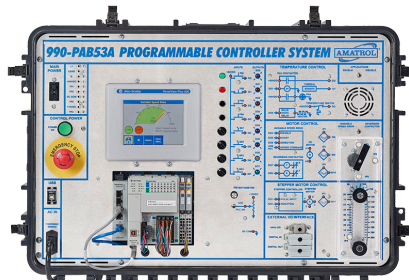
Expand Your Electronics Training

Amatrol's line of Electronics learning systems will help you best prepare tomorrow's workforce today.



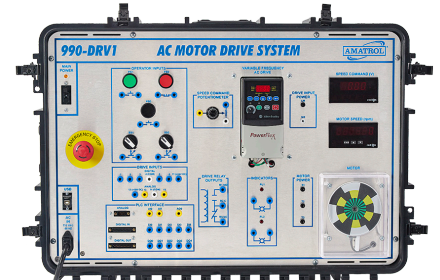
Components, Circuits & Applications

Amatrol's Portable Power and Control Electronics Learning System (990-ELE1) teaches learners how to operate, adjust, and troubleshoot electronic components, circuits, and systems used in machine applications. This powerful training system allows users to explore the fundamental concepts of industrial power and control electronics, such as measuring temperature, speed, and analog signals.



Allen-Bradley CompactLogix L16 Programming

Amatrol's Portable PLC Troubleshooting Learning System - AB CompactLogix L16 (990-PAB53AF) teaches PLC programming, operation, and applications used throughout industry. By utilizing FaultPro, the industry's premier computer-based fault insertion system, learners develop key PLC troubleshooting skills, such as PLC input and output testing, software testing, and application troubleshooting.



Portable AC Variable Frequency Drives Troubleshooting

Amatrol's Portable AC Variable Frequency Drives Troubleshooting Learning System (990-DRV1F) teaches the fundamentals of configuring and operating an AC variable frequency drive. The AC motor drive troubleshooting system includes industry-standard components, such as an Allen-Bradley PowerFlex 4 variable frequency AC drive and a 3-phase AC motor, in a convenient, portable case.

Industrial Skills Trainers

Industrial Maintenance & Mechatronics

Amatrol delivers total learning solutions for advanced manufacturing!

Amatrol provides total learning solutions for the ever growing critical problem of skill shortages in manufacturing. You will find that their many learning systems cover the full range of needed skills – from basics to advances across pretty much every technology used in industry today. Their focus is job ready and they provide the tools you need to make that happen.



Key Features:

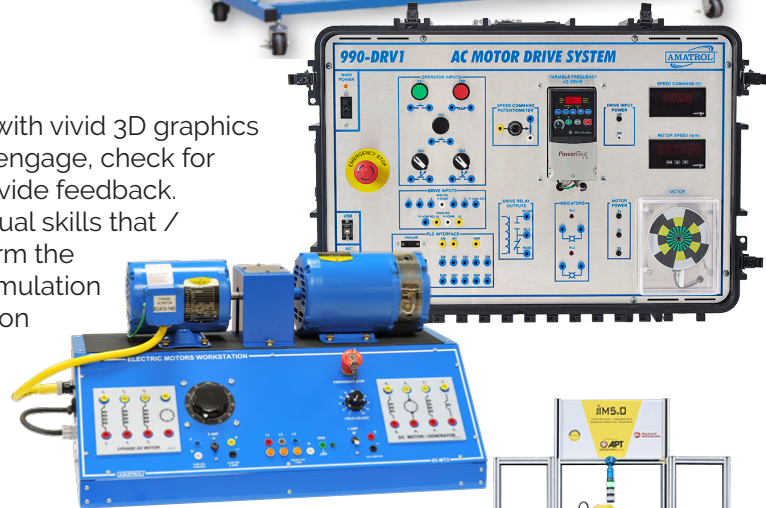
- Highly demanded industry skills: hands-on, job-ready
- Individualized self-paced or group learning
- Extensive curriculum ranging from basic through advanced
- Authentic industrial troubleshooting
- Durable, industrial equipment
- Superior multimedia interactivity
- eAssessment to accelerate learning and improve effectiveness
- Learning anywhere, anytime – 24 x 7
- Computer-based training with Amatrol's eAssessment

Industry Skill Areas:

- Foundation Skills
- Problem Solving & Analysis
- Troubleshooting
- Operation
- Turning & Adjustment
- Installation
- Maintenance & Repair
- Application

Multimedia

Interactive multimedia with vivid 3D graphics designed to teach and engage, check for understanding, and provide feedback. Frequently includes virtual skills that / allow students to perform the same activities in the simulation they would with hands-on equipment.



Mechatronics CERT Cart

iIM5.0 – Industrial-Integrated Mechatronics Trainer

- FANUC LR Mate ER4iA 6-axis robot
- Brushless DC motor and drive
- Power transmission via belt drive
- Conveyor part transport
- Fluid power (pneumatics)
 - Direction control valves
- Optional iCC PLC/HMI trainer
- Rotary actuator
- Escapement actuator
- Guided linear actuator
- Sensor technology
 - Optic
 - Laser
 - Solid state hall effect
 - Proximity
 - Inspection



Industrial Skills Trainers: *Portable Trainers*



Portable Learning Systems:

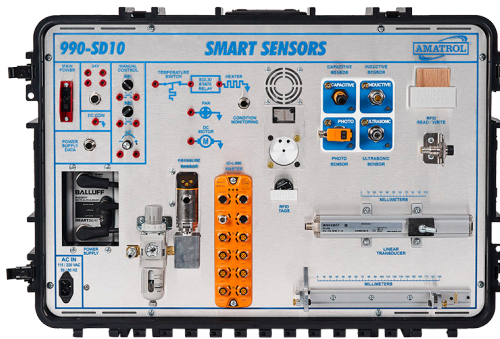
- Process Control
- Mechanical
- AC / DC Electrical
- Electrical Relay Control
- Pneumatics
- Precision Gauging
- Electronic Sensors
- PLC - Allen-Bradley
- PLC - Siemens S7-1200
- Motor Control
- AC Motor Drives



LEARN MORE

Portable Learning Systems

Train in a classroom, shop floor, or almost anywhere. Portable trainers fit in cars for easy transportation. Avoid the logistical hassles of trailer-based systems. Quickly change over a classroom for different courses. Portable systems store in a closet and set up in minutes!



Comprehensive Training No Sacrifice for Portability

- Same knowledge and hands-on skill training as larger systems
- Industrial components ensure relevant skill transfer
- Ability to connect with other learning systems

Portable Systems with Electronic Fault Insertion:

- Pneumatic Troubleshooting
- PLC - Allen Bradley
- PLC - Siemens
- Relay Control
- Motor Control
- AC Motor
- Drives

FaultPro Troubleshooting Training

Amatrol's FaultPro computer-based fault insertion software automatically inserts faults allowing students to learn troubleshooting in a self-directed environment. Teacher intervention is not required allowing them to support more students. *Available on many models.*

FAULTPRO

Portable Hydraulics Training

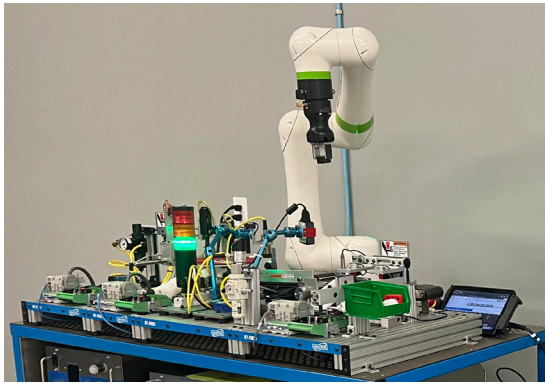
Skill-Building for Basic Hydraulics Applications

- Topics include basic hydraulic circuits, pressure control circuits, hydraulic schematics, and sequence valves.
- Includes gauges, manifolds, cylinders, valves, flow meter, and hydraulic motor.
- Includes schematic symbols for each component, creating the ability to read and draw their own hydraulic schematics.



Go to x-cal.us/portable for more information!

Industrial Skills Trainers: *Smart Factory*



Smart Factory / Industry 4.0

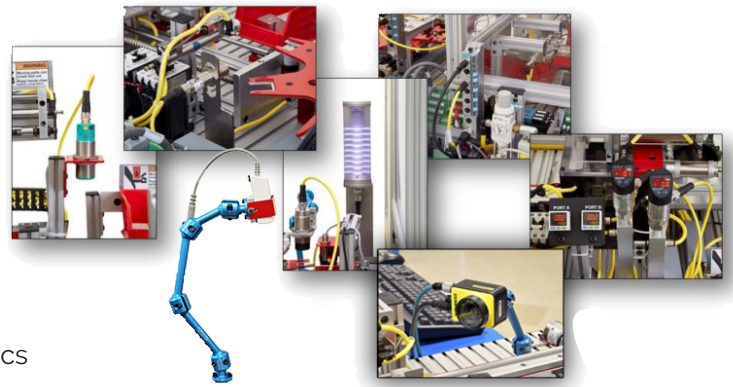
Amatrol's "Smart Factory" is a fully connected and flexible manufacturing system that connects its physical systems, operational information, and human assets to control manufacturing, maintenance, inventory, and supply chain operations. Amatrol's in-depth curriculum teaches all aspects of smart factory maintenance and operation in a self-directed, interactive format.

Smart Product ID

The Smart Factory incorporates smart product identification devices, such as vision systems and bar code readers, which trigger "intelligent" actions, including parts tracking, production history, sorting, part accept/reject, and inventory control.

Smart Sensors

Amatrol utilizes multiple smart devices on the Smart Factory that communicate via Ethernet and I/O Link protocol providing flexible manufacturing, predictive maintenance, and data analytics capabilities.



Network Communications

Amatrol's communication system connects students with a fully functional production system using industrial protocols, for real-time control, program transfer, data collection, and changing programs on the fly.

Network Security

Amatrol's network security system teaches how to keep data safe and securely extend operational data to suppliers and customers.



Smart Production

Amatrol's Smart Production software teaches how smart factories perform customized (personalized) manufacturing and make data and data analytics available via the Internet to improve system performance. Amatrol's Smart Factory assembles a pneumatic valve in various configurations on orders entered. The valve can be ordered with a plastic or metal valve body and either a 3-way or 4-way spool.



Smart Maintenance

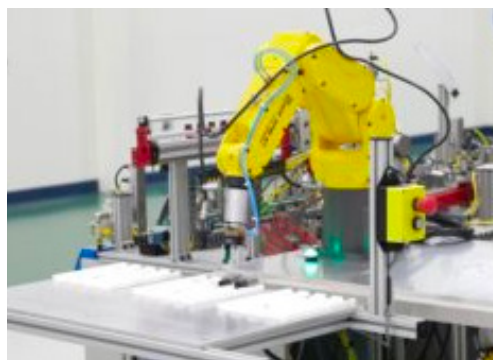
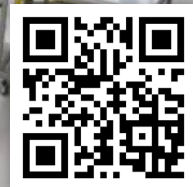
Smart Maintenance software utilizes smart device information to automatically trigger maintenance operations. Amatrol's Smart Factory uses industry standard software to connect users directly to the automated system and each other to create a real-world environment where maintenance team members can collaborate to resolve issues quickly and effectively.



Industrial Skills Trainers: *Smart Factory*

Smart Factory Enterprise *Next-Level Industry 4.0 Training*

Amatrol's Smart Factory Enterprise represents true connected systems training at the enterprise level. Rather than providing discrete training systems focused on individual pieces, Amatrol's Smart Factory Enterprise was designed to meet the need for hands-on training with a seamless system in which all the parts work together, just like learners will face on the job.



