



Robotic Education Cell 2.0

MEJORANDO LAS TÉCNICAS DE FABRICACIÓN DE LA SIGUIENTE GENERACIÓN

La manufactura y la fabricación han cambiado de manera dramática. La presión competitiva ha crecido y los negocios de todos los tamaños ahora compiten a una escala global. Con este hecho en mente, las habilidades y capacidades de las compañías manufactureras han sido puestas a prueba para aumentar la productividad, mejorar la calidad mientras que se reducen los costos. Acoplado con la falta crítica de mano de obra calificada, la industria de la manufactura tiene que implementar procesos automatizados de fabricación y soluciones para seguir siendo competitivos. La robótica jugará un papel importante en la manufactura y la fabricación de hoy y en el futuro. La educación en la robótica es una iniciativa clave y por tanto, juega un papel importante en la capacitación y los programas educativos.

Para ayudar a que los instructores de soldadura logren estas nuevas capacidades y mejoren la capacitación en el salón de clases y en el laboratorio de soldadura, Lincoln Electric ha creado un sistema de capacitación para demostrar y enseñar los conceptos de la robótica industrial en la vida real, sus capacidades, programación y soldadura robótica



BENEFICIOS DE LA CAPACITACIÓN DE LA SOLDADURA MEJORADA CON LA ROBÓTICA

- Proporciona a los alumnos habilidades mejoradas de manufactura.
- Aumenta la participación del alumno y su compromiso con la solución de la capacitación práctica.
- Enseña la robótica usando los equipos implementados en instalaciones de manufactura y fabricación.
- Acelera las habilidades y capacidades del alumno para altas tasas de empleo de graduados.
- Aumenta el interés y la inscripción con esta excelente herramienta de reclutamiento

APLICA LA CELDA ROBÓTICA EDUCACIONAL EN PROGRAMAS MÚLTIPLES

- Soldadura industrial, mecánica y de manufactura avanzada
- Tecnología en ingeniería
- Procesos de producción
- Fabricación Lean y gestión de manufactura
- Clases de programación de prototipos 3D/CAD/Virtuales
- Operaciones de manufactura, mecatrónica, control e inspección de calidad

LINCOLN
ELECTRIC

**Automation
Solutions**

La Celda Educacional de Soldadura Robótica de Lincoln Electric es ideal para:

- » Propósitos de capacitación y demostración en un laboratorio de soldadura o aun en caso de reclutamiento
- » Capacitación técnica en universidades
- » Escuela de formación profesional
- » Programas de desarrollo de la fuerza laboral

La celda incluye acceso al programa formación de formadores, educación de soldadura, y materiales de seguridad de soldadura respaldados por el sistema de conocimientos y soporte de Lincoln Electric. Nuestro objetivo es ayudar a los formadores y a los estudiantes a desarrollar las habilidades necesarias para buscar en un entorno avanzado de manufactura



Lincoln Electric proporciona la solución más integral de capacitación de soldadura en el mercado

CELDA EDUCACIONAL DE SOLDADURA ROBÓTICA 2.0 BÁSICA AD2437-1:

- » Paquete de soldadura robótica con opción de alimentación de entrada de 230V
- » Lecciones de soldadura robótica basadas en proyectos (K3976-1 & K3976-2)
 - Las lecciones basadas en proyectos de Lincoln Electric ofrecen a los instructores con proyectos para fomentar la investigación activa y el pensamiento de orden superior.
 - Las instrucciones ofrecen actividades de aprendizaje, instrucciones paso a paso y preguntas de discusión para integrarse fácilmente en los programas de educación de manufactura
- » **Posicionador para soldar (K4110-1):**
 - El accesorio posicionador para soldar ajustable 3-en-1 de patente pendiente está diseñado para su uso en un sistema entrenador de educación en soldadura robótica. El posicionador para soldar es flexible y compacto, lo que permite que el instructor de soldadura para enseñar las uniones y posiciones en soldadura más comunes y de la industria, todo en un dispositivo simple.
- » **Extractor de Humos de Soldadura Miniflex® (AD1312-16):**
 - Portable weld fume extractor system
 - Integrates easily in the bracket on the Education Cell
 - Ideal for welding “on the go”
- » **EN 20 Extraction Nozzle (K2389-5):**
 - With its funnel extraction opening and magnetic mounting stand, it gives the welder a great amount of versatility.
- » Custom Lettering Program, preprogrammed with easy to use high quality lettering

