2024-2025

Training & Innovation Solutions Guide

TECH-LABS

tech-labs.com • 1-800-445-1088
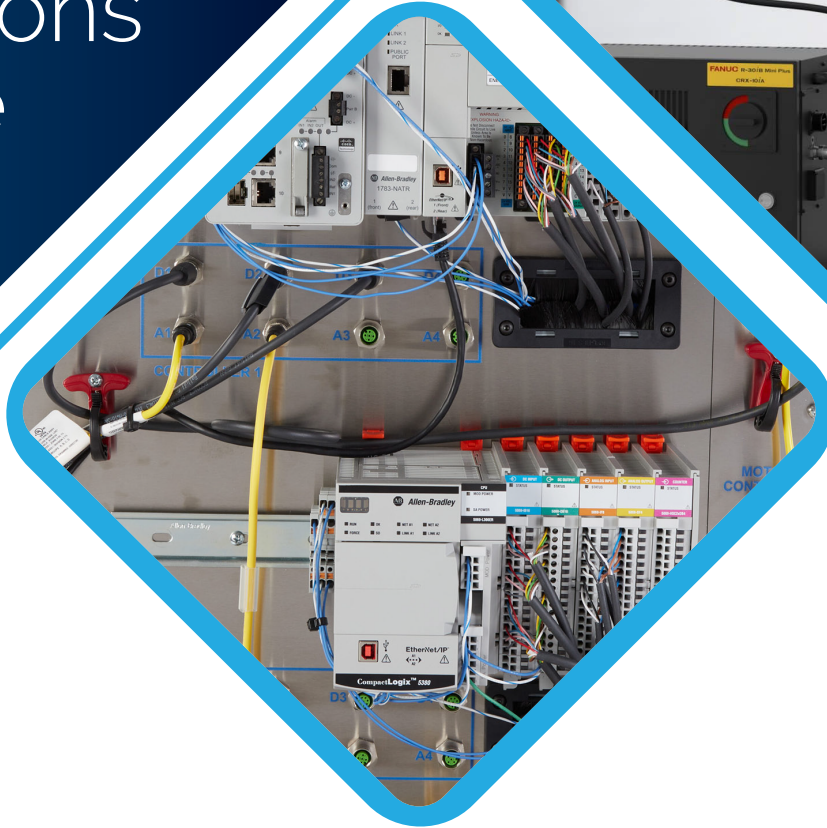
Our Sales Team

Warner Brown
c. 281-705-3363
warner@tech-labs.com

Jamey Deloney
c. 281-773-0032
jamey@tech-labs.cm

David Dold
c. 281-925-9043
david@tech-labs.com

Eric Jackson
c. 254-718-6023
eric@tech-labs.com

Chris McKay
c. 281-409-9327
chris@tech-labs.com

Aaron Minard
c. 832-242-1877
aaron@tech-labs.com

Robert Neal
c. 817-296-6162
robert@tech-labs.com

Ross Patton
c. 281-705-1236
ross@tech-labs.com

Mike Sudduth
c. 713-256-1763
mike@tech-labs.com

Garry Tomerlin
c. 817-988-3830
garry@tech-labs.com

Technical Laboratory
Systems, Inc.

P.O. Box 218609
Houston, TX 77218-0609

f. 281-391-1113

Technical Laboratory Systems, Inc. was founded by Tim and Dede Brown in 1977 to meet the growing need for technical and vocational training and has since developed into a full-service educational equipment and instructional software provider.

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.

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.

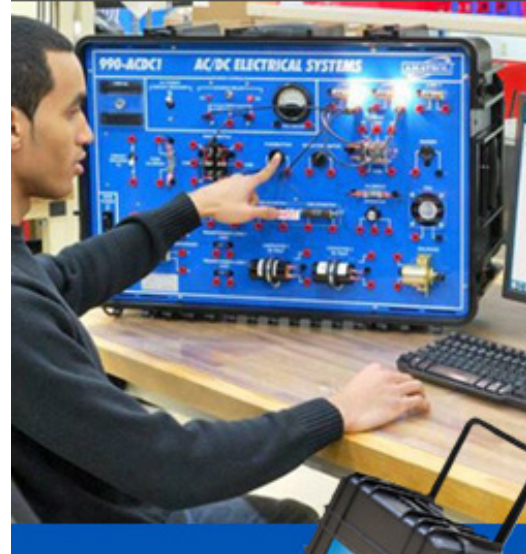*Ready to learn more?*
Contact your Regional Sales Manager!

Table of Contents

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.
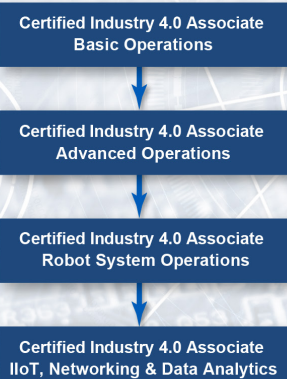
SACA Micro-Credentials

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

- Certified Industry 4.0 Associate Basic Operations
- Certified Industry 4.0 Associate Advanced Operations
- Certified Industry 4.0 Associate Robot System Operations
- Certified Industry 4.0 Associate IIoT, Networking & Data Analytics

SPECIALIST CERTIFICATIONS

Certified Industry 4.0 Automation Systems Specialist
Install, Troubleshoot Program, Maintain Factory Automation 4.0 Systems

Level I	Level II

Certified Industry 4.0 Production Systems Specialist
Operate, Control, Optimize Production 4.0 Systems

Level I	Level II

Certified Industry 4.0 IT Operations Specialist
Install, Troubleshoot, Program IT 4.0 Systems

Level I	Level II

PROFESSIONAL CERTIFICATION

Certified Industry 4.0 Systems Professional I
Design, Program, Integrate & Analyze

Go to tech-labs.com/cert for more information!

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 tech-labs.com/mssc for more information!

