

# Hybrid Learning Solutions for Career and Technical Education



*50/50% HYBRID  
REMOTE & HANDS-ON*



*100% ONLINE  
FOR REMOTE  
LEARNING*



*100% SCHOOL-BASED  
SIMULATION TRAINING  
EXERCISES*



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## ABOUT US

Founded in 1979, Allegheny Educational Systems provides innovative, technology-based educational systems and professional services to over 2,000 schools, colleges and universities throughout Pennsylvania, New York and New Jersey.

The COVID-19 Virus has presented Educators, Students, and Parents with unique challenges for this coming school year and the foreseeable future. Because of this, we have assembled this Hybrid-Learning Program Planning Guide to help you identify which programs we can assist you in delivering this year.

Programs are noted as:



**100% Online for Remote Learning**



**50/50% Hybrid Remote & Hands On**



**100% School-Based Simulation/Virtual Reality**

Please reach out to us if we can help with any of your programs. All of us can be reached via email or our mobile phones.

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# 5 Steps to Implementing Online Learning

Getting started is much easier than you might realize.

- Teach students remotely about the hands-on world of advanced manufacturing
- Interactive lessons from anywhere on any device
- Assign hand-picked courses
- Track learning for each student

*Follow these 5 simple steps and your students can begin their learning program today!*

# 1

## Start now

If you wait, your students could miss learning opportunities.

To get your online program up and running quickly, let our consultative guides walk you through the process. We've helped thousands of students through eLearning. And we're here to help make your job easier.

# 2

## Select your eLearning courses

Choose from over 300 courses totaling 3,000 hours of learning to develop customized solution fit for your students.

From basic to advanced, our interactive, multimedia eLearning will keep even the most hands-on learners engaged with the online content.

### **Subject areas include:**

- Electrical
- Electronics
- Fluid Power
- Mechanical
- Quality
- Measurement & Gauging
- Automation
- Mechatronics
- Lean Manufacturing
- Manufacturing Processes
- Materials
- Thermal
- Safety
- Process Control
- Prints & Drawings
- Machining & CNC
- Green Energy
- Workplace Effectiveness

Each of these subjects contains numerous courses. And each course comprises 4-14 hours of learning!



# 3

## Select the eLearning model that fits your objectives

Depending on your goals and needs, our guides will help create a customized progression of course material for your students.

This could look like single course codes that give an individual access to a course for 2 months, all the way up to full library licenses for an entire year...and every option in between.

We'll help determine the most economical option for your teaching needs and help get it launched so your students don't miss out on any learning.

# 4

## Activate your learners

Once the structure and courses are set up, you'll receive a custom eLearning code. This will give your students immediate access to the content you assign to them. They can get started with their online program without skipping a beat.

# 5

## Track progress

Our eLearning comes with a Learning Management System that gives you access to all the instructor tools and information you need. Track your learner's participation, activity and quiz results in real-time to ensure assignments are completed as expected.

Once you see those stats come through, you'll rest assured that your students are remaining engaged and on track.

Take advantage of this opportunity to teach and upskill your students from anywhere they can access the internet. All the tools and resources you need are here, readily available. Our team stands ready to support you. You just have to get started.

## We'll help you with that first step...

Get started by contacting Allegheny Educational Systems.  
We'll help fast-track your online learning program!

# PRECISION MACHINING:

C.I.P. 48.0501

## Amatrol's NIMS CNC Operator Certification



Amatrol's CNC Machine Operator program offers a **virtual CNC machine experience** that allows learners to practice and develop the required skills for operating a CNC machine via the computer. Learners gain CNC training through hands-on engagement via a virtual platform that acts like a real CNC machine. If a learner forgets to turn the power on, they must figure out the problem as they would on a real machine.



### Amatrol's Turn-Key Program Includes:

- 24 Self-Paced Learning Units
- 130+ Skills, 80+ Hours of Learning
- Instructor's Assessment Guide
- On-The-Job-Training Guide

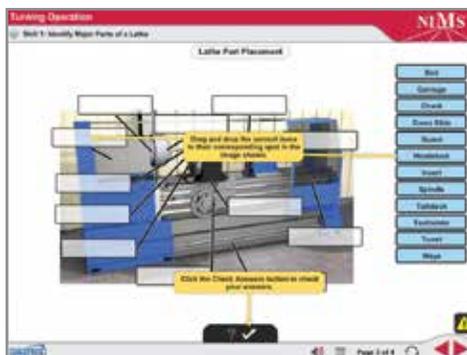
Amatrol's **eLearning courses** incorporate multiple elements, such as text, animations, narration, videos, and interactive exercises and quizzes, to engage learners with different learning styles.



National Institute for Metalworking Skills (NIMS) has developed two popular CNC machine operator certifications, CNC Mill Operations and CNC Lathe Operations. NIMS credentials are portable recommendations that are nationally recognized and industry validated.

### The NIMS CNC Mill and Lathe Operations certifications cover all of the following key skill areas:

- CNC mill, lathe, and grinder set-up and operation
- Tool identification, set-up, use, and maintenance
- Machining processes
- Statistical process control
- Quality and cycle time optimization
- CNC program operation
- Fixture set-up and operation
- CNC troubleshooting and maintenance for operators
- Precision measurement & gauging
- Print reading
- Geometric dimensioning and tolerancing



Amatrol also offers instructor training through their Amatrol Technical Training Institute.

