



PERFORMARC
Robotic Welding System

Miller Welding Automation

Systems and Robot Training



Miller Training Solutions

Thank you for choosing Miller Welding Automation products and recognizing effective technical training is a key element of the manufacturing process. It is our most sincere hope you find the training to be engaging, effective, and ultimately profitable.

That's why we go to great lengths to provide you with the best training possible. Maximizing Your Profitability is Our Goal.

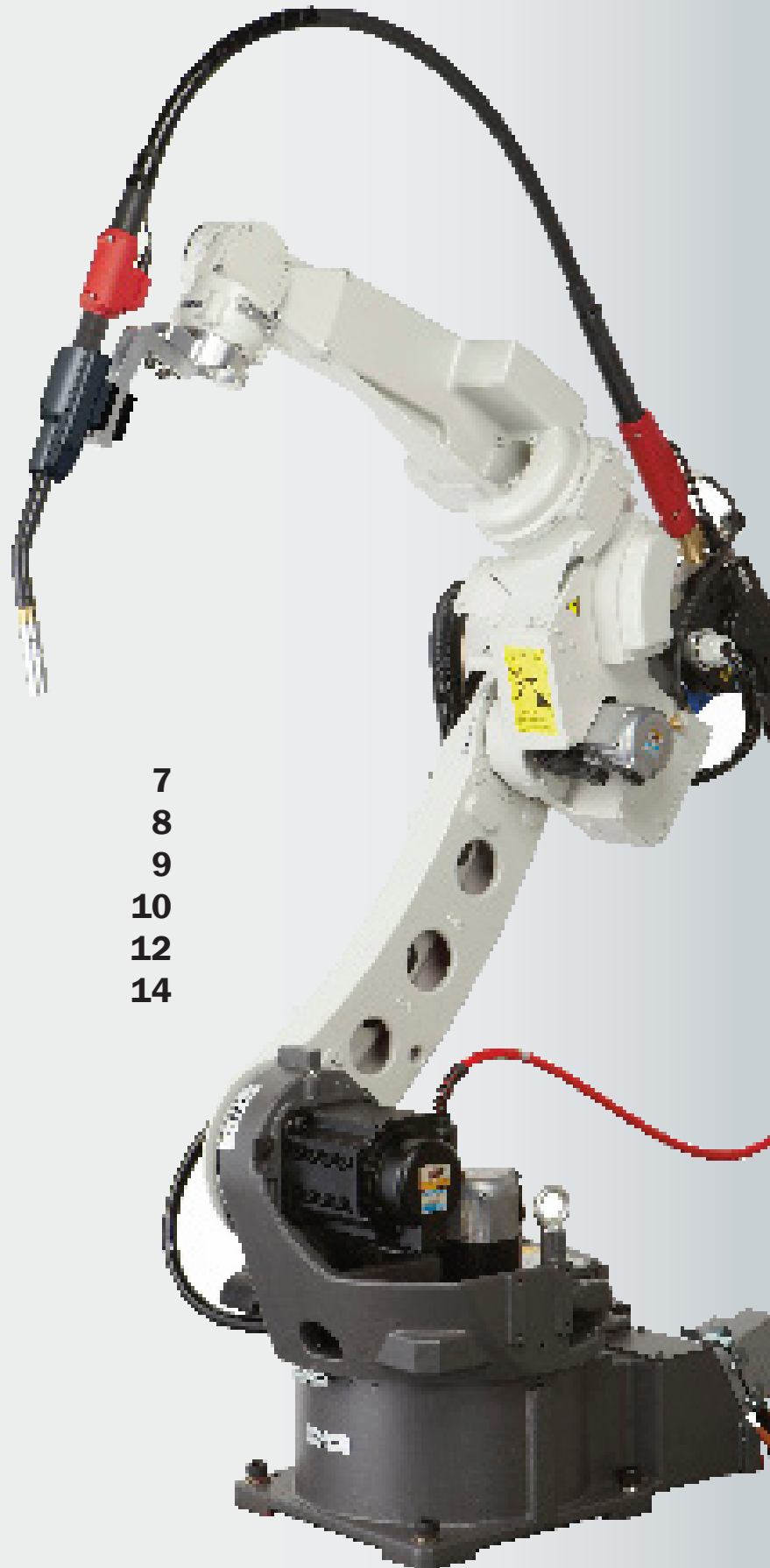
The following pages contain information regarding:

- Miller Welding Automation Training Courses
- Course Fees
- How to Schedule Training Classes
- Course overviews
- Our training philosophy