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
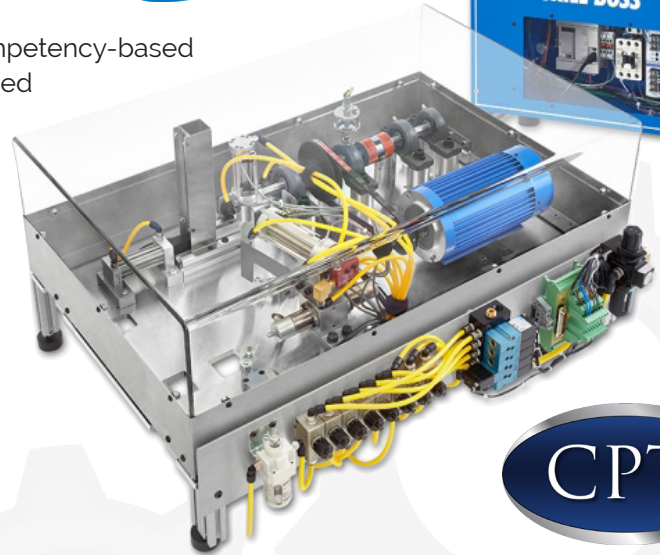
Skill Boss Logistics

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.

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.

CRX Series
Collaborative Robots

Five Sizes Available!

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.

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.

FANUC

LINCOLN ELECTRIC®

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/ academic institutions across the country 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.

ROBODRILL and Education

FANUC ROBODRILL Machines are high-speed, highly precise and highly reliable. The-high speed cutting makes it very easy to quickly machine precision parts with high accuracy. The high reliability and long life of ROBODRILL machines are guaranteed due to its robust and uncomplicated construction. Because of its versatility, the FANUC ROBODRILL can be used in many different fields. The machine has been successfully used for high volume production in a wide range of sectors, including:

- automotive
- electronics
- medical tools
- implants
- watches and jewelry
- mold and tool making
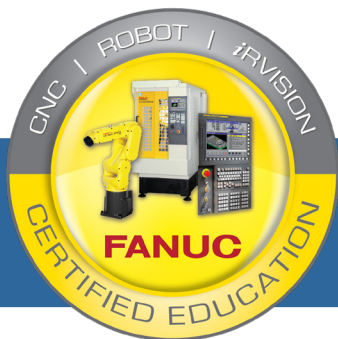
We'll help you find the best FANUC CERT product to help fit your needs.

Industry-Based Certification Programs

IT Certifications

Microsoft Networking Fundamentals
MTA Exam 98-366
Introduction to Networking

Microsoft Security Fundamentals
MTA Exam 98-367
Introduction to Security
Cyber Security Essentials

CompTIA A+ Certification
Maintaining and Repairing PC's

CompTIA Network+ Certification
Network+ Certification

ISACA Security Fundamentals Certificate
Cyber Security Essentials

CompTIA Healthcare IT Technician
Cyber Security Advanced Healthcare IT

CompTIA Security+
Cyber Security Essentials

Certified Ethical Hacker
Hacking, Cracking and Internet Jacking
(Advanced hacking)

CompTIA Advanced Security Practitioner (CASP)
Advanced Enterprise Security

Cyber Security Digital Forensics

MARCRAFT
an ETG Brand

Smart Home Technologies

Residential Electronics Systems Integrator [RESI]

Install and interconnect residential electronic communications, computer, control and entertainment equipment. Our expert training systems are the perfect addition to your construction or electronics program.

Smart Home Certifications
Electronic Technicians Association (ETA)

ETA Residential Electronics Systems Integrator
Basic Residential Electronics Systems Integrator

ETA Audio-Video Endorsement
RESI Audio-Video Endorsement

ETA Security-Surveillance Endorsement
RESI Security-Surveillance Endorsement

ETA Data Cabling Installer
Low Voltage Wiring Certification Program
MECP Basic Installer Certification Program

ETA Certified Alarm Security Technician
Security-Surveillance Certification Program

ETA Fiber Optic Installer
Fiber Optic Installer Certification Program

Consumer Electronics Association: Mobile Electronics Certified Professional Certification

Renewable Energy/Energy Efficiency Certifications

NABCEP PV Installer, Entry Level
Solar/PV Installer

ETA Solar/PV Installer
Solar/PV Installer Training Guide

ETA Small Wind Installer
Wind Turbine Technician Training Guide

RESNET Rater/Auditor
Energy Auditing

1-800-445-1088 | tech-labs.com

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

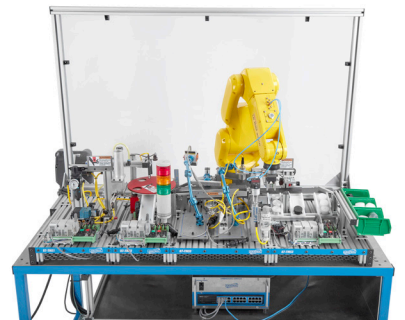Double-Sided Bench (left)

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

FANUC

Process Control

DAC WORLDWIDE

AMATROL®

FAULTPRO
COMPUTER-BASED FAULT INSERTION SOFTWARE

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,

Student Reference Guide, Optional eBook, and FaultPro

LEARN MORE

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.

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.

Smart Factory Enterprise

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!

LEARN MORE

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

Comprehensive Training
No Sacrifice for Portability

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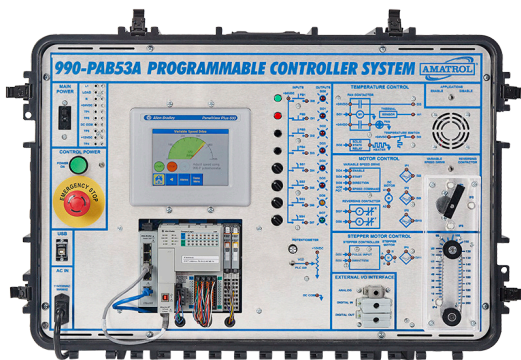- Ability to connect with other learning systems

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 tech-labs.com/portable for more information!

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.

