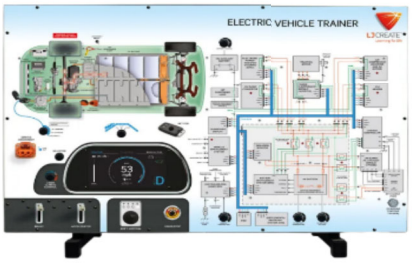
Georgia Training & Innovation Solutions Guide



Technical Training Aids

SERVING EDUCATION SINCE 1963

Contact

Our Georgia Educational Consultants

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Technical Training Aids

SERVING EDUCATION SINCE 1963

60 Years of Experience
TTA was founded in Birmingham, Alabama, in 1963 and began serving the career and technical training needs in eight southeastern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, and Tennessee. Since our inception over 60 years ago, we've developed a reputation for unequaled product quality and commitment to our customers.

In 2005, we added North and South Carolina to the states we serve. We now serve ten states, with a greatly expanded array of products and services to satisfy practically all of the technical training needs of educators from middle school all the way through community colleges and universities.

Our Operating Philosophy
TTA is committed to the concept of hands-on training using the latest in educational technologies. Our products provide for a complete and industry-based learning experience, giving both instructors and students what they need to be successful in today's classroom and later in the highly competitive workplace.

We represent the best companies in the world. We selectively hand-pick these companies because they use industrial-grade components and/or industry-recognized software. This allows students to go out and directly apply knowledge gained in the classroom to jobs in their chosen industry.

Ready to learn more?

Contact your Regional Educational Consultants!

Technical Training Aids

2076 Valleydale Terrace
Birmingham, AL 35244

Fax: 205-987-7460

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..

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.

Industry-Based Certification Programs

National Certifications for Robotics and Advanced Automation Manufacturing

FANUC Certified Robot Operator Certifications

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

FCR-O1 FANUC Certified Robot Operator-1

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

FCR-O2 FANUC Certified Robot Operator-2

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

Collaborative Educational Package

FANUC

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

LINCOLN ELECTRIC

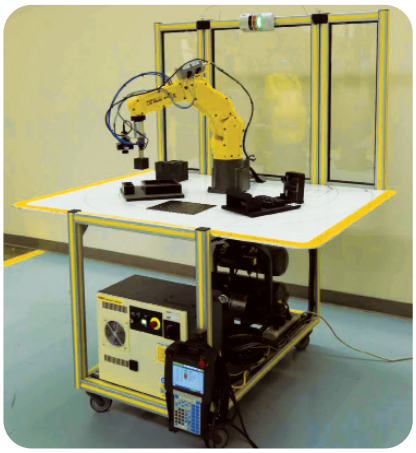
SENSE is a comprehensive set of minimum standards and guidelines for welding education programs. Schools can incorporate SENSE into their curriculum to help attain Perkins funding and help ensure an education consistent with other SENSE schools nationwide. The American Welding Society fully supports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

Industry-Based Certification Programs

CERT Education

FANUC CERT Program Robot Cells Made for Classrooms

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



FANUC LR Mate 200iD/4S Fenceless CERT Cart

CNC Training Solutions

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

Desktop CNC Simulator

Affordable and portable training solution on 'real' FANUC hardware

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

IT Certifications

Microsoft Networking Fundamentals
Microsoft Security Fundamentals
CompTIA A+ Certification CompTIA Network+ Certification
ISACA Security Fundamentals Certificate
CompTIA Healthcare IT Technician
CompTIA Security+
Certified Ethical Hacker
CompTIA Advanced Security Practitioner (CASP)

Smart Home Technologies

MARCRAFT an ETG Brand

Residential Electronics Systems Integrator (RESI)

Smart Home Certifications

Cyber Security Digital Forensics

MARCRAFT an ETG Brand

ETA Residential Electronics Systems Integrator
ETA Audio-Video Endorsement
ETA Security-Surveillance Endorsement
ETA Data Cabling Installer
ETA Certified Alarm Security Technician
ETA Fiber Optic Installer
Consumer Electronics Association: Mobile Electronics Certified Professional Certification

Renewable Energy/Energy Efficiency Certifications

NABCEP PV Installer
ETA Solar/PV Installer
ETA Small Wind Installer
RESNET Rater/Auditor

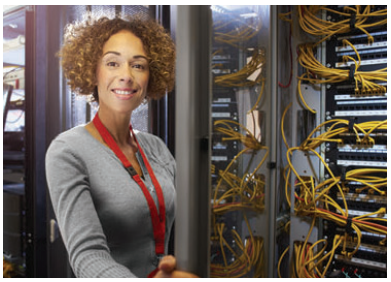
Certified Broadband Training Programs

C-Tech | Hands-On Training for Industry-Recognized Certifications

Telecommunications Technologies

This introductory system teaches all aspects of connectivity methods in today's world. Learn the history, theory, and transmission mediums of communications, as well as Smart Home technologies found in homes and businesses.

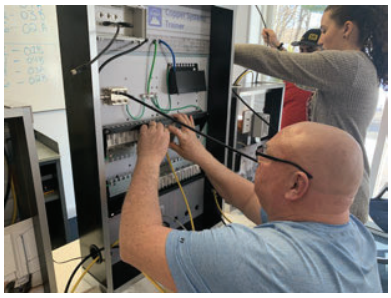
Certification: Telecommunications Technologies



Network Cabling: Copper-Based Systems

Master the basics of copper cabling, installation, construction, and troubleshooting using our patented workstations. Up-to-date industry standards and real world workplace simulations are also a large part of the curriculum.

Certification: Network Cabling Specialist Copper Systems



Network Cabling: Fiber Optics-Based Systems

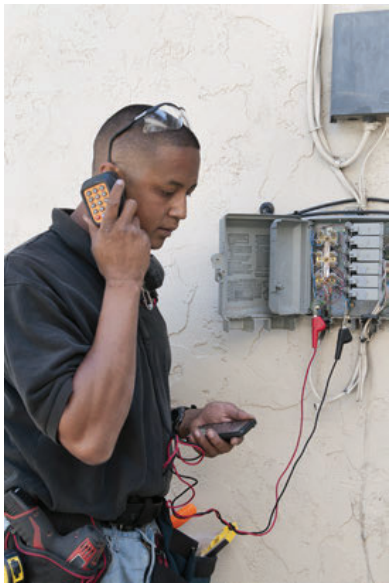
Experience all aspects of fiber optics cabling; students will learn where and when fiber applications are used and how to install this new technology.

Certification: Network Cabling Specialist Fiber Optic Systems

Grounding and Bonding: Copper Systems

Designed to provide additional skill sets aligned with the National Electric Code, this course provides students a complete understanding of external and internal convergence of data, voice, and video services. This program focuses on the primary responsibilities of the technician to properly ground and bond a system.

Certification: Grounding and Bonding Technician



Wireless Systems: Coverage and Capacity

This program provides skills that will provide your students with a complete understanding of wireless systems, 5G antenna installation, equipment connectivity, radio frequency transmission, and reception principles. Students are also trained to properly install antennas on drywall, concrete, and plywood.

Certification: Wireless Technician

Industrial Skills Training: *Advanced Manufacturing*

Connected Smart Manufacturing Training System

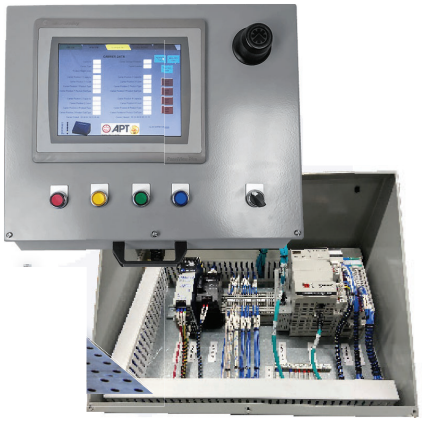
The CSM™ was developed between FANUC America, APT Manufacturing, Rockwell Automation, and listening to the industry's demands for employability skills today and what education needs to deliver this type of technology for preparing students for a smoother transition from education to industry on the first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

- Integrated industrial production line
- Industry 4.0 IIoT
- FANUC & Rockwell integration
  - Part traceability and marking
  - Safety PLC
  - Safety area scan
  - Assembly station
  - Fault detection
  - Vision
  - Conveyors

Industrial Learning System

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

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



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.

Industrial Skills Trainers: *Advanced Manufacturing*

Electrical

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

Mechanical

- Mechanical Drives
- Vibration Analysis
- Laser Alignment

AMATROL

Fluid Power

- Basic Hydraulics & Pneumatics
- Advanced Fluid Power and Troubleshooting

Electronics

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

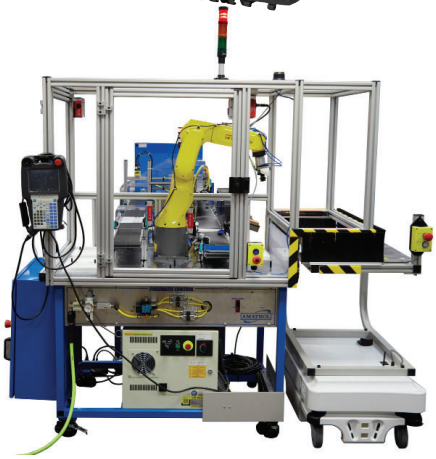
Automation

- Robotics
- PLC's
- Mechanical

FANUC

Smart Factory

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



Process Control

DAC WORLDWIDE

AMATROL

See page 15.

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

Industrial Skills Trainers: *Engineering*

We are a provider of educational engineering training solutions. We develop, create and manufacture solutions which include full and comprehensive curriculum for multiple engineering disciplines.Our solutions are created with students in mind, to ensure each aspiring engineer has access to hands on learning, on industrial standard equipment.

Structures

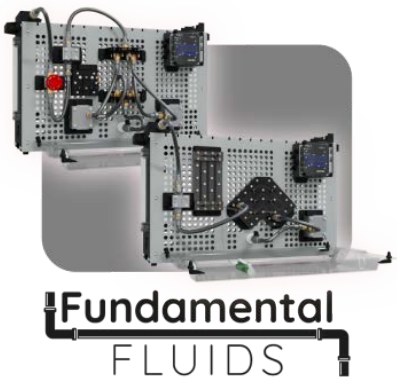
- Moments
- Shear Force
- Reactions of Beams
- Bending Stress
- Deflection of Beams
- Torsion of Rods
- Bending of Beams
- Pinned Arches
- Suspension Bridges
- Trusses
- Indeterminate and Continuous Beams

Mechanics

- Mechanisms
- Statics
- Materials
- Dynamics
- Linear and Rotational Dynamics

Fluids

- Workstation
- Control Box
- Pumps
- Pressure
- Flow
- Manometer
- U-Tube
- Losses in Bends
- Viscosity



Thermodynamics

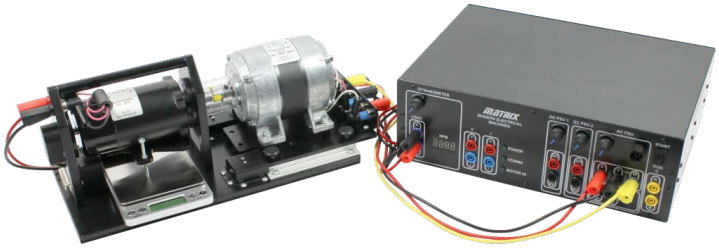
- Heat Capacity of liquids
- Heat Capacity of Solids
- Expansion of Heat
- Heat Absorption
- Charles' Law
- Boyle's Law

Wind Tunnel

- Aviation
- Aerodynamics

Modern Electrical Machines Training System

Modern electrical machines training system is a revolutionary way of safely studying the characteristics of different motor types in a learning environment. This solution includes ten different types of machine, integrated power supply and control box and PC-based applications for advanced controller of the different machine types. Further to this, we provide four separate curriculum manuals for teaching electrical machines principles using manual control with external meters, using PC control and also control using MATLAB.



Industrial Skills Trainers: *Engineering*

armfield

Operating since 1963, the Armfield Education Division designs and manufactures equipment for engineering education and research. Used by universities, colleges, schools and research centres around the globe, Armfield equipment is known for innovative designs and a level of quality unmatched in the industry.The Armfield range covers all of the main engineering disciplines and is constantly evolving in line with the growing demands of engineering education.