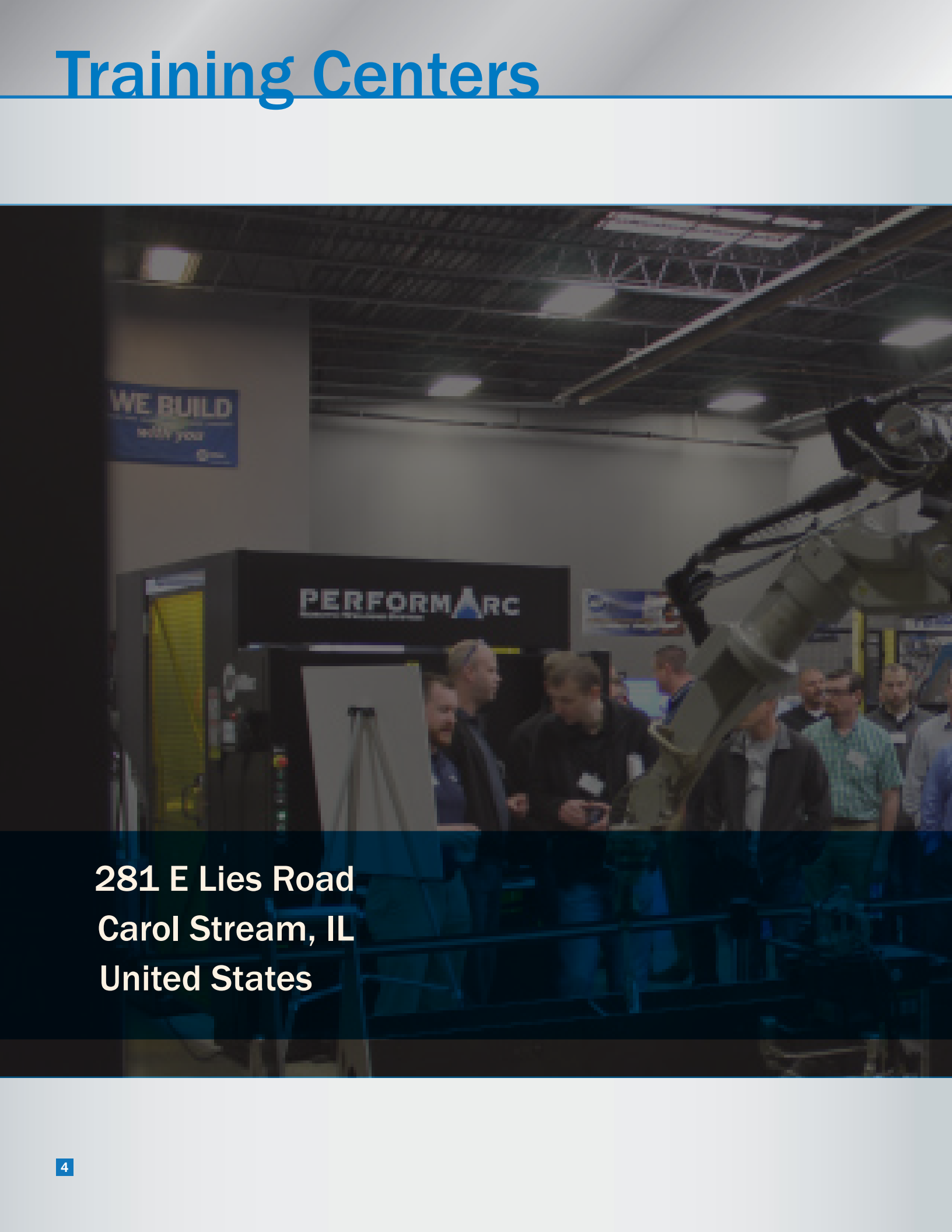
If you have questions, please feel free to contact us. Additional information may also be viewed on our Website at www.millerwelds.com/automation.