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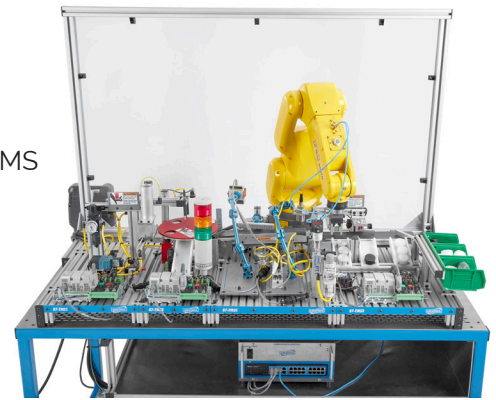
Smart Product ID
The Smart Factory incorporates product identification devices, such as vision systems and code readers, which trigger "intelligent" actions, including tracking, production history, sorting, part accept/reject, and inventory control.
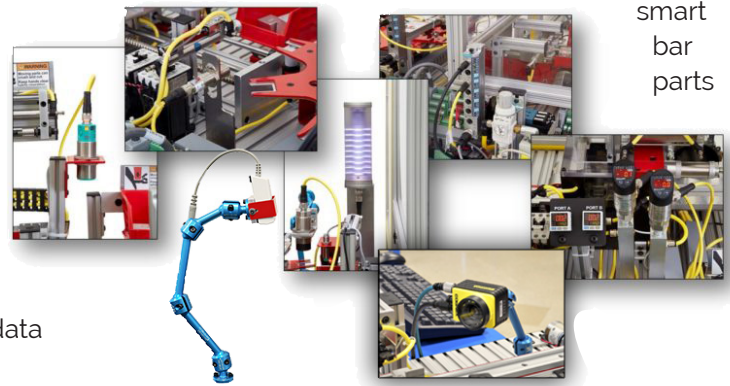
smart bar parts

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.

SACA
SMART AUTOMATION CERTIFICATION ALLIANCE

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!

T5552   T5554   T5555   T5553

Process Control & Instrumentation Products

- Training Systems
- Cutaways
- Models
- 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

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.

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
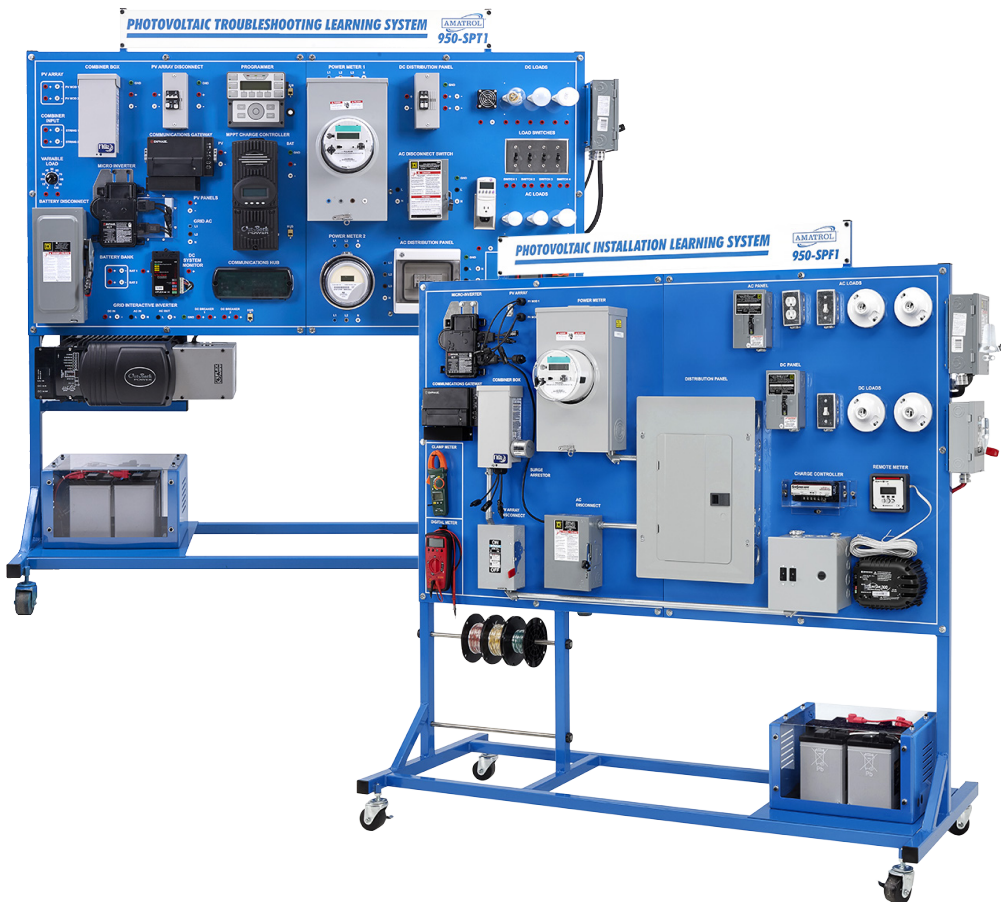
Industrial Skills Trainers: *eLearning*

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.
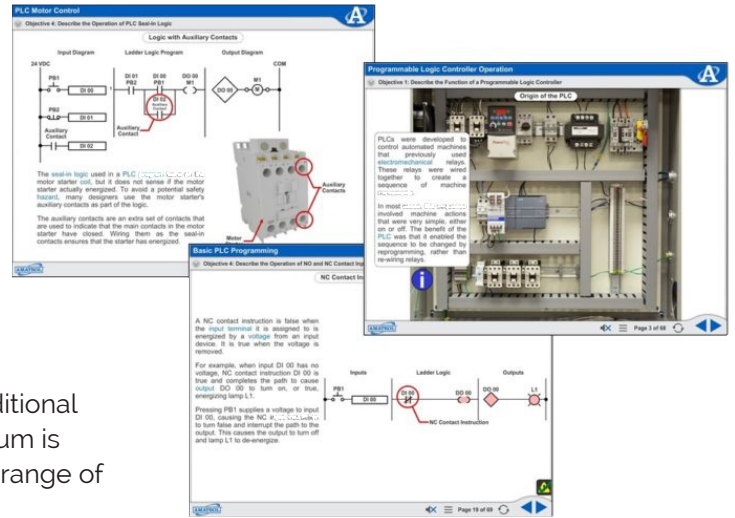
Amatrol Virtual Trainers