Aerospace

- Wind Tunnel
- Bubble Flow Visualization
- Particle Drag Coefficients
- Free Jet Flow
- Axial Flow

Chemical

- Chemical Reactors
- Distillation Columns
- Cross Flow Membrane Filtration
- Liquid Extraction

Civil

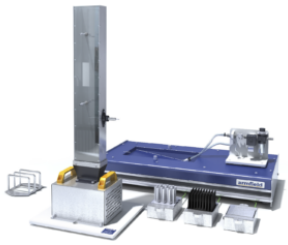
- Sediment Channels
- Ground Water Flow
- Flumes
- Environmental Hydrology
- Hydraulics and Pumps

Fluids

- Vernier Principles
- Manometers
- Pitot Tubes
- Flowmeters
- Valve Cutaways
- Dissectible Pumps and Valves
- Transparent Process Demonstrators

Heat Transfer

- Conduction
- Convection
- Radiation
- Temperature Measurement
- Heat Pump
- Conductivity of Liquids and Gasses



Refrigeration and Air Conditioning

- Vapor Compression Refrigeration
- Computer Controlled AC Unit
- Computer Controlled Recirculating AC Unit

Renewable Energy

- Battery Technology
- Bioenergy
- Biofuel
- Smart Grid
- Fuel Cell
- Wind
- Photovoltaic

Thermodynamics

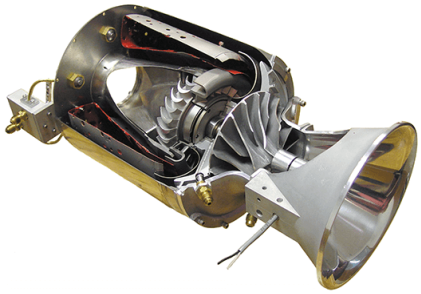
- Temperature Measurement and Calibration
- Pressure Measurement and Calibration
- Saturation Pressure
- Expansion of a Perfect Gas

Industrial Skills Trainers: *Engineering*

Turbine Technologies, LTD.

Turbine Technologies is a United States manufacturer of premier educational laboratory equipment whose products offer engineering and technical college students unique learning opportunities. Since 1986, Turbine Technologies has been partnering with faculty and instructors worldwide via the design and manufacture of turnkey classroom devices that support educational output objectives in science, technology, engineering and math (STEM).

Turbine Technologies' products offer real-world experience in engineering and technology disciplines that include:



Aerospace & Aeronautical Engineering
Chemical Engineering
Civil Engineering
Electrical Engineering Electromechanical Technology Industrial Engineering
Mechanical Engineering
Petroleum Engineering
Renewable Energy Engineering
Mechatronics
Programmable Automation & Controls
Mechanical Engineering Technology

MiniLab™ Small Turbine Engine Lab

MiniLab™ is a self-contained turbojet gas engine test cell for small jet engine technology. Utilized by hundreds of leading educational institutions, the included SR30 turbojet engine offers exciting teaching opportunities in applied thermodynamics and jet propulsion.

A National Instruments™ based data acquisition system displays and records compressor inlet temperature and pressure, turbine inlet temperature and pressure, turbine exit temperature and pressure, thrust and fuel flow and makes possible studies of:

- Brayton Cycle
- Compressor Performance
- Turbine Performance - work & power, expansion ratio, turbine efficiency
- Combustion/Emissions Analysis

WindLab™ Electrical Generation System

WindLab™ is housed in a self-contained wind tunnel and includes a variable frequency drive for programming custom wind profiles. Its 3-phase generator is driven by a planetary gearbox. A unique aspect includes rapid prototyped airfoils that enable open-ended student design.

Industrial Skills Trainers: *Electronics Training*

Smart Controls Troubleshooting (895)

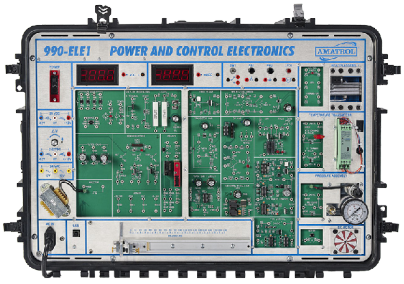
Future-Ready Skills: Pave the Way for Industry 4.0 Careers

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

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

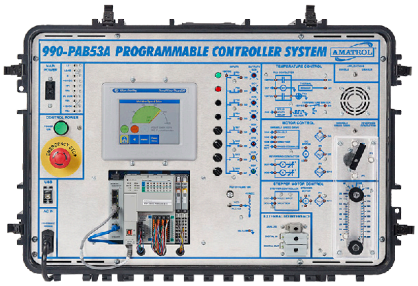
Expand Your Electronics Training

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



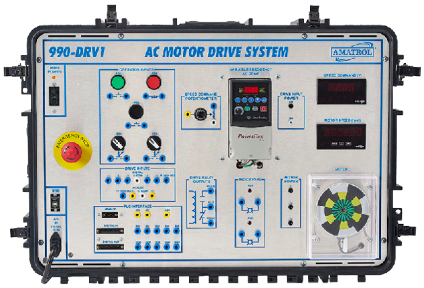
Components, Circuits & Applications

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



Allen-Bradley CompactLogix L16 Programming

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



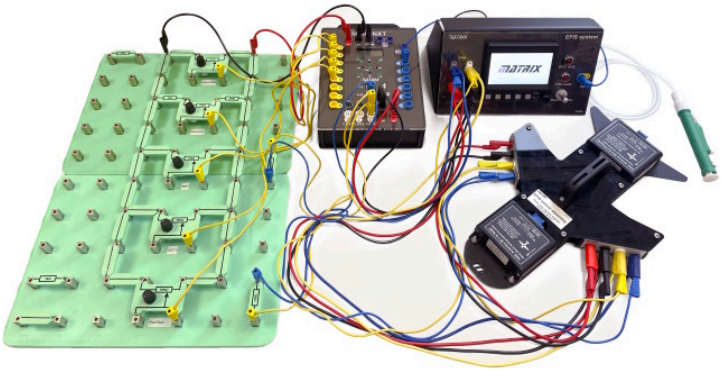
Portable AC Variable Frequency Drives Troubleshooting

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

Industrial Skills Trainers: *Electronics Training*

Locktronics

Locktronics is a range of products that simplifies the process of learning and teaching electricity and electronics. The core range consists of more than 200 electronic components ANSI and DIN mounted on rugged plastic carriers which are printed with the corresponding circuit symbol. Students use the carriers, in conjunction with a baseboard with interconnecting metal pillars to build up a working circuit, then use the worksheets provided to carry out experiments. All solutions are provided in sturdy storage solutions and with up-to-date curriculum always available online. Solutions are designed to be used 1 kit between 2 students.



MATRIX

FLOW CODE

Flowcode allows students to develop highly functional electrical, electronic and electromechanical systems for embedded microcontroller-based systems. It is used to support learning in a range of technical disciplines throughout the world in schools (14+), colleges and universities.

We have a large portfolio of dedicated hardware for education with features optimized for learning. For our E-blocks products this includes on-board instruments (oscilloscope and data recorder), In Circuit Debug, In Circuit Test, rugged construction, and storage trays.

//ALLCODE™

AllCode is a new concept in programming. All our AllCode products are host independent, run on a powerful 16bit dsPIC microcontroller and can be used with just about any programming language, including Flowcode, MATLAB, LabVIEW, Python, App Inventor, Visual Basic/C#/C++ and more.

Both Formula AllCode and the Robot Arm production cell are provided with free curriculum, helping you to get the most out of your new robotics solution.

AUTOMATICS

Automatics is a range of products that simplifies the process of teaching and learning about pneumatic and automation systems. The Automatics range has been designed to suit the classroom environment. The pneumatic components are identical to those used by real engineers, but have been cleverly adapted so that students can construct automation systems speedily and without tools.

Industrial Skills Trainers

Industrial Maintenance & Mechatronics

Amatrol delivers total learning solutions for advanced manufacturing!

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

Key Features:

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

Industry Skill Areas:

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

Multimedia

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

Mechatronics CERT Cart

iIM5.0 – Industrial-Integrated Mechatronics Trainer

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

Industrial Skills Trainers: *Portable Trainers*

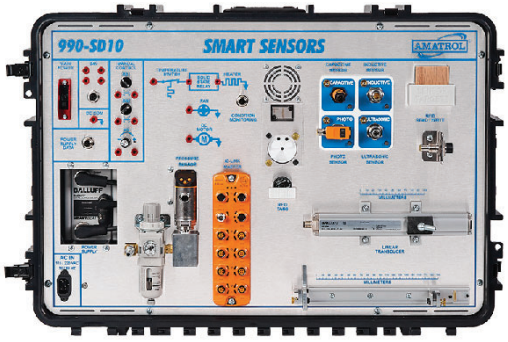
AMATROL®

Portable Learning Systems:

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

Portable Learning Systems

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



Comprehensive Training

No Sacrifice for Portability

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

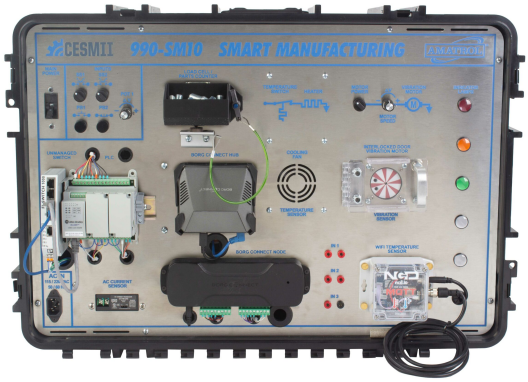
Portable Systems with Electronic Fault Insertion
:

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

FaultPro Troubleshooting Training

FAULTPRO

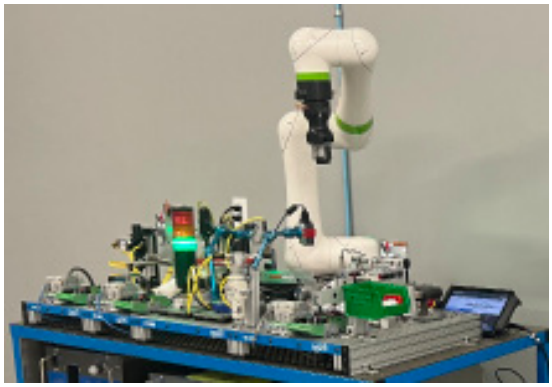
Amatrol's FaultPro computer-based fault insertion software automatically inserts faults allowing students to learn troubleshooting in a self-directed environment. Teacher intervention is not required allowing them to support more students. *Available on many models.*



Portable Smart Manufacturing Training System

Amatrol's Smart Manufacturing Learning System was developed in partnership with CESMII - The Smart Manufacturing Institute, to answer the call for hands-on learning in Smart Manufacturing and Industry 4.0 technologies. Combining hardware, industrial software products and solutions, and in-depth exercises, this system has been designed to educate and equip learners at all levels of expertise