Content

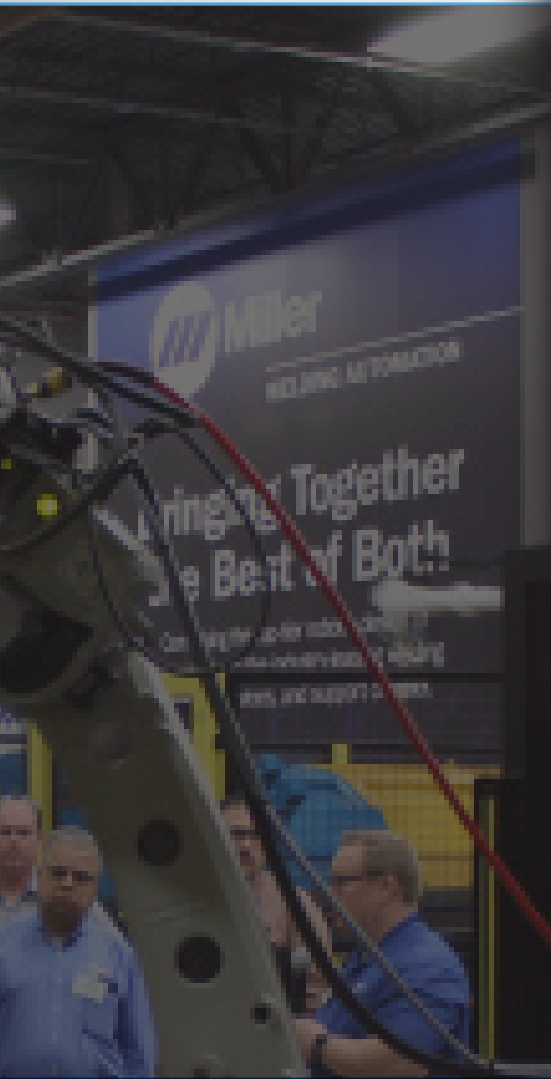
Basic Robot Operations	7
Specialized Robot Training	8
Robot Maintenance	9
Heavy Plate Programming	10
Desktop Programming (DTPS)	12
Registration	14



Training Centers

A group of people, including men and women, are gathered around a large industrial robotic arm in a training center. The robotic arm is white and black, with a yellow safety light. In the background, there is a large black machine with the word "PERFORM" and "ARC" on it. A sign on the wall says "WE BUILD with you". The setting is a large industrial building with a high ceiling and exposed ductwork.

281 E Lies Road
Carol Stream, IL
United States



**2570 North Talbot Road
Oldcastle, ON
Canada**

Operation Training

Cost - \$1,850.00/student

Monday - Wednesday | 8:30 am to 4:30 pm

Thursday | 8:30am - noon

Register online at:

www.millerwelds.com/automation

Maintenance

Cost - \$2,000.00/student

Tuesday - Thursday | 8:30 am to 4:30 pm

Register online at:

www.millerwelds.com/automation

Heavy Plate

Cost - \$2,300.00/student

Monday- Thursday | 8:30 am to 4:30 pm

Register online at:

www.millerwelds.com/automation

Offline Programming

DTPS

Monday - Friday | 8:30 am to 4:30 pm

Register online at:

www.millerwelds.com/automation

Specialized Training

Cost - \$1,800.00/student (3-day)

Cost - \$1,500.00/student (2-day)

Course designed to meet the specific needs of the customers .

Onsite Training

Cost - \$165/hour + Expenses

Time as determine by project scope Portal to portal
expense not included. Contact

james.manning@millerwelds.com

Virtual Instructor-Led

Cost - \$1,000.00/student

Tuesday - Thursday | 9:00 am to 3:30 pm CST

Register online at:

www.millerwelds.com/automation

Courses



Basic Robot Operations

We designed the Operation courses for those with a need to understand the complete operation and programming of a robotic application, including the robot arm, teach pendant, and controller. This course develops the skills required to build your product using Miller Welding Automation Industrial Equipment, from setup to programming and debug. It includes the troubleshooting of common errors and focuses on streamlining your process with the intended outcomes of minimizing equipment downtime, minimizing scrap, and increasing productivity.

A balance of theory and practical hands-on lab time ensures the students' ability to understand robot operation and apply skills learned. Robotic welding will take place during this course. Safety is a primary concern both in the training environment and production floor and repeatedly reinforced throughout the program.