## Mastercam University



Premier Mastercam Training – Online  
Mastercam University (Mastercam U) delivers training on the latest advancements in Mastercam, the world's most widely used CAM software. Designed by CNC Software, Inc., with guidance from the Mastercam National Certification Committee, it features learn-as-you-go classes presented by experienced machinists and professional instructors. Students receive feedback on their progress through a series of multiple-choice tests, and they receive a printable PDF Certificate of Completion when they finish. This is the gateway to Mastercam Certification.



With **online video training**, everyone can learn at their own pace, on their own schedule, and review any portion of content at any time. **Each Mastercam U subscription includes a copy of Mastercam Demo/ Home Learning Edition, providing hands-on experience with a training version of the software.**

### Available Courses

#### Mastercam Mill 2D

This introductory mill course covers wireframe and solids construction, plus 2D and 3D toolpaths. A preparatory class for Mastercam Certification.

#### Mastercam Mill 3D

Covers surface and solid modeling, 3D machining, and 4-axis programming.

#### Mastercam Lathe

Complete turning course presents design and toolpaths, including C- and Y-axis machining.

#### Mastercam® for SOLIDWORKS®

Learn how to use the world's leading modeling software integrated with the world's most widely used CAM.

#### Mastercam Multiaxis

Learn how to create Multiaxis toolpaths plus setup considerations, part verification, machine simulation, and more.

#### Principles for Machining

This course integrates and documents national STEM standards to present the basics of cutters, feeds and speeds, materials, and much more.

*Existing classes are constantly being updated and new courses are currently being developed!*



## SOLIDWORKS - Online 3D Designer for Education



**3D Designer for Education** was designed to help educators and students collaborate and organize, while giving them access to the best CAD products available. But it is so much more than just CAD. With the power of the 3DEXPERIENCE Platform, Educators can utilize the many apps included in **3D Designer for Education** to organize and maintain their classes with customized dashboards, class announcements, dedicated cloud storage for each student class/team, and so much more. Students can connect, design, and learn in new ways, and have the freedom to choose their own devices – *even Macs, tablets and Chromebooks!*

### What's included with 3D Designer for Education:

- **Collaborative Business Innovator** - Unites schools, educators, and students into a single framework for sustainable innovation
- **3D Creator** - Browser-based 3D modeling solution
- **SOLIDWORKS Connector** - Allows SOLIDWORKS Desktop and the 3DEXPERIENCE Platform to communicate bilaterally
- **3D Sculptor** - 3D subdivision (sub-d) modeling tool
- **Collaborative Industry Innovator** - Provides apps and tools to organize, manage, and collaborate on content in realtime
- **Project Planner** - Easy-to-use task planning, execution, and monitoring, all in a flexible collaborative environment

### Cloud-Based Capabilities of the 3DEXPERIENCE Platform

With its growing app portfolio and *secure cloud* technology, the 3DEXPERIENCE platform enables you to manage all facets of your product development process while reducing infrastructure costs, IT overhead, software maintenance and complexity. All 3DEXPERIENCE solutions work together seamlessly making data management, sharing and collaboration easy. 3D Designer can take advantage of the following platform capabilities:

- View, share, annotate, discuss and manage designs from anywhere, at any time and on any device *online with a web browser.*
- Avoid rework and data translation errors through seamless interaction with SOLIDWORKS 3D CAD and other 3DEXPERIENCE design tools such as 3D Sculptor.
- Enable design and engineering students to collaborate more closely through a seamless connection with SOLIDWORKS 3D CAD.
- Collaborate with all internal and external team members through cloud-based dashboards, messaging, activity streams, communities and drag-and-drop task management.
- Securely manage your data and all facets of your product development process on the platform.
- Control revisions with specialized tools, cementing industry best practices to use after graduation.



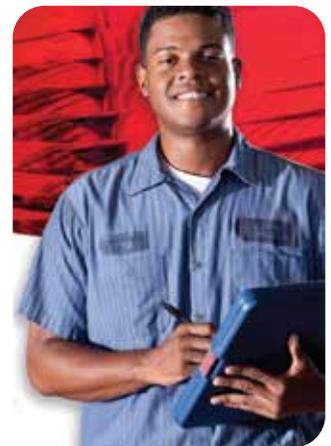
## LJ Create Working with STEM Autolab

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's Automotive Program allows you to build a NATEF certified automotive program that will enable your students to become new hi-tech auto technicians. Upon completion, students will be skilled technicians with a solid understanding of automotive technology and fault-finding techniques.

- The **complete online library** offers a full range of learning content, including presentations, investigations, assessments and practical tasks. **Log-in anytime from anywhere!**
- All learning content is continually updated to align to NATEF standards – at MLR, AST, and MAST levels.
- Students can actively engage with **creative hands-on tasks and interactive virtual software** that work together flawlessly to create exciting lessons and environments.
- Some lessons include exciting simulators that provide students with an introduction to fault-finding techniques in the safety of the classroom.



### Autolab Trainers include:

- Auto Electronics
- Auto Air Conditioning
- Anti-Lock Breaking Systems
- Hybrid Vehicle Systems
- And more!



# DIESEL MEDIUM & HEAVY TRUCK TECHNOLOGY:

C.I.P. 47.0613



## Advanced Training Systems (ATS) Driver Training Simulators

ATS Virtual Reality Simulator driver training puts the student in control of the vehicle by putting him or her through almost every scenario the road has to offer. It even measures the student's stress level while training which, at the end of the day, amounts to safer CDLs carrying the freight of the country.

Using technology derived from the aerospace industry, ATS VR Simulator driver training is designed to function as a component of Quadrant Training Methodology which includes classroom, computer-based and simulator training in addition to training in a real truck. All are necessary to properly train vocational operators.