Industrial Skills Trainers: *Smart Factory*

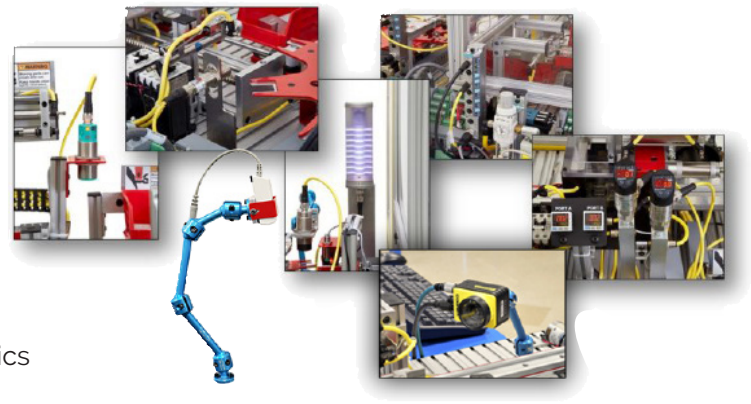


Smart Factory / Industry 4.0

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

Smart Product ID

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



Smart Sensors

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

Network Communications

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

Network Security

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

Smart Production

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

SMART AUTOMATION CERTIFICATION ALLIANCE

Smart Maintenance

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

Industrial Skills Trainers: *Smart Factory*

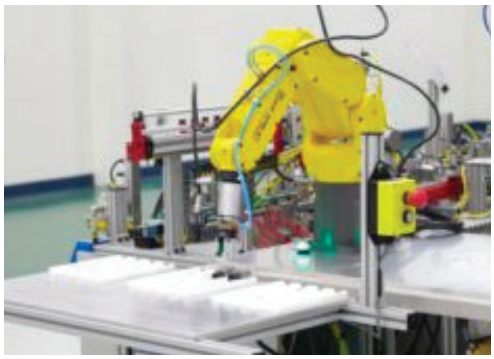
Smart Factory Enterprise

Next-Level Industry 4.0 Training

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

Autonomous Robot System

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



Smart Robot Workcells

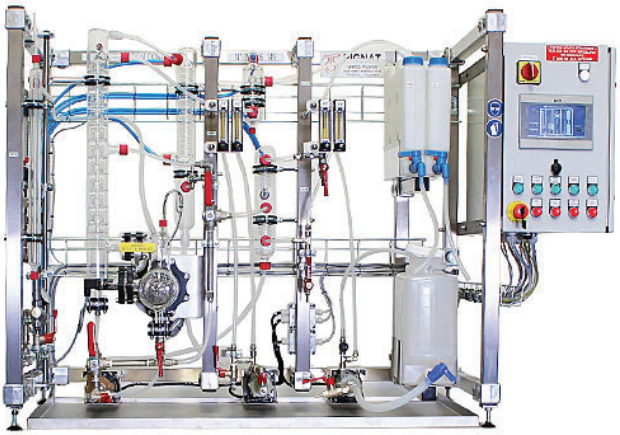
Amatrol's Smart Robot Workcells allow users to integrate a variety of industrial FANUC robots with their Smart Factory Enterprise system. The following FANUC robots can be used: FANUC 200iD/4S, FANUC 200iD, and FANUC SCARA SR-6iA. The workcells also include a mobile workstation with a grid surface, a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

Smart Conveyor System

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

Industrial Skills Trainers: *Process Control*

PIGNAT



PIGNAT manufactures equipment incorporating a wide range of cutting-edge technologies, with genuine know-how that enables them to offer relevant, innovative solutions to our customers in a wide range of sectors. As the market leader in pilot equipment for teaching process engineering and the physical phenomena associated with it, Pignat facilities have enabled entire generations of operators, technicians and engineers from all over the world to receive training and gain access to emerging technologies.

Computerized Chemical Reactor (REA/3000)

Batch Continuous Distillation Trainer (DVI/3000)

Compact Continuous Distillation Trainer (DVI/100)

Industrial Process Control

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

Level / Flow Process Control Learning System (T5552)
Temperature Process Control Learning System (T5553)
Analytical Process Control Learning System (T5554)
Pressure Process Control Learning System (T5555)

DAC WORLDWIDE

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.

Industrial Skills Trainers: *Renewable Energy*

Renewable Energy Learning Systems

Alternative Energy

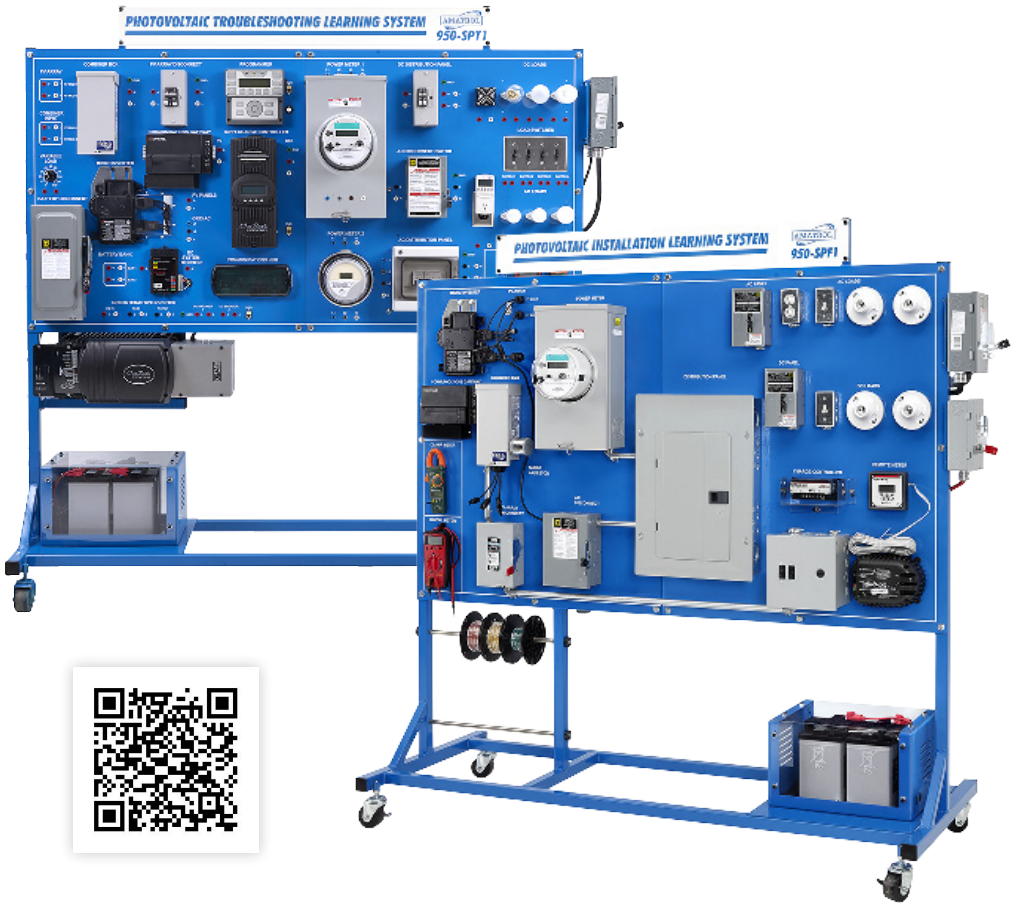
The Amatrol Alternative Energy Learning System – Wind and Solar includes a mobile workstation with solar PV components, small wind components, multimedia student curriculum, and teacher's assessment guide. The mobile workstation is equipped with pre-mounted components for easy inventory. Wind turbine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

Solar PV

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

Solar Thermal

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



Training Products

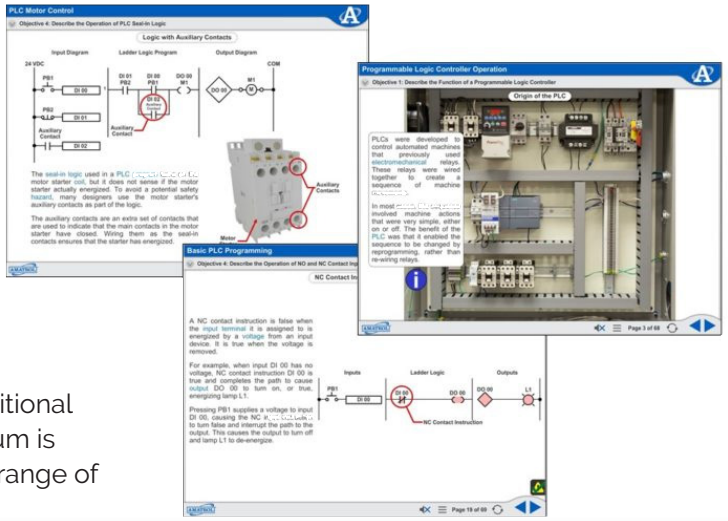
- Alternative Energy Training
- Open-Loop Solar Thermal Troubleshooting Training
- Solar Concepts Training
- Solar Thermal Troubleshooting Closed-Loop Training
- Turbine Electric Hub Troubleshooting Training
- Wind Concepts Training
- Wind Turbine Generator Control System
- Wind Turbine Nacelle Training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

Industrial Skills Trainers: *eLearning*

Amatrol eLearning

Interactive Technical Skill Development, Hands-On Virtual Simulators!

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



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

Amatrol Virtual Trainers

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

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

Amatrol eAssessment

Identify Skill Gaps for More Efficient Training

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

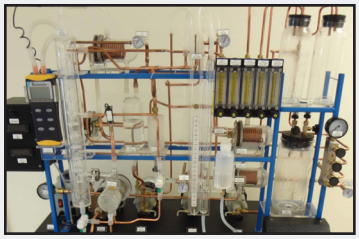
Training Topics Include:

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

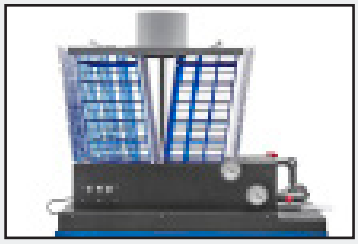
ttaweb.com | 1-800-851-3987

Industrial Skills Trainers

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

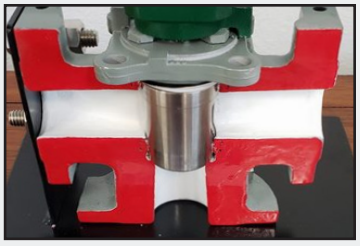


Training Systems
Give students hands-on experience working on equipment they will encounter in their careers.



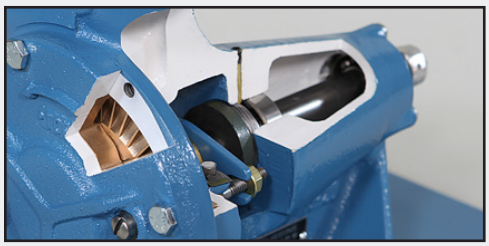
Working Demonstrators
Offer realistic, first-hand visualization into the inner workings of industrial components and structures.

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

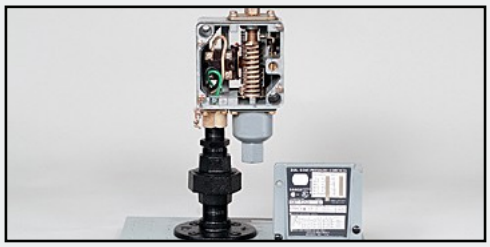


Cutaways
Allow learners to see & understand the internal operation of actual industrial components.

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



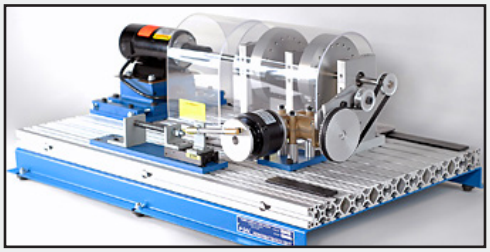
Industrial Cutaways
These cutaways are restored real-world industrial components sectioned to expose each device's primary features and refinished.



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

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

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

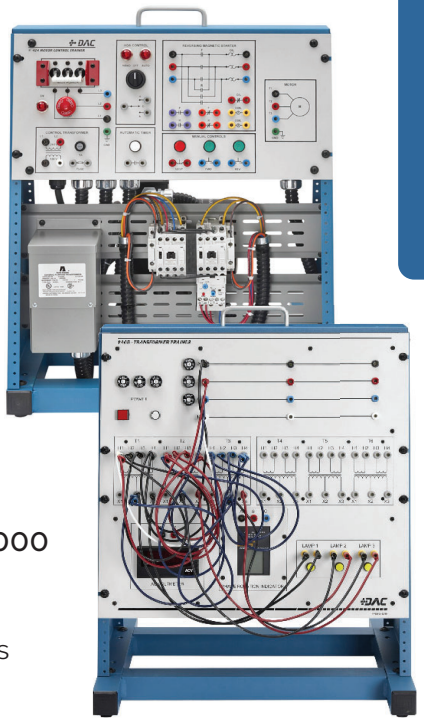


Training Systems
These systems are built with full-size, industrial-quality components, as well as high-durability, powder-coated surfaces throughout.