- Prerequisites: None
- Course Length: 3.5 Days
- Tuition: \$1850

Specialized Robot Training

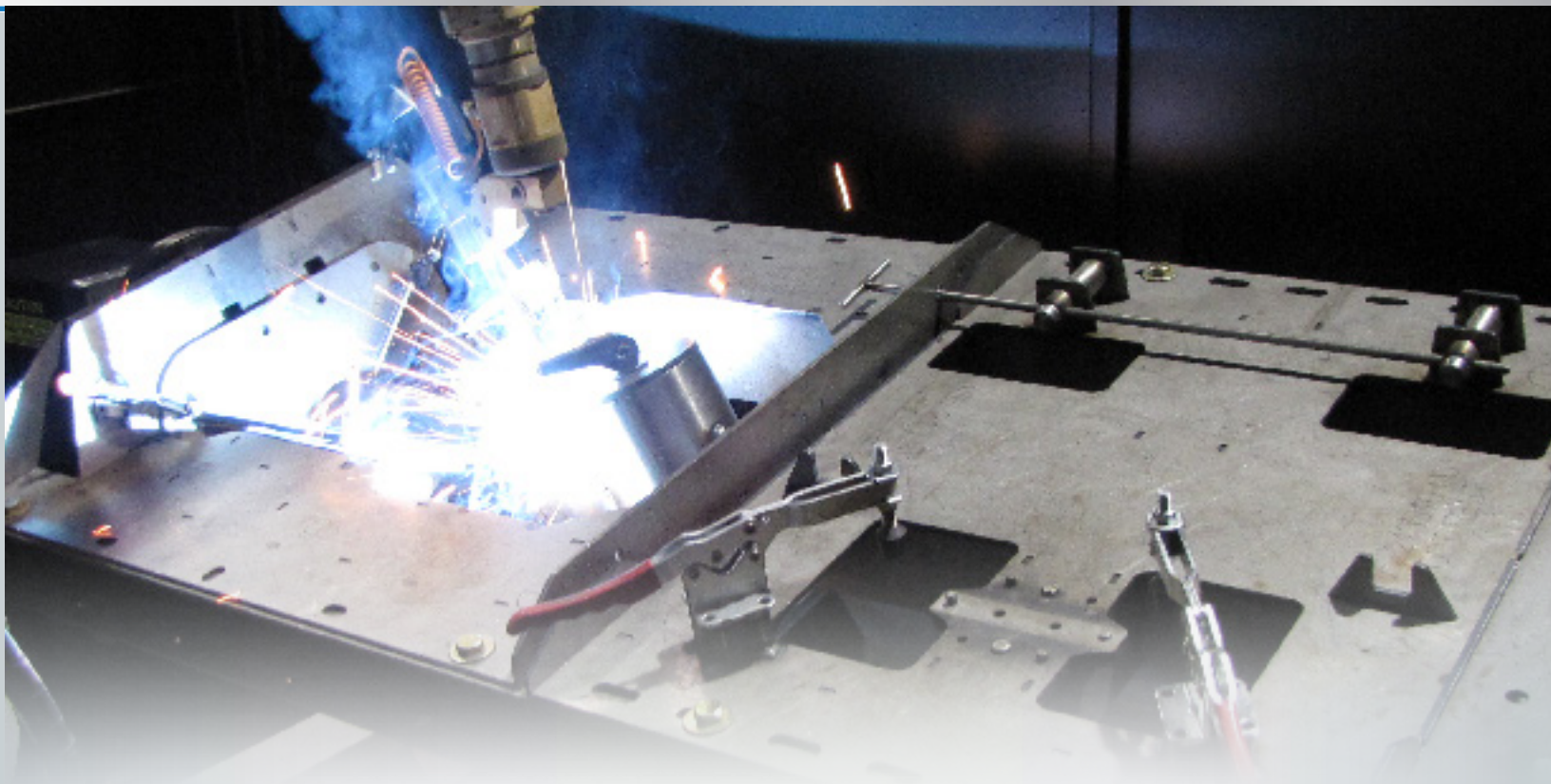
Custom courses cover robotic features that fall outside of the scope of the current course offerings. Each class is specifically designed based on the needs of the customer. A training matrix of training objectives for every training module ensures students have a complete understanding of fundamental and advance robotic programming.

Courses are 1 to 3 days based on training objectives; a minimum of two students required.

The following is a list of training modules available.

- External Axis/Harmonic motion(Setup & operation/robotic applications)
- 3D Touch sense(Setup & operation/robotic applications)
- Arc touch-sense/Seam Tracking(Setup and operation/robotic applications)
- Dual robot configuration and programming
- Aluminum welding
- MIG-Force(Servo Push/Pull)
- Advance Input/Output
- Tandem Torch
- Active Wire Process
- Stainless Steel Welding
- Standard Touch Sensor
- TAWERS Commands
- Advance Logic Programming

- Prerequisites: Basic Operations
- Course Length: 2 or 3 Days
- Tuition: \$1800 (3-Days) | \$1500 (2-Days)