ATS VR Simulator training allows the student to be trained without danger to themselves, their instructor, or other vehicles on the road. Risky functions such as a front tire blowout, ice, wind, objects entering the roadway can be taught in a simulator, helping to safely develop the muscle and brain memory through repetition that is far too expensive to accomplish in a real truck.

### Available Simulators include:

- **Shiftmaster** - a Specific Task simulator that trains the student to properly master the shifting requirements of a truck that has a manual transmission. Shifting in large trucks is far more difficult than one would find in an automobile that has a manual shift transmission. The simulator system allows the student to be trained by the system without the need for an instructor.
- **Transmaster and Transmaster Duo** - the standard by which simulation platforms are judged, the Transmaster incorporates various aspects of any heavy truck model. Optioned to incorporate both passive-resistance and force-feedback steering along with exclusive classroom based content to effectively and constantly train tomorrow's CDL Drivers.
- **Fleetmaster** - provides true-to-life driving environments in a high-fidelity simulator platform, customizable to commercial transportation vehicles, motor coaches, heavy equipment, rural transit and military applications.



## SIMLOG

### SimLog - Heavy Equipment Simulation Training



Teach Heavy Equipment operations safely and affordably with Simlog's 10 PC-based Personal Simulators for Construction, Mining and Forestry. Each simulator leverages the power of today's off-the-shelf (Windows) PCs to finally provide truly cost-effective help for training heavy equipment operators. Choose the USB-ready replica controls or the OEM Industrial Chair option and you can begin training in minutes!

Add Simulation Manager software to track each student's results and competencies as they progress through the training.

With Simlog, your students will be learning the right way to do things, thanks to "best practices" input from our OEM partners and training professionals just like you. So you'll find the right kind of simulated tasks, the right kind of task progression, and the right way of evaluating the simulated work.

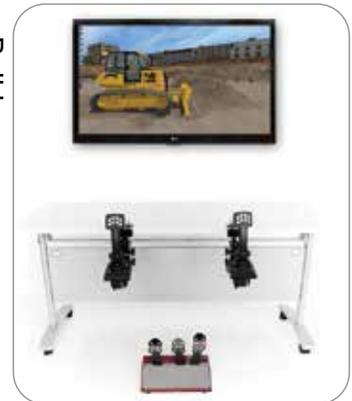
#### Getting Started is Easy!

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



Also Available: Mobile Crane, Tower Crane, Off-Highway Truck, Mining Truck, Electric Rope Shovel, Drill Jumbo, Forwarder, Harvester, Material Handler

Bulldozer



Hydraulic Excavator



Forklift



Wheel Loader



# HEAVY EQUIPMENT:

C.I.P. 47.0302



cmlabs



## Vortex Edge Plus

Optimally designed for simple transport and set-up, the desktop Vortex Edge Plus makes it easy and affordable for training organizations to run CM Labs' full catalog of construction equipment training modules. All CM Labs simulators can also be connected to enable cooperative crew training exercises.



## Vortex Edge Max

Not every organization has the time, manpower, or equipment available for training when needed. That all changes with the Vortex Edge Max. Packed with CM Labs' award-winning technology, the Vortex Edge Max simulator is an entry-level tool that develops transferable operator skills.

With a rugged, stripped down design that minimizes simulator costs, the Vortex Edge Max is built to the same uncompromising standard that has made CM Labs the largest construction simulator vendor in the world. The Vortex Edge Max can also be connected with other CM Labs simulators to enable cooperative crew training exercises. Easy to transport, set up, and use. Wheel the Vortex Edge Max out of the shipping crate and get up and running in under 10 minutes.



## Complete Heavy Equipment Operator (HEO) training

The Vortex Edge Max comes bundled with a full fleet of cranes, a complete earthmoving catalog, or both, for a total of 10 machines on one simulator. Its heavy-duty controls are design to run any machine, and the screen rotates to provide an optimal field of view for every piece of equipment.



## Real-world learning

With a motion platform that replicates the feel of the real equipment, best-in-class visuals, and exercises that replicate work site conditions, the Vortex Edge Max prepares trainees for the real world.

It comes fully embedded with CM Labs' Smart Training Technology™. Smart Training Technology results in solutions that deliver the most transferable operator skills anywhere, outside the real equipment.

Incorporating the Vortex Edge Max into your training reduces fuel emissions compared to training on the real equipment, while teaching operators how to operate machines efficiently and with minimal idle time.

## Maximum learning effectiveness

The Vortex Edge Max logs key performance metrics, so operators learn productive machine use. Self-guided learning paths — from beginner to advanced — mean operators can train even when equipment or trainers are unavailable. Trainees can learn to operate equipment and practice challenging real-world scenarios, with no risk to equipment or themselves.

In addition, the Vortex Edge Max can connect to other simulators for tandem operations.



## SIMLOG



### Simlog Reach Truck Simulators

Personal Simulator for “Narrow Aisle” Reach Lift Truck

Simlog’s Reach Truck Simulators put students at the controls of a typical stand-up “Narrow Aisle” lift truck with scissors-like pantograph to extend and retract the forks. Training scenarios are typical of warehouses and distribution centers where racking systems are tall and close together to increase storage density.

#### Simulation includes:

- 7 simulation Modules of increasing difficulty such as slalom driving forwards and backwards, selective pallet racks with standard aisles, narrow aisles, mixed and low shelves
- Automatic Performance Measurement of students work
- Objective simulation results covering 47 performance indicators including driving speeds, mast angles and orientation errors at pickup, etc.

Available with single or multiple screen displays for increased realism. Students work from a standing position – just like in the cabins of real reach lift trucks.



