ROBOTIC WELDING TRAINERS
PREPARE WELDERS FOR A CAREER IN AUTOMATED FABRICATION
Bridge the Automation Knowledge Gap with ClassMate Education Cells

Today’s manufacturing companies are looking for employees with computer skills, technical training, mathematics and problem-solving abilities. ClassMate® Robotic Welding Trainers from Lincoln Electric help educators teach up-and-coming welders all those skills and more. Our Robotic Welding Trainers build a strong foundation for these educational programs:

- Industrial, Mechanical and Advanced Manufacturing Welding
- Engineering or Technology
- Production Processes
- Lean Manufacturing and Manufacturing Management
- 3D/CAD/Virtual Prototyping Programming Classes
- Manufacturing Operations, Mechatronics, Quality Control and Inspection
Robotic Welding Training Systems
Put Welders on the Cutting Edge of Automation Technologies

The use of robotic welding systems continues to expand in industrial operations as manufacturers seek ways to increase productivity amid a shortage of skilled welders in the workforce. Lincoln Electric robotic welding trainers empower educators to prepare the highly skilled welders needed to operate this in-demand automation equipment.

Why Add a Lincoln Electric Robotic Welding Trainer to Your Welding Program?

1. Provide students with advanced manufacturing skills.
2. Utilize current industry technologies, such as the teach pendant, to help welders learn real-world programming skills.
3. Increase student participation and engagement with a hands-on training solution.
4. Teach robotics using the equipment implemented in manufacturing and fabrication facilities.
5. Accelerate student skills and capabilities for high graduation employment rates.
6. Pique interest and enrollment in welding with an exciting recruitment tool.

Who Is Using Our Robotic Welding Training Solutions?

We Offer Professional Development & Teaching Assets

In addition to providing instructors the advanced technologies needed to bring hands-on automation training to welders, Lincoln Electric also offers training for welding educators. Our Train-the-Trainer Program includes courses, curriculum and safety materials designed to help instructors magnify their impact in the modern-day classroom.

- High Schools
- Career & Technical Education Facilities
- Community Colleges
- Apprenticeship Programs/Labor Unions
- 4-Year Colleges and Universities
- Workforce Development Programs
Our Robotic Education Cells Are Designed to Fit Both Space and Curriculum Needs

**ClassMate M**
Mobile Robotic Cell Easily Moves from Classroom to Lab

- Fits through a standard doorway to teach and practice programming in a classroom and moves to the lab to practice welding
- 3-in-1 adjustable welding fixture enables the welding instructor to teach common industry-standard joints and positions all in one simple device
- Large expandable work surface (2,329 sq in.)
- Easily sets up in seconds
- 3 Packages Available:
  - **Basic** – Standard ClassMate M package
  - **Intermediate** – Includes standard ClassMate M package and WeldPRO® Training Program and Software
  - **Advanced** – Includes standard ClassMate M package, WeldPRO Training Program and Software and IRVision® 2D vision camera system

- Custom Lettering Program is preprogrammed with easy-to-use high-quality lettering
- Includes 2 Basic Robotic Programming class seats for instructors
- Exclusive use of FANUC® robots – the most popular robot manufacturer in the U.S.
- Teach pendant facilitates programming training from hand-held device
- Power Wave® R450 is a full-featured, operational robotic welding power source
- AutoDrive® 4R100 offers powerful wire feeding performance for robotic and hard automation applications
- Includes integrated fume control
- Integrated safety measures in system and software

**ClassMate S**
Provide Advanced Experience with Larger Components on This Industrial-Level Trainer

- Larger 6-axis Arc Mate™ 100iD FANUC robot is capable of welding medium components with a work area up to 56 in. by 43 in.
- Pre-configured systems – Palletized for easy installation and requires no assembly
- Custom Lettering Program is preprogrammed with easy-to-use high-quality lettering
- Includes 2 Basic Robotic Programming class seats for instructors
- Teach pendant facilitates programming training from hand-held device

- Power Wave R450 is a full-featured, operational robotic welding power source
- AutoDrive 4R220 Robotic wire feeding system offers powerful industry-proven wire feeding performance with the patented MAXTRAC® Wire Drive System
- Integrated safety measures in system and software
- Easy access manual bi-folding door with Shade 10 lens glass for weld viewing

Advanced Training Options:
- Add a fixed headstock robotic positioner for more complicated welds and programming. Will hold parts up to 500 kg.
Lincoln Electric Robotic ClassMate cells are complete robotic training solutions designed to help welding educators meet the need for advanced manufacturing training. Available in three versions, our line of self-contained robotic welding education equipment covers the spectrum of automation training needs and classroom configurations. Our mobile robotic cell easily transitions from classroom to welding lab, while our industrial-size robotic cells teach students how to weld the larger materials that are commonplace in modern manufacturing fabrication processes. Regardless of size and scale, all versions of the ClassMate robotic cells leverage FANUC robots, and Lincoln Electric’s proven Power Wave and AutoDrive technologies to help up-and-coming welders advance their programming and welding skills.

ClassMate FT

Provide Real-World Experience on Fixed Table Processes with the Largest Components on This Best-in-Class Industrial Solution

- Cell includes fixed table where welders learn to program welds that do not require rotation or repositioning
- Larger 6-axis Arc Mate 100iD FANUC robot is capable of welding large components with a work area up to 81 in. by 34 in.
- Pre-configured systems – Palletized for easy installation and requires no assembly
- Custom Lettering Program is preprogrammed with easy-to-use high-quality lettering
- Includes 2 Basic Robotic Programming class seats for instructors

Advanced Training Options:
- Add a fixed headstock robotic positioner for more complicated welds and programming. Will hold parts up to 500 kg.

Teach Pendant Provides Advanced Hand-Held Robotic Control

ClassMate Robotic Welding Trainers include a state-of-the-art teach pendant that provides the operator total control of the robot from a hand-held device. The new ClassMate Teach Pendant makes learning how to move and program the robot easier through these advanced features:

- User-friendly 6.4 in. color touchscreen
- Supports HTML 3.2 and JavaScript 1.1 for customization
- Haptic vibration provides tactile feedback to operator
- New intuitive user interface for simplified programming
- Display teach pendant directly to Smart TV for enhanced lab experience
The purchase of a ClassMate cell includes curriculum support. Robotic Welding Project-Based Lessons contain a collection of lesson plans that provide the following benefits:

- Encourage active inquiry and higher-level thinking
- Plans align with updated software to provide step-by-step instructions
- Includes objectives, discussion questions and other materials for the instructor or student

Visit Lincoln Electric’s YouTube Channel, LincolnElectricTV, to watch our video titled "Lincoln Electric Robotic Education Cell" for an overview of the ClassMate’s best-in-class robotic training capabilities and to see students and instructors interacting with the system.
CLASSMATE Comparison Chart

<table>
<thead>
<tr>
<th></th>
<th>Classmate M</th>
<th>Classmate S</th>
<th>Classmate FT</th>
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</thead>
<tbody>
<tr>
<td>Lesson Type</td>
<td>Visual Demonstration and Programming</td>
<td>Programming and Sample Part Fabrication</td>
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</tr>
<tr>
<td>Installation</td>
<td>Mobile</td>
<td>Permanent</td>
<td>Permanent</td>
</tr>
<tr>
<td>Work Surface Area</td>
<td>24 in x 24 in</td>
<td>56 in x 43 in</td>
<td>81 in x 34 in</td>
</tr>
<tr>
<td>Part Size</td>
<td>Small</td>
<td>Medium</td>
<td>Large</td>
</tr>
<tr>
<td>Machine Size</td>
<td>32.5 in x 65 in x 81 in</td>
<td>67 in x 86 in x 92 in</td>
<td>103 in x 90 in x 94 in</td>
</tr>
<tr>
<td>Machine Weight</td>
<td>1,000 lbs</td>
<td>2,281 lbs</td>
<td>3,818 lbs</td>
</tr>
<tr>
<td>Connectivity</td>
<td>Ethernet</td>
<td>Ethernet</td>
<td>Ethernet</td>
</tr>
<tr>
<td>Fume Extraction</td>
<td>Source Capture</td>
<td>Vent Hood (optional)</td>
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<tr>
<td>Arc Flash Eye Protection</td>
<td>K1878-1 Welding Lens Shade 10 Handshields provided*</td>
<td>Protective Panels with Shade 10 Welding Glass View Ports**</td>
<td>Protective Panels**</td>
</tr>
</tbody>
</table>

*Follow appropriate local guidelines and regulations
**When viewing the arc directly individuals must follow appropriate local regulations and guidelines for eye protection

WeldPRO Training Program and Software
Teach Programming and Welding Processes
• Simulate a robotic arc welding process in 3-D space
• Transfer programs from the virtual workcell to an actual robotic cell
• Train multiple students on programming at one time
• Driven by a FANUC Robotics Virtual Robot Controller
• Import actual tooling and workpiece CAD files

• Instructor license includes one seat that does not expire
• Student WeldPRO Simulation Software License Package includes 12-month subscription per student* (25 seats included)
• Access to Lincoln Electric’s Train-the-Trainer program and ArcTool-based two-day training
  * Laptop not included

IRVision 2D Vision Camera System
Improve Weld Quality, Consistency and Repeatability
• Used for joint location tracking, robot guidance and error proofing prior to establishing an arc
• Improve cycle time and quality
CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers’ particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

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