Autonomous Robot System

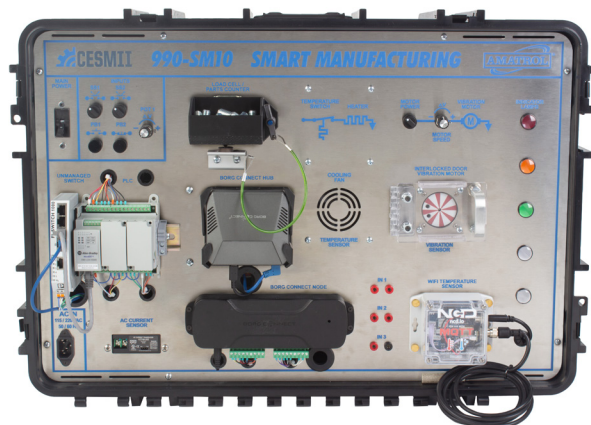
Autonomous robots, also known as autonomous guided vehicles or AGVs, are changing the way products and parts are transported. Using Amatrol's Autonomous Robot System, learners will develop important Industry 4.0 skills, including how to program an autonomous robot to travel between stations to deliver necessary items on a schedule.

Smart Robot Workcells

Amatrol's Smart Robot Workcells allow users to integrate a variety of industrial FANUC robots with their Smart Factory Enterprise system. The following FANUC robots can be used: FANUC 200iD/4S, FANUC 200iD, and FANUC SCARA SR-6iA. The workcells also include a mobile workstation with a grid surface, a laser scanner, and an interface panel with discrete I/O/Ethernet, stacklight, and pneumatics.

Smart Conveyor System

Amatrol's Smart Conveyor System teaches learners important applications, such as assembly, material handling, quality/inspection, and machine loading. In addition to a variable frequency drive (VFD), human-machine interface (HMI), and standard safety devices, the system interfaces with the Smart Robot Workcells and includes Industry 4.0 technologies, such as RFID pallet tracking and Ethernet communications.



Portable Smart Manufacturing Training System *Develop Vital IIoT & Industry 4.0 Skills*

Amatrol's Smart Manufacturing Learning System (990-SM10) was developed in partnership with CESMII - The Smart Manufacturing Institute, for hands-on learning in Smart Manufacturing and Industry 4.0 technologies. Combining hardware, industrial software products and solutions, and in-depth exercises, this system has been designed to educate and equip learners at all levels of expertise, from the novice 'Citizen OT-IT Technologist' to the expert architect and implementer of smart manufacturing systems.



Industrial Skills Trainers: *Process Control*

Industrial Process Control Education

Amatrol has developed the largest and most in-depth offering of industrial process control training options available. Amatrol offers four major process control systems, each covering a different process control application: level and flow, temperature, analytical, and pressure. Amatrol also offers a variety of training options for related process control applications such as HART communication protocol, Foundation Fieldbus, and SCADA. This in-depth offering of process control training solutions fit within various Amatrol programs.



Level / Flow Process Control and Level / Flow Process Control Troubleshooting

Level / Flow Process Control Learning System (T5552): teaches two of the most common types of process control systems, flow and liquid level, and the basic concepts.

Expansions

- Smart Flow Transmitter Learning System (T5552-F1)
- Ultrasonic Liquid Level Learning System (T5552-L1)
- Foundation Fieldbus Process Control 1 Learning System (T5552-FF1)
- HART Process Control 1 Learning System (T5552-H1)
- Visualization Process Control 1 Learning System (T5552-S1)

Temperature Process Control Learning System (T5553): allows learners to study and practice calibrating, adjusting, installing, operating, and tuning thermal process control systems in industrial applications.

Analytical Process Control Learning System (T5554): covers major topics and skills involved with controlling and modifying the chemical properties of a substance.

Pressure Process Control Learning System (T5555): offers the ability to control liquid level and tank pressure simultaneously using a human machine interface (HMI), programmable automation controller (PAC), and variable frequency drive (VFD).

Connect All Four Systems to Create an Entire Process Plant!



Process Control & Instrumentation Products

- Training Systems
- Models
- Cutaways
- Dissectibles

4-Variable Advanced Process Control Training System
Hands-on exercises include industry-relevant process control skills, such as: setting and adjusting pressure switches; installation and calibration of an electronic flow measurement channel; and determining a temperature, pressure, level, and flow process' operation characteristics.



LEARN MORE

Industrial Skills Trainers: *Chemical Processing*

Enhance Laboratory Education with Pignat



Pignat has been a trusted name in the industry for decades, known for providing top-quality solutions that drive learning and innovation in chemical education. Our catalog offers a comprehensive array of state-of-the-art equipment, from reactors and distillation systems to filtration units and mixing tanks, all meticulously designed to cater to the diverse needs of educators and students. With a focus on precision, reliability, and safety, Pignat's equipment ensures seamless experiments and consistent results. Explore Pignat's Chemical Processing Equipment catalog today and discover the tools that elevate your chemistry lessons to new educational heights.



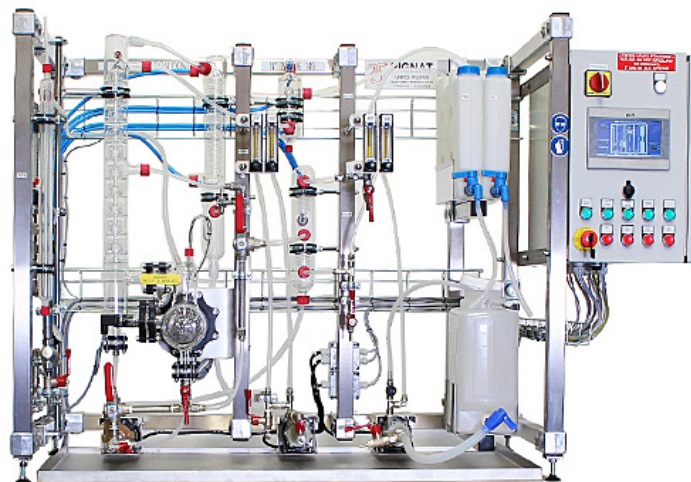
Pignat's **Computerized Chemical Reactor** (REA/3000) is a one-gallon, jacketed glass reactor system designed for educational and research purposes. It enables students to study controlled batch chemical reactions, modify reaction variables, and observe chemical synthesis. The unit features a user-friendly touch-screen interface for temperature and flow control, along with a thermostatic heating bath. Glass components provide visibility throughout the reaction process.



Pignat's Batch Continuous Distillation trainer

(DVI/3000) is a versatile educational tool for chemical engineering labs. It enables students to operate both continuous and batch distillation processes using expertly crafted glass components. With a rapid startup time, a user-friendly touch screen interface, and support for studying key concepts, this trainer offers a hands-on and comprehensive learning experience. It includes various instrumentation and comes with educational materials, making it an ideal resource for students to explore and understand distillation processes.

Pignat's compact **Continuous Distillation** trainer (DVI/100) is a versatile educational tool for chemical engineering. With expertly crafted glass components, it offers hands-on experience in continuous distillation processes, rapid startup in 20 minutes, and a user-friendly digital touch screen interface. Students can control parameters, view real-time data, and save it for analysis. This trainer also supports the study of mass and thermal balance, yield, column hydrodynamics, and more. Notable features include a thermosiphon boiler, bubble trays, and an external reflux system. Comprehensive instrumentation and educational resources make it an ideal platform for chemical engineering education.



Scan the QR code for a comprehensive view of our extensive range of Pignat Chemical Processing training equipment. This QR code will seamlessly connect you to our online catalog, where you can explore our full line of cutting-edge solutions designed to elevate your educational and research endeavors in the field of chemical processing. Discover innovative tools, expertly crafted systems, and educational resources that empower students and researchers alike.

Industrial Skills Trainers: *Renewable Energy*

Renewable Energy Learning Systems

Alternative Energy

The Amatrol Alternative Energy Learning System – Wind and Solar includes a mobile workstation with solar PV components, small wind components, multimedia student curriculum, and teacher's assessment guide. The mobile workstation is equipped with pre-mounted components for easy inventory. Wind turbine and solar panels also allow for outside use with expansion capability for teaching grid-tie and data acquisition. Amatrol also offers alternate workstation configurations for either small wind or solar individually.

Solar PV

Allows students to develop the specialized skills and knowledge needed for installing and troubleshooting common types of PV systems.

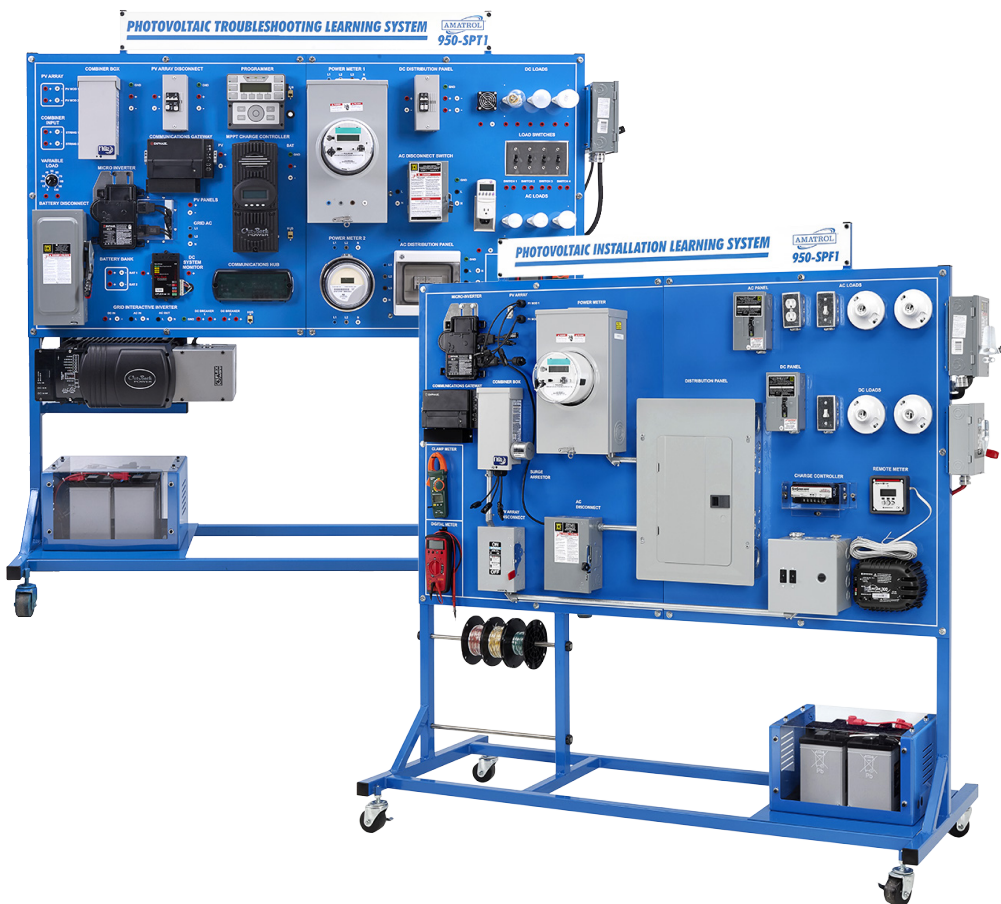
Solar Thermal

Teach students the installation and commissioning of closed loop and open loop solar thermal systems for commercial and residential applications. Introduce learners to a broad range of basic concepts in wind energy technology. Learners study how wind power systems work and what it takes to generate electrical power with wind.



Training Products

- Alternative Energy Training
- Open-Loop Solar Thermal Troubleshooting Training
- Solar Concepts Training
- Solar Thermal Troubleshooting Closed-Loop Training
- Turbine Electric Hub Troubleshooting Training
- Wind Concepts Training
- Wind Turbine Generator Control System
- Wind Turbine Nacelle Training
- Alternative Energy Learning System Solar Certifications Training
- Geothermal Troubleshooting eLearning Course | Renewable Energy Training
- Solar Grid-Tie eLearning
- Solar PV Installation Training NABCEP Certification
- Solar Site Analysis Training
- Solar Thermal Cold Water Supply Station Training
- Solar Thermal Installation Training NABCEP Certification
- Solar Thermal Sun Simulator Training
- Troubleshooting Solar PV Systems
- Wind Turbine Generator Control eLearning



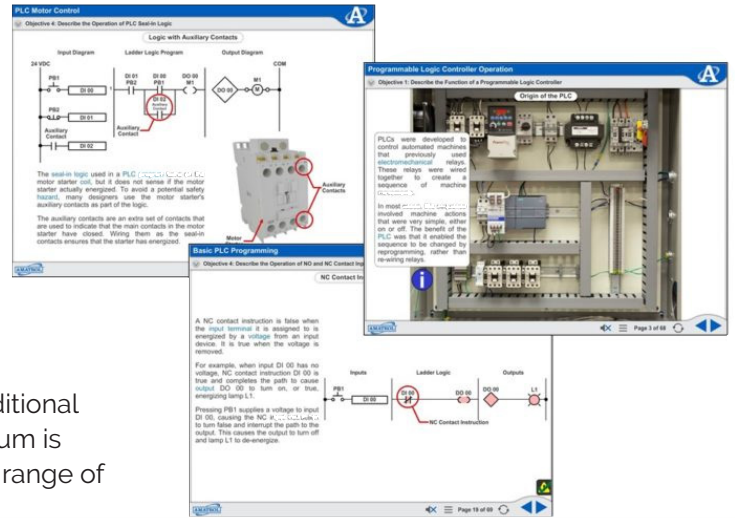
Industrial Skills Trainers: eLearning

Amatrol eLearning

*Interactive Technical Skill Development,
Hands-On Virtual Simulators!*

Amatrol's eLearning program offers flexible technical training by providing excellent technical content depth and breadth, interactivity for skill development, and excellent assessment and student tracking through an intuitive, easy-to-use web portal.