### Simlog Forklift Personal Simulator

Personal Simulator for “Sit-Down” Forklift Truck



Simlog’s new Forklift Personal Simulator Version 2 puts trainees at the controls of a typical sit-down, counterbalance factory forklift with rear-wheel steering (also called “sit-down rider truck”, “lift truck”, and “fork truck”). Scenarios are typical of transportation service centres, factories, warehouses, and distribution centers, with a wide variety of loads and storage arrangements, along with truck bays for loading and unloading and a flatbed truck outside.

Simlog’s Forklift simulation software is configurable, to reproduce the many different kinds of real forklifts. Three different power system options are available: Internal Combustion (gas-powered), and two versions of Electric. (Different simulator controls are required for each option, and the simulated forklift will also operate differently.) Use three or four levers, or even two joysticks, in addition to a steering wheel, transmission control lever, and pedals.



# LOGISTICS & SUPPLY CHAIN MANAGEMENT:

C.I.P. 52.0203



## MSSC Supply Chain Certifications

Certified Technician - Supply Chain Automation (CT-SCA)



The MSSC's CT-SCA Certification is a nationally portable, industry-led, training and certification system developed through a partnership with the National Center for Supply Chain Automation (NCSCA), Material Handling Industry (MHI), Material Handling Distributors Association (MHEDA), Amatrol, and NOCTI Business Solutions.

It will enable both students and incumbent workers to gain the skills needed to meet the definition of a supply chain automation technician: a technician who installs, operates, supports, upgrades, or maintains the automated material handling equipment and systems which support the supply chain. This program will enable certificants to earn the 3 prestigious industry recognized certifications mentioned above.

### Key benefits to offering the MSSC certifications to students and employees include:

- Availability nationwide
- Nationally accredited
- Federally recognized
- Always up to date
- Time and cost-effective for students
- Articulates between high schools and colleges
- Easily integrated into apprenticeship and internships
- Customizable at the community level
- Improved employee performance and retention
- Reduced recruitment and training costs

## MSSC Logistics Certifications

Certified Logistics Associate and Technician (CLA & CLT)

The purpose of the Certified Logistics Technician (CLT) certification program is to recognize through certification, individuals who demonstrate mastery of the core competencies of material handling at the front-line (entry-level to front-line supervisor) through successful completion of the certification assessments. The goal of the CLT certification program is to raise the level of performance both to assist the individuals in finding higher-wage jobs and to help employers ensure their workforce increases the company's productivity and competitiveness.

### The CLT program consists of two parts:

- Foundational-Level Certified Logistics Associate (CLA) Certificate
- Mid-Level Technical CLT Certification (CLT)



## Amatrol Skill Boss Logistics

Supply Chain Automation Training & Assessment



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

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

### Required for three of MSSC's Certified Technician Supply Chain Automation (CT-SCA) certifications:

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





MANUFACTURING  
SKILLS STANDARDS  
COUNCIL

**Allegheny Educational Systems provides the MSSC Student eLearning Curriculum and Instructor Authorization Training for the following certifications:**

**Certified Production Technician (CPT):**

- Safety
- Quality Practices & Measurement
- Manufacturing Processes & Production
- Maintenance Awareness
- Green Production

**Certified Logistics Technician (CLT):**

- Foundational-Level Associate Certificate (CLA)
- Mid-Level Technical Certification (CLT)

## MSSC – Manufacturing Skills Standards Council

**Certifying the Industrial Athlete of the Future**



The Manufacturing Skill Standards Council, a 501(c)3 non-profit, is an industry-led training, assessment and certification system focused on the core skills and knowledge needed by the nation's front-line production and material handling workers. The nationwide MSSC System, based upon industry-defined and federally-endorsed standards, offers both entry-level and incumbent workers the opportunity to demonstrate that they have acquired the skills increasingly needed in the technology-intensive jobs of the 21st century.

## Amatrol – Skill Boss

**Performance-Based Assessment & Hands-On Training**



Skill Boss provides the tool you need to teach or evaluate an individual's skills as they install, adjust, & troubleshoot components on this fully functional mechatronics system, applicable to both discrete parts & process manufacturing.

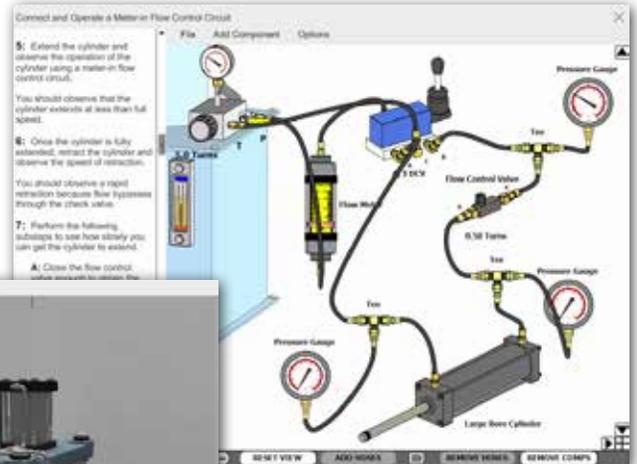
Designed to meet **MSSC** standards, Skill Boss is a hands-on skill training & assessment system that integrates seamlessly into any manufacturing program and is required for **CPT Plus** certification.