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

Industrial Skills Trainers

Electrical & Electronics



- Basic Electrical & Transformers
- Motor Control
- Safety / Lock-Out Tag-Out
- Fuses
- Variable Frequency Drives
- Programmable Logic Controllers

3-Phase Motor Control Training System with Magnetic Starter, Low Voltage Start | 424-000

Principles, wiring, troubleshooting and application of reverse magnetic starters

Transformer Wiring Training System | 408-000

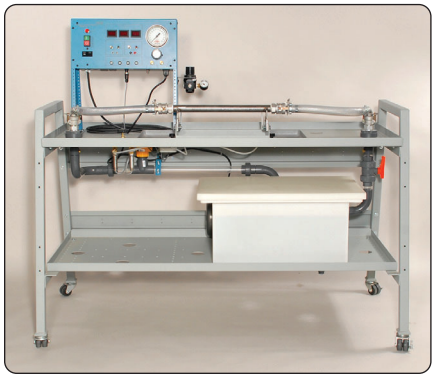
- Conditions and circumstances of making common transformer connections
- Includes two complete set of three-phase transformers for paralleling training

Transformer Connections Training System | 491-000

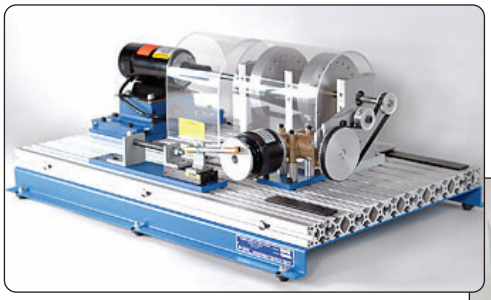
- Training in paralleling of generators and connecting to large power grid using modern equipment
- Single-phase and three-phase transformer connections

Mechanical Maintenance

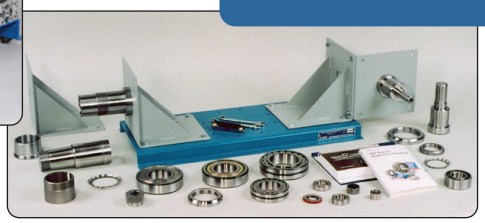
- Gears
- Belts and Chains
- Coupling and Shaft Alignment
- Bearings
- Vibration Analysis, Brake Clutch and Fan Balancing



Control Valve Training System Plus | 618-CTL

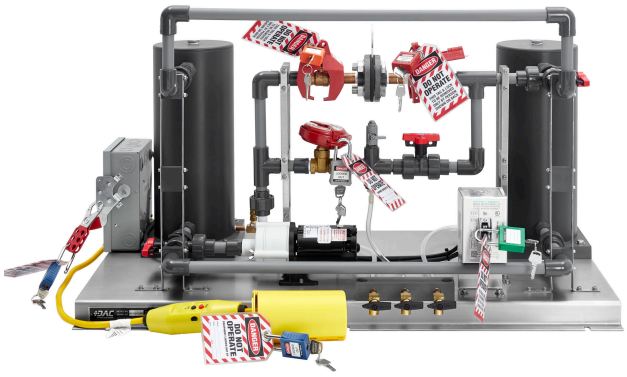


Advanced Vibration Analysis | 203E-PAC



Extended Bearing Maintenance | 204E-PAC

DAC WORLDWIDE



Lock-Out/Tag-Out Training System

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.

The training system includes two process tanks; a centrifugal pump; a complex, multi-purpose piping network; electrical controls; and a variety of lockable system components. A lock-out/tag-out kit that features a large number of commonly-encountered locking and tagging devices is also included.

Industrial Skills Trainers: *High School*

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.

Create Foundations For Rewarding Careers

IGNITE
Mastering Manufacturing

Technical Skills

Learning advanced manufacturing technical skills becomes an energizing experience for students with IGNITE's state-of-the-art interactive multimedia curriculum. IGNITE courses consist of elearning lessons that combine animations, video, and graphics organized in a fun, interactive format. Many lessons provide Virtual Trainers where students can perform hands-on skills in a simulated environment.

Capstone Projects

Students learn critical problem solving, teamwork, and troubleshooting skills by participating in the development of projects. IGNITE's capstone projects are real working devices students fabricate, test, and analyze.

IGNITE
Mastering Manufacturing

IGNITE Mastering Manufacturing is a foundational skills development program designed to teach the skills required to succeed in today's advanced manufacturing world. This modular program can be used as a 1, 2, or 3 year advanced manufacturing program. It includes a highly interactive eLearning curriculum, computer simulations, design projects, and hands-on workstations.

Hands-On Technology

IGNITE enables students to master industry relevant technical skills through activities with industrial quality hands-on workstations. The IGNITE curriculum provides step-by-step procedures to make learning successful and safe.

Employability Skills

Employability skills such as teamwork, communication, & professionalism are essential to be successful in the workplace. The IGNITE curriculum provides a better method for learning these skills through structured interactive multimedia lessons and application in the Capstone Projects.

Laser Cutting & Engraving Machines

Welcome to SA Laser, we're are a veteran owned US based company specializing in the sales of high quality Fiber and CO2 lasers whose key to success has been our relentless emphasis on training our clients to become experts in the field of laser engraving.

BLADE DESKTOP SERIES

Series Offers:
50w RF Premium Source
1200 DPI Engraving
1800mm Gantry Speed
12"x20" Worktable
Front & Rear Pass-Through Doors

POLYMETAL SERIES

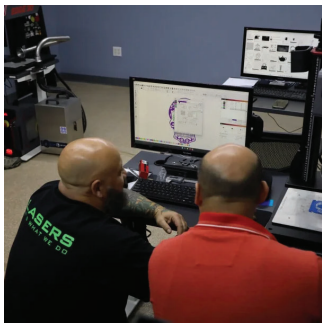
Series Offers:
Raycus Q laser source
Engraving speeds of up to 275" (23 feet) /sec
Deep engraving, marking, cutting
7.87" x 7.87" work area
Rotary attachment included
5 day training included

RAZOR SERIES

Series Offers:
80w-130w glass tube
Work beds up to 52"x36"
Integrated Camera
5 day training included

SABER SERIES Laser Welder

Series Offers:
CUTS,CLEANS,WELDS
10x Faster Than TIG Welder
Low Heat Transfer



SPARK Laser Training

At SA Laser, we understand that navigating the complexities of Laser engravers and mastering the LightBurn software can be daunting. Whether you are looking to learn Galvo or CO2 lasers, we've tailored an expert training program that transforms uncertainty into confidence. Whether you're facing operational challenges or looking to refine your skills, our training is the answer.

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™

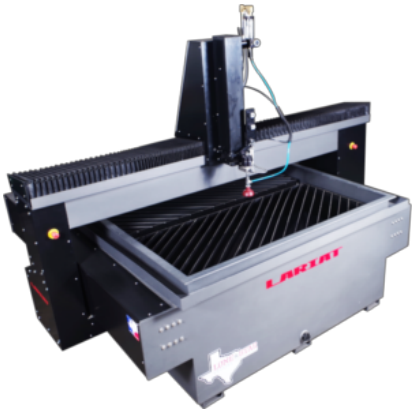
THE WORLD LEADER IN
FUME EXTRACTION TECHNOLOGY

CNC Routers and Plasma

Lone Star Cutting Solutions is a premier provider of cutting solutions for the manufacturing industry. With years of experience, they offer cutting-edge equipment and services to enhance productivity and efficiency. Their diverse range of solutions caters to industries like metal fabrication, woodworking, plastics, and aerospace, featuring CNC plasma cutters, laser cutting systems, waterjet machines, and router tables, all designed for precision and reliability.

The **Scout** CNC plasma cutting system is the ultimate solution for faster cutting, superior quality, and unmatched consistency. Whether you need a standard CNC plasma table or High Definition cutting, the Scout has got you covered.

Discover the **EZ Router**, a CNC router that has set the standard since the early 2000s. With thousands still in operation today, the EZ Router is the perfect solution for hobbyists and production shops on a budget.



Elevate your cutting capabilities with the **Lariat** Waterjet Table from Lone Star Cutting Solutions. Paired with the industry-leading KMT waterjet system, the Lariat offers unparalleled precision and versatility for cutting all substrates using pure water or abrasive methods.

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

Miller

Fronius

MOD-WELD

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

Machine Tending Education Cell Simulator - MTEC

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

Curriculum

FANUC Robotics Courses:

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

APT MANUFACTURINGsolutions

CNC Concepts Courses:

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

APT Integration Courses:

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

CNC & Robotics Training

Levil Technology is dedicated to the design and production of tabletop CNC machines that have a broad array of users across many industries. Unlike many tabletops out there, Levil Technology's machines are able to reach incredible precision and high speeds thanks to servo-controlled technology. Not only are they capable of machining, but they can also digitize, change, and measure tools automatically, perform CAN cycle, and much more, using a simple to use Windows-based software or industry-proven FANUC control.

EDU-MiLL
The EDU MiLL is a compact and versatile CNC machine, designed to deliver precise milling. It offers optional 3D and metal 3D printing capabilities, making it ideal for classrooms, workshops, and production floors.

EDU MiNi MiLL
Introducing our newest machine – The Edu Mini Mill features our proprietary control and industry-standard control like FANUC. It can cut light materials and engrave metals, making it perfect for makers, students, and educators.

LTC-30 Series
The LTC-30 is a compact yet powerful CNC turning machine perfect for any instructor looking to provide students with a capable teaching tool within a small classroom.

LMV-400 - Milling Machine
The LMV-400 features servo motors, precision ball screws, and a high-speed spindle, up to 100,000 RPM, allowing it to handle a wide range of materials with ease. With an automatic tool changer and user-friendly CNC controller, the LMV-400 boosts productivity and reduces setup time, providing exceptional performance in a small footprint.

The ROBODRILL α-D*i*B5 series comprises six completely re-designed models in S, M and L sizes, available in either standard or advanced versions.

ROBODRILL Standard version: focus on efficiency
The standard version ROBODRILL α-D*i*B5 is a fast, high-quality and versatile machine. With a number of different spindle options to choose from, it's perfect for standard applications. Excellent repeatability makes this model ideally suited to applications such as high-speed milling, drilling and tapping in the tooling and general industries.

ROBODRILL Advanced version: extra-strong and superfast
Advanced ROBODRILL α-D*i*B5 ADV models are designed for cutting-edge, high-speed machining and set the performance benchmark in their class. Faster tool change and better chip evacuation make the Advanced version perfect for long fully automated production runs and represents a versatile alternative to larger machines. Advanced models come with a range of highly advanced features not available on standard models.

Compact Machines, High Precision & Minimal Footprint

Optimize your workspace and production with our compact, efficient CNC machines.

CNC & Robotics Training

DENFORD®

Compact 1000/1000 Pro

COME AS STANDARD WITH:

- VR CNC Milling Operating Software (PC not included)
- QuickCAM 2D Design Software (1 seat)
- Aluminium T Slot Table
- Outlet for Dust Extraction System
- Workholding Clamps
- Installation and Instruction Manuals
- Ethernet or USB Connection

Various sizes and options available.

Router 2600/2600 Pro

COME AS STANDARD WITH:

- VR CNC Milling Operating Software (PC not included)
- QuickCAM 2D Design Software (1 seat)
- Aluminium T Slot Table
- Outlet for Dust Extraction System
- Workholding Clamps
- Installation and Instruction Manuals
- Ethernet or USB Connection

Micromill Pro

CNC MILLING MACHINE

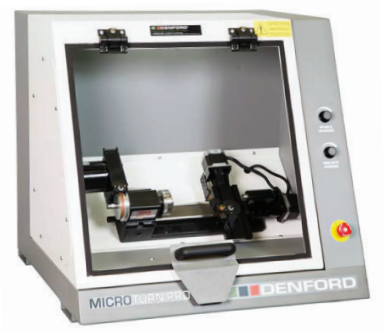
COMES AS STANDARD WITH:

- VR CNC Milling Operating Software (PC not included)
- QuickCAM 2D Design Software
- Workholding Clamps
- 3 x 6mm Dia Toolholders
- 2mm, 4mm & 6mm Dia Slot Drills
- Set of Imperial / Metric Allen Keys
- Maintenance Tools
- Installation and Instruction Manuals

Router 6600/6600 Pro

COME AS STANDARD WITH:

- VR CNC Milling Operating Software (PC not included)
- QuickCAM 2D Design Software (1 seat)
- Machine Bench
- Aluminium T Slot Table
- Outlet for Dust Extraction System
- Workholding Clamps
- Installation and Instruction Manuals
- Ethernet or USB Connection

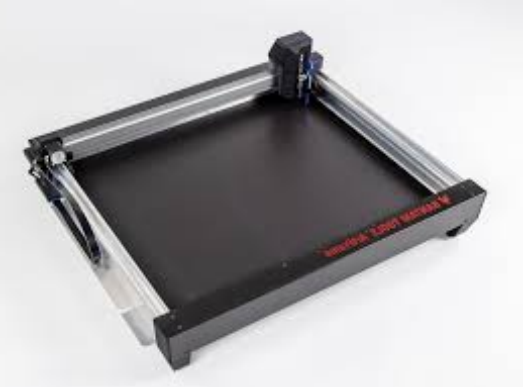


Microturn Pro

CNC LATHE

COMES AS STANDARD WITH:

- VR CNC Turning Operating Software (PC not included)
- QuickTURN 2D Design Software
- Quick Change Toolpost & Holders
- LH and RH Cutting Tools
- Parting Off Tool
- 2 ½" Dia 3 Jaw Chuck & 2 Tommy Bars
- 1 ½" Standard Toolpost
- Tailstock
- Set of Imperial / Metric Allen Keys
- Maintenance Tools
- Installation and Instruction Manuals



BANTAM TOOLS®

The Bantam Tools ArtFrame™ 1824 and 2436 are innovative art machine systems designed for professional artists who want to transform their digital designs into physical masterpieces. ArtFrame's intuitive software converts your designs into standard CNC G-code, providing a link between Art and Manufacturing. ArtFrame opens a world of possibilities for creators seeking new forms of artistic expression.