The material is self-paced, making it ideal for individual use, traditional class settings, or a blended approach. Amatrol's proven curriculum is problem-solving-oriented and teaches technical skills in a wide range of industrially relevant technologies.



Amatrol Virtual Trainers

Amatrol's virtual trainers allow learners to practice hands-on skills via eLearning. These simulations replicate physical training systems in such great detail that learners can build essential skills even when they don't have access to equipment.

These virtual training systems do not force learners through a predetermined series of steps. The trainers allow students to make connections or take steps they choose, enabling them to learn from their successes and errors. The virtual trainers can significantly reduce students' hands-on time with equipment to complete skill mastery.



Amatrol eAssessment

Identify Skill Gaps for More Efficient Training

Amatrol's eAssessment offers the power to train each employee based on their skill gaps! This assessment prevents training overlap improving training effectiveness and technical training efficiency while reducing training cost and time.



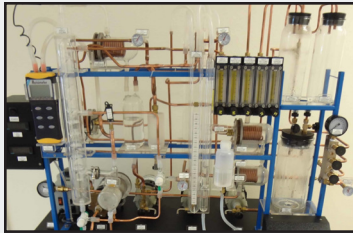
Training Topics Include:

- Electrical
- Electronics
- Fluid Power
- Machining
- Manufacturing Processes
- Mechanical Systems
- Plastics
- PLCs
- Quality
- Robotics
- And more!



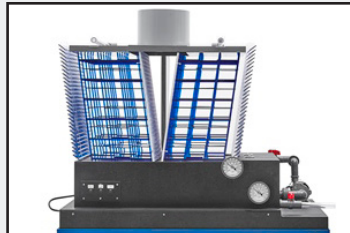
Industrial Skills Trainers

Bayport Technical specializes in building cutaways, trainers, working industrial demonstrators, training models, and customized training equipment primarily in the areas of instrumentation and process control.



Training Systems

Give students hands-on experience working on equipment they will encounter in their careers.



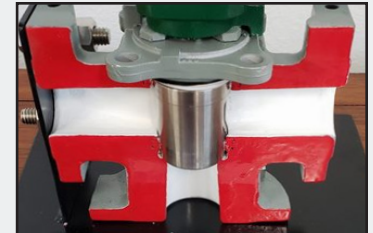
Working Demonstrators

Offer realistic, first-hand visualization into the inner workings of industrial components and structures.



Training Models

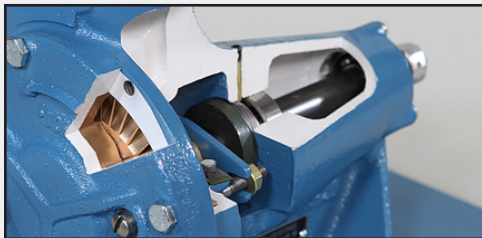
Detailed, to-scale models that depict various industrial machines and include primary features and components.



Cutaways

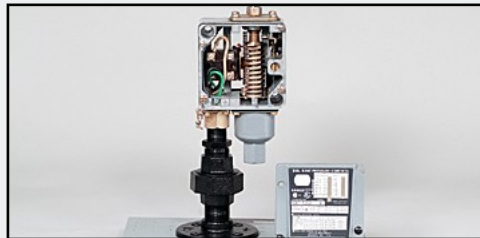
Allow learners to see & understand the internal operation of actual industrial components.

DAC Worldwide has been helping maintenance departments, training professionals, vocational educators, and workforce development specialists with realistic, hands-on training systems for over 35 years.



Industrial Cutaways

These cutaways are restored real-world industrial components sectioned to expose each device's primary features and refinished.



Dissectibles

Offer learners realistic, first-hand visualization into the disassembly, inspection, and reassembly of various industrial components.



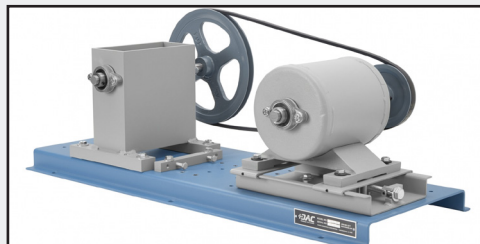
Models

Detailed, to-scale models that depict various industrial machines and include all primary features and components.



Sample Boards

Each board features a selection of industrial-quality mounted and labeled components for easy association with individual components.



Training Systems

These systems are built with full-size, industrial-quality components, as well as high-durability, powder-coated surfaces throughout.



Furniture

DAC Worldwide's selection of furniture offers a variety of solutions for creating flexible and functional training areas.

Industrial Skills Trainers: *High School*

High School Project/Work-Based Learning

Skill-based learning programs that attract & retain learners



Learning Programs:

- Smart Factory/Industry 4.0
- Advanced Manufacturing Fundamentals
- Certified Production Technician
- Construction Technology
- Green Technology
- Pre-Engineering
- Project-Based Learning
- STEM
- Student Reference Guides
- Technology Education
- Virtual Labs

Amatrol's high school programs are designed to engage students who demand a high degree of interactivity to keep them interested and learning. All our high school programs allow students to learn at their own pace, and articulate to colleges for up to 18 credit hours.

Amatrol's Pre-Engineering and Manufacturing programs are a great way to get high school students interested in exciting and rewarding careers. Hands-on experience in a wide range of engineering technologies using industrial quality equipment and software prepares them for success in college and beyond.

Amatrol's High School programs use a unique blend of project-based team learning combined with a rotational individualized learning format for technical skills development. Amatrol offers both traditional equipment based labs as well as virtual labs. While designed for self-paced learning, Amatrol's learning programs are equally effective in traditional classroom settings.



Industry 4.0 Fundamentals

Complete four-semester program

Designed to attract students who may never have considered manufacturing as a course of study or career focus and includes the opportunity for students to earn an industry certification.



Career Exploration with Skill Development

IGNITE's innovative curriculum supports a modular 6-course Advanced Manufacturing program with additional materials science activities for science courses. Each course can be completed in one semester, providing flexibility for 1-, 2-, or 3-year programs.

All IGNITE courses include stimulating interactive eLearning lessons, computer simulations, design projects, and hands-on workstations using Industry 4.0 technologies.

Industrial Skills Trainers: *Safety*

Virtual Reality Simulation & Training

Workplace Safety

AED
CPR
Fire Suppression
Virus Vision

Industrial Safety

Confined Space
Fall Protection
LOTO
Fire Suppression

Additional Modules*

Stop the Bleed
Hazwoper

*Contact us for availability.



People learn by doing. Virtual environments provide a safe, immersive and engaging experience where students learn behavior-based safety.

Full Suite of Training Products for Industrial Scenarios

Benefits of Virtual Reality Training

Including VR in your training courses may sound a little too far-fetched, especially if you're new to it. Taking the leap from traditional training programs, to immersive learning can be a big change for many educators. We are here to help you define your training goals, and find the best solutions to achieve them.

1. Increases learner engagement
2. Increases retention rate
3. Helps learners gain proficiency faster
4. Improves employee performance
5. Reduces costs
6. Allows learners to practice in a safe environment



Teach Industrial LOTO Training Hands-On

DAC Worldwide's Lock-Out/Tag-Out Training System (811-000) features a realistic, simulated working process environment that facilitates introductory training with hands-on activities related to the process of identifying and locking out sources of dangerous potential energy in an industrial setting.



Lock-Out/Tag-Out Training System

3D Printers: *PolyJet*

PolyJet 3D Printers give you an amazing range of material options, and can even let you combine several materials in one 3D printed model. Do things you never thought possible with 3D printing, like simulated overmolding, flexible, multi-colored prototypes, ergonomic tooling, or simultaneous printing of diverse parts.



Benefits of PolyJet 3D Printing

Exceptional detail, surface smoothness and precision.

- Create smooth, detailed prototypes that convey final-product aesthetics.
- Produce accurate molds, jigs, fixtures and other manufacturing tools.
- Achieve complex shapes, intricate details and delicate features.
- Incorporate the widest variety of colors and materials into a single model.



J55 Prime

From fast concept models to quality high-fidelity models, the office-friendly Stratasys J55 3D printer is an affordable option for maximum designer output.

J55 Pro

Get all the benefits of an in-house engineering-grade printer without the hassle thanks to a small footprint, low-maintenance design, and silent, odor-free operation.



J8 Series 3D Printers

Brilliant designs shouldn't have limitations. Realize and elevate your ideas more quickly and precisely with Stratasys® J826™, J835™ and J850™ 3D printers — designed for all who design.

- Pantone Matching System (PMS) Colors,
- Multiple material selections means you can load up to seven materials at once.
- Double the number of print nozzles in print heads means you can produce ultra-smooth surfaces and fine details.

Everything You Need to be Successful with 3D Printing in the Classroom

Experienced makers recognize the **Ultimaker S3** as a top-tier FDM 3D printer, valued for its industrial-grade quality, unwavering reliability, and above all, user-friendly simplicity. Its open-source nature also makes it a preferred choice for curious and advanced engineering students eager to explore modifications. Ultimaker 3's intuitive features, including auto-leveling and remote printing via smartphones, render it an exceptional choice for 3D printing in educational settings. Its unmatched reliability ensures smooth operations, making it an ideal tool for introducing students to the world of 3D printing.



3D Printers: FDM

Career and Technical Education

A strong manufacturing sector has always been an engine for individual prosperity and local economic growth. That's why career and technical schools must prepare the workforce of tomorrow with in-demand, tech-centric skills. Training programs in 3D printing directly affect auto workers, machinists, automation specialists and other skilled technicians.

Focus on Learning, Not Logistics

Stratasys education packages make purchasing 3D printers for your school more viable and affordable. They include resource materials and support for your 3D printers.

Stratasys AM Certification

Be the difference between students getting a job, or not. Certify your students in the additive skills industry demands. Prepare the workforce of tomorrow with this hands-on certification program.



FDM Technology uses the same tried and tested thermoplastics found in traditional manufacturing processes. For applications that demand tight tolerances, toughness and environmental stability - or specialized properties like electrostatic dissipation, translucence, biocompatibility, VO flammability or FST ratings - there's an FDM thermoplastic that can deliver.

Benefits of FDM Technology:

- Clean, simple-to-use and office-friendly
- Supported production-grade thermoplastics are mechanically and environmentally stable
- Printing complex geometries and cavities becomes possible

F190CR / F370CR

It starts with high-strength composite materials, but the composite-ready F Series offers much more. More materials, more reliability - more capability than other similar printers.



F123 Series

Requiring no special expertise, these printers offer fast and easy material swaps and auto-calibration for accurate, dependable results.

F3300

With up to twice the speed and throughput of standard FDM 3D printers, the F3300 boosts productivity, print reliability and part yield with advanced hardware and software technology.

F450mc

The Fortus 450mc sets a high bar for speed, performance and accuracy in a variety of processes and applications including functional prototypes, manufacturing tools and end use parts.

F900

With the largest build size, the F900 can handle the most demanding manufacturing needs.