# ADVANCED MANUFACTURING: C.I.P. 15.0403



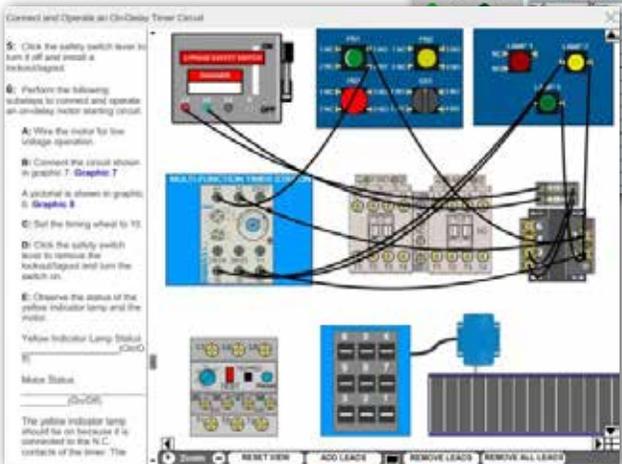
AC/DC Electrical



Hydraulics



Programmable  
Logic Controller (3D)



Electrical Motor Control



CNC Machine (3D)

## Virtual Trainer Technologies



- AC/DC Electrical
- Electrical Control
- Motor Control
- Oscilloscope
- Programmable Logic Controller (3D)
- Measurement
- Machine Tools
- Manual Torque Wrenches
- Split-Flange Couplings
- Electric Torque Wrenches
- Mechanical
- Pneumatics
- Hydraulics
- CNC Machine (3D)

Amatrol's virtual trainers allow learners to practice hands-on skills via eLearning. These simulations replicate Amatrol's physical training systems in such great detail that learners can build essential skills even when they don't have access to actual equipment. This provides much needed flexibility in today's fast-paced learning environment.

Existing in an open workspace, these virtual training systems allow students the freedom to make any connections or take any steps they choose, and do not force them along a predetermined series of steps. This provides a true learning experience and allows students to learn from their both their successes and errors. The skill level students develop with these virtual trainers can greatly reduce students' hands-on time with equipment to complete their skill mastery.

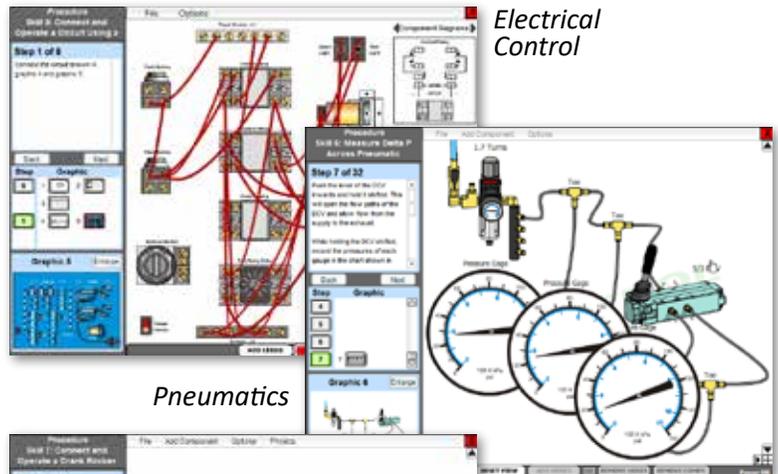


PC

## Practice Hands-On Skills Via eLearning

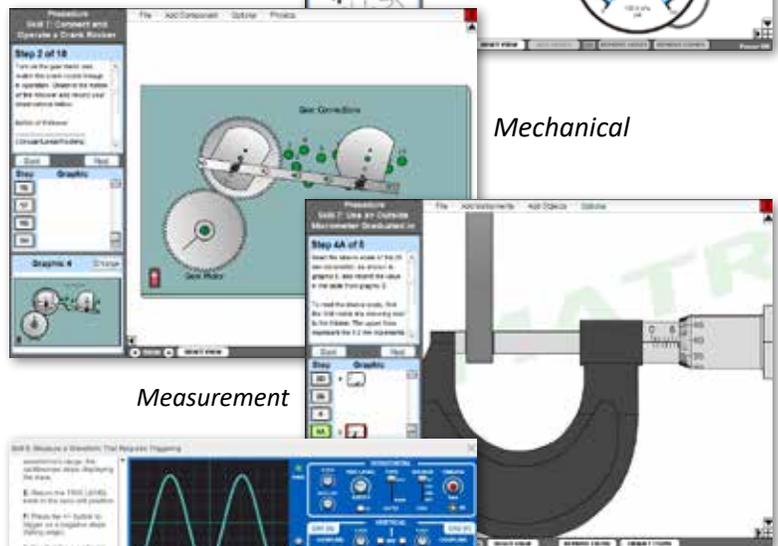
Amatrol's virtual trainers can be used as stand-alone learning tools or as part of a complete curriculum. All virtual trainers come with an interactive multimedia curriculum to teach concepts and exercises to guide their virtual skill experience. Amatrol offers many types of virtual trainers to support a wide range of CTE courses.

VIRTUAL ELECTRICAL TRAINER	COURSEWARE
Electrical Motor Control	17401
Electrical Control	B703
AC/DC Electrical	B227
VIRTUAL ELECTRONICS TRAINER	COURSEWARE
Programmable Logic Controller (3D)	40087
Oscilloscope	11128
VIRTUAL FLUID POWER TRAINER	COURSEWARE
Hydraulics	B831
Pneumatics	B780
VIRTUAL MACHINING TRAINER	COURSEWARE
CNC Machine (3D)	54309
VIRTUAL MANUFACTURING PROCESSES TRAINER	COURSEWARE
Manual Torque Wrenches	19030
Split Flange Couplings	19306
Electric Torque Wrenches	19042
VIRTUAL MECHANICAL TRAINER	COURSEWARE
Mechanical	B728
VIRTUAL QUALITY ASSURANCE TRAINER	COURSEWARE
Measurement	19017