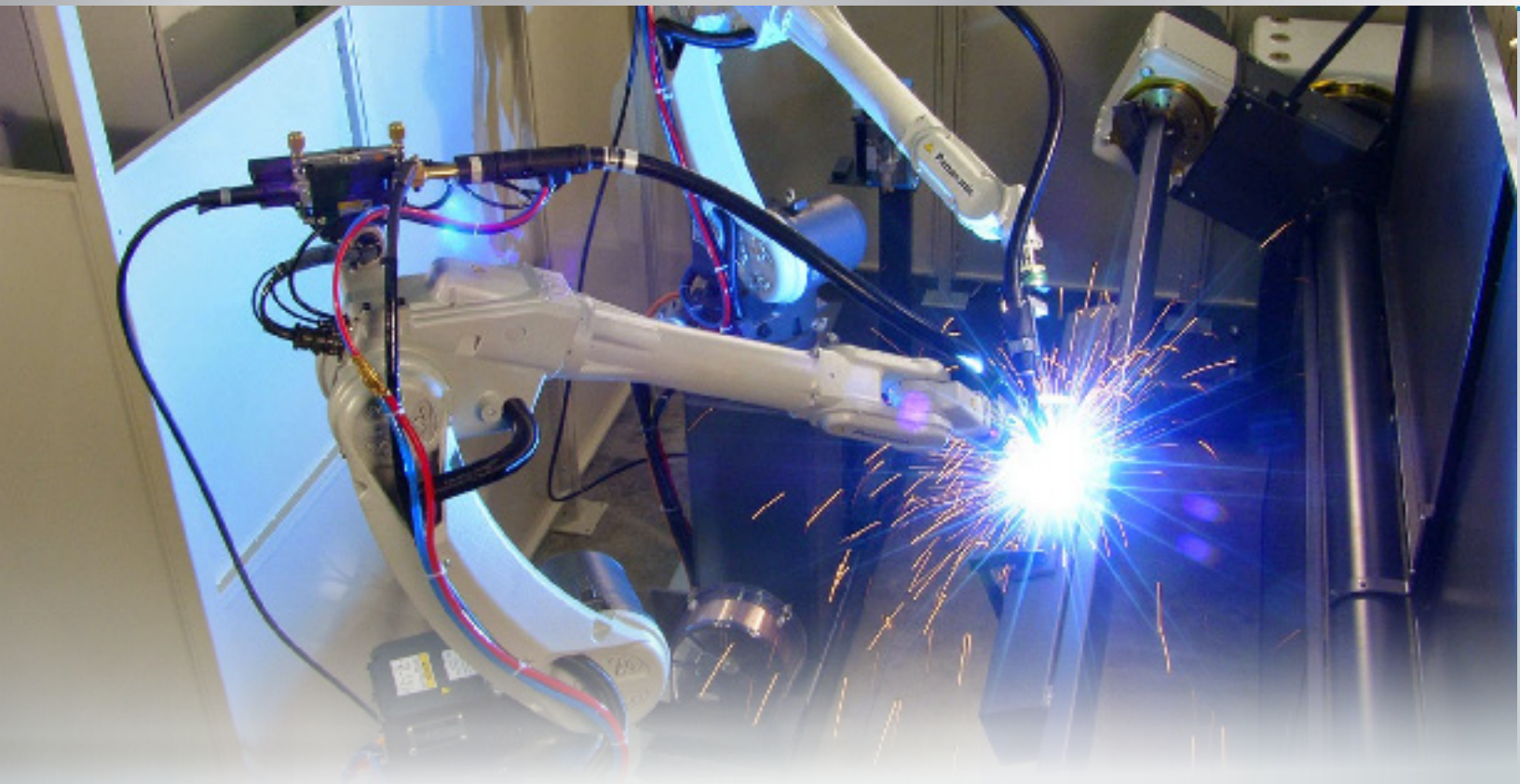


Robot Maintenance

Robot maintenance training is for those with the corrective and preventative maintenance responsibilities of the Miller Welding Automation robotic equipment.

The course stresses the importance of preventive maintenance while providing the skills needed to troubleshoot problems and quickly resolve machine downtime. The students develop a thorough understanding of electrical and mechanical components by hands-on training labs. Minimizing equipment failures and increasing productivity is the goal of this course.

- Prerequisites: None
- Course Length: 3 Days
- Tuition: \$2000



Heavy Plate Programming

This course offers a comprehensive introduction to the heavy plate software. Students learn the principles behind adaptive weaving, specialized menu for multipass welding and touch sensor procedures.

Extensive hands-on training labs based on real-world applications, provide invaluable experience. Knowledge gained through this class has an immediate impact on production.