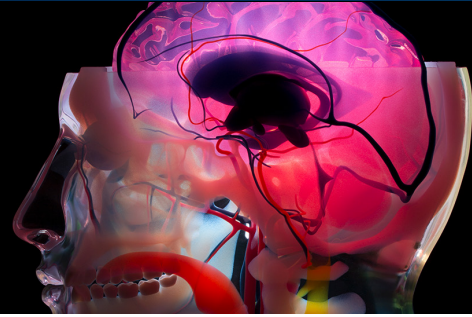
F770

Print large parts up to a meter long with an affordable, large-format 3D printer. The F770 delivers spacious build capacity in a user friendly platform with the reliability and consistency of Stratasys FDM technology.

3D Printers

3D Printing in Healthcare

We offer 3D printing solutions for educators to develop clinically relevant, high-impact training models from real human anatomy. These models reduce limitations by allowing universities to train physicians in any environment, and closely simulate real human tissue properties without using highly processed cadavers and animals.



J5 MediJet™

Better planning, education, and testing – all on a smaller machine.

With multiple materials and multicolor capabilities, academic medical centers, hospitals, and medical device companies can 3d print brilliantly vivid pre-surgical planning models, education and training models, medical device development models, and drilling and cutting guides that are sterilizable and biocompatible – all on a certified system.



J750 Digital Anatomy Printer™ (DAP)

Unrivaled Accuracy, Realism and Functionality

Bring the look and feel of medical models to life. Whether used for surgeon training or to perform testing during device development, its models provide unmatched clinical versatility, mimicking human tissue's appearance and response.



Origin One

A transformative 3D printer enabling mass production of end-use parts in a diverse range of high-performance materials.

Stratasys H350

Tailor your production to suit your needs. Adjust powder mixes and re-use unfused powder to monitor material costs.

Neo® Stereolithography

The Neo800 builds large prototypes, rapid tooling and master patterns, and is the global market leader of large-format stereolithography technology.

Reliable, productive and efficient, the Neo450 series is designed and engineered for industrial-grade performance.

Robotic Large Format Additive Manufacturing Platform

HERON AM is Caracol's **Large-Format Additive Manufacturing system**: a robotized extrusion head, with direct and continuous feeding of composites and polymers, a dedicated software platform for the most complex tool paths, and many more features to fully integrate all that is needed to manufacture advanced industrial parts.



3D Printers: Additive Manufacturing



RenAM 500Q Quad Laser AM System for High Productivity

RENISHAW 
apply innovation™

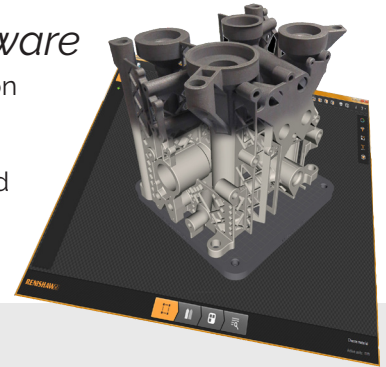
The RenAM 500Q features four high-power 500 W lasers. Each can simultaneously access the whole powder bed surface to achieve higher build rates, vastly improving productivity and lowering cost per part. The RenAM 500Q features automated powder and waste handling systems that enable consistent process quality, reduce operator intervention time and ensure high system safety standards.

Reduced Build Volume (RBV)

The RBV is designed for users to easily change between materials for material development and experimentation. All Renishaw AM systems feature open parameter editing with over 142 parameters. RBV enables rapid real time testing of the parameters, speeding up material development iterations.

QuantAM File Preparation Software

Renishaw QuantAM is a dedicated file preparation software tool for Renishaw AM systems. With an intuitive workflow and easy navigation QuantAM accepts CAD exports in the form of .STL data and allows you to prepare your model for the AM process.



Benefits

- Component weight reduction
- Rapid design iterations
- Bespoke or customized items
- Multiple parts consolidation
- Reduce tooling costs
- Build complex geometries
- Increased design freedom

Freemelt ONE

The 3D Printer made for materials research and development

Freemelt ONE is designed to make materials not yet known to mankind. Materials that engineers dream about. Materials that give us lighter, stronger and more efficient products.

Use high beam power melting and fully open beam path sequencing

Create your own IP with total control in the open architecture

Develop new materials optimized for your application

Develop faster processes and use a broader range of metal powders

Knowledge and data shared in an open community

Tailor the system to your needs with the open system architecture



3D Scanning

Creaform Academia

The power to innovate using 3D scanning

Taking an object from the physical world and bringing it into the digital world is an important skill that future engineers must acquire.

Explore Creaform ACADEMIA, a comprehensive educational suite designed for innovative educators and researchers aiming to ignite inspiration, foster collaboration, and drive innovation using cutting-edge 3D measurement technologies.



Educational Solution Suite

Benefit from unprecedented speed, remarkable portability, and unrivaled accuracy. Your ahead-of-the-curve research projects and teaching curricula will only be enhanced with our innovative and award-winning 3D scanners.

- Selection of metrology-grade 3D measurement technologies from the Creaform lineup
- Creaform ACADEMIA software covering reverse engineering and inspection
- 5-year ACADEMIA Customer Care Plan
- Optional accident coverage, warranty extension, and calibration services
- E-learning courses for hardware and software

peel 3

The Peel 3 is the most cost-effective professional 3D scanner available for reverse engineering. This device is the ideal tool for academics looking for a powerful and accessible way to improve their teaching curricula and research projects.

Go!SCAN 3D

Offers the easiest 3D scanning experience, generating fast and reliable measurements. Effortlessly capture the 3D shape and color of any object.

HandyScan 3D

Black Series

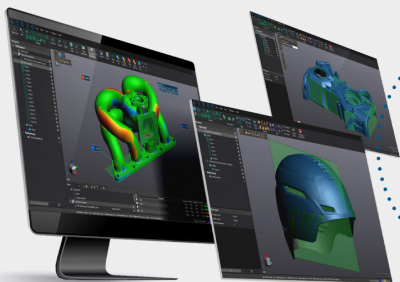
The fastest portable metrology-grade 3D laser scanner on the market, offering the highest measurement rate and accuracy.

Silver Series

Professional-grade 3D scanner offering an unbeatable performance at a great price. Based on trusted and patented metrology-grade 3D scanning technology, measurement rate and accuracy available.

Max Series

The new MAX Series is optimized to acquire highly accurate 3D measurements on large and complex parts typically present in the aerospace, transportation, energy, mining, and heavy industries.



50
50 - SEATS
NETWORK LICENSE

ACADEMIA software package

Creaform ACADEMIA leverages the power of the latest innovations in metrology and 3D measurement technology, including Creaform's powerful and fully integrated 3D application software suite, which will enable you to advance your ultra-specific research and improve your curriculum. With Creaform ACADEMIA, you get 50 seats - with the purchase of a Creaform 3D measurement solution.

Laser Cutting & Engraving Machines

UNIVERSAL[®] LASER SYSTEMS

Global customers use ULS Digital Laser Material Processing (DLMP™) in various markets, including education, manufacturing, engineering, design, and architecture. Universal Laser Systems' wide range of modular components can be configured into more than 1,000,000 different laser system configurations, giving you the ultimate flexibility to build the best solution to meet your needs.

ULS dual laser platforms provide more than 100 laser power combinations giving you unmatched system flexibility: Complete laser material processing ecosystem by design.

Key Benefits

- Modular architecture
- Rapid Reconfiguration™
- Dual laser platforms
- Air-cooled lasers from 10 W to 500 W
- SuperSpeed™
- MultiWave Hybrid™ technology
- Class 1 to Class 4 transformable platforms
- Integrated air purification systems
- Fire suppression
- Laser Materials Processing Database
- Advanced Process Control Software
- And more...



Fume Extraction

BOFA offers a wide range of fume extraction systems for the Laser, Mechanical Engineering, Electronics, Printing, 3D Printing, Dental, Pharmaceutical and Beauty applications.



Innovation Solutions

Today's technology is advancing at an incredible rate. To be competitive in today's job market your students need to learn on the latest technologies they will encounter throughout their careers.



Medical Simulation



TACMED
SOLUTIONS

TacMed Solutions is dedicated to improving survivability in response to crisis situations. They equip, train, and protect all who answer the call - from professionals to active bystanders - with world-class innovative solutions designed to help save lives.



Task Trainers

Chest Trainer

Used during the crawl phase of training to treat patients requiring needle decompression and intraosseous (I/O) infusion. Students learn to locate realistic anatomic landmarks to execute critical patient treatment. The unit functions as a stand-alone skills station with multiple training sites that allow for multiple uses with cost-effective replacement components.

Packable Wound Trainer

A stand-alone skills station during the crawl phase of training, the PWT is composed of lifelike synthetic skin and includes a simulated hemostatic wound providing trainees with the ability to execute critical patient treatment such as wound packing and compression training.

Hemorrhage Control Skills Trainer - Classroom

This is a medical intervention simulator designed to teach fundamental skills for tourniquet application and hemostatic wound packing. Anatomical fidelity and lifelike skin provide a powerful haptic training experience to develop familiarity and muscle memory for different interventions. The HCST-C is ideal for teaching learners how to make critical decisions such as the type of treatment to apply, then use anatomical landmarks such as the greater trochanter to perform proper interventions.

APL - Classroom (APL-C)

Used during the crawl phase of training, the APL-C allows students to perform life-saving tasks such as maintaining a patient's airway, needle decompression, cricothyroidotomy, and Intraosseous (I/O) infusion.



Medical Simulators:

- Fire & EMT
- Law Enforcement
- Military
- Active Shooter
- Trauma

Kg Simulators:

- Operational Canine First Responders
- Military Working Dog Handlers
- Veterinarians
- Veterinary Technicians



Medical Simulation

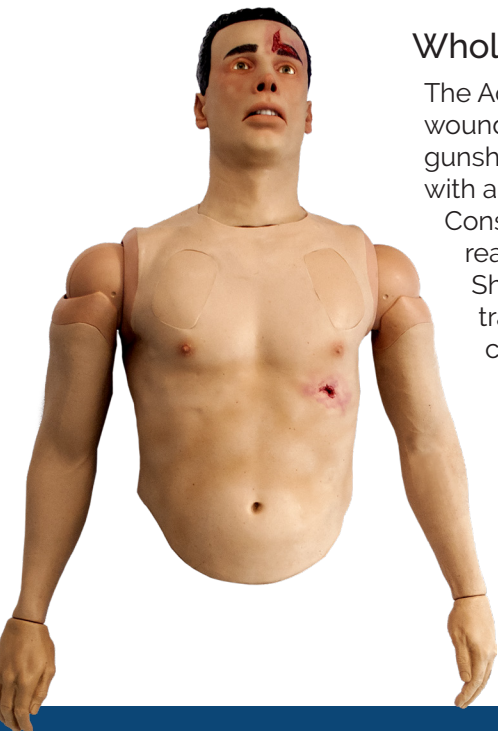
Human Simulators

Whole Body, Upper Body and Lower Body models available.

AirwayPlus Lifecast Upper (APL)

The Simulation AirwayPlus Lifecast Upper (APL) trains responders to perform life-saving tasks such as maintaining a patient's airway, needle decompression, chest tube insertion, cricothyroidotomy, and Intraosseous (I/O) infusion.

Also Available: *APL Pulses/Breathing (APL-PB) and APL with Abdominal Eviseration*



Whole Body EMITT Active Shooter

The Active Shooter includes a packable hemostatic wound at the inguinal crease (replicated from a gunshot exit wound), a gunshot wound to the thigh with arterial bleeding, and a sucking chest wound.

Constructed with a strong urethane core and realistic, durable synthetic skin, the WBS Active Shooter is an extremely effective multipurpose training tool that allows learners to perform critical life-saving tasks while training in nearly any environment weather condition.

Also Available: *Lower or Upper*

MATT™ - No Animatronics/No Bleeding (NOAB-MATT)

The TacMed Simulation™ No Animatronics No Bleeding Multiple Amputation Trauma Trainer® (MATT™) (NOAB-MATT) is a ruggedized trauma trainer that delivers high-fidelity simulations of lower-body blast injuries commonly caused by Improvised Explosive Devices (IEDs) and other explosive devices.