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!*

LEARN MORE

1-800-445-1088 | tech-labs.com

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.
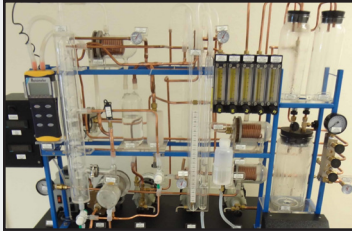
Training Systems
Give students hands-on experience working on equipment they will encounter in their careers.
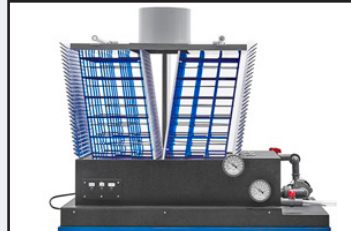
Working Demonstrators
Offer realistic, first-hand visualization into the inner workings of industrial components and structures.
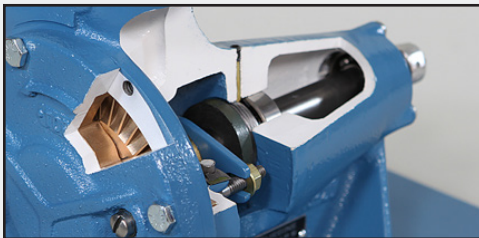
Training Models
Detailed, to-scale models that depict various industrial machines and include primary features and components.

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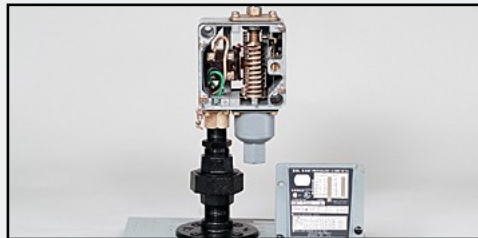
Dissectibles
Offer learners realistic, first-hand visualization into the disassembly, inspection, and reassembly of various industrial components.

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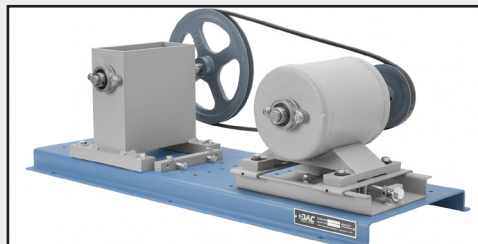
Training Systems
These systems are built with full-size, industrial-quality components, as well as high-durability, powder-coated surfaces throughout.

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

Empowering Technical Education and Industry Advancement

As authorized distributors of Matrix TSL's cutting-edge electrical machines, process, and mechanical training solutions, we are dedicated to propelling knowledge and skills forward. Our catalog features a comprehensive array of industry-standard training equipment, spanning disciplines from electrical engineering to automation and mechanical processes. Whether you're an educational institution nurturing the next generation of innovators or an industry professional striving for mastery, our offerings facilitate hands-on learning and skill development. Join us in shaping the future of technical education and industry through our partnership with Matrix TSL.

The modern electrical machines training system offers a safe and comprehensive learning experience. It includes eight machine types, a power supply, and PC-based applications. Curriculum manuals cover manual and PC control, along with MATLAB. Components are easily assembled and disassembled, promoting efficient experiments. The system operates safely on 24V power, offers various control options, and allows measurement of key electrical parameters.
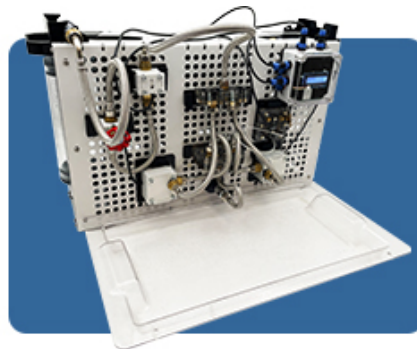
Matrix's Fundamental Fluids range offers hands-on fluid mechanics understanding. It includes a main workstation and 16 components for nine experiments, six of which provide automatic data plotting via USB sensors. Quick-release latches enable easy assembly and disassembly. A free curriculum and robust metalwork make it ideal for educational settings, and it saves space with easily storable components. Controller and Calibration apps are also available.

Matrix's Process Control training system offers a practical approach to industrial process control education. It's portable, safe, and includes separate Temperature, Pressure, Flow, and Level systems. Featuring a common controller, a 16-bit dsPIC processor with connectivity options, data logging, and 110-240V operation, it's a versatile learning tool. Each unit includes comprehensive documentation, a curriculum workbook, and MATLAB compatibility, making it a valuable resource for hands-on learning.

Why Choose Matrix TSL? Exploring the Key Benefits

Matrix TSL is a leader in technical education and industry training solutions. Their offerings span electrical, mechanical, and process control domains, catering to diverse learning needs. With advanced features like USB, WiFi, Bluetooth, and LAN connectivity, Matrix TSL's equipment enhances the learning experience. The rugged construction ensures durability in educational settings, and comprehensive documentation, including curriculum workbooks, aids structured learning. Compatibility with software tools like MATLAB and LabVIEW enables in-depth analysis. Matrix TSL excels in bridging the gap between theoretical knowledge and practical skills, making them a valuable partner for institutions and professionals seeking to stay at the forefront of technical education and industry advancement.

High School Project/Work-Based Learning
Skill-based learning programs that attract & retain learners

AMATROL®

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
Learning Program

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.

Turn-Key Solution for Industry 4.0!

IGNITE
Mastering Manufacturing

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.

LEARN MORE

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.

Simulation
Experience
360°
Interaction
Virtual Reality
VR
Immersion

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.

DAC WORLDWIDE

Lock-Out/Tag-Out Training System

1-800-445-1088 | tech-labs.com

3D Printers: *PolyJet*

PolyJet 3D Printers give you and 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.

J35 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.

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.

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 of any FDM system, 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.
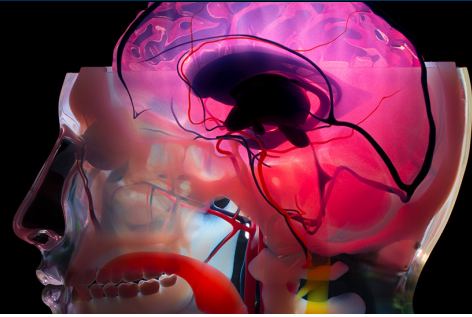
J5 MediJet™

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.