Course Objectives

- Arc touch-sense/Seam Tracking(Setup and operation/robotic applications)
- Heavy plate process (Setup & operation/robotic applications)
- Menu welding
- Touch-sense menu organization
- Advance Touch-sense programming
- Adaptive Fill Welding
- Recombination of Welds Programming

- Prerequisites: Basic Operations
- Course Length: 4 Days
- Tuition: \$2300

Additional Training Courses

Arc Touch Sense / Seam Tracking

Students learn to setup all parameters required for successful arc sensing and seam tracking, ensuring high quality welds on even the most inconsistent materials.

Robotic TIG Welding

This course teaches the process of welding, using a tungsten electrode. During the training the student will receive instruction and extensive hands-on opportunities to develop the skills required to demonstrate proficiency of TIG welding.

Coordinated Motion

This course teaches the skills and knowledge required to generate robotic welding programs using external servo driven axis.

Aluminum Welding Optimization

This course teaches the sequence commands associated with welding aluminum applications. The curriculum also covers techniques including base-metal preparation, preheating, shielding gas, welding wire, and programming techniques related to aluminum robotic programming.

Active Wire Process

Panasonic Active Wire Feed Process (AWP) is born from TAWERS “Fusion” technology developed for further improving welding quality. This course teaches the principles behind welding with AWP and setting weld parameters.