- Active breathing with chest rise and fall
- Adjustable eyes (pupils constricted or dilated)
- Radial and carotid pulses
- Airway management
- Moveable jaw
- Intubation
- Oropharyngeal Airway (OPA)
- Nasopharyngeal Airway (NPA)
- Selectable airway obstruction
- Cricothyroidotomy
- Needle decompression (troacentesis)
- Tension pneumothorax
- IV insertion
- Intraosseous (I/O) infusion
- Two-way audio communication
- Remote controlled
- Real-time digital feedback for trainers
- Teeth sensor
- Symptom Assessment & Decision Making
- Vital Signs Monitoring
- CPR

Upper and lower trainers can be combined in any configuration to increase training capabilities. Contact us for a full list of models available.

Kg Simulators

Kg Hero

Intubation/Bleeds

Kg Hero allows learners to perform critical life-saving tasks such as maintaining an airway, needle decompression/thoracocentesis, hemostasis, IV insertion, Intraosseous (I/O) infusion, Cardiopulmonary Resuscitation (CPR), tracheostomy, and bandaging.

Kg Diesel

The Most Advanced Kg Medical Trainer

Kg Diesel is a state-of-the-art skills trainer that simulates active breathing, audio queues, and over 28 different features and medical intervention sites. Each training site is designed to replicate the look, feel, and function of actual medical procedures. Interchangeable limbs and injuries provide greater flexibility to vary wound patterns.



Medical Simulation: *Patient Skills & EMS Training*



Virtual Reality Skill Training for Nursing and Allied Health

For Teachers

- Patient care skills sequenced in scenario-based modules
- Content aligns with patient care skills in all 50 states
- Realistic simulations based on real direct-care scenarios
- Objective performance assessments

For Students

- Perform physical care tasks to learn and practice skills
- Practice and collaborate in immersive environments
- Learn and improve with instant feedback and scoring
- Monitor progress remotely with Performance Portal

Increase effectiveness and lower costs of teaching nursing lab skills using a fully-immersive VR experience.

VRNA uses a fully immersive VR experience to increase the effectiveness and lower the cost of teaching patient care skills. VRNA functions as a supplement to lab instruction, helping to reduce the material and preparatory burdens on instructors while keeping students engaged in lab content. This provides students with an independent and practical method of learning the hands-on skills needed for career certifications.



Each skill listed is included in at least one or more of VRNA's scenario-based VR modules.

Ambulation Assist (Cane)
Ambulation Assist (Crutches)
Ambulation Assist (Walker)
Assist with Anti-Embolism Stockings
Bed Bath
Bedpan Assist
Blood Pressure
Catheter Care
Collect Urine Sample
Denture Care
Dressing
Hand Hygiene & Gloving
Height and Weight
Indirect Care
Making an Occupied Bed
Making an Unoccupied Bed
Massage Back
Meal Assist

Measure Intake and Output
Mouth Care Conscious
Mouth Care Unconscious
Nail Care
Obstructed Airway
Passive Range of Motion
Perineal Care
Positioning Side
Positioning Supine
Pulse and Respiration
Shaving
Shower Assist
Temperature (Axillary)
Temperature (Oral)
Temperature (Tympanic)
Transfer Assist
Urinal Assist

CPR / AED
Assist with Non-Complicated Childbirth
Apneic Response from Drug Overdose
Bleeding Control
Long-Bone Immobilization
Joint Immobilization
Patient Assessment
Shock Management
Spinal Immobilization of Seated Patient
Spinal Immobilization of Supine Patient
Vehicle Extrication



LEARN MORE

CNC & Robotics Training

FANUC Certified Education CNC Solutions Designed for the Classroom

With the growing need for skilled CNC operators and programmers, FANUC America offers a suite of CNC educational tools designed to accommodate a wide variety of student and learning environment needs.

FANUC



Full CNC Machine Tools for Education

Small CNC machines for education allow entry-level CNC operators to gain real-world experience with milling machines and lathes, but at a fraction of the cost of a full CNC machine tool.

Curriculum and Software

To help with the education process FANUC offers software as well as training curriculum for the classroom.

In partnership with CNC Concepts, Inc., FANUC America offers two comprehensive CNC curriculum for machining (milling) and turning (lathe), including key concepts and lessons for machining center setup, programming and operation..

Simulators

FANUC CNC simulators offer realistic CNC training on portable tabletop packages.



FANUC CNC Certification Cart

Tabletop CNC certification carts are portable machines with a FANUC CNC, so students can practice machine set up and operation, and bring their programs into reality by making parts. The certification carts can be easily moved since they fit through a standard doorway and use a standard wall outlet for power.

Carts are available in turning (lathe) configuration or machining (mill) "configuration with optional tooling packages that correspond with the lab exercises in the FANUC education curriculum.

powered by:



CNC & Robotics Training

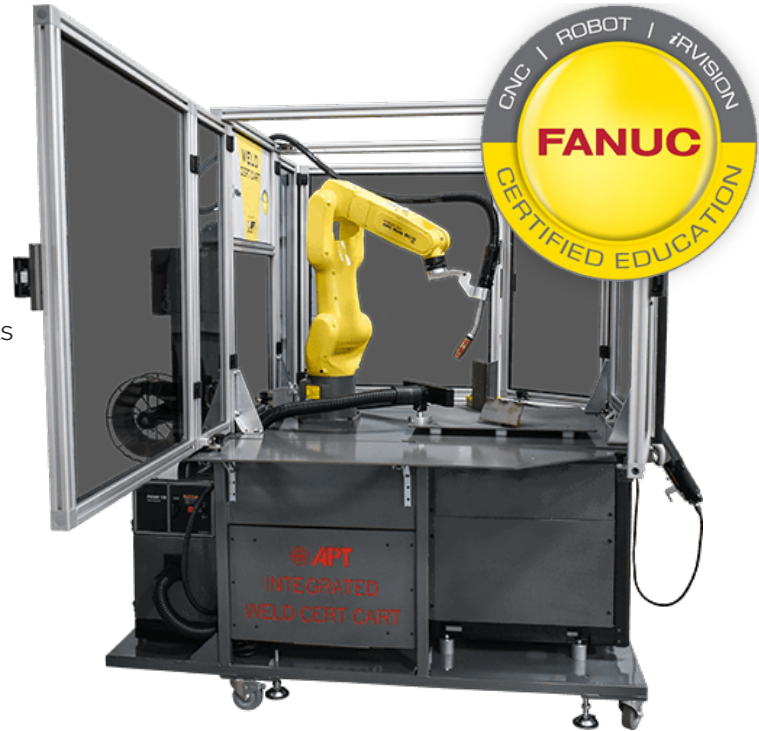
Robotic Welding Trainer

ArcMate Cart Features:

- Tinted sides to protect classroom (helmet required)
- FANUC Arc Mate 50iD/7L
- FANUC R30iB Mate plus controller
- Robot work area guarded for student safety

FANUC ARC CERT (ArcMate Only)

- FANUC ARC CERT Gift in Kind Package for qualified schools
- FANUC Advanced Academic Software/ARC Bundle
- FANUC ARCTool Student Certificate Program



CRX Cart Features:

- Fenceless (helmet required)
- FANUC CRX 10iA
- FANUC R30iB Mate mini plus controller

Both versions Include:

- Welded construction
- Fully integrated collapsible mobile cart design that fits through standard 36" door
- Miller Welding Power Supply Program



The MOD-WELD is developed exclusively around the FANUC CRX-10iA/L industrial collaborative robot. The CRX models come from a line of reliable FANUC products that are easy to setup, program, and operate.

- Mobile Cart welded construction powder coat finish
- FANUC CRx Collaborative Robot with APT Clever Torch teach button software package ready to teach and weld
- Lockable teach tablet holder
- APT Clever Torch for ease of movement and teaching the robot.
- Top plate 40" x 58-1/2" with 16mm 2" center holes for clamping and fixture hold down
- 6" Casters for ease of movement
- Ready to accept side cart and accessories
- Power Source Choice of:
 - Miller Auto-Continuum with torch and wire feed
 - Fronius TPS/i with torch and wire feed



CNC & Robotics Training

FANUC Certified Education Robot Training

Fanuc's Robotics' Certified Education Robot Training or (CERT) program certifies instructors at high schools, trade schools, community colleges and other universities to train their students to program Fanuc robots through on-line and hands-on training courses using actual Fanuc Industrial Robots. This creates a tremendous opportunity for schools to expand their training to include a certification on a real, industrial robot from the number one robot manufacturer in the world!



FANUC CR-4iA R-30iB Plus
Collaborative CERT Cart

CERT Program Features and Options

FANUC's CERT carts are compact, portable, self-contained educational robotic labs used to train students how to program an industrial robot in a safe and controlled environment (optional table-top mounting available).



FANUC LR Mate 200iD/4S
Fencelless CERT Cart

The CR-35iA, the first-ever force limited Collaborative Robot from FANUC, combines unrivaled strength with outstanding safety to make interactive robot/human collaboration possible for a much wider range of applications. This is the only Collaborative Robot in the world that can lift heavy objects, up to 35 kg.

Machine Tending Education Cell Simulator - MTEC

- Qualifies for FANUC educational CERT program (LR Mate only)
- Integrated with FANUC Robot and ROBODRILL
- Optional iRvision

Curriculum

FANUC Robotics Courses:

- Handling Tool Operation and Programming
- Handling PRO
- iRvision 2D
- Advanced TPP
- DCS
- Robodrill Maintenance

CNC Concepts Courses:

- Machining, Programming, Setup, and Operation
- Turning, Programming, Setup, and Operation

APT Integration Courses:

- Intermediate Concepts: Maintenance and Troubleshooting of Industrial Equipment
- Introduction to Industrial Automation and Integration
- Basic Integration Labs: PLC, HMI, Robot, Ancillary Components
- Robot to CNC: Integration Fundamentals and Labs
- Safety Systems, Standard Design, and Application

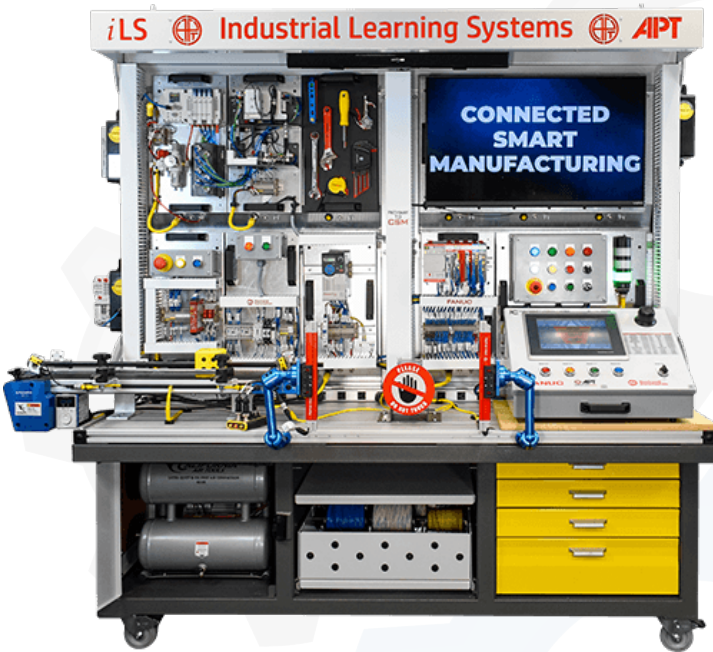


CNC & Robotics

Connected Smart Manufacturing Training System

The CSM™ was developed between FANUC America, APT Manufacturing, Rockwell Automation, and listening to the industry's demands for employability skills today and what education needs to deliver this type of technology for preparing students for a smoother transition from education to industry on the first day.

The entire system addresses three common denominators in manufacturing: automation, process control, and data analytics; these skill sets are required to enter manufacturing at all levels. The modular design allows you to use this within your classroom and is offered for purchase as a set or to individually grow with your program. The integrated system was designed around the FANUC CERT program and teaches foundational skills in robotic operator and technician credentials, which is industry-recognized, and with Rockwell Automation and other channel partners, this makes up a complete certification system for 4.0.