Intelligent Robots That Work

STOKES EDUCATION

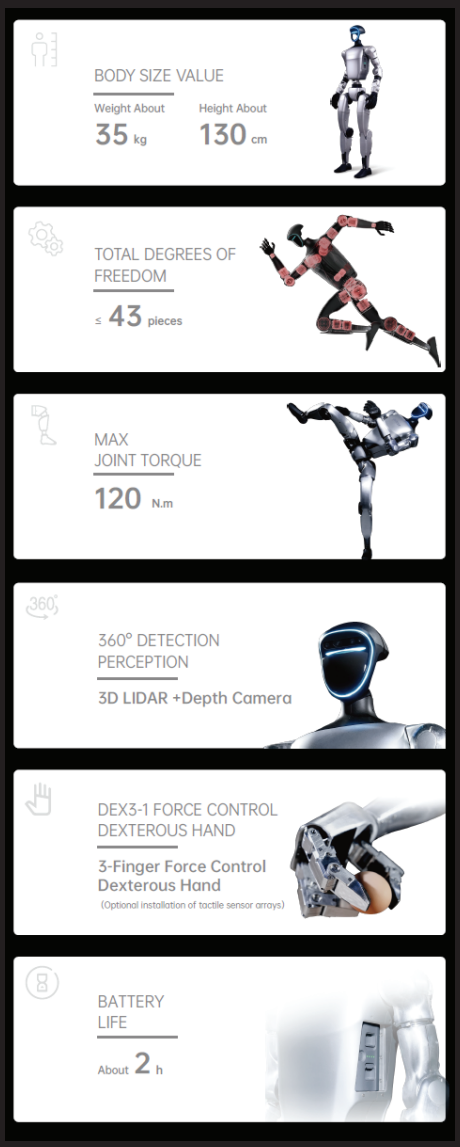
SHEP

New Creature of Embodied AI

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

GiGi

Humanoid Agent AI Avatar



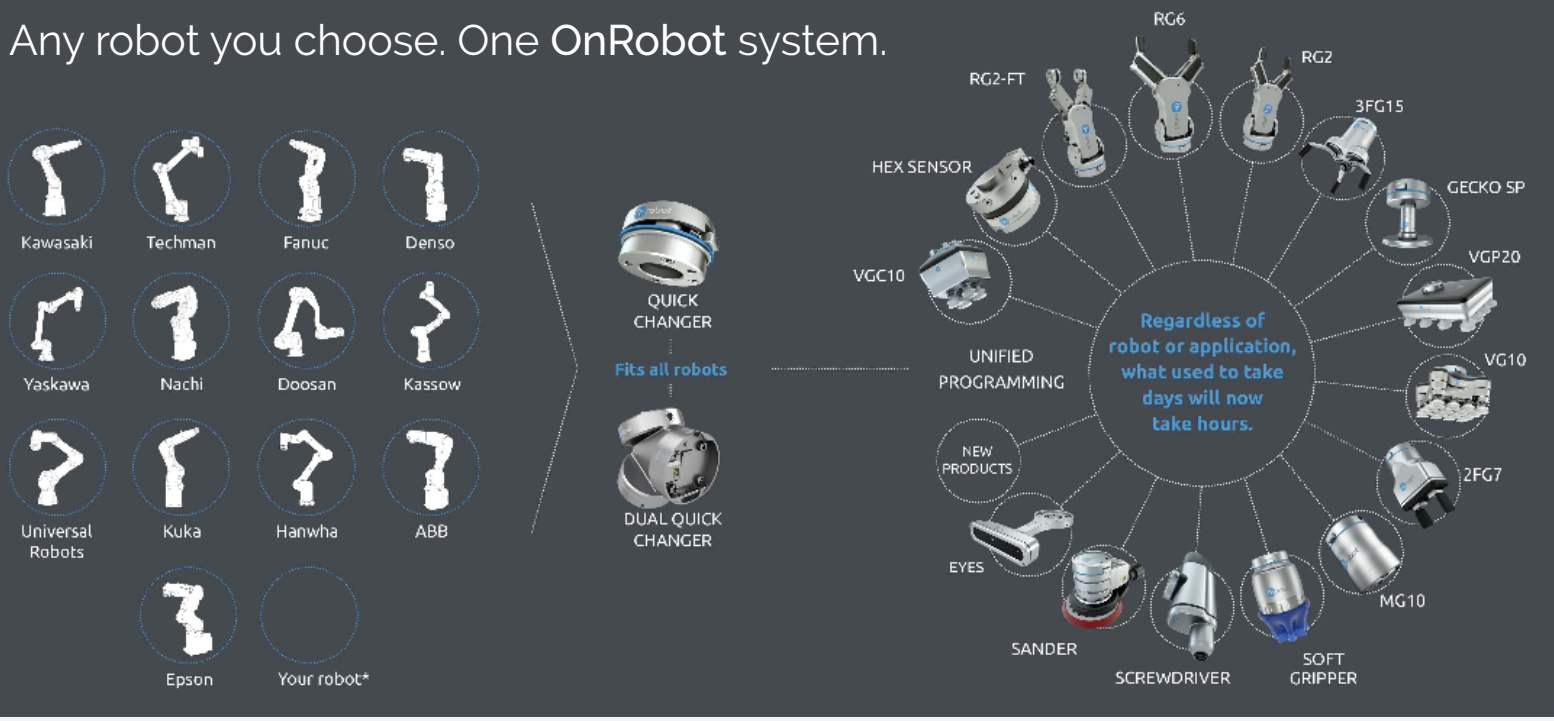
Collaborative Robot Accessories

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

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

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

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



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


Multimedia Curriculum and Student Reference Guide

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

950-ELF1

85-MT7-B

Construction: *HVACR*

HVACR Learning Systems and Curricula

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

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

TOPICS

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

- Residential Heat Pump Troubleshooting Learning System (T7100)
- Residential Mini-Split Heat Pump Learning System (T7130)
- Refrigerant Recovery and Charging Learning Systems for R-134a/R-410a (T7031/T7032)
- Combined Refrigeration Installation Learning System (T7200)
- Amatrol's HVAC Controls Learning System (T7300)
- Thermal Science Learning System (T7081)

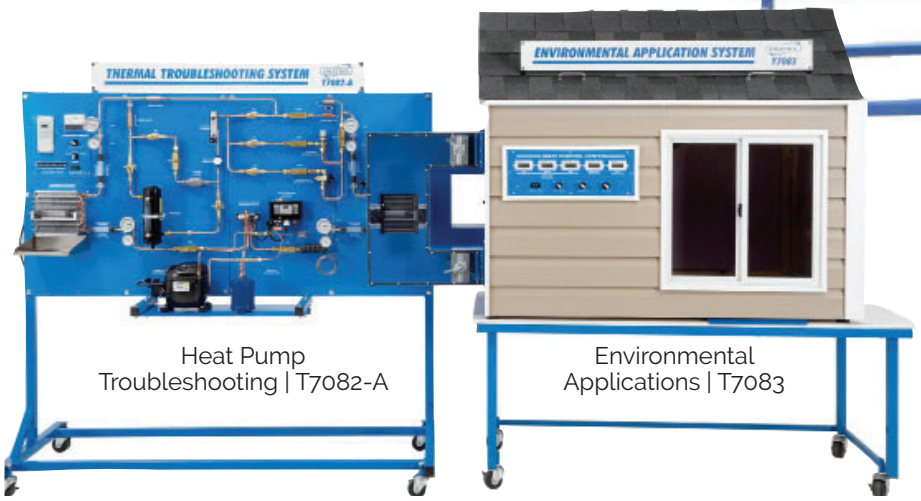
Commercial Refrigeration Learning System

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

Construction: *HVACR*

Industrial Refrigeration Learning System | T7500

- Industrial Refrigeration Introduction
- Smart Refrigeration Controls
- Ethernet and Wi-Fi Communications
- Chiller Systems and Visualization Software
- Multi-Zone Industrial Refrigeration
- Mechanical and Electrical Component and System Troubleshooting



Heat Pump Troubleshooting | T7082-A

Environmental Applications | T7083

Heat Pumps

- Insulation
- Psychrometrics
- Residential Heating and Cooling
- Thermal System Performance

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.

DAC WORLDWIDE

Construction: *Heavy Equipment*

SIMLOG

The Standard in Cost-Effective Simulation for Training Heavy Equipment Operators

Operator Chair and Desktop

Teach Heavy Equipment Operator Skills Safely and Affordably

STEM: *Virtual Reality*

Next Generation solutions for training the workforce and engaging students

Lobaki™ Immersive Educational Experience

Lobaki provides an ever-expanding catalog of VR experiences for industrial training, education, healthcare, and more. At Lobaki, they are constantly creating new, powerful experiences to address the needs of organizations as they adapt and grow. These VR experiences are designed in-house and can be configured to run on all major hardware providers such as: Oculus, HoloLens, Vive, and Magic Leap.

Your students respond best to highly engaging content and Lobaki simplifies the technical and creative process to help you transform your instructional curriculum into a cutting-edge experience that will have your students asking for more.

FreeRangeXR™

FreeRangeXR creates Extended Reality (XR) experiences including Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) employee trainings.

We offer custom solutions for any business to teach employees both technical and soft skills. Our immersive learning solutions can be applied to businesses in construction, manufacturing, public sector, retail, hospitality, education, sports and more.

We can deliver any level of immersion to provide fun, engaging, and highly effective learning experiences while saving our clients money and protecting them from risk.

VR and AR Learning Module Categories:

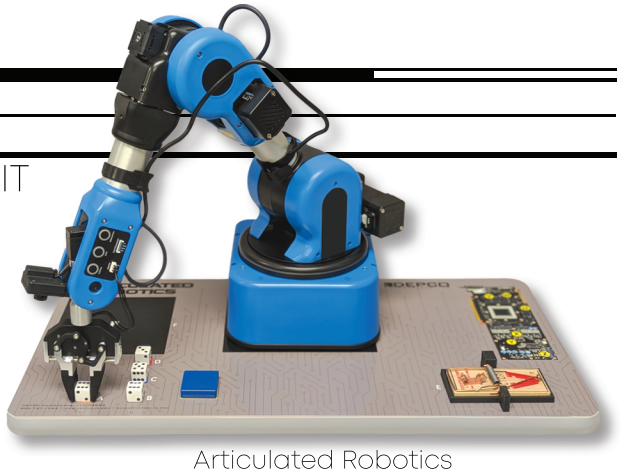
STEM

DEPCO ENTERPRISES LLC

CAREER EXPLORATION

MARKETING - BUSINESS - STEM - FACS - IT

- **Building Contruction**
- **Finance**
- **Four-Stroke Engine**
- **Residential Plumbing**
- **Electronics**
- **Flight Transportation**
- **Vinyl Sign Making**
- **Embroidery**
- **PLC Basics**
- **AND MUCH MORE**



Articulated Robotics

HEALTHCARE

CAREER PATHWAY CURRICULA

- **Healthcare Data Managment**
- **First Aid & CPR**
- **Sports Medicine**
- **Pharmacology**
- **Veterinary Science**

NCHSE National Consortium for Health Science Education

hosa future health professionals

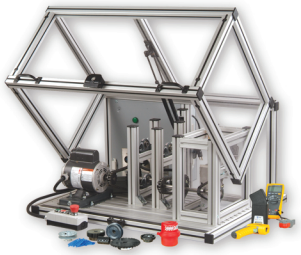
Ophthalmology

AND MUCH MORE

INDUSTRIAL AUTOMATION & PRE-ENGINEERING

MECHATRONICS - MAINTENANCE - ENGINEERING - MANUFACTURING

Industrial PLC



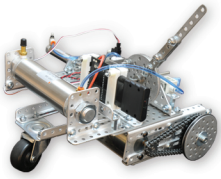
Mechanical Systems

- **CNC Machining**
- **Motor Controls**
- **Hyraulics**
- **Pneumatics**
- **Sensors**

AND MUCH MORE

ROBOTICS

Gears Educational Systems
A PRODUCT OF DEPCO ENTERPRISES, LLC



GEARS IDS

BRAIN & SENSORS KIT

AMP IT UP

AND MUCH MORE

STEM

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

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

Immersive Curriculum and Labs

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

UAV Drones Lab

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

Electric Car Lab

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

Foundations to Robotics - 4x4 or 6X6

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

More Options:

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

An interactive approach to STEM Education.

