SwitchWeld

SWITCHWELD COBOT WELDING

- AND-

SCA TRAINING PROGRAM UPDATES

switchweld.com

OUTLINE

SWITCHWELD-

Collaborative welding robot available through AUBO Robotics USA

- Switchweld.com

SCA COLLABORATIVE WELDING ROBOTIC TRAINING PROGRAM-

- Courses available
- Course Structure
- Implementation
- Early Feedback

SWITCHWELD SYSTEM OVERVIEW

The SwitchWeld is a collaborative Welding Robot that uses the AUBO Robotics i-series arms to create a turnkey solution to welding automation.

There are 4 SwitchWeld Products-

- SwitchWeld Basic
- SwitchWeld Plus
- SwitchWeld Reach
- SwitchWeld Plasma

Figure - The SwitchWeld Plus Plug -and-Play system

SWITCHWELD FEATURES

SWITCHWELD COMMON FEATURES

- Teach Pendant
- Welding Torch and Torch Holder
- Welding Table
- Fixturing
- 6 DOF
- Free-Drive by Hand
- Optional Magnetic Base
- 7th Axis Rail

SWITCHWELD EXCLUSIVE FEATURES

- Precision Joystick
- Arc-Advisor

1. Precision Joystick

2. Magnetic Base

SWICTHWELD CUSTOMERS

EXAMPLE APPLICATIONS

- Pipe Welding
- Fence & Gate Fabrication
- Structural Bracket Welding
- Automotive &Trailer Frame Welding
- Tooling & Fixturing Fabrication

Industry: Industrial Fencing
Role: CEO

> This investment is not just about boosting productivity; it’s about empowering our team to push the boundaries of what’s possible and continue delivering top-notch quality to our clients. Together, we’re forging a brighter, more innovative future.

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SCA COLLABORATIVE ROBOT TRAINING PROGRAM

- Led by Pat Cahill and team
- Developing multi-course curriculum
- Unique Features:
  - ☑ One course covering all major collaborative welding systems
  - ☑ Focus on applications and needs of shipyards, their suppliers, and related industries
  - ☑ Hands -on (2:1 hands -on time to lecture instruction)
  - ☑ Leave Qualification -Ready (Qualified in the future)

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TRAINING MODULES

Training Module 1 - Collaborative Robot Operations: Provides the fundamentals of programming and working with Cobots including Safety, Terminology, and Basic Operations. 6 hours of instruction performed online plus 1hr examination online.

Training Module 2 and 3 - Collaborative Robotic Welding I and II: Provides the fundamentals of programming weld operations with CoBots covering the following topics:

1. Safety Refresher
2. Terminology Refresher
3. Basic Operations Refresher
4. Robot motion, programming
5. Motion, linear, circular, other curves, weaving
6. Power supply control/communication, end conditions
7. Welds: 1G,2F,3F, plate and pipe, transitions (downhill, uphill)

Delivered at the SCA training center, 40 hours of instruction including lecture, lab and examination. 8 hrs of the time is dedicated to classroom instruction, and 24 hours dedicated to hands-on training in the CoBot Lab on CoBot equipment, 6 hours of qualification tasks.

Training Module 4 - Collaborative Robotic Welding IV: Advanced applications and maintenance (will; be offered in the future)

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COURSE STRUCTURE & CONTENT

TOPICS COVERED

- Using a cobot
  - Cobot Information
  - Errors
  - Movement
- Working With a Welding Cobot
  - Safety
  - Power on/off
  - Teaching the Cobot
  - Creating a Program

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TABLE OF CONTENTS

LAB STRUCTURE/CONTENT

Motion labs:
D1-1 Robot Intro, Jog Robot
D1-2 Program the Robot I: Basics

Horizontal Fillet labs:
D1-3 Program the Robot II: programs for welding (no arc): Straight horizontal fillet (2F)
D1-4 Program the Robot II: programs for welding (no arc): Wrap – outside corner (2F-2F)
D1-5 Program the Robot II: programs for welding (no arc): inside corner (2F-2F)
D2-3 Welding Straight horizontal fillet (2F)
D2-4 Welding Wrap outside corner (2F-2F)
D3-1 Welding Wrap inside corner (2F-2F)
D3-6 Welding: Lap weld