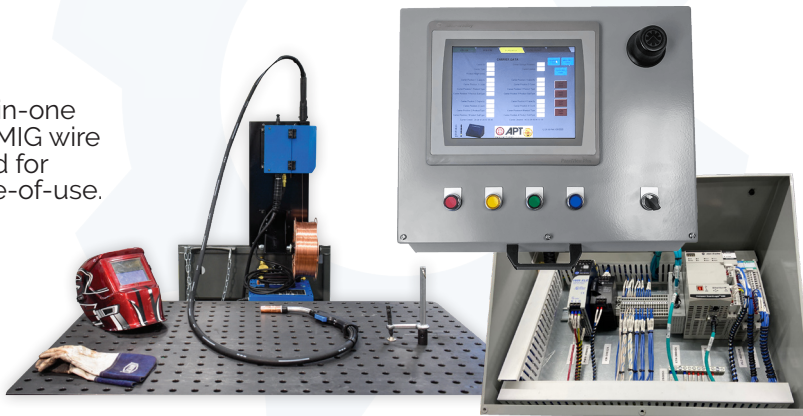


Industrial Learning System

Start with a BASE and add MODULES for almost any industrial training.

- Add up to 12 modules to each base
- Accommodates multiple applications and/or multiple students
- Each board location has 24VDC and compressed air supply
- Each module includes a project print
- Integrate to any FANUC robot using a PLC-to-ethernet IP; either with an ethernet cord or 2 of the wireless module options, one for the robot and one for the PLC
- Purchase a blank panel and create your own board
- Fits through standard doorway

Optional Miller all-in-one manual to robotic MIG wire weld gun designed for versatility and ease-of-use.



PLC/HMI Trainer

Pathway to CSM™
Connected Smart Factory

Rockwell Automation (Allen Bradley)
CompactLogix control panel
electrical project kit.

*Ready to use as a standalone OR
integrate into any FANUC cart.

Collaborative Robot Accessories

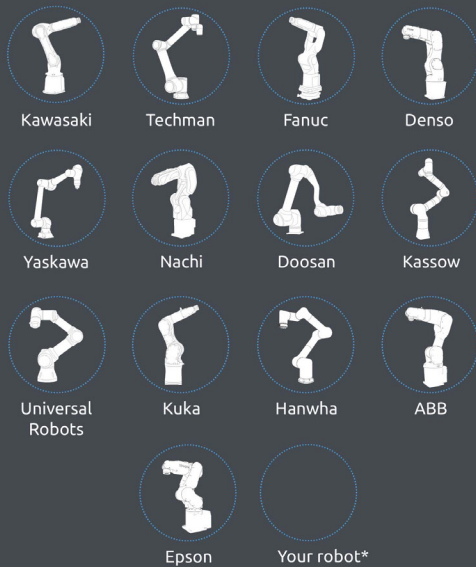
Any robot you choose. One OnRobot system.

Now you can equip your robots with a wide variety of "Plug-and-Produce" End-Effectors for your collaborative and light Industrial robot applications. Choose between various combinations from OnRobot, making it quick and easy to customize your robot to ever-changing applications in your lab.

You can also add the OnRobot Compute Box and I/O tester demo board to your end-effectors for lab simulation, allowing students to carry out proof of concept exercises without needing to take the robot off-task or tie up a workstation being used!



Any robot you choose. One OnRobot system.

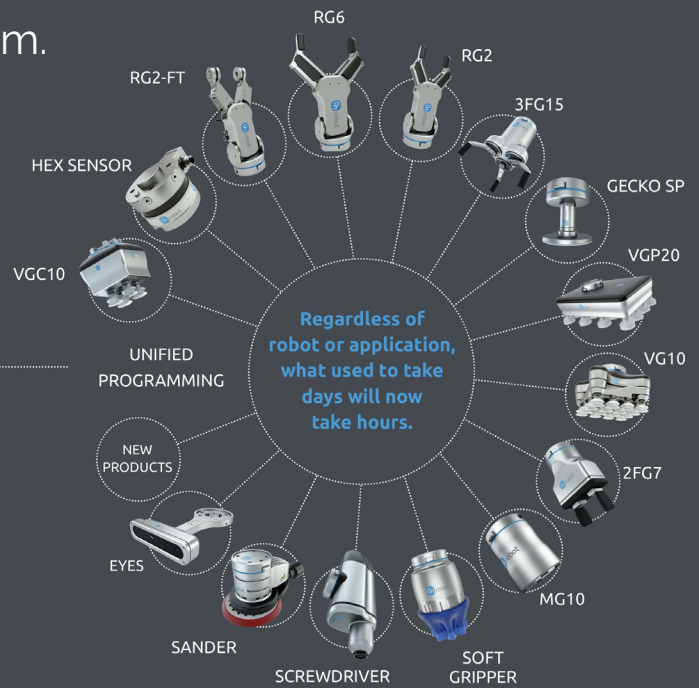


QUICK CHANGER

Fits all robots



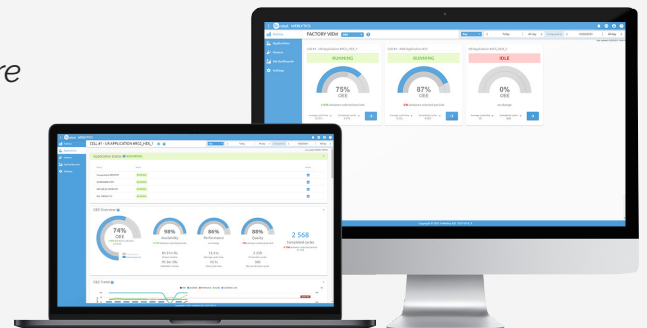
DUAL QUICK CHANGER



WebLytics

Remote Production Monitoring and Device Diagnostic Software

Quickly enhance robot cell productivity and minimize downtime with OnRobot WebLytics software. This industry-first software tool provides real-time, application-focused data for production monitoring, device diagnostics, and data analytics. WebLytics automatically collects, analyzes, and reports on collaborative applications, including data from any OnRobot tool and any leading cobot or light industrial robot.





Intelligent Robots That Work

Unitree Go2 New Creature of Embodied AI

HD Picture Quality, Real-Time and Stable.

A new App realizes HD image transmission and real-time remote monitor. Built-in 4G and eSIM enables more stable connection and remote control.

Intelligent Avoidance, Precise and Agile.

A new App realizes HD image transmission and real-time remote monitor. Built-in 4G and eSIM enables more stable connection and remote control.

Graphical Programming, Simple Yet Smarter.

Optimize the graphical programming function, make it easy to complete the program design by simple drag, drop and connection. Make programming beginners easy to start and innovate.



Standard Ultra-wide 4D LIDAR upgrades Recognition system by 200%

Go2 features with Unitree's self-developed 4D LIDAR L1 with 360°x90°hemispherical ultra-wide recognition, super small blind spot and a minimum detection distance as low as 0.05m, which makes Go2 realise all-terrain recognizing.



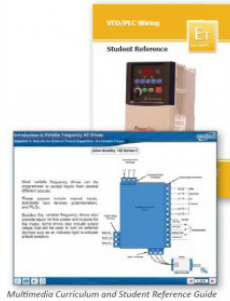
Leaders in STEM Education

Since 2005 Stokes Education has provided advanced robots with curriculum, STEM materials, equipment, and customized curriculum solutions to schools.

The company's goal is to provide schools with specific educational solutions that best meet their needs.

Construction: *Industrial & Residential Wiring*

Amatrol's Industrial Electrical Wiring Learning System (85-MT6) introduces learners to the basics of electrical wiring, such as wire termination, wire sizing, conduit sizing, terminal block installation, and wire splicing, as well as how to read and create electrical prints.



Optional Multimedia Curriculum
Student Reference Guide

Learning Topics

- Introduction to Electrical Control Wiring
- Electrical Control System Wiring
- Pneumatic Control Circuit Wiring
- Electrical Prints
- Electric Panels
- Wiring Between Panels
- Wire Color Coding
- Wiring Between and Outside Panels
- Wire Bundling
- Electro-Pneumatic Valves
- Pneumatic Schematics
- Electro-Pneumatic System Installation

Related Electrical Products

- AC Electric Motors Control Systems and Training
- AC/DC Electrical Learning System - T7017A
- Electric Relay Control Unit - 90-EC1A
- Electrical Fabrication 1 Learning System - 950-ELF1
- Electrical Power Distribution Learning System - 85-MT7-B
- Electrical Wiring Training System - 850-MT6B
- Industrial Electrical Wiring Learning System - 85-MT6
- Industrial Wiring Schematic & Installation Training System
- Portable AC/DC Electrical Learning System - 990-ACDC1
- Portable Electric Relay Control Learning System - 990-EC1

Key Features

- Industrial Standard Components
- Heavy Duty Welded Steel Workstation
- Industrial Standard Wiring
- Double-Sided Workstation



950-ELF1



85-MT7-B

Construction: HVACR

HVACR Learning Systems and Curricula

With Amatrol's learning systems, students develop the skills needed in the modern HVACR systems. Amatrol's comprehensive training solutions offer a strong curriculum, equipment, and multi-media.

In addition to learning systems geared toward post-secondary and industrial customers, Amatrol offers systems specifically designed for high schools. Amatrol is dedicated to providing high schools with learning solutions that cover applicable STEM knowledge and advanced manufacturing topics and skills.



TOPICS

- Electrical
- Electronics
- Fluid Power
- Mechanical
- Process Control
- Thermal



Residential Heat Pump Troubleshooting Learning System

The T7100 teaches skills required for working on residential HVAC systems that use a heat pump and traditional ducting. Students will gain practical experience using actual equipment like a heat pump condenser, heat pump air handler, Wi-Fi-enabled thermostat, fuse box, ducting, and manifold.

Amatrol's eLearning curriculum covers various topics, including thermostat operation, pressure and temperature measurements, component tests, and troubleshooting.

Residential Mini-Split Heat Pump Learning System

The T7130 teaches skills required for working on residential ductless ("mini-split") HVAC systems. Learners will work on real equipment, such as a heat pump condenser, evaporator unit, thermostat, panel-mounted gauges, and condensate pump.

Amatrol's eLearning curriculum covers various topics, including remote controller adjustments, heating, and cooling modes, LED indicators, communication between units, and troubleshooting.

Refrigerant Recovery and Charging Learning Systems for R-134a/R-410a

Learners will work with real equipment, such as a recovery machine, manifold gauges, submersible cooler, temperature probe, filter dryer, low-side liquid charger, vacuum pump, and micron vacuum gauge.

Amatrol's eLearning curriculum covers various topics, including refrigerant fundamentals, leak detection, pressure, temperature measurement, refrigerant recovery and recycling, and refrigerant charging.



Commercial Refrigeration Learning System

The T7400 Commercial Refrigeration Learning System equips students with hands-on skills to operate, troubleshoot, and program commercial refrigeration systems used in air conditioning, display cases, walk-in coolers, and freezers. Students will learn how to operate and adjust a commercial refrigeration system, program a smart controller, take airflow measurements, and troubleshoot both mechanical and electrical components.

Basic Refrigeration Training System

Amatrol's Basic Refrigeration Learning System (T7045) offers hands-on learning of a working refrigeration system in a compact tabletop unit. Skills delivered through this trainer are used by technicians in industrial, residential, and commercial HVACR settings, preparing learners for a continuously growing industry. This system is a fantastic starting point for future HVACR technicians as it covers hands-on maintenance skills, technical refrigeration concepts, and calculations.



The T7045 covers temperature and pressure measurement, heat transfer, and phase change. Transparent sections in the refrigerant lines allow students to observe the refrigerant as it changes from gas to liquid as it travels through various components. Temperature and pressure gauges are installed in multiple locations providing students with a better understanding of how the refrigeration cycle works. Industry-standard components ensure learners gain experience operating, monitoring, and adjusting refrigeration cycles on systems they'll see in the field.



HVAC Cutaways

DAC Worldwide's HVAC cutaways enhance learning by providing a look inside components found in most HVAC systems including compressors, solenoids, and valves. On many of DAC Worldwide's cutaways, functionality has been retained and a hand wheel provided to demonstrate low-speed manual operation.

Each cutaway is mounted on a modular, heavy-gauge steel baseplate and support assembly. For industrial training relevance, common models by well-known manufacturers are chosen.