STEM

Engineering

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
- Electronics
- Manufacturing
- Mechatronics
- Electrical Engineering
- Mechanical Engineering
- Engineering Science
- Engineering Materials

Contact us for a FREE demo of our online library!

STEM Design Program

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.

UniTrain

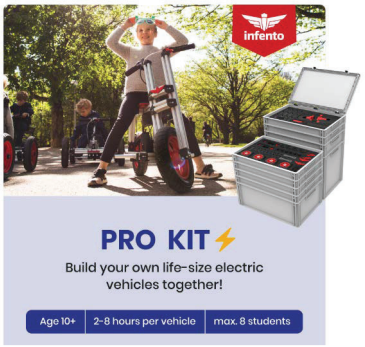
The Mobile Desktop Laboratory for Electrical Engineering

- 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

LUCAS-NÜLLE

Imagine LEGO meets Tesla! Infento is a build-your-own electric vehicle product line that has developed modular parts for your students to create life-size electric vehicles and science builds. You can build a skateboard, recumbent bicycle, water rocket, fitness machine, electric motor - bike or electric kart... anything is possible with Infento!

While students build together, they will acquire new skills that they can benefit from throughout their entire life. Students will learn about mechanics, realizing a design plan, assembling, tools, braking systems, electric mobility and much more. Students can also make their vehicles autonomous using Infento! Students can build anything their imagination can think of with Infento all while learning about engineering.



Quasi Robotics

Model C2e Cart

Autonomous Supply & Material Delivery

The Model C2e offers students a hands-on opportunity to explore the principles of autonomous navigation and robotics. Students can safely learn practical applications of sensor integration, path planning, and machine learning.

This intuitive yet powerful platform inspires learners to engage with real-world automation solutions, fostering problem-solving and critical thinking skills in the fields of robotics and technology.

225 lb	45 min	16 hr	360°
Payload	Set-up	Battery	Safety

ENSURE YOUR STUDENTS' FUTURE WITH SOLIDWORKS

SOLIDWORKS skills are in high-demand within the commrcial industry, and educators can benefit by preparing students for high-demand careers through industry-recognized certifications and access to essential resources for bridging the education -industry gap.

STUDENTS GET HIRED WITH SOLIDWORKS SKILLS

SOLIDWORKS offers a gateway to diverse job opportunities in industries like manufacturing, engineering, and product design.

- SOLIDWORKS unlocks a wide array of career opportunities globally, offering a substantially greater volume of job postings than alternative CAD programs.
  The software's industry-recognized credentials give students a competitive edge in the job market.

STUDENTS EXCEL WITH INDUSTRY-RECOGNIZED CERTIFICATION

Offering industry-recognized certifications to your students will boost your class's reputation and inspire future success.

- Employers actively pursue candidates who demonstrate their CAD expertise through SOLIDWORKS certifications.
- Certifications like CSWA-Mechanical Design, CSWP-CAM, and CSWP-Simulation prove students skills.
- The SOLIDWORKS Provider program allows educators to easily distribute and automatically grade exams.
- Certifications are included for free with an active SOLIDWORKS Subscription! Offering over 15+ industry-recognized certifications in 10+ languages.

SUBSCRIPTION BENEFITS

All included in one exclusive package!
• Concurrent Network Licensing at the School.
• Access to all software upgrades and service packs
• SOLIDWORKS access for teachers and students on home devices.
• SOLIDWORKS Certifications Exams
• Extensive online training resources
• 24/7 Customer Support
• Dedicated SOLIDWORKS Partner

PRODUCT MATRIX

Explore our CAD/CAM/SIM offerings.
• SOLIDWORKS CAD Premium (Parts/Assemblies/Drawings/Multibodies/etc.)
• Simulation tools for motion and FEA
• CAM Professional for integrated design & MFG
• Flow Simulation and Electronics Cooling/HVAC Module
• Visualize Professional for rich content development
• Product data management with SOLIDWORKS PDM
• Plastics Premium for mold filling analysis
• Electrical system design tools & so much more!

LEARNING RESOURCES

Discover a wealth of SolidWorks learning resources
• MySolidWorks (Videos/Learning Paths/eCourses)
• Certification Exam Practice Problems
• SOLIDWORKS YouTube Channel
• Curriculum and Lessons

Our 3DEXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our 3DEXPERIENCE platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit www.3ds.com.

STEM: *Industry 4.0*

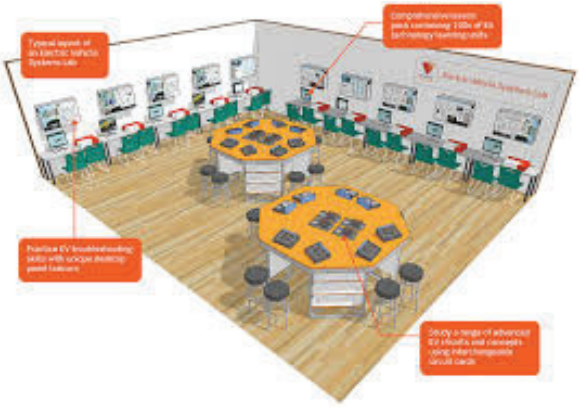
Industry 4.0 Career Pathways Program

Give students a foundation in Industry 4.0 and STEM concepts.

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

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

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



Industrial Skills
Safety
Quality systems

Industrial Equipment
Fluid power
Robotics

Smart Sensors and Devices
Sensors and smart sensors
Data collection

Control Systems
Industrial control and PLCs
Motor control

Connectivity and Networking
Computer networks
Wireless communication

Data Analytics
Statistical analysis
Database use

Project-Based Learning

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

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

LJ CREATE™
Learning for life

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.

Makerspace

Mimaki®

Founded in 1975 in Tomi-shi, Nagano, Japan, Mimaki's portfolio includes more than 50 products that provide a total workflow solution for the sign graphics, textile & apparel, industrial and 3D markets. Mimaki is dedicated to engineering smarter machines that help customers improve workflow and grow their businesses. From the world's first inkjet printer using pigment ink to the world's first 64-inch UV-LED integrated printer/cutter, Mimaki delivers reliable print solutions built upon a foundation of proven, cutting-edge technologies. "We Are Wide Format," defines who Mimaki is: a pioneer, leader and trendsetter in wide-format printing.

SG

Sign Graphics

Creating a variety of visual communication materials for business use, such as advertisements and signboards including large posters, car wrappings, soft signs, and display panels.

Examples of applications

Main printing materials

- PVC sheeting
- banner sheeting
- window film, etc.

UCJV300-07
UV LED Printer/Cutter (42.9" Wide)

TS330-3200 DS
3.2m Super-Wide Hybrid Printer

TA

Textile & Apparel

Meeting growing needs in the furniture industry as well as the fast fashion and sportswear industries with items such as cloth before sewing (textiles) and ready-made clothes (apparel).

Examples of applications

Main printing materials

- polyester
- rayon
- cotton
- silk
- synthetic leather, etc.

IP

Industrial Products

Printing for gifts, novelty items, custom-made goods for general consumers, and industrial products including instrument panels for automobiles, control panels for home appliances, and other products.

Examples of applications

Main printing materials

- plastic
- acrylics
- glass
- metal
- wood, etc.

UJF-7151 Plus II
UV Flatbed Printer

3D Printers

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.

stratasys

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

Benefits of FDM Technology:

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

F190CR / F370CR

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

F123 Series

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

F3300

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

F450mc

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

F900

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

F770

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

3D Printers

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.

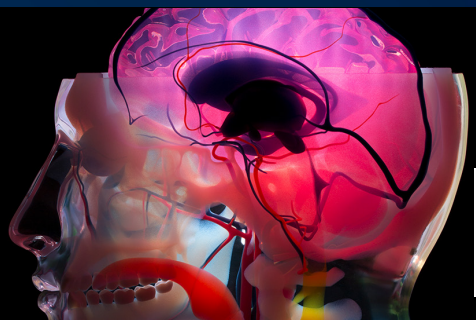
Everything You Need to be Successful with 3D Printing in the Classroom

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.

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 Two

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

Stratasys H350

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

Neo® Stereolithography

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

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

Robotic Large Format Additive Manufacturing Platform

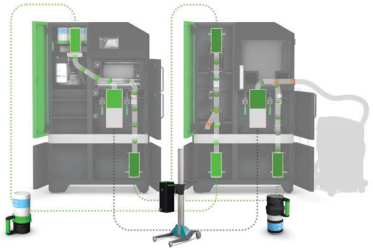
HERON AM is Caracol's **Large-Format Additive Manufacturing system**: a robotized extrusion head, with direct and continuous feeding of composites and polymers, a dedicated software platform for the most complex tool paths, and many more features to fully integrate all that is needed to manufacture advanced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

3D Printers

ONE CLICK METAL

One Click Metal is a cutting-edge and innovative company at the forefront of the metal fabrication industry. With its headquarters located in the heart of industrial innovation, the company has gained a reputation for its groundbreaking approach to metal manufacturing processes. One Click Metal specializes in providing streamlined solutions for a wide range of industries, including aerospace, automotive, electronics, and construction.

Leveraging state-of-the-art technology and highly skilled professionals, the company offers a seamless, one-click ordering platform, enabling customers to easily customize and order metal components with precision and efficiency. Committed to sustainability and quality, One Click Metal continues to revolutionize the metal fabrication sector while delivering superior products.



Powder and Cartridge System

The problem of unsafe and unclean powder management is solved with the BOLDSERIES by the cartridge system.

Separation of supply and overflow cartridges avoid risk of mix-ups.
Direct powder contact for the user is significantly reduced.
Most of the processed powder can be reused.

MONE

Job upload + Digital platform

MPRINT

Printing process

MPUREpro

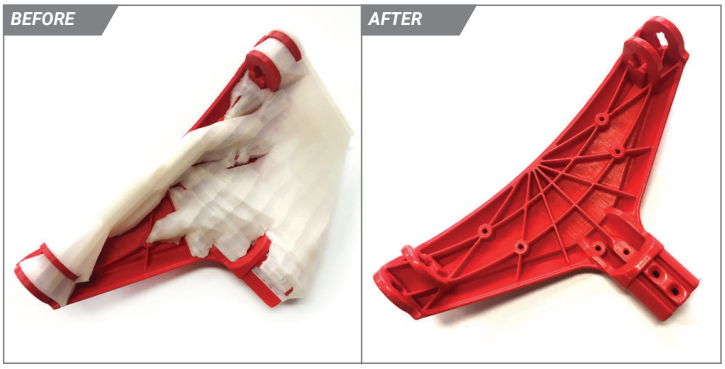
Unpacking process

3D Printers: *Post Processing*

POSTPROCESS
Automated. Intelligent. Comprehensive.

TRANSFORMING POST-PRINTING FOR ADDITIVE MANUFACTURING.

PostProcess Technologies is the pioneer of the automated post-printing industry. As the first and only provider of automated and intelligent post-print solutions for additive manufacturing, PostProcess increases the consistency, throughput, and productivity of the third step of 3D printing – post-printing.



Before: FDM Technology; ABS Build Material; SR30 Support Material

After: Completed in PostProcess' automated Support Removal system

Support Removal

Design Series: low volume, high value

PICO NAN MICR MILL CENT

Envelope sizes range from:
6" x 5 1/2" x 4" (NANO) to 18" x 10" x 5" (CENTI)

DEM

Envelope
18" x 18" x 18"

DECI

Envelope
19" x 27 1/2" x 26"

BAS

Envelope
40" x 27 1/2" x 26"

POSTPROCESS TECHNOLOGIES PRODUCT SUITE

3D PRINTED PART

PROPRIETARY CROSS-PLATFORM SOFTWARE

SUPPORT REMOVAL HARDWARE | **SURFACE FINISHING HARDWARE** | **PROCESS WATER MANAGEMENT HARDWARE**

PROPRIETARY DETERGENTS & MEDIA

CUSTOMER READY PART

3D Scanning

Artec 3D Scanners
The power to innovate using 3D scanning

Artec 3D constantly strives to develop and provide the simplest 3D scanning technology for achieving professional results. We create high precision, user-friendly scanners, as well as smart and easy to use 3D software, bursting with a wide range of features.