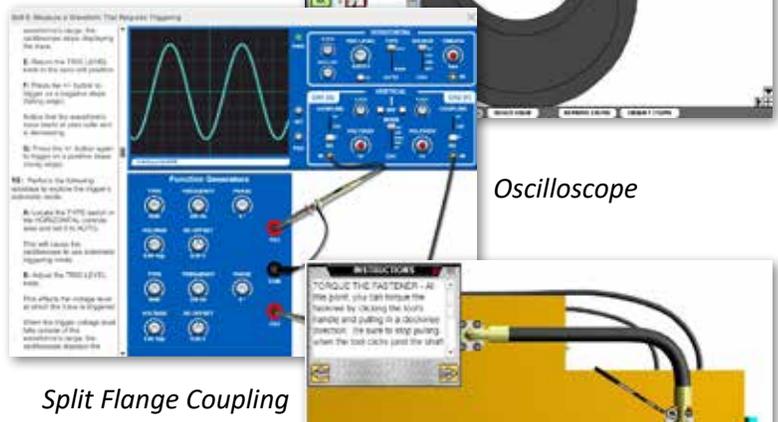
Electrical Control

Pneumatics



Mechanical

Measurement



Oscilloscope

Split Flange Coupling



Manual Torque Wrenches



Electric Torque Wrench

# AGRICULTURE MECHANIZATION:

C.I.P. 01.0201

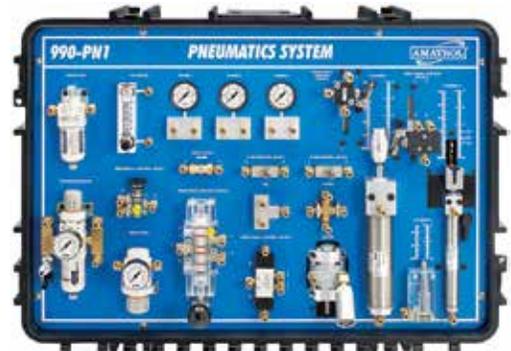
## Amatrol Agriculture Mechanization



Technical training for agriculture is more important than ever. The next generation of agricultural experts must possess a broad range of knowledge across a variety of areas, including electrical, mechanical, fluid power, and alternative energy.

With the Fourth Industrial Revolution firmly underway, technical training for agriculture holds the key to unlocking new breakthroughs in productivity and efficiency. Amatrol offers a wide variety of advanced technical training across a broad array of subject areas relevant to both industry and educational institutions.

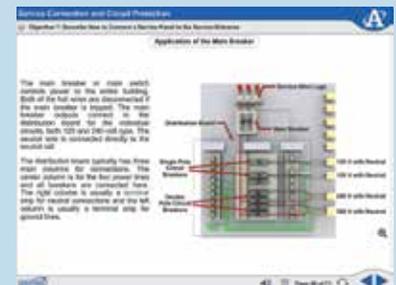
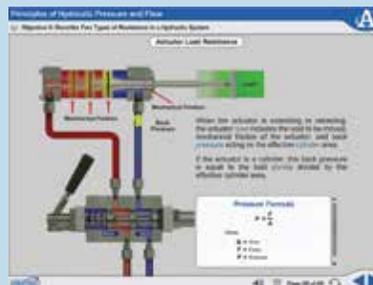
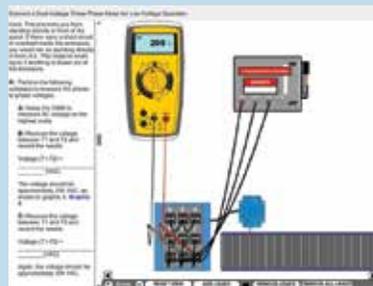
What sets Amatrol apart is its dedication to providing comprehensive training solutions that integrate in-depth multimedia **e-Learning curriculum for a Hybrid Learning** approach that includes hands-on trainers that feature real-world industrial components. Students can use the “Virtual Simulators” when doing remote learning, building circuits, repairing and aligning Drive Shafts, then using real-world equipment when they transition back to the lab at school.



Amatrol's in-depth **eLearning curriculum** features an interactive multimedia format that includes stunning 3D graphics and videos, voiceovers of all text, and quizzes and exercises designed to appeal to all learning styles.

### Virtual e-Learning Topics include:

- AC/DC Electrical
- Electric Motor Control
- Basic Pneumatics and Hydraulics
- Basic Mechanical Systems



## zSpace

### zSpace

for Career and Technical Education (CTE)



#### Automotive Training with AR/VR

Hands-on Practice, Simulations, and Assembly/Disassembly Training

The Automotive VR Training System by GTAFE offers extraordinary hands-on experiences while improving student interest and performance in mechanic training. These applications greatly expand the opportunities available to students by eliminating consumables, reducing training space, and allowing students to prepare for industry certifications in a safe environment.

Automotive Learning Apps include **VR Automotive Expert**, **VR Automotive Mechanic**, and **VR Electric Automotive Mechanic**.



#### Allied Health

Create hands-on labs and prepare students for certification exams

zSpace provides a suite of applications to provide self-study experiences, hands-on laboratory dissections, and ECG certification preparation. Students understand more deeply with 3D interactive experiences and their engagement soars. The ability to do virtual dissections and anatomical exploration helps replace in-person clinicals typically conducted.

Allied Health Learning Apps include **Human Anatomy Atlas**, **VIVED Anatomy**, and **Virtual ECG**.



#### Agriculture Sciences / Welding

zSpace provides a suite of learning applications to provide hands-on laboratory dissections for large and small animal science and a simulated welding training program.