RenAM 500Q
### Quad Laser AM System for High Productivity

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.
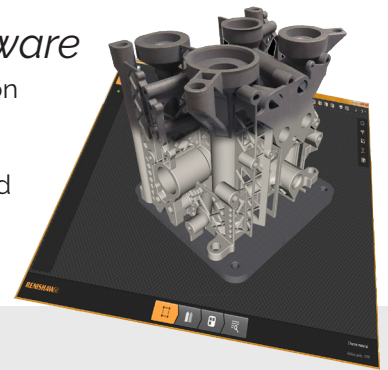
Benefits

- 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.

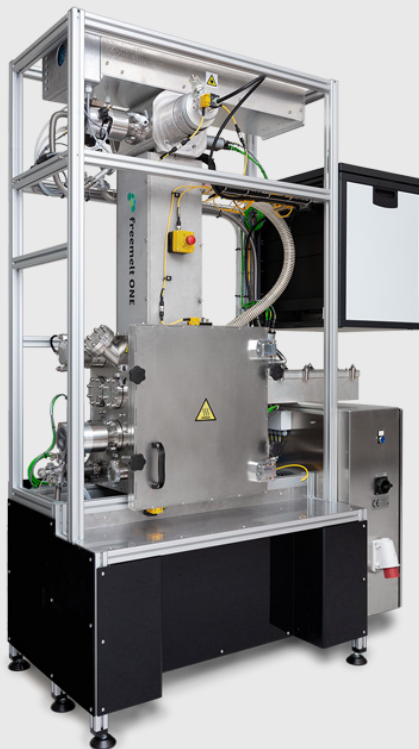Use high beam power melting and fully open beam path sequencing

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

Creaform Academia
The power to innovate using 3D scanning

CREAFORM

AMETEK®

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

Discover Creaform ACADEMIA, an educational solution suite for forward-thinking teachers and researchers looking to inspire, collaborate, and push the innovation envelope forward by using the latest advancements in 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

peel3

With its appealing technical specifications, peel 3 is the most affordable professional-grade 3D scanner for reverse engineering.

Go!SCAN 3D

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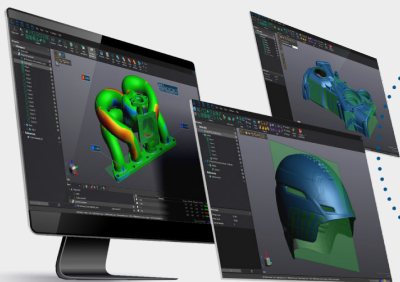
HandyScan 3D

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.

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.

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 TM
- 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.

BOFA™

THE WORLD LEADER IN
FUME EXTRACTION TECHNOLOGY

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.

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

K9 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*
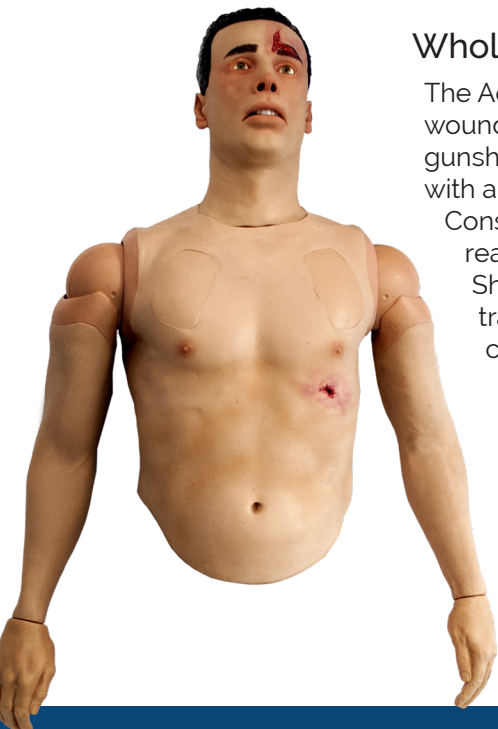
Whole Body EMITT Active Shooter

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*

- 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

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.

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

K9 Simulators

K9 Hero
Intubation/Bleeds

K9 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.

K9 Diesel
The Most Advanced K9 Medical Trainer

K9 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.

TACMED SOLUTIONS

Medical Simulation

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

VRNA supplements lab instruction, helping instructors be more efficient, alleviates split attention during small group activities, and keeps students engaged in lab content. This gives users an independent and active learning experience to practice patient care skills in a zero-risk environment.

Features

- Content aligns with requirements in all 50 states
- Students imitate daily tasks to provide care and practice clinical skills
- Skills sequenced in scenario based modules
- Teach collaboration in an immersive virtual environment
- Instantaneous feedback and scoring Monitor student progress remotely with Performance Portal

VRNA™
Powered by VRSim

Virtual Reality Training
For Nursing Lab Skills

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

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

Antiembolism Stockings	Intake/Output	Temperature: Axillary
Gait Belt & Ambulate	Lift & Move a Resident in Bed: 2 assist	Temperature: Oral
Applying/Removing Gloves	Making an Occupied Bed	Temperature: Tympanic
Ambulation: Cane, Walker, Crutches	Making an Unoccupied Bed	Transfer from Bed to Chair: 1 assist
Denture Care: General	Nail Care	Transfer from Bed to Chair: 2 assist
Oral Care: General	Obstructed Airway	Undress/Dress: Grooming
Oral Care: Unconscious	Partial Bath	Urinal for Male Resident
Back Rub	Passive Range of Motion	Urine Sample
Bedpan	Position in Bed Side: Lying	
Blood Pressure	Position in Bed: Supine	
Catheter Care: Empty Drainage Bag	Prepare for a Meal/Assist	
Catheter Care: General	Provide Incontinent Care	
Communication	Pulse and Respiration	
Complete Bed Bath	Shampoo Resident's Hair	
Hand Hygiene	Shave with Electric Razor	
Height and Weight	Shower	

LEARN MORE
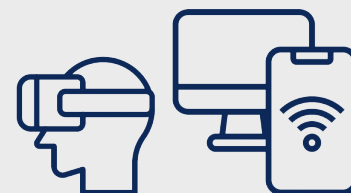
CNC & Robotics Training

FANUC's CNC Certified Education Training Program

With over 2.4 million systems installed, FANUC is the undeniable global leader in CNC controls. They provide their customers with the most innovative, reliable and high performance products, backed by world-class service and support.