Artec 3D is a global leader in handheld and portable 3D scanners and has been at the forefront of developing innovative 3D technology since 2007.

EDU Bundle deals for next-generation training

Take advantage of Artec 3D packages and get all you need to cost-effectively cultivate advanced learning in the classroom – whether you're shaping the next generation of engineers, doctors or forensic scientists.

Includes: 20 Licenses Artec Studio, 2 Year Warranty, 2 Years Software Upgrades, Artec Academy LMS, Flexible scanner packages available

Eva
This structured-light 3D scanner is the ideal choice for making quick, textured, and accurate 3D models of medium-sized objects such as a human bust, an alloy wheel, or a motorcycle exhaust system. It scans quickly, capturing precise measurements in high resolution.

Eva Lite
Eva Lite, the economical version of our best-selling Artec Eva 3D scanner, offers the same accuracy, yet with simplified functionality. The ability to create textureless 3D scans of geometry-rich objects such as the human body makes it ideal for healthcare applications.

Leo
Artec Leo is the only wireless and fully standalone professional 3D scanner designed to make scanning as easy and effortless as possible. With the new NVIDIA Jetson TX2 processor onboard, 5" HD built-in display and battery, it's the ultimate all-in-one 3D scanning solution for fast, accurate, and high-quality data capture.

Spider II
Break new ground with the Artec Spider II, designed to easily capture complex objects, sharp edges, and fine lines, with an impressive level of detail. A fast capture rate plus no targets needed means scanning is effortless and intuitive – all while ensuring no detail is missed.

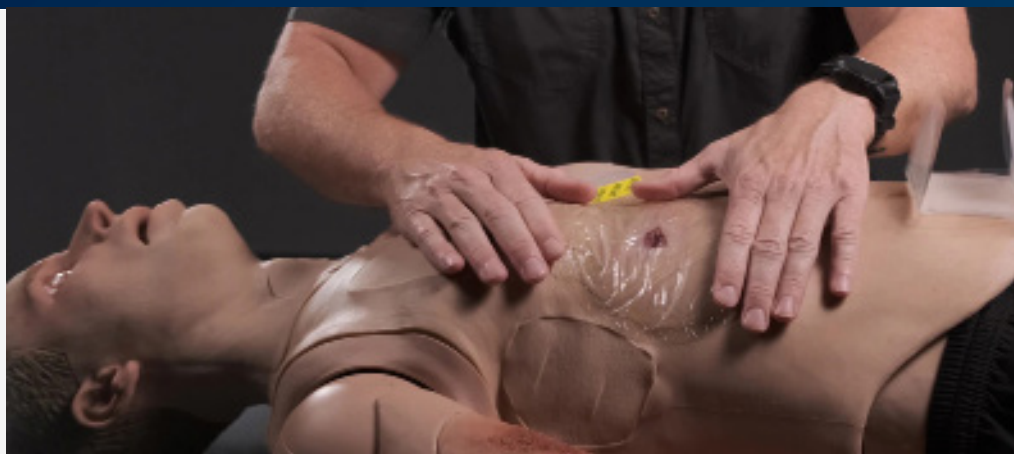
Ray II

With the high-accuracy, long-range, wireless Ray II laser 3D scanner you can precisely and rapidly capture large to massive objects, scenes or areas, and from up to 130 m away. Expect 3D point accuracy that meets high professional standards and best-in-angular-class accuracy.

Medical Simulation

TACMED SOLUTIONS

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



Task Trainers

Chest Trainer

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

Packable Wound Trainer

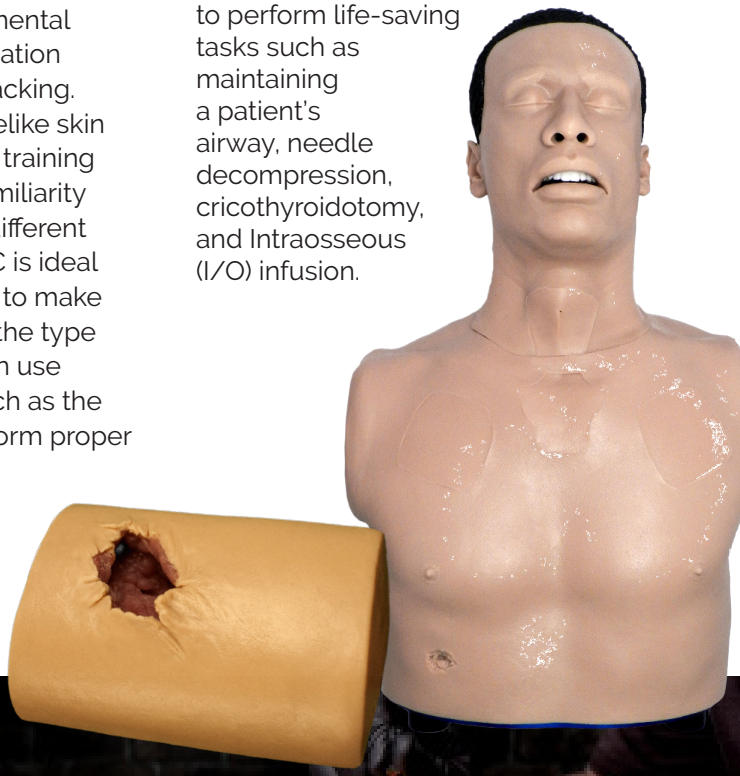
A stand-alone skills station during the crawl phase of training, the PWT is composed of lifelike synthetic skin and includes a simulated hemostatic wound providing trainees with the ability to execute critical patient treatment such as wound packing and compression training.

Hemorrhage Control Skills Trainer - Classroom

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

APL - Classroom (APL-C)

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



Medical Simulators:

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

K9 Simulators:

- Operational Canine First Responders
- Veterinarians
- Veterinary Technicians

Medical Simulation: *Patient Skills & EMS Training*

Virtual Reality Skill Training for
Nursing and Allied Health

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

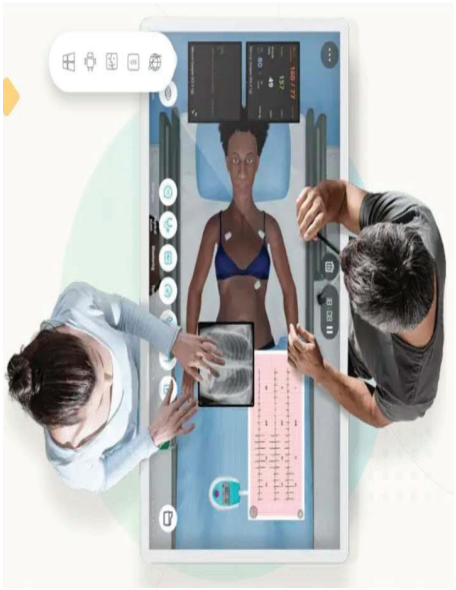
VRNA uses a fully immersive VR experience to increase the effectiveness and lower the cost of teaching patient care skills. VRNA functions as a supplement to lab instruction, helping to reduce the material and preparatory burdens on instructors while keeping students engaged in lab content. This provides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

BODY INTERACT™
VIRTUAL PATIENTS

Virtual Patient Simulator

The Virtual Patient Simulator offered by Body Interact is an advanced and comprehensive platform designed to enhance clinical skills and decision-making abilities across various healthcare professions with three levels.

The simulator is a powerful tool that provides realistic scenario-based training, offering learners the opportunity to interact with virtual patients and develop critical competencies in medicine, nursing, EMS, and high school/CTE settings.



DEPCO ENTERPRISES LLC

Body Interact **Solutions**

Medicine
Foster critical thinking through scenario-based training

Nursing
Enhance clinical judgment and high-quality patient care

EMS
Promote knowledge retention and decision-making

High School and CTE
Boost teamwork and problem-solving skills

Transportation & Logistics: *Automotive Technology*

LJ Create Automotive

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

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

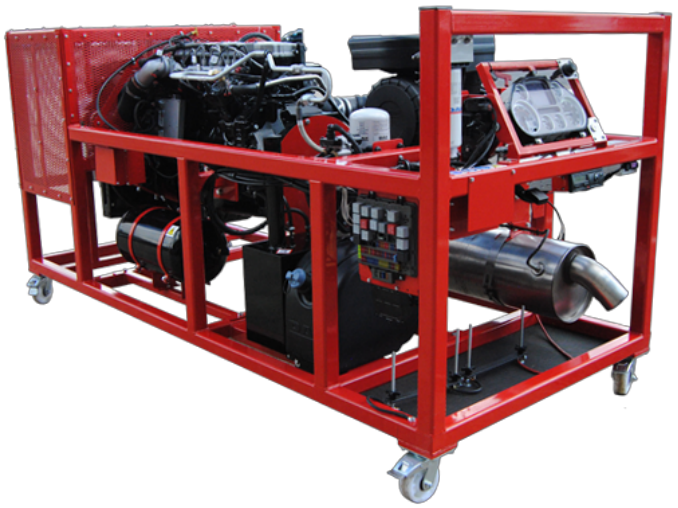
A unique blend of online digital learning resources and practical equipment combines to create an automotive teaching program that will deliver the knowledge and practical skills students need to achieve success.

LJ CREATE™
Learning for life

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

Automotive Light Vehicle

This automotive repair and technology program has been designed to allow you to build an automotive program that will enable your students to become new hi-tech auto technicians.

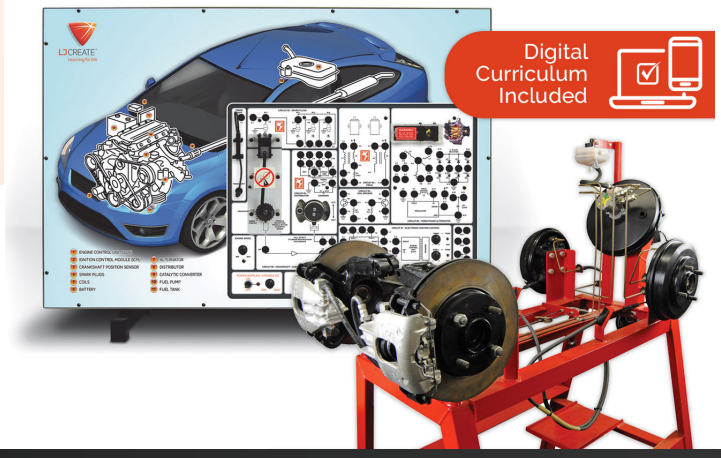


Automotive Medium/Heavy Vehicle

Medium/ Heavy Vehicle Lab is designed to maximize the time students spend in understanding and developing skills through diagnostics and fault-finding techniques.

Electric Vehicle Technology

The aim of our Electric Vehicle Technology lab is to provide students with the skills and knowledge required to maintain and repair Electric and Hybrid vehicles.