Groove labs:
D1-3 Program the Robot II: programs for welding (no arc): Straight Groove (1G)
D1-3 Straight Groove with multipass (1G)

Circular labs:
D2-2 Program the Robot II: programs for welding (no arc): circular, 360 deg. horizontal fillet (2F)
D3-3 Welding circular, 360 deg. horizontal fillet (2F)

Vertical Fillet Labs:
D2-1 Program the Robot II: programs for welding (no arc): vertical fillet with weave (3F)
D3-2 Welding vertical fillet with weave (3F)

Advanced positions:
D3-4 Welding Wrap (3F-2F)
D3-5 Welding Inside Corner (2F-3F)

Advanced labs:
D4-2 Practical Considerations II: Troubleshooting a program
D4-3 Practical considerations I: Defining Tool Center Point (TCP)
D5-2 Weld Qualification readiness fillet in plate
D5-4 Weld Qualification readiness Fillet in pipe

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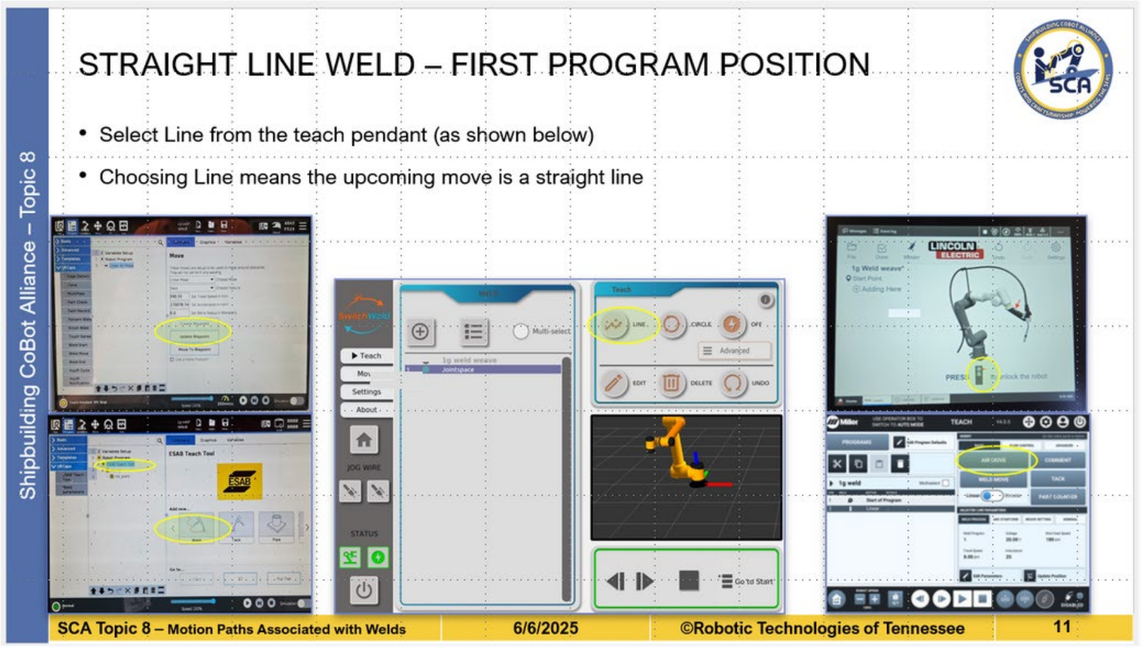
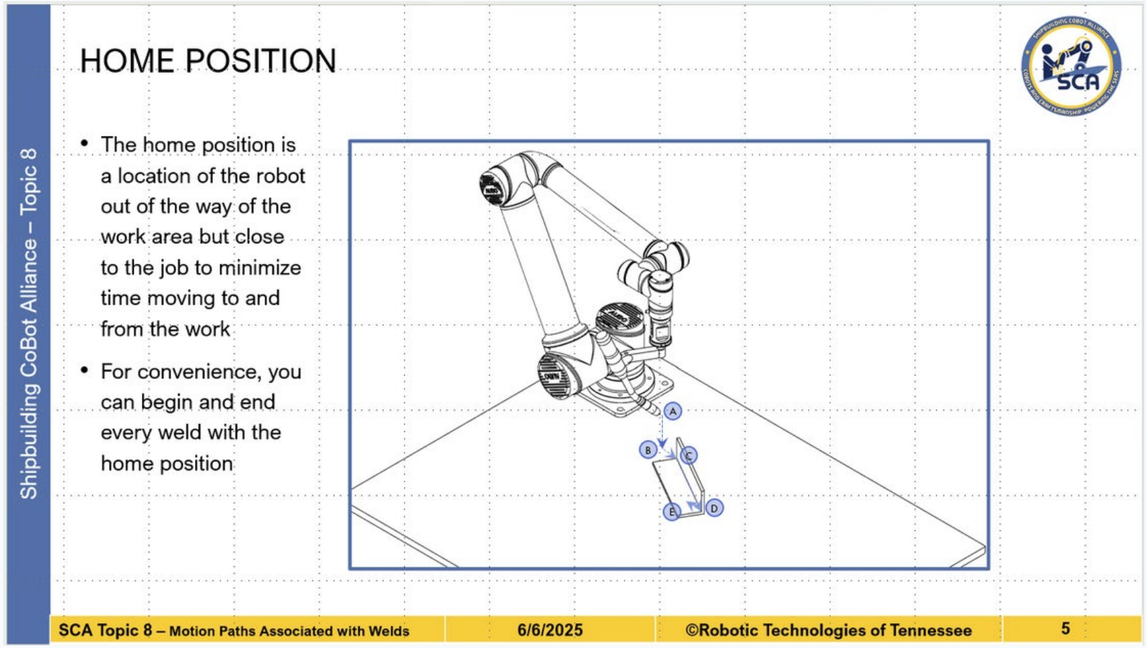
SCREEN GRABS OF LECTURE CONTENT