FANUC realizes it takes qualified machinists, programmers, and operators to maximize productivity. To meet this need, FANUC has developed the most robust CNC certified education training program in the industry. If you want to train students to be productive employees right out of the gate, upgrade your educational programs with FANUC Certified Education Training.

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.

FANUC'S ROBODRILL

The versatile FANUC ROBODRILL can be used in many different fields. The high reliability and the long life of the ROBODRILL are guaranteed due to the robust and uncomplicated construction of the machine.

powered by:

Due to the high speed cutting with FANUC 31i-B series of controls it is very easy to quickly machine precision parts with high accuracy. Because of the stiff machine construction, the ROBODRILL provides efficient and accurate machining operations like face milling, end milling and drilling.

The 10.4" screen, quick screen and the full keyboard make it possible to input data with minimal time and effort. An additional standard PCMCIA card slot is located next to the screen and makes it simple to use CF cards.

Acceleration and deceleration will be optimized as the control will read 30 blocks ahead in the AICCII mode. In this way the part can be machine extremely fast and precise.

Benefits of the ROBODRILL:
- Fast and reliable tool change mechanism
- Tool change time 1.6s chip to chip
- Revolving Turret with up to 21 tools
- Latest FANUC servo motor technology
- .004mm bi-directional repeatability

Introducing the New Standard for Speed, Precision and Productivity

FANUC's new SCARA robots are ideal for high-speed, precision applications such as assembly, pick and place, testing/inspection and packaging processes.

1-800-445-1088 | tech-labs.com

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

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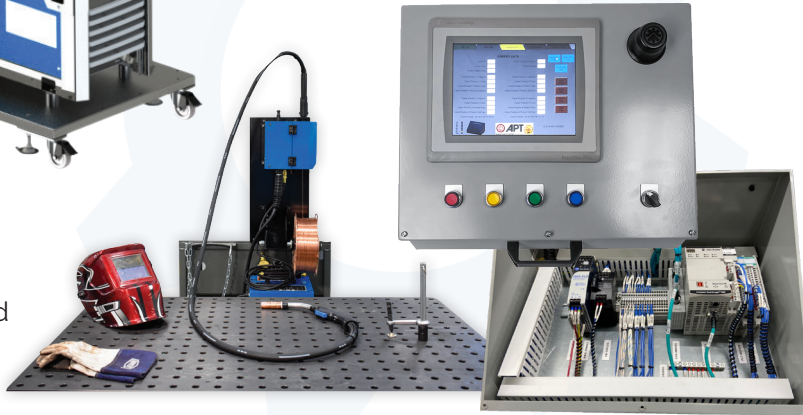
PLC/HMI Trainer

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.

FANUC CRX Series Collaborative Robot

Learn More & Watch Video

Ready to schedule a CRX Cobot demo?

8 YEARS ZERO MAINTENANCE

100% PROVEN INDUSTRIAL RELIABILITY

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!

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).
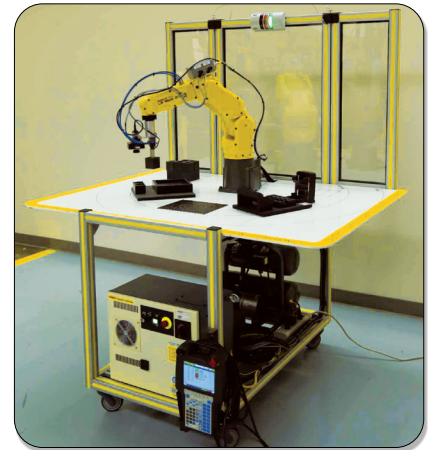
FANUC LR Mate 200iD/4S Fenceless CERT Cart

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.

Advanced Manufacturing CERT Cell

Partnering with FANUC to bring education the first collapsible fully integrated advanced automation cell. The AM Cert is the next level of training once the student has grasped the concepts of handling tool operation, vision and DCS that is offered through the fenced, fenceless or Cobot CERT solutions from FANUC. Buy as is or customize to suite your particular requirements!

FANUC CR-4iA R-30iB Plus Collaborative CERT Cart
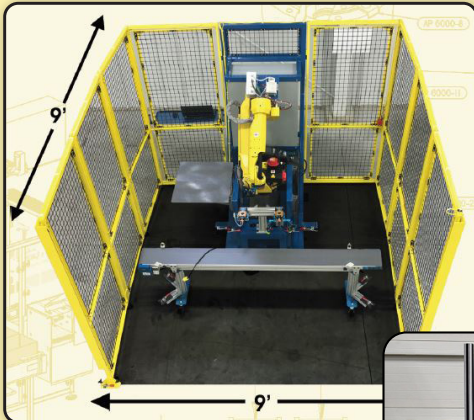
Machine Tending Education Cell Simulator

The MTEC-SIM is a compact, budget friendly version of the MTEC and teaches programming of a robot to CNC machine tool in a simulated environment. This machine comes ready for mill and lathe operation with the robot moving a blank from a pick location to a simulated mill vice or lathe chuck in one compact cell.

APT
MANUFACTURINGsolutions

Visit tech-labs.com/apt for more information.

Bantam Tools Desktop CNC Milling Machine

The Bantam Tools Desktop CNC Milling Machine is a compact and versatile machine designed with industrial controls to build CNC machining skills, and for experienced machinists who want a powerful tool for prototyping. Learners get the full CNC experience using the same control system that can be found on over five million CNC machines worldwide, without having to buy an expensive, industrial-sized machine.