Agriculture Sciences / Welding Learning Apps include **VIVED Science**, **Canine Anatomy VR Trainer**, **Wave NG Welding**, and **zSpace Studio by zSpace - Genetics Opportunities**.



#### Advanced Manufacturing

zSpace delivers advanced manufacturing applications on its AR/VR platform to provide hands-on training on a wide variety of manufacturing processes from preventative maintenance and routine repairs to logistics and production.

Advanced Manufacturing Learning Apps include **Pneumatics**, **Mechanical**, **Hydraulics**, as well as **Robotics Expert** and **Robotics Mechanic** (*featuring FANUC Robots*).

# COLLISION REPAIR:

C.I.P. 47.0603

## SimSpray PAINT

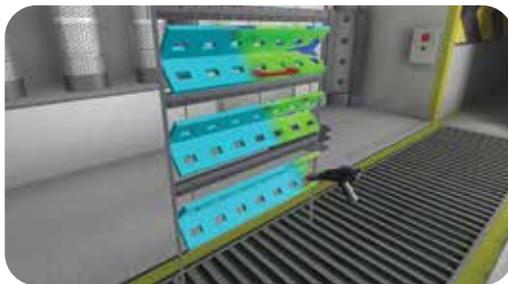


Accelerate spray painter skills training with SimSpray PAINT, the turn-key, mobile, simple to use, simulation-based training tool. SimSpray PAINT uses immersive VR technology to transform your room into a paint ready booth that saves time, materials, and disruption to production equipment without emitting VOCs into our world.



### SimSpray PAINT Features:

- Realistic Paint and Defects (Drips, Sags, Dry Spray, and Orange Peel)
- Paint in Coating or Coverage (Mil Build) Views
- 3D Performance Analysis and Replay
- Stationary and Conveyored Environments
- Easy-to-Follow Visual Cues (Angle, Distance, and Speed)
- Customizable Curriculum



## SimSpray POWDER



SimSpray POWDER is ideal for simulation-based powder-coating training. The turn-key system is mobile, easy to use, and cost-effective. The immersive VR technology used in SimSpray POWDER enables you to transform your room into a powder coating booth that provides students a fun, engaging way to train while preparing them for the core skills they'll need on the job.



### SimSpray POWDER Features:

- Learn Faraday Effect Strategies and Common Defects through Activities
- Powder Coat in Coating or Coverage (Mil Build) Views
- 3D Performance Analysis and Replay
- Stationary and Conveyored Environments
- Easy-to-Follow Visual Cues (Angle, Distance, and Speed)
- Customizable Curriculum



## VRTEX® Engage

With applications for both manual and virtual (VRTEX®) welding simulations

This standalone system, designed to introduce basic skill trades to students in non-traditional academic settings, gives users a taste of the more advance VRTEX system designed specifically for welding training.

VRTEX Engage includes a touch screen, monitor, welding gun, tracking device and a placemat to simulate the work surface. It's all contained in a lightweight and highly portable carrying case that can be deployed in any setting – industrial, educational or elsewhere.



## VRTEX® Mobile Virtual Welding Trainer

The VRTEX® Mobile is a basic, entry level welding training system. It is designed to provide mobility in an easy to use and engaging welding training tool. The VRTEX® Mobile is ideal for initial, basic welding training, as a recruitment and engagement tool for educational and industry and for employment and screening for human resources or as an evaluation tool for instructors and educators to get a baseline on student knowledge.

## Robotic Education Cell 2.0



Lincoln Electric® offers advanced manufacturing training solutions. With automated welding transforming manufacturing today, our complete offering of robotic welding training solutions focus on enhancing the ability to train students on robotic programming and welding techniques and skills. Our goal is to help welding, robotic and manufacturing technology instructors and students to develop the skills necessary to thrive in an advanced manufacturing environment.

### Ideal For:

- Training and demonstration in a lab, classroom, or recruitment event
- Technical training at universities
- Trade schools
- Workforce development programs



# WELDING TECHNOLOGY:

C.I.P. 45.0508



IMPROVED!

## Miller AugmentedArc® Augmented Reality Welding System



The industry's most realistic welding simulation solution for classroom training. For beginner to advanced-level weld students, the AugmentedArc system simulates multiple welding processes, blending real-world and computer-generated images into a unique, augmented reality environment.



**Optimize instructor efficiency** by using the Teacher software to create a virtual classroom with customized curriculum, quizzes and weld exercises.



**Reduce overall training time** compared to traditional methods, with the realistic live arc welding simulation of the AugmentedArc.



**Build a larger, more-skilled welding workforce** when computer-savvy individuals are drawn to welding education programs that increase their success with live arc welding.



**Real-time feedback** is provided on users' technique to help correct errors. Reinforce proper welding practices and accelerate skill advancement prior to actual live arc welding in a lab.



**Minimize material cost** by saving wire, gas and workpieces in this simulation environment allowing students to define their welding skills before beginning live arc welding.



**Teacher software** is a user-friendly and flexible learning management system (LMS) that allows instructors to manage courses, content and students, and maximizes the usefulness of AugmentedArc welding simulators.