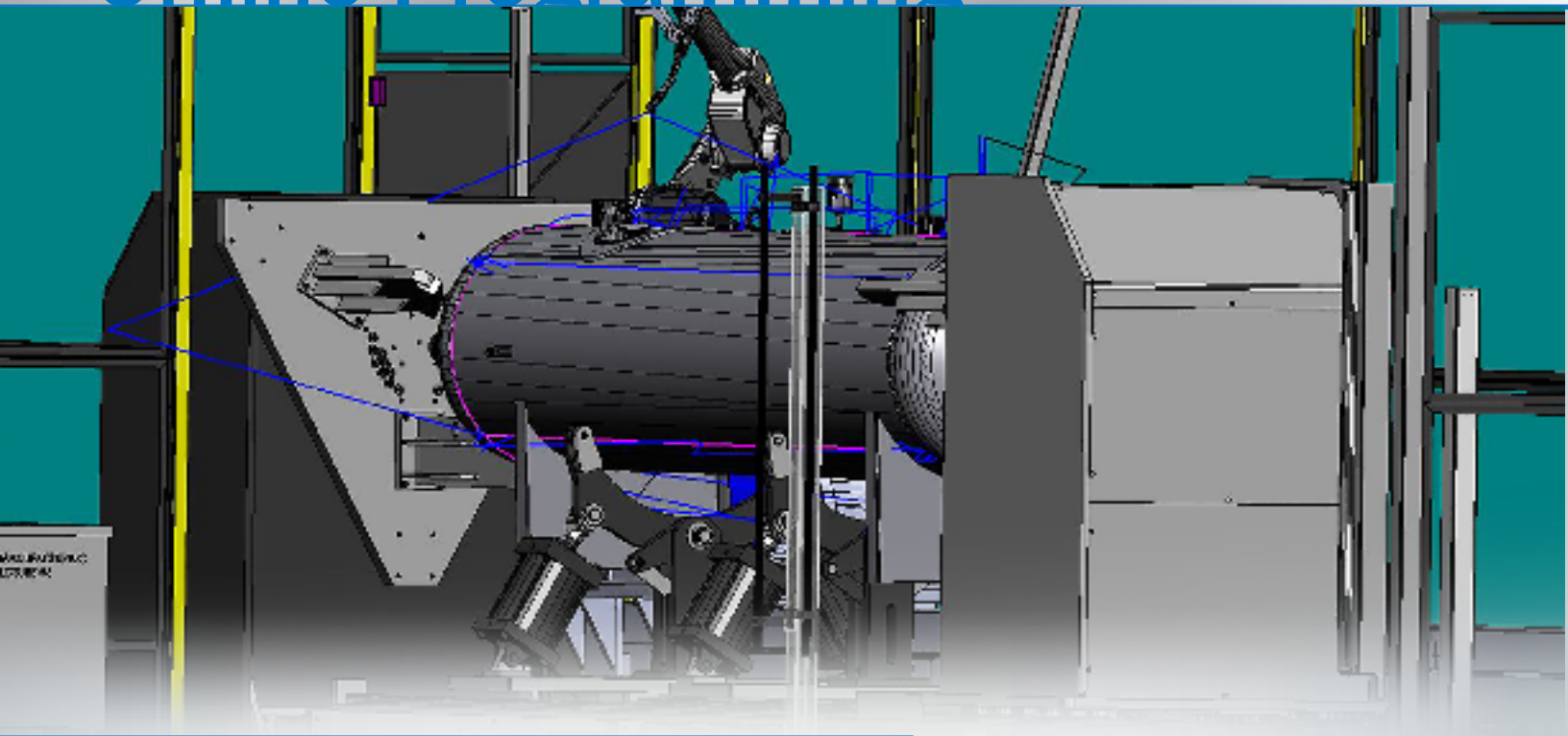
Dual Robot Operation

This course covers the basics of slave robot control, advance Input/Output programming, and programming with handshakes.

Waveform Development

This course teaches the programmers how to input the sequence commands that impact the waveform of the arc. A series of labs allow users to understand what each sequence command adjustment does to the arc. The course also includes an overview of adjusting the waveform for each welder profile.

Offline Programming



Desktop Programming (DTPS)

This course instructs student in the use of the “Offline” program generation software. This software allows the development of programs offline minimizing robot downtime and maximizing throughput and productivity. This specialized software allows the generation of programs and simulates the actual taught paths from your desktop.

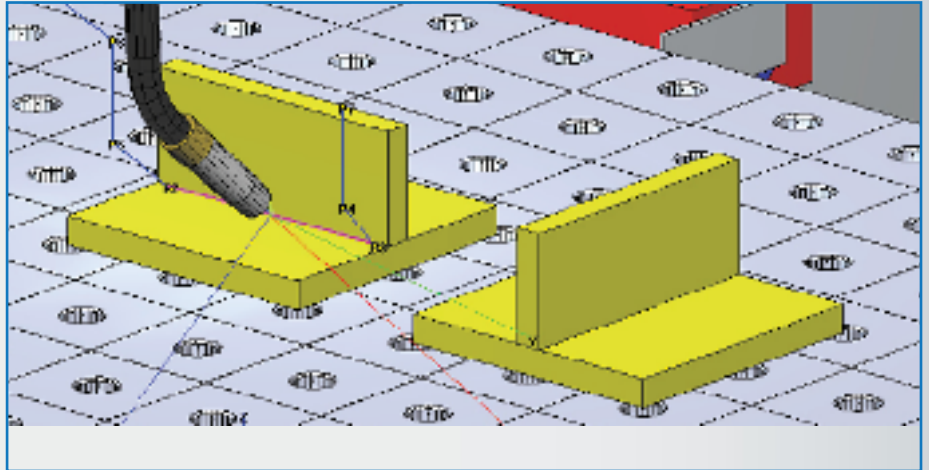
DTPS training includes four day course at Carol Stream facilities and 8 hours of onsite instructor led training.

Offline Programming (DTPS): Learning Objectives

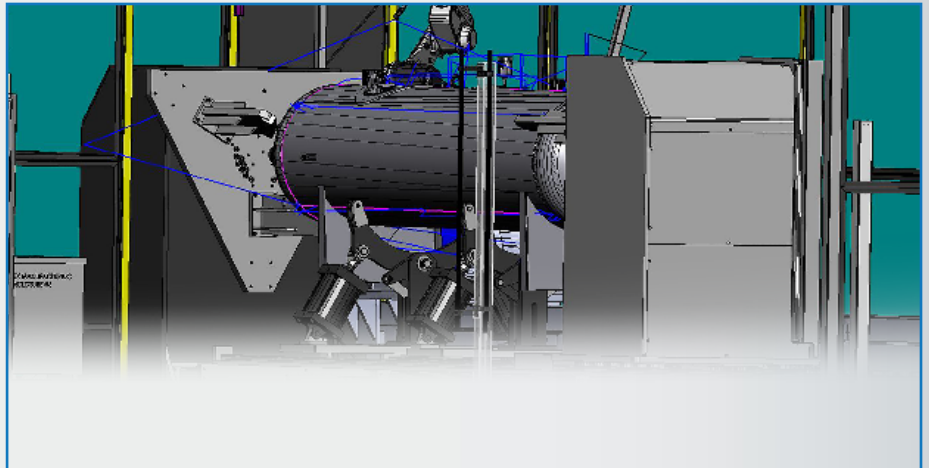
- Data Structure within DTPS
- Drawing Parts in DTPS
- Importing CAD files
- Setting up a system (Installation Editor)
- External Axis Editor
- Offline Programming
- Drawing Weld Lines
- Programming offline
- Cycle Time analysis
- Reach Studies
- Collision Detection
- Mastering System from Virtual to Real World
- Calibration of your Robotic
- Welding System
- Aligning Program from DTPS to Real System
- Dimension Lines
- Additional Features