Control	FANUC Series 0i-F Plus
Axis Drive Motors	FANUC Industrial Servo Motors and Drives
Enclosure	Pre-assembled, fully enclosed, powder-coated steel and ABS
Overall Dimensions	Mill and Riser: 19-5/8" W x 21-7/8" D x 32-1/16" H Controller: 16-7/8" W x 7.5" D x 24" H
System Weight	Mill and Riser: 161.2 lb / Control: 25.6 lb
Build Volume	7" x 9" x 3.3"
Max Traverse	315 in/min
Spindle Speed	10,000 - 28,000 RPM
Spindle Motor Power	250W
Tool Holder	ER-11 Collet
Largest Shank Size	1/4"
Repeatability	0.0005"
Power Requirements	110-240 VAC 50/60Hz 350W
Recommended Max Roughing MRR in 6061 Aluminum	. 8 cubic inches per minute

BANTAM TOOLS®

Powerful Desktop CNC Milling Machine + Professional Industrial Control

Powered by
FANUC

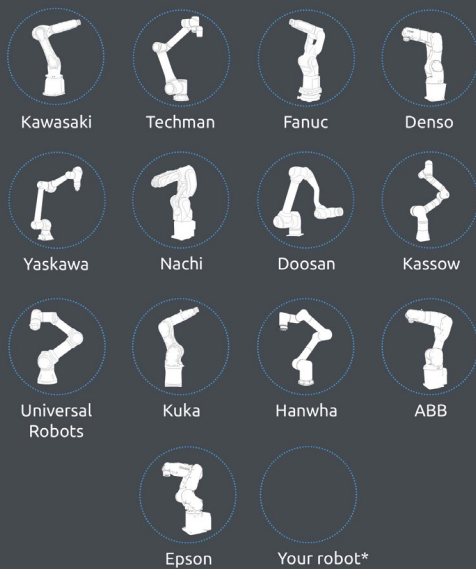Join us in closing the skills gap by ordering yours today!

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!
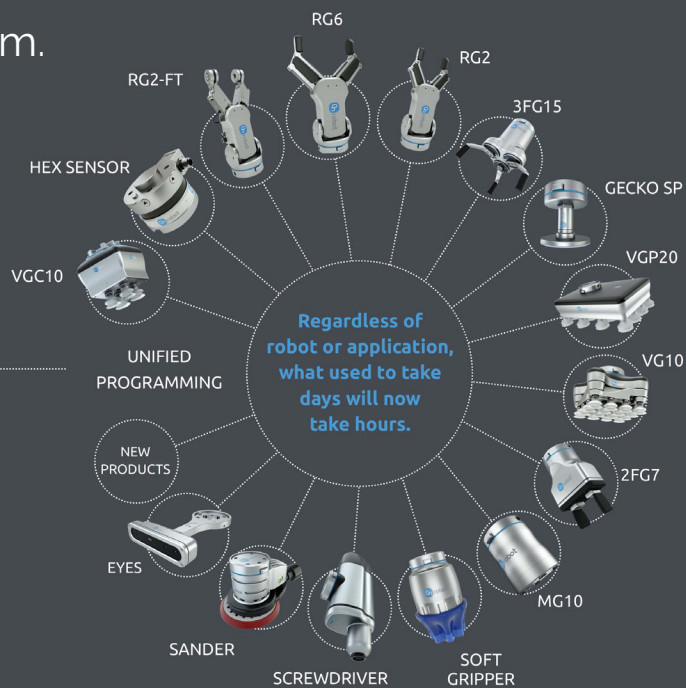
Any robot you choose. One **OnRobot** system.

Kawasaki Techman Fanuc Denso

Yaskawa Nachi Doosan Kassow

Universal Robots Kuka Hanwha ABB

Epson Your robot*

QUICK CHANGER
Fits all robots

DUAL QUICK CHANGER

RG6 RG2-FT RG2 3FG15 HEX SENSOR GECKO SP VGP20 VGC10 VG10 UNIFIED PROGRAMMING 2FG7 NEW PRODUCTS MG10 EYES SANDER SCREWDRIVER SOFT GRIPPER

Regardless of robot or application, what used to take days will now take hours.

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.

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.

85-MT6BA mounted within the 850-MT6B's cabinet
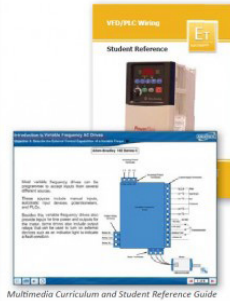
Optional Multimedia Curriculum

Student Reference Guide

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

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

Key Features

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

950-ELF1

85-MT7-B

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.

AMATROL®

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. Learners will work on real equipment, such as a heat pump condenser, heat pump air handler, Wifi-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 teaches students how to operate and troubleshoot commercial refrigeration systems, including systems used in commercial air conditioning, refrigerated display cases, walk-in coolers and freezers, and more. 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.

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

Virtual Reality
Construction Site Skills Training

HardHatVR, a cutting-edge VR training solution for construction trades, is an innovative program 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.

HARDHATVR

Cybersecurity Skills are in high demand as threats continue to plague enterprises around the world.

In today's Global IT environment, CYBER SECURITY goes well beyond traditional network security.

MARCRAFT
an ETG Brand

Based on the National Institute of Standards Technology (NIST) - Cyber Security Frameworks, the new ETG/Marcraft Cyber Security Essentials - Concepts and Practices course covers both theory and hands on labs:

- Critical Infrastructure Security Systems and Devices
- Intelligent Computing and Controlling Devices and Systems Security
- Business Information Technology (IT) Network Security Systems and Techniques
- Industrial/Utility Industrial Control System (ICS) Networks and Devices Security
- Medical Network and Data System Security
- Ethical Hacking Roles and Tools

The latest vendor-neutral A+ and Network+ Certification programs from CompTIA are the crucial first step in developing the knowledge, ability and skills currently demanded by the IT industry.

More than 400,000 students and technicians have relied on Marcraft for IT training and Certification exam preparation.

"In short, America's economic propriety in the 21st century will depend on cyber security."

- THE WHITE HOUSE
Office of the Press Secretary

Prepare students to challenge ISACA Cybersecurity Fundamentals Certificate Exam!