Transportation & Logistics: *Hybrid & Electric*

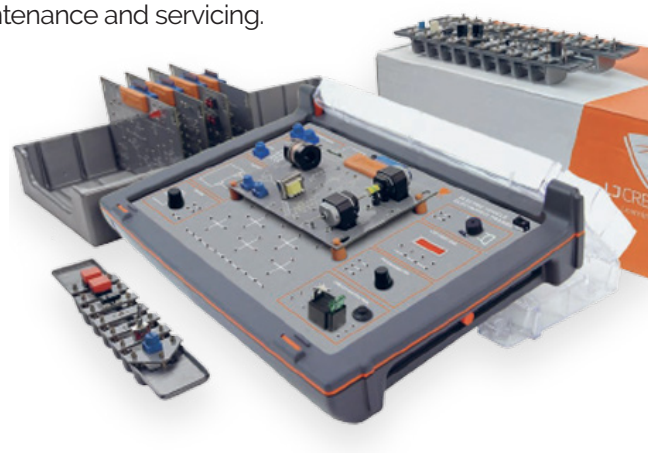
LJ Create EV Auto Repair offers a comprehensive range of EV lessons and training solutions, including EV Desktop Trainers, EV Systems Panel Trainers, and CAN System Desktop Trainers. These resources provide students with a practical hands-on experience in electric vehicle repair and diagnostics. With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

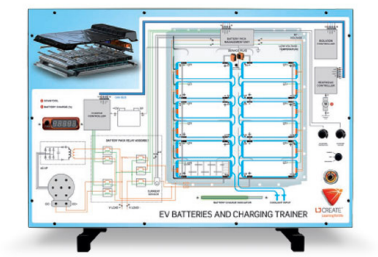
Electric Vehicle Electronics Trainer (730-10)

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

Electric Vehicle Electronics Workstation (730-00)

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



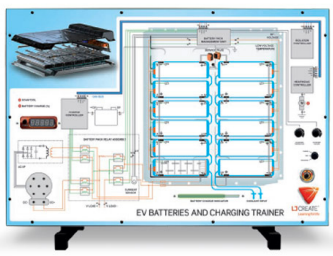


Electric Vehicle Systems Panel Trainer (740-01)

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

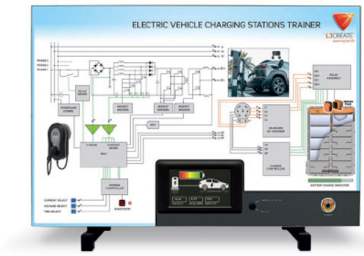
EV Motors and Generators Panel Trainer (742-01)

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



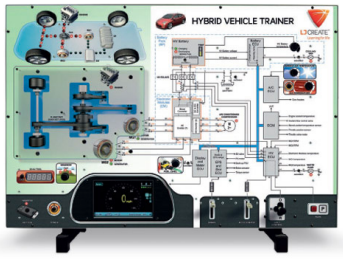
EV Batteries and Charging Panel Trainer (741-01)

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



Electric Vehicle Charging Stations Panel Trainer (743-01)

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



Hybrid Vehicle Systems Panel Trainer (756-01)

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

CAN Systems Desktop Trainers

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

Transportation & Logistics: *Hybrid & Electric*

ASE L3 Trainer Light Duty HV/EV Specialist

Prepare your students for the ASE L3 test!

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

TruckTrain Heavy Duty HV/EV

Train for truck and agricultural machines.

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

CarTrain Diagnosis and Maintenance of a High Voltage Battery

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

LUCAS-NÜLLE

TruckTrain Smart Farming 4.0

Precision Farming with Section Control (ISO BUS)

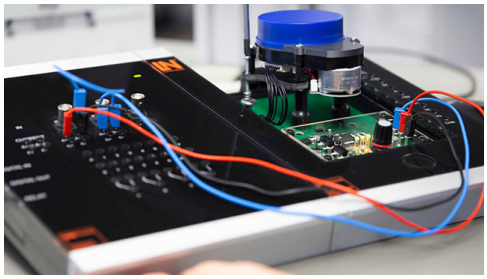
This training system from the TruckTrain series focuses on the topic of "Smart Farming 4.0" based on the ISO bus. Special attention is paid to the function of "Precision Farming with Section Control", which is implemented in the hardware in a practical and interactive way.

Transportation & Logistics

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

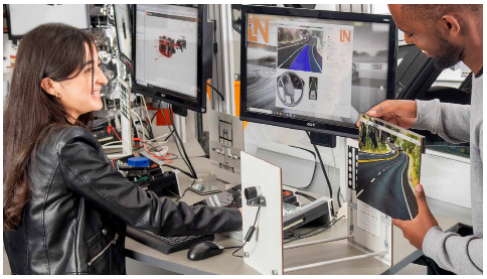
Autonomous Driving

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.

Transportation & Logistics: *Driving Simulators*

VIRAGE SIMULATION

TRUCK DRIVING SIMULATOR - VS600M

The VS600M truck simulator includes the following key features:

- Real truck parts
- Full simulation of virtually any type of heavy vehicle
- Automatic and manual transmission
- 3D sound
- High fidelity visual scenes with a virtual 360 degree view from the driver's seat
- Rapid selection of different truck configurations without changing hardware
- A high-performance, compact three-axis motion system
- A multi-function touch display
- Realistic steering wheel behavior
- Realistic responses from the clutch, gas and brake pedals
- Complete driver training and evaluation package

L3HARRIS® FAST. FORWARD.

L3Harris' driving simulators provide hands-on experiential training for drivers, offering experience without risks to people or equipment.

PatrolSim™ Law Enforcement Driving Simulator

TranSim™ Series 8 Driver Training Solutions

FireSim™ Fire Truck Driving Simulator

DeliverySim™ Driving Simulator

Compact Airside-Pushback™ Driving Simulator

Transportation & Logistics: *Flight Simulators*

PRECISION FLIGHT CONTROLS

In the rapidly evolving world of aviation simulation, Precision Flight Controls (PFC) stands out as a premier provider of high-quality, reliable simulation systems. Precision Flight Controls is renowned worldwide for offering affordable, high-fidelity flight simulation systems, avionics, and accessories to flight training organizations. PFC simulators encompass a wide range of general, commercial, and military aviation, including some of the most advanced aircraft in use today.

Modular Flight Deck

The MFD has all-metal construction, dual linked controls, a 225 degree integrated immersive visual system, dynamic control loading (pitch/roll), 430W and 530W GPS units with crossfill capability.

CAT II BATD

Our CAT II BATD system is our most popular FAA approved Basic Aviation Training Device.

CAT III BATD ProPanel

Our CAT III BATD ProPanel system builds upon the success of our popular CAT III system with the addition of an aircraft like panel enclosure. With added features like a manual/electric trim wheel and panel surface lighting, we have taken the BATD to the next level.

CAT III CATB

Our CAT III Desktop BATD system builds upon the success of our popular CAT II system. With added features like manual/electric trim wheel, panel surface lighting, digital clock/timer and more, we have taken the BATD to the next level. The inclusion of the Instructor's Operating Station (IOS) as a standard feature provides complete control of the simulation.

Transportation & Logistics: *Paint Simulation*

Virtual Reality Training Tool for Painters and Coaters

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

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

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

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

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

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

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

Training Content & Features

Processes

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

Techniques

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

Parts

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

SimSpray Go Portable Painter Training

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

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

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

VRTEX® Trainers

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

VRTEX® 360

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

VRTEX® 360 Compact

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

ClassMate Robotic Welding Trainers

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

Features

- Complete educational software/assets at an affordable price
- Everything you need to teach the class safely and productively
- Advanced manufacturing and technology capabilities
- Transformational capabilities and processes

LEARN MORE

Welding

WELDING SIMULATOR

WELDTRAINER

WeldTrainer is a welding simulator aimed for the vocational training world. Using cutting edge technology and real time motion tracking systems, Weldtrainer allows the user to be immersed into a welding room where virtual welding can be performed in real time in the same way that in real life.

Weldtrainer has the following components:

- Computer where the simulation is performed and the 3D display is generated.
- Motion tracking system including 2 different sensors for head and hand tracking.
- Virtual reality glasses(OLED technology) for 3D visualization.
- Real welding torch with a little joystick and a trigger for software interaction.
- Additional screen where the same image that the one seen in the glasses is displayed to watch what the user is doing.
- Instructor position with student management application.

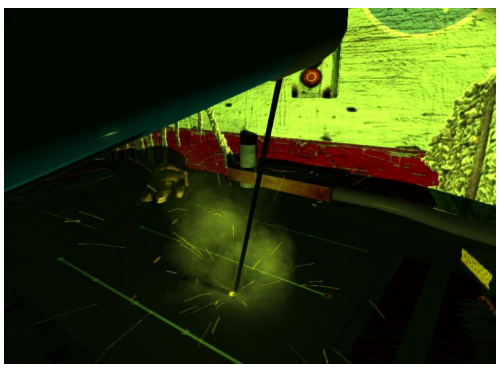
The student performs a higher number of actual welding hours because all of the hours taught using the simulator involve actual welding (no need to change parts, wait for them to cool, remove slag, etc).

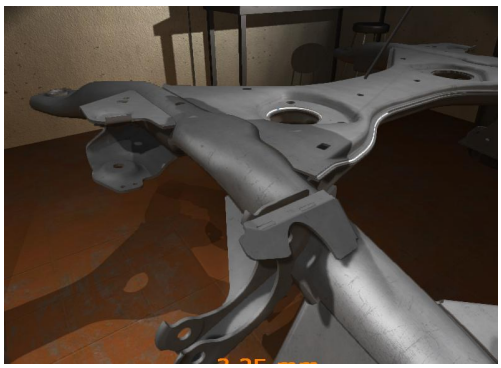
- The training process cost is reduced. The simulator shortens the training time and heavily reduces the consumption of materials.

- Every possible accident or dangerous situation is completely avoided with the use of the simulator.

- The initial learning curve for students is faster. Students can understand and master faster and better the key aspects of welding (such as distance, angles and welding speed control).

- Different types of welding (SMAG, MIGMAG and TIG) in the same device for the same cost.





Classroom Design and Furnishing

Let us help design your next lab!

In order to provide High Impact Learning Environments, we have added Wisconsin Bench Manufacturing to complement our curriculum and training programs that we currently market and support. We would be pleased to address your request, as we can assist from the smallest item to a complete layout and design of a total STEM classroom.

WB Manufacturing understands that no two schools are alike. In fact, even classrooms within schools have their own needs. Therefore, we work closely with our customers to make sure we address every need. WB Manufacturing has a strong design team that is able to render images in the customers' vision and allows them to see what their room could be before they commit. Our extensive line of educational products offers many options for a collaborative learning environment. Customers can choose from a variety of looks and feels that all fit into a modern, versatile learning environment.

WeCan.
Design. BUILD. Deliver.

LEARN MORE

Mobile Training Labs

Welcome to the future of hands-on learning with our state-of-the-art Mobile Training Labs!

Whether you're diving into advanced manufacturing techniques or honing your skills in carpentry and construction, our mobile training centers are designed to revolutionize the way you offer training. With cutting-edge technology, versatile training systems, and a commitment to accessibility, our Training Labs offer an unparalleled educational experience tailored to your organization's needs.

- **53 ft Industrial Custom Trailer:** The lab is housed within a spacious custom trailer, measuring 53 feet in length. It features dual slide-outs for added space and convenience.
- **Ample Storage**: The lab offers ample storage space underneath, where portable training systems for electrical, smart sensors, pneumatics, and more are neatly organized and easily accessible.
- **Versatile Training Systems:** The lab is equipped with a fully customizable range of training systems, tailored to your needs.
- **Portable Systems for Flexibility:** The lab includes portable training systems that can be used for various topics, allowing for efficient teaching in a small space.
- **Outdoor Learning and Marketing:** An outdoor TV and awning provide opportunities for outdoor learning sessions and marketing activities, making the lab versatile for different purposes.
- **Accessibility and Spacious Design:** The lab is designed to be inviting and spacious, with an ADA lift for accessibility. It offers a comfortable and conducive environment for hands-on learning and skill development in advanced manufacturing.

The Technical Training Aids Difference

Consulting:

With over 60 years of experience in technical training, Technical Training Aids is a business partner that you can trust to help plan, manage and implement your programs. Our professional resources are designed to provide your team with complete solutions. From equipment, curriculum, and software to resources like furniture, eLearning, support, and management, we combine a clear vision of your goals to maximize technical effectiveness and to provide a consistent and professional design, delivery and implementation of each project.

Planning:

The staff at TTA assist in the careful planning of a total learning environment - not just a lab! We'll work with education administrators, architects and local business leaders to help develop and layout learning areas, providing electrical specifications, air drops, and data connections. We provide detailed drawings and specs for all of our projects. By forming closely integrated teams, TTA becomes your partner in effective project planning, management and control to meet your goals.

Implementation:

When the new building is ready for the lab equipment and furniture to be installed, the technicians from TTA will work to have the project completed on time and within budget. Our manufacturing partners provided concise on-site training for the staff 's instructors and lab support members, and our after-care support ensures effective long-term lab maintenance and updated program implementation.

Support:

Our staff of trained technicians and sales support personnel has worked to ensure that all equipment and associated software and instructional materials are all functioning as specified and are constantly being kept up-to-date. This attention to detail minimizes disruption and ensures that the colleges training partners enjoy success and long-term productivity.

Technical Training Aids

SERVING EDUCATION SINCE 1963

ttaweb.com | 800-851-3987 | sales@ttaweb.com