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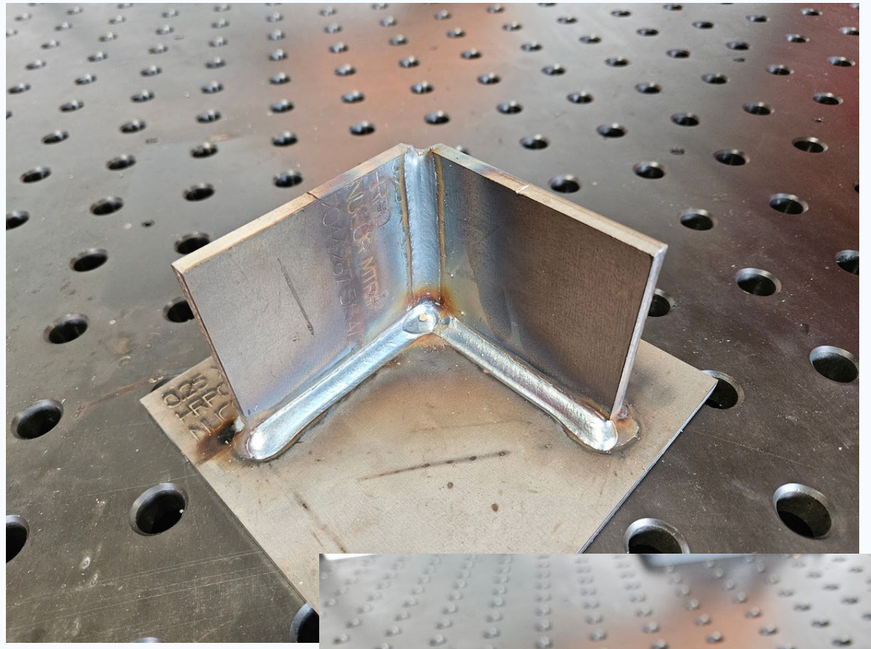