IT Certifications

Microsoft Networking Fundamentals
MTA Exam 98-366
Introduction to Networking

Microsoft Security Fundamentals
MTA Exam 98-367
Introduction to Security
Cyber Security Essentials

CompTIA A+ Certification
Maintaining and Repairing PC's

CompTIA Network+ Certification
Network+ Certification

ISACA Security Fundamentals Certificate
Cyber Security Essentials

CompTIA Healthcare IT Technician
Cyber Security Advanced Healthcare IT

CompTIA Security+
Cyber Security Essentials

Certified Ethical Hacker
Hacking, Cracking and Internet Jacking
(Advanced hacking)

CompTIA Advanced Security Practitioner (CASP)
Advanced Enterprise Security

"Few job categories can match the explosive growth in demand for cyber security talent." - CIO Journal

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

LEARN MORE

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.

LJ CREATE™
Learning for life

NGSS Alignment

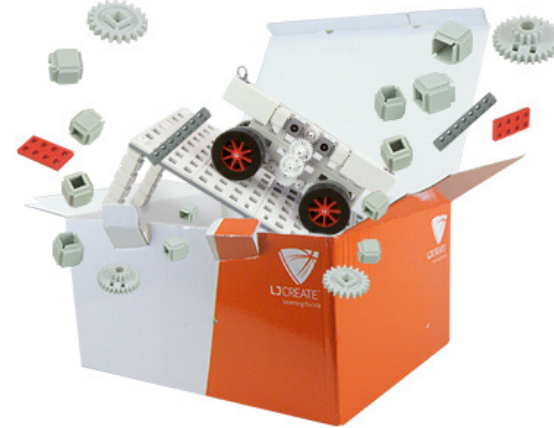Our complete STEM curriculum works straight out of the box.

"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

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

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

Control Systems
Industrial control and PLCs
Motor control

Industrial Equipment
Fluid power
Robotics

Connectivity and Networking
Computer networks
Wireless communication

Smart Sensors and Devices
Sensors and smart sensors
Data collection

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.

LJ CREATE™
Learning for life

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.

LJ CREATE™
Learning for life

The learning content is continually updated to meet NATEF standards - at MLR, AST, and MAST levels!
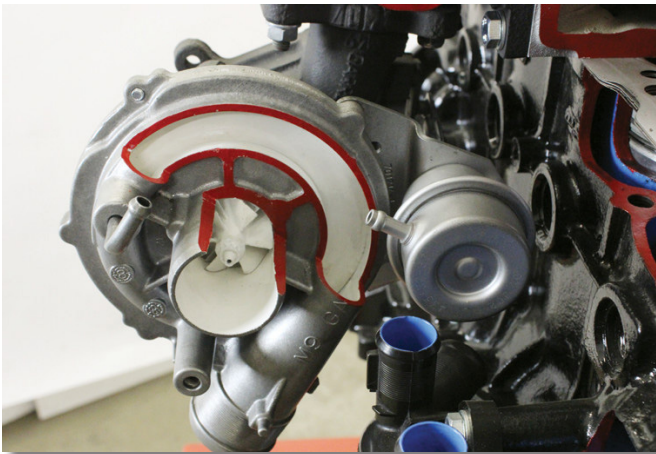
Automotive theory taught in a practical way

- 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.
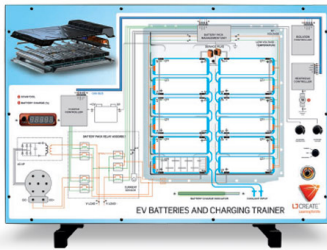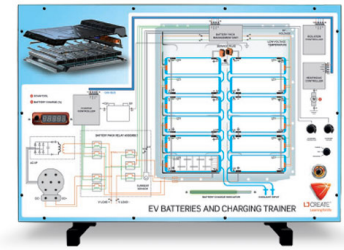
Electric Vehicle Systems Panel Trainer (740-01)

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.
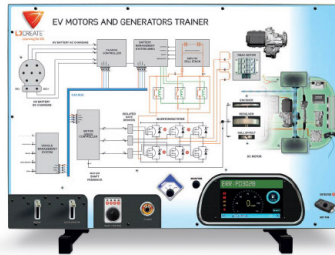
EV Motors and Generators Panel Trainer (742-01)

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.
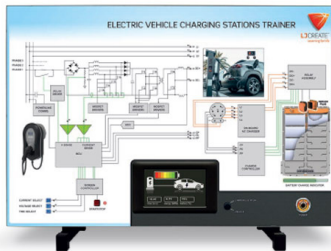
Electric Vehicle Charging Stations Panel Trainer (743-01)

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.

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.

LEARN MORE

LUCAS-NÜLLE

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.
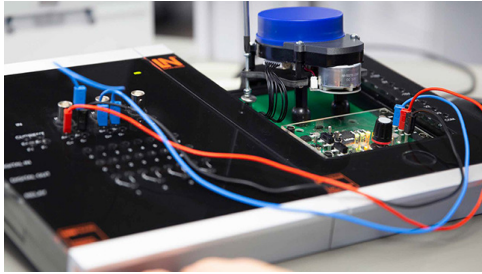
Perfect Blend of Theory and Practice for Complete Understanding
Prepare your students for the ASE L4 test!

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.
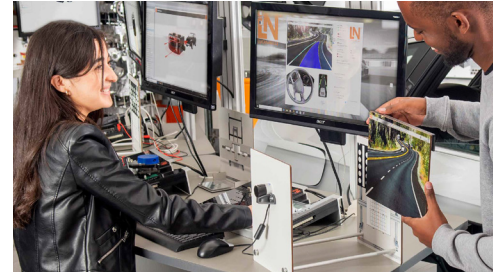
Front Facing Camera
Lane Keeping Assist and Departure Warning

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 or how the various systems interact and function together.

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

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

Forklift Personal Simulator
Operator Chair

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.

LEARN MORE

![cmlabs logo]

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 amking 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.

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.

Train Green!®

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

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.

LEARN MORE

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

LEARN MORE

The Tech-Labs Difference

For new construction and renovation projects, Tech-Labs 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.

⚙ TECH-LABS

Contact Support:
(866) 399-2943
support@tech-labs.com
tech-labs.com/support

Our mission is to provide cutting edge technology, equipment and curriculum that will help every learner achieve success in the world of tomorrow.

⚙ TECH-LABS

tech-labs.com • 1-800-445-1088