Construction: *Heavy Equipment & Safety*

Personal Simulators for Construction Trades Programs

SIMLOG



Infrastructure in the United States has suffered due to the pandemic, and demand for heavy equipment operators is projected to grow at an aggressive pace in the next decade. Simlog Personal Simulators for construction trades programs have been instrumental in the creation of hundreds of new Heavy Equipment Operations (HEO) programs.



Skid Steer Loader



Backhoe Loader



Wheel Loader



Hydraulic Excavator



Bulldozer



Mobile Crane

For Heavy Equipment Simulators for Logistics programs, see page 45.

Virtual Reality Construction Site Skills Training

HardHatVR, a cutting-edge VR training solution for construction trades, is an innovative program that offers immersive, realistic simulations that enhance safety awareness, skill mastery, and cost savings. With a range of construction trade modules, customization options, scalability, and hardware packages, we provide a one-stop solution for our customers, helping them revolutionize workforce training and embrace the future of construction trade education.

Contact us to explore the full range of options and elevate training standards in the construction industry.



MINDS-i is rocking robotics education through a high-technology platform that is simple to use, extraordinarily durable, infinitely modifiable, and relevant for today.



MINDS-i's vision of what robotics should be inspires their labs and curriculum: build a robot using **patented quick-lock construction elements** designed to be highly durable, infinitely modifiable, and undeniably equipped to achieve the best performance, no matter where the path leads.

Immersive Curriculum and Labs

MINDS-i encourages students to think like engineers and technicians to work collaboratively testing and improving designs. We support teachers with outstanding training, ongoing technical support, and project-based curriculum aligned to educational standards.

UAV Drones Lab

The appeal of UAVs (Unmanned Aerial Vehicles) draws students to explore programming, electromechanical systems, and aerodynamics. Students design, build, and program drones for aerial search and rescues, GPS-guided crop dusting, autonomous deliveries to remote locations, and other compelling industry-related challenges.

Electric Car Lab

This 1/10th scale electric car comes with all the electronics and hardware required to assemble the kit and includes easy-to-use visual instructions. This kit is also compatible with most hobby standard DC motors, gears, radio transmitters, servos, bodies, wheels, tires, and more.

Foundations to Robotics - 4x4 or 6X6

Introduce students to the foundations of robotics with easy to assemble and modify rovers that emphasize real-world applications. Working collaboratively using the Engineering Design Process, students build and program advanced robots to tackle challenges. As they explore mechanical engineering, electrical engineering, and programming, students also analyze the robot's physics, mathematical and scientific elements.



More Options:

- Catapult Lab
- Arduino 2-in-1 Robot Kit
- Competition Kit
- Drone Cages
- Drone Gimbal Rig
- 2WD Race Car Kit
- Mars Rover
- Self-Driving Tractor



An interactive approach
to STEM Education.

STEM Design Program

Programs that help students discover STEM career pathways

- Increase students' enthusiasm for STEM through active, project-based learning
- Improve students' understanding of basic concepts of engineering and technology
- Help students see the connections between the STEM subjects
- Expose students to a wide range of STEM career pathways
- Help students understand the diversity of applications of STEM in a wide range of different areas of industry and everyday life.
- Develop skills such as critical thinking, problem solving, creativity, team working, and the ability to process, question, and analyze information.

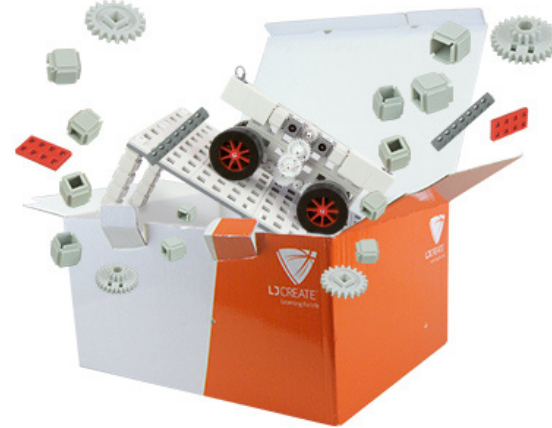
"One of the benefits of the program for the students is that it encourages them to do more critical thinking and problem solving; they really have to think about their answers."

Mr. Leavernard Jones / Technology Teacher



LJ CREATE™
Learning for life

NGSS Alignment



Our complete STEM curriculum works straight out of the box.

Engineering

Ensure your students have the right skills for the job – our engineering program is designed to bridge the skills gap

Our engineering program comprises three main strands of Control and Instrumentation, Mechanical Engineering and Electronic Engineering. Our comprehensive program addresses a broad range of related engineering areas, including:

- Industrial Control Trainer
- Electrical Engineering
- Electronics
- Mechatronics
- Mechanical Engineering
- Engineering Science
- Engineering Materials
- Manufacturing



Contact us for a FREE demo of our online library!

UniTrain

The Mobile Desktop Laboratory for Electrical Engineering

- High quality laboratory equipment with virtual instruments
- Basic and advanced electrical engineering, electronics and automotive technology
- Wide range of multimedia courses available
- LabSoft, an open experiment delivery platform
- Intelligent measurement interface supplies analog and digital measuring as well as control I/O
- Faults simulated by the hardware as well as tests of knowledge



LN®
LUCAS-NÜLLE



STEM: Industry 4.0

Industry 4.0 Career Pathways Program

Give students a foundation in Industry 4.0 and STEM concepts.

As part of our STEM career pathways program, Industry 4.0 is designed to provide middle and high school students (grades 7-10) with an introduction to Industry 4.0 concepts and applications across a range of industry sectors.

The Industry 4.0 program is designed to give students a foundation in how Industry 4.0 and STEM concepts are applied in career pathways and then develop their knowledge and skills in specific industry sectors:

The Industry 4.0 Lab will provide the opportunity for students to explore concepts such as sensors and control, data analytics, and the efficient utilization of resources. The program is designed to provide students with the skills and expertise they need to succeed in high school, college, industrial skills programs, and industry certification courses.

Industrial Skills

Safety
Quality systems

Industrial Equipment

Fluid power
Robotics

Smart Sensors and Devices

Sensors and smart sensors
Data collection

Control Systems

Industrial control and PLCs
Motor control

Connectivity and Networking

Computer networks
Wireless communication

Data Analytics

Statistical analysis
Database use

Project-Based Learning

Our program is packed full of design projects – perfect to use with your 3D Printer!

A large part of the Industry 4.0 Career Pathways operation Program is project-based. Students work on projects as part of a multidisciplinary team to produce solutions to real-world problems.

Course Overview

The Industry 4.0 Career Pathways Program includes eight project-based courses. An outline of each course is included in the Program Guide. The Core Curriculum course should be studied first - the remaining courses can be studied in any order.

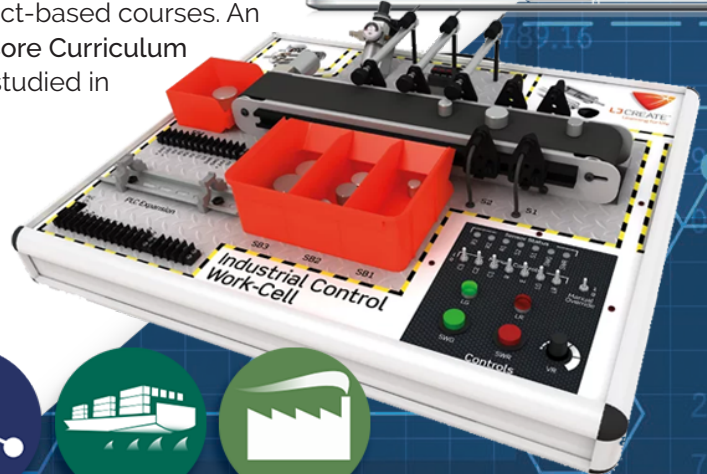
Displays and Accessories Systems Trainer



Injection Molding Trainer



Electronic Communications Trainer



LJ CREATE™
Learning for life



Transportation & Logistics: *Automotive Technology*

LJ Create Automotive

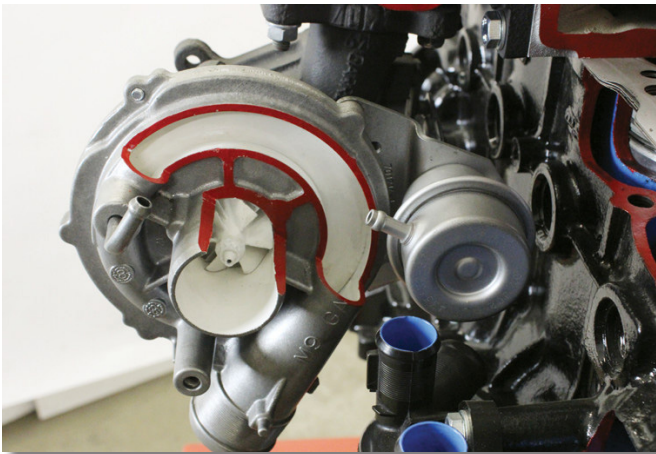
Our practical NATEF-aligned programs take your students from beginner to shop-ready

This program has been designed to allow you to build a NATEF certified automotive program that will enable your students to become new hi-tech auto technicians.

A unique blend of online digital learning resources and practical equipment combines to create an automotive teaching program that will deliver the knowledge and practical skills students need to achieve success.



The learning content is continually updated to meet NATEF standards - at MLR, AST, and MAST levels!



Automotive theory taught in a practical way

- Sectioned Components
- Autotronics Panel Trainers
- Autotronics Boards
- System and Component Rigs
- Medium/Heavy Truck Rigs



Beautiful, Immersive Content:

- Easy access via cloud-based portal
- Continuously updated content
- Access for all enrolled students and staff
- Student and school performance reporting facilities

"It's totally different here, we've got computers and all these trainers. It's an excellent way to learn and is much better than just reading books. We have our own laptops so I can go home and study, so when I come in here I can get 100%!"

- Alex Diaz, Automotive Student



Transportation & Logistics: *Hybrid & Electric*

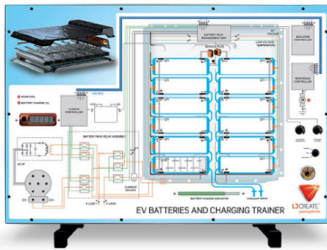
LJ Create EV Auto Repair offers a comprehensive range of EV lessons and training solutions, including EV Desktop Trainers, EV Systems Panel Trainers, and CAN System Desktop Trainers. These resources provide students with a practical hands-on experience in electric vehicle repair and diagnostics. With a focus on EV systems and CAN communication, LJ's training solutions are designed to prepare individuals for the growing field of electric vehicle maintenance and servicing.

Electric Vehicle Electronics Trainer (730-10)

This resource enables students to construct introductory EV electronic circuits with diverse components. It offers hands-on learning and advanced experimentation with Electric Vehicle circuits using experiment cards.

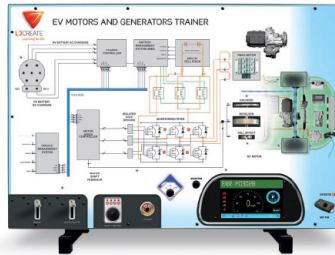
Electric Vehicle Electronics Workstation (730-00)

This system allows the practical study of a range of advanced Electric Vehicle circuits and concepts. It includes a desktop trainer, component set, and a range of experiment cards.



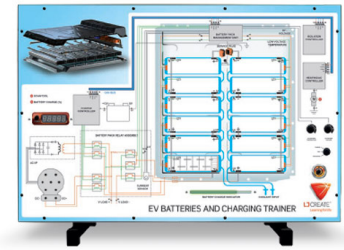
Electric Vehicle Systems Panel Trainer (740-01)

LJ Create's Electric Vehicle Systems Panel Trainer provides students and instructors with the opportunity to demonstrate, investigate, and fault-find a simulation of the electrical system of a typical electric vehicle.



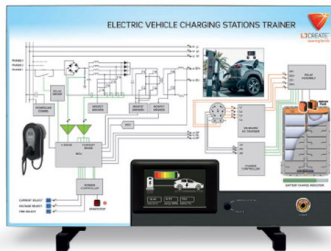
EV Motors and Generators Panel Trainer (742-01)

This trainer is focused on motor speed control and uses a variety of sensors to feedback on motor position and speed. Electrical circuit operation is illustrated under different conditions – Throttle, Brake, and Drive Select.