FEATURES OF THE ROBOTIC WELDING CELL 2.0

- » Expandable work surface provides the instructor room to teach robotic programming and welding skills.
- » Small system footprint easily incorporates into a classroom or welding lab.
- » Designed to fit through a standard doorway, the Education Cell can be moved from classroom to classroom to welding lab and positioned for best viewing during demonstrations, training and programming.
- » Provides everything you need right at your fingertips to present a manufacturing ready robotic welding system. Includes Lincoln Electric robotic welding equipment and welding wire, integrated safety measures in the work cell design, and FANUC® Robotics robot and software.
- » Integrated safety measures incorporated into the work cell design and robotic software. Welding hand shields are provided with the robotic system.



EN 20 Extraction Nozzle, Welding Fixture, and Project Based Lessons



CLASSROOM READY ROBOTIC WELDING AND PROGRAMMING TRAINING PACKAGE AD2437-2:

- » Robotic welding and classroom package offers 230V input power for welding and a 115V connection for offline programming in the classroom
- » Includes Robotics CERT Program

FANUC ROBOTICS CERT PROGRAM

The CERT program is an Authorized Provider of Continuing Education Units (CEU) by the International Association for Continuing Education and Training (IACET). All CERT training meets eligibility requirements for IACET CEU's according to the national ANSI / IACET 1-2007 standard.

Free Instructor ArcTool™ CERT Training Program and Software Package:

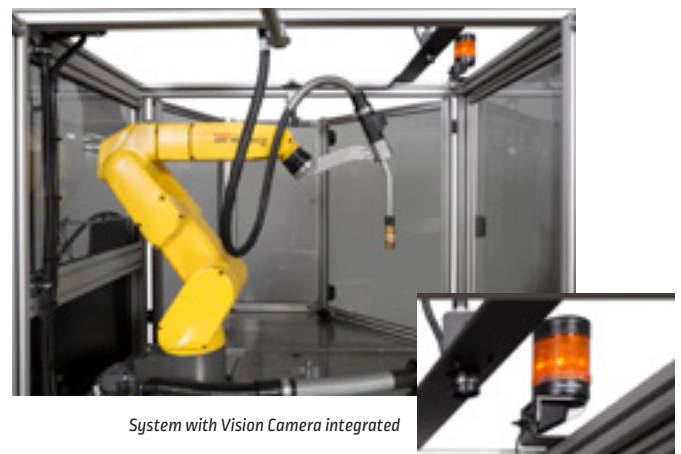
- » ArcTool Certification & ArcTool CERT Training Program
- » ROBOGUIDE Simulation Software (Laptop not included)
- » ArcTool eLearn Web Courses
 - One seat for Basic Robotic training at Lincoln Electric
 - One on-line seat to take robot operations web course through Fanuc
 - One on-line seat to take WeldPRO web course through Fanuc.
- » Student ArcTool Software Package: (12 Month subscription per student, laptop not included):
 - Qty (25) ROBOGUIDE Simulation Software Licenses
 - Qty (25) ArcTool eLearn Web Courses

Additional CERT Program (Instructor Only):
Includes qty (1) one each of the following:

- » ROBOGUIDE Simulation Software
- » ArcTool eLearn Web Courses
- » Seat in ArcTool Ops & Programming class at FANUC Robotics

CLASSROOM READY AND VISION ENABLED ROBOTIC WELDING AND PROGRAMMING TRAINING PACKAGE AD2437-3:

- » Robotic welding and classroom package offers
 - 230V input power for welding
 - 115V connection for offline programming in the classroom
 - 2D vision camera and functionality
 - Includes Robotics CERT Program