Maximize Throughput & Productivity

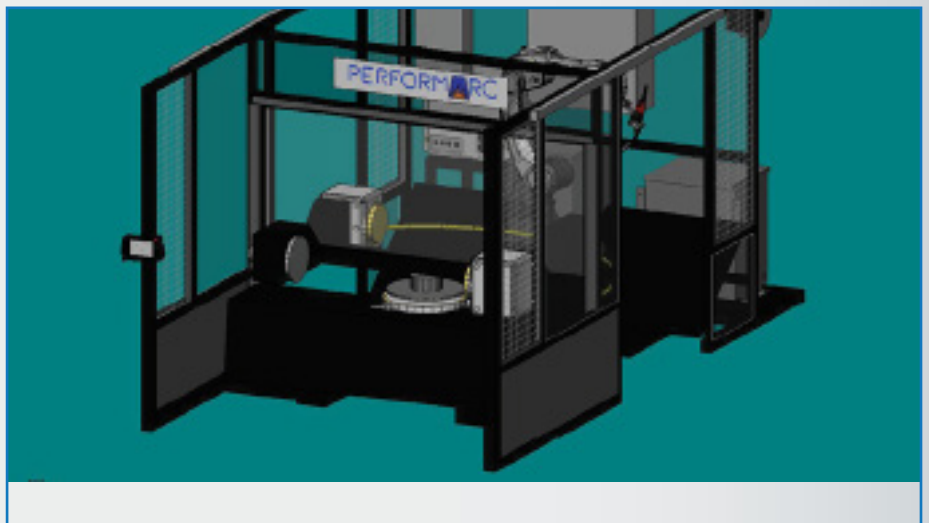
The ability to program offline and perform reach studies.



Import CAD files or draw parts in DTPS.



Build welding systems and master virtual world to real world.



Registration

For new robotic purchases, we recommend you receive training no more than 3 weeks prior to installation of the system.

Before you register, be sure you know:

- Installation date in order to pick the class date closest to your installation date.
- The type of training in which you wish to enroll your personnel.
- The number of students you wish to enroll.
- If the training was included in a “Smart Start” package.
- Payment must be made at the time of registration using a credit card.
- Purchase Orders option available ONLY when training is billed as part of a system purchase.

Register at: www.millerwelds.com/automation

Who Should Attend

The training supports the entire production team, so regardless of your specific role, you'll find the training will meet your company needs.

One or more recommended pre-requisites include:

- Proficiency with Windows applications
- Previous robot programming experience
- Mechanical drawing (AutoCad, Solid Works, etc)
- Robotic operations
- CNC programming

Training philosophy and principles

1

Clearly defined performance objectives: We design each course to meet their learning objectives, as well as meet customer expectations.

2

Ample practice and feedback: each student is assured time with the robots. Our creative lab work allow for better retention and understanding.

3

Focus on customer needs: Our courses are flexible, allowing instructors the opportunity to address specific customer concerns.

4

Well equipped training facility: The goal is to ensure that students learn on the equipment that they will use on the daily basis.

5

Assessment and Measurement: We evaluate each course based on student achievement, student evaluations and customer feedback.



Learning by Doing = More Hands On

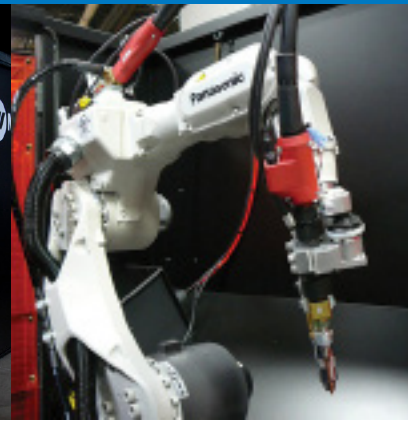
Learning by doing is the fundamental approach to our training philosophy. Students advance their knowledge through a series of exercises and labs where they are able to practice and apply each learning objective. Our goal is 80 percent hands-on and 20 percent classroom lecture.

Our training includes ample training with the robot and the teach pendant. Unique to Miller Automation training is the number of hours spent with actual robot welding time. This allows trainees the opportunity to better simulate the conditions of their work environment.

80%



Miller Training Systems



MillerWelds.com

263 233 © 2011 Miller Electric Mfg. Co.