### Create and manage your own welding curriculum

- Create quizzes, theory and welding simulation exercises
- Use pre-developed exercises or fully customize your own exercise parameters, technique and scoring criteria
- Offline mode allows you to manage the content from anywhere

### Manage student progress

- Review the complete history and detailed results of student activities
- View real-time results of welding simulations
- View statistics and download reports for individual students or entire class

### Comes complete with:

- AugmentedArc simulator
- Teacher software (see below for description)
- Black Infinity™ AR helmet with premium headgear AugmentedArc router
- MIG gun with AR nozzle
- SMAW stinger
- TIG torch with AR nozzle
- Two electrode/filler rods with AR tips
- Work stand for out-of-position applications
- Five workpieces: t-joint, butt joint, lap joint, pipe-to-plate and butt pipe



## Miller LiveArc™ Welding Performance Management System for GMAW, FCAW & SMAW Applications



A Reality-Based Solution - Weld operators benefit from both weld simulations and the incomparable real-world experience of live arc welding. In both modes, LiveArc provides instant, valuable feedback on welding technique to quickly help build skills and correct muscle memory.

Guided by an easy-to-understand interface with graphical icons and instructional pop-ups, users find navigation intuitive with a quick learning curve. The system offers easy selection of assignments and review of Welding Procedure Specifications (WPS), including proper material selection and preparation, correct power source and wire feeder settings and target welding technique parameter values. After completion of an assignment, the interface delivers detailed feedback on the operator's technique.



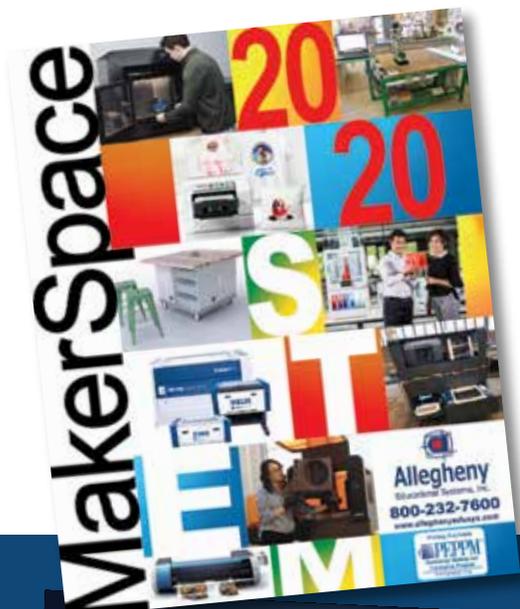
### Features Include:

**Instructor Interface** - Assignments can be quickly configured and customized with target values and limits for work angle, travel angle, travel speed, contact-tip-to-work distance (CTWD) and aim. Data is captured so individual weld operator's performance can be stored, retrieved and reviewed at any time to monitor ongoing development.

**Welding Positioning Arm** - Allows completion of out-of-position welding exercises, with calibration, motion tracking and feedback occurring in the same way as table top exercises.

**Industrial-Quality Construction** - Built to withstand heavy use, the LiveArc system includes a widescreen HD monitor and powerful industrial computer with solid-state technology and filterless, fanless cooling. The rugged ArcStation base features a 1/2-inch reversible steel table that allows flexible coupon placement; it ships complete with drawers, gun holder, quick-release clamps and heavy-duty casters for mobility.

**Better Training, Faster Results, More Cost Effective** - The Miller LiveArc system gives weld operators a superior training experience, delivering immediate, objective feedback in both simulations and live arc welding. Intuitive and easy to use with minimal supervision, LiveArc gets operators welding faster while saving money on supplies, helping instructors deliver more-effective and efficient lessons, and offering the peace of mind of the Miller True Blue Warranty.

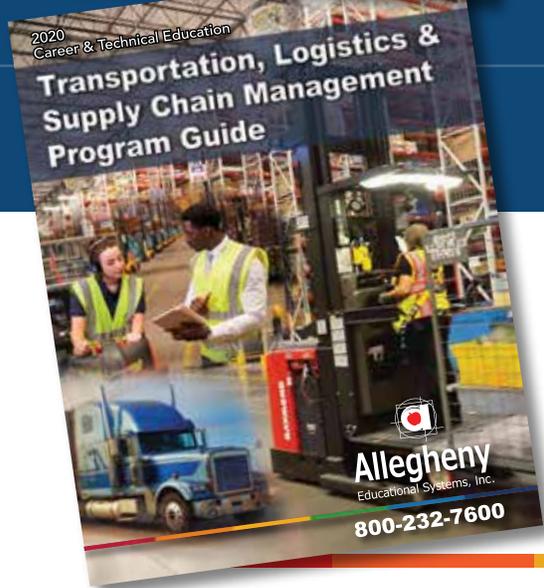
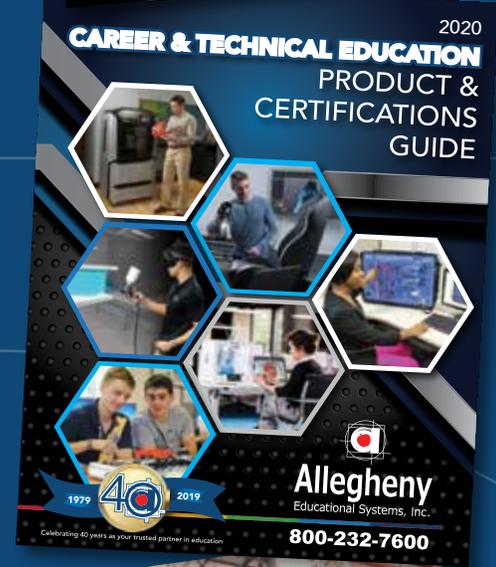


# Explore More!

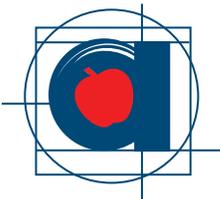
**Makerspace Product Guide**

**Career & Technical Education Product & Certifications Guide**

**Transportation, Logistics & Supply Chain Management Program Guide**



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