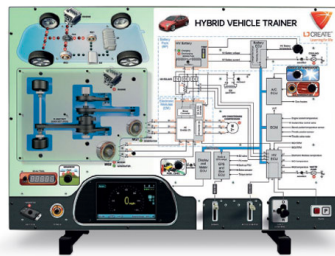
EV Batteries and Charging Panel Trainer (741-01)

Students will investigate how battery temperature and efficiency is effected at differing levels of charge. Instructors can demonstrate regenerative charging and more with this on-vehicle charging systems panel trainer.



Electric Vehicle Charging Stations Panel Trainer (743-01)

This trainer provides students and instructors with the opportunity to demonstrate, investigate and fault-find the circuitry and operation of off-car charging systems.



Hybrid Vehicle Systems Panel Trainer (756-01)

The Hybrid and Electric Vehicle Trainer provides students and instructors with the opportunity to demonstrate, investigate, and fault-find a simulation of a hybrid vehicle electrical system.



CAN Systems Desktop Trainers

LJ Create's CAN Systems Desktop Trainers give students an introduction to CAN systems and provide them with the working knowledge to diagnose and solve CAN bus problems.

Transportation & Logistics: *Hybrid & Electric*

ASE L3 Trainer Light Duty HV/EV Specialist

Prepare your students for the ASE L3 test!

All topics related to the New ASE L3 test are now covered by our newest Hybrid/Electric vehicle trainer. Allow your students to build confidence by knowing they can safely work on a state-of-the-art real-world system performing the procedures needed to work on hybrid/electric vehicles.

TruckTrain Heavy Duty HV/EV

Train for truck and agricultural machines.

To prepare students for electrification of the powertrain in commercial vehicles, Lucas-Nülle has revamped their renowned HV training system for passenger cars. This unique system blends theory and practice, allowing adaptable on-site use, catering to regional, operational, and industry-specific needs.



CarTrain Diagnosis and Maintenance of a High Voltage Battery

This training system focuses on the digitally networked CAN-bus battery management system in a traction battery and on the corresponding components.



TruckTrain Smart Farming 4.0

Precision Farming with Section Control (ISO BUS)

This training system from the TruckTrain series focuses on the topic of "Smart Farming 4.0" based on the ISO bus. Special attention is paid to the function of "Precision Farming with Section Control", which is implemented in the hardware in a practical and interactive way.

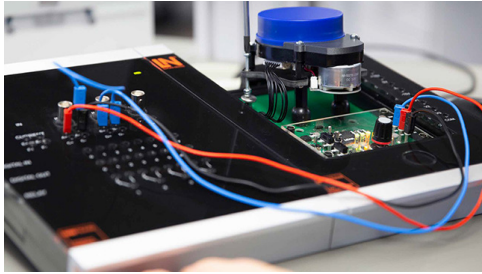


Transportation & Logistics: *Electric Vehicle*

Perfect Blend of Theory and Practice for Complete Understanding

Prepare your students for the ASE L4 test!

Allow your students to build employable skills by working on state-of-the-art real-world systems that teach the procedures required to work safely on today's vehicles.



LIDAR

Autonomous Driving

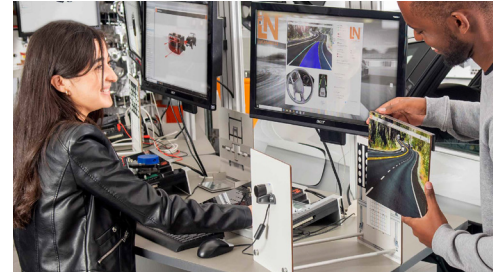
This training system imparts industry-level diagnostic skills, including optical distance and speed measurement, using a real LIDAR module. Paired with our e-learning course, it teaches system functionality and troubleshooting effectively.



RADAR

Adaptive Cruise Control

This UniTrain course covers adaptive cruise control (ACC) fundamentals, including emergency brake assistance. It delves into system setup, component details, and radar sensor calibration, with hands-on practice and adjustment.



Front Facing Camera

Lane Keeping Assist and Departure Warning

This training system demonstrates active and passive lane change assistant systems. It uses a front camera, calibration target, and diagnostic software for calibration, offering varied testing scenarios.



Park Assist

With Rear View Camera

Trainees learn hands-on vehicle backup system diagnostics using ultrasonic sensors and a reversing camera. calibration board allows in-class LIDAR system adjustment.



Ethernet

Safe Data Transfer for High Speed Applications

Trainees set up and operate an authentic Ethernet network with EOBD connection, exactly as it would be in real vehicles.



CAN BUS

Our training system closely mimics real-world practice, teaching the fundamentals of CAN bus systems in vehicles, including reasons for their use, topology, components, electrical properties, data rates, and troubleshooting.



Vehicle Stabilization Systems

ABS, ESC and TCS

Complex brake systems include ABS, ASR, and ESP for stability and driver protection. With this training system, the trainee learns practical skills and understanding of how the various systems interact and function together.



Transportation & Logistics: *Personal Simulators*

SIMLOG

Personal Simulators for Logistics Programs

Rising workforce shortages in warehouses and distribution centers, due to accelerated e-commerce activity, are creating unprecedented demand for skilled lift truck operators. Simlog Personal Simulators for Logistics programs are designed to meet employers' training expectations in modern distribution and supply chain environments.

Getting Started is Easy!

- Select the Personal Simulators that fit your program
- Choose the right USB Replica Controls for your setup
- Identify a suitable desktop or laptop PC and video display



Reach Lift Truck



Forklift Personal Simulator
Operator Chair

Also Available:

- Backhoe Loader
- Bulldozer
- Drill Jumbo
- Electric Rope Shovel
- Forwarder
- Harvester
- Hydraulic Excavator
- Mining Truck
- Mobile Crane
- Off-Highway Truck
- Skid Steer Loader
- Tower Crane
- Wheel Loader
- Wheeled Material Handler



Multi-Purpose Configurations

Simlog's Personal Simulators are recognized for offering the lowest cost-per-station on the market, especially when customers take advantage of common requirements for simulator controls. Since many of Simlog's Personal Simulators can use the very same controls, we can offer you the unique cost-efficiency of multi-purpose (multi-software) simulator stations.

For Heavy Equipment Simulators for Construction Trades programs, see page 37.

Transportation & Logistics: *Heavy Equipment*



Not every organization has the time, manpower, or equipment available for training when needed. That all changes with CM Labs. Packed with CM Labs' award-winning technology, the Vortex simulators provide training options for every skill level and budget.



Training Packs



Earthmoving Equipment

Trainees learn proper digging, loading, and dumping techniques that transfer to the work site. With self-paced learning exercises, trainees can work independently to develop safe work habits that get real-world results.



Port Equipment

Trainees learn through progressive scenarios, enhanced by advanced simulation of rigging and hoisting systems, terminal traffic, and trainer-controlled virtual environments, replicating real-world conditions.



Forestry Equipment

Our Forwarder and Harvester Simulator Training Packs offer an industry-based curriculum with the widest variety of simulated terrains on the market. These training packs help to ensure safe and efficient operations.

Simulator Hardware



Vortex Edge Plus

Professional desktop training simulator

Designed for maximum portability and simple set up, the desktop Vortex Edge Plus makes it easy and affordable for organizations to run CM Labs' full catalogue of construction and forestry equipment training modules anytime, anywhere.



Vortex Edge Max

Motion platform in a compact transportable format

Leverage the latest in innovative technology for operator skills development. Vortex Edge Max is easy to transport and set up making it ideal for organizations looking to explore simulation for the first time.



Vortex Advantage

Most immersive simulator available

This full-immersion training simulator, develops transferable skills. With OEM hot-swappable controls sets and pedals, and options for different screen configurations, the Vortex Advantage delivers high-quality training and flexibility.

Transportation & Logistics: *Paint Simulation*

Virtual Reality Training Tool for Painters and Coaters

SimSpray is the leading training tool for the painting and coating industry. It's an easy-to-use, turn-key training tool that provides accessible hands-on experiences with virtual reality simulations. Transform paint training with SimSpray for objective performance analysis, customizable training curriculum, and an engaging recruitment tool.

SimSpray has been shown to save up to 50% of training costs and train proficient workers faster. Train students in a fun, engaging way, and prepare them with the core skills they'll need on the job.



Real-Time Tracking: Integrated, camera-based, visual tracking with easy-to-use deployment steps.

Display: Mounted monitor with touch screen controls and additional HDMI output for external displays

HMD: High-quality, immersive, and ergonomic professional-grade headset

Spray Equipment: Weighted spray gun, powder gun, or abrasive blasting hose with functional controls

Case: Lightweight, compact design with convenient component storage and easy setup



Training Content & Features

Processes

- HVLP
- HVLP Conveyor
- Airless
- Airless Conveyor
- Air-Assisted Airless
- Air-Assisted Airless Conveyor
- Powder Coating
- Powder Coating Conveyor
- Abrasive Blasting

Techniques

- Applicator Speed (Cue)
- Spray Angle (Cue)
- Part Distance (Cue)
- Transfer Efficiency
- Mil Build
- Defect Identification
- HVLP Edge-Blending
- Painting on Conveyor

Parts

- Automotive
- Aerospace
- Construction
- Heavy Equipment
- Industrial Components
- ASTM Panels (American Standards of Testing & Measurement)
- Basic Panels



LEARN MORE

SimSpray Go Portable Painter Training

A compact, affordable virtual reality paint training tool that offers a lightweight and portable training experience, SimSpray Go is our newest innovation for VR paint training. This out-of-the-box, tabletop VR painter training tool offers efficiency and effectiveness for your HVLP training programs. SimSpray Go delivers all the training benefits of virtual reality at a budget-friendly price point.



Welding instructor and educator tools to bridge the manufacturing skills gap.



Lincoln Electric is the world leader in the design, development and manufacture of arc welding products. In addition to being the industry standard for welding equipment and supplies, Lincoln Electric also develops and supplies Welding Training Simulators and supplies. We are proud to represent Lincoln's line of educational Welding Simulators and is your Authorized Educational Reseller.

VRTEX® Trainers

Lincoln Electric's VRTEX® virtual reality arc welding trainers provide a powerful, cutting-edge solution for cultivating welding talent quickly and resourcefully. From superior graphics creating the most realistic and responsive welding puddles available, to exceptionally accurate sounds and movements, what can be learned virtually with VRTEX® seamlessly transfers into real-world, hands-on welding training.



VRTEX® 360

An advanced level welding training system that allows students to practice welding techniques in a simulated and immersive environment. Dual stands allow for training two welders at a time on one machine.



VRTEX® 360 Compact

A small, portable Virtual Reality Welding Simulator for mobile use in multiple environments. The cost-effective solution offers full immersion with accurate sounds and movements.



ClassMate® Robotic Welding Trainers

The ClassMate® trainers are a family of unique robotic educational cells that help improve quality, lower costs, and help educators enhance their training environments.

Features

- Complete educational software/assets at an affordable price
- Everything you need to teach the class safely and productively
- 4 offers to satisfy the current educational/training needs in welding/laser/cobot production
- Advanced manufacturing and technology capabilities
- Transformational capabilities and processes



The X-Cal Difference

For new construction and renovation projects, X-Cal combines a clear vision of your goals with our professional consulting, planning, implementation and support services, to maximize your results:

Consulting

Before the space planning begins, our staff will meet with you to understand your objectives, and help to define a successful and sustainable program implementation.

Planning

Next, we will assist in the careful planning of a complete learning environment – not just a “lab.” We’ll work with your team and architects to help layout your space, and provide you with detailed lab drawings and product specifications.

Implementation

When your building is ready, our factory-trained technicians will complete your furniture and equipment installation on time, and within budget. And our manufacturing partners will provide effective professional development for your faculty and lab support staff, either on-site or at our training facilities.

Support

Once your program is up-and-running, our team of outside service technicians and inside support staff will work with you to ensure that your program continues to function as specified, and is kept up-to-date, for many years to come.



Contact Support:

(866) 399-2943
support@x-cal.us
x-cal.us/support



Our mission is to offer evolving technology, advanced equipment, and curriculum designed to support every learner in achieving success in the technologically advanced careers of tomorrow.



x-cal.us • 1-800-445-1088