System with Vision Camera integrated



Robotic Education Cell 2.0

ADVANCING THE MANUFACTURING SKILLS
OF THE NEXT GENERATION

TECHNICAL SPECIFICATIONS

» ROBOTIC SYSTEM

- Dimensions:
 - Height: 81.23 inches
 - Length: 64.82 inches
 - Width: 66 inches (sides expanded), 32 inches (sides folded)
- Weight: 870 lbs
- Work surface area: 2,000 in²
- Robotic system input voltage: 230V Standard/welding voltage, 120V Optional/ Robot operation and programming

» POWER SOURCE & FEEDER

Power Wave® R350 and AutoDrive® 4R100

- Input Voltage: 208/230/380-415/460/575/1/3/50/60
- Input Current @ Rated Output:
 - 3 Ph/40% Duty Cycle: 39/35/19/17/14 A
 - 1 Ph/40% Duty Cycle: 60/67/NA/NA/NA A
- Output Range: 5 - 350 Amps
- Rated Output:
 - GMAW: 350A/31.5V/40%
 - GMAW: 300A/29V/100%

» ROBOT

- FANUC ARC Mate® 50iD/7L
 - Six Axis Mechanical Unit
 - 7 kg Maximum Payload
 - 0.892m Reach
- FANUC Robotics ARC Mate controller
 - 8-Axis Control Board
 - 6 Channel Servo Amplifier
 - Dual Check Safety
 - RIA compliant Operator Panel with T1-Auto Mode Switch, Cycle Start, E-Stop Buttons and ON-OFF switch
 - Memory Card PCMCIA Slot on Operator Panel
 - Fixed Digital I/O Port with 28 digital inputs, (source type), 24V and ground

» ROBOT (cont.)

- FANUC Robotics LR ARCTool® Software – Compliant with RIA R15.06 Safety Requirements

» SAFETY/WELD CELL CONTROLS

- CSA/UL certification ready system.
- PLEASE NOTE: Obtaining CSA/UL certification is the responsibility of the customer
- Fully integrated ANSI/RIA 15.06-2012 compliant operator safety devices including a door safety switch
- RIA compliant robotic controller operator panel, robotic software and pendant
- Quantity 2, hand shields (personal protection equipment) supplied with robotic system

» COMPLETE SYSTEM DOCUMENTATION

- Hard Copy binder
- Electronic manuals and tools include: operations manuals, maintenance guides, spare parts lists, calibration numbers and serial numbers, print, and supplier references and specifications.

» TRAIN-THE-TRAINER PROGRAM

- The 3-5 day (depending on options purchased) Lincoln Electric Train-the-Trainer program provides three instructors from your school or educational institution with knowledge to program and operate the cell, as well as access to the Lincoln Electric staff of welding experts and robotic welding expertise.

WORLD-CLASS WELDING AND AUTOMATION EXPERTISE

Lincoln Electric's strategic alliance with FANUC® Robotics translates into an unparalleled combination of welding and robotics expertise, plus single-source efficiency. Whether you're considering your first automated cell, or you're ready to upgrade or enhance your existing robotic systems, there's no better partner than Lincoln Electric and FANUC® Robotics.



EXCEPTIONAL CUSTOMER SERVICE

Lincoln Electric and FANUC® Robotics have a global network of facilities and people to provide quick response and personalized attention. No matter where your welding operations are located today, no matter where they will be tomorrow, Lincoln Electric welding experts can provide local support, ready to create and implement solutions that fit your needs.

VALUABLE CUSTOM SOLUTIONS

While Lincoln Electric offers a wide spectrum of pre-engineered systems, we also offer the ability to modify or completely customize the creation of your weld cell to meet your precise needs.

Contact us today!



Automation Solutions

www.lincolnelectric.com/automated-solutions

UNITED STATES

22221 Saint Clair Ave
Cleveland, Ohio · 44117 2552
Phone: +1 888 935 3878

CANADA

939 Gana Court
Mississauga, Ontario · L5S 1N9
Phone: +1 905 565 5600

MEXICO

Calzada Azcapotzalco-La Villa 869
Industrial Vallejo, Mexico DF · CP 02330
Phone: +52 55 5063 0330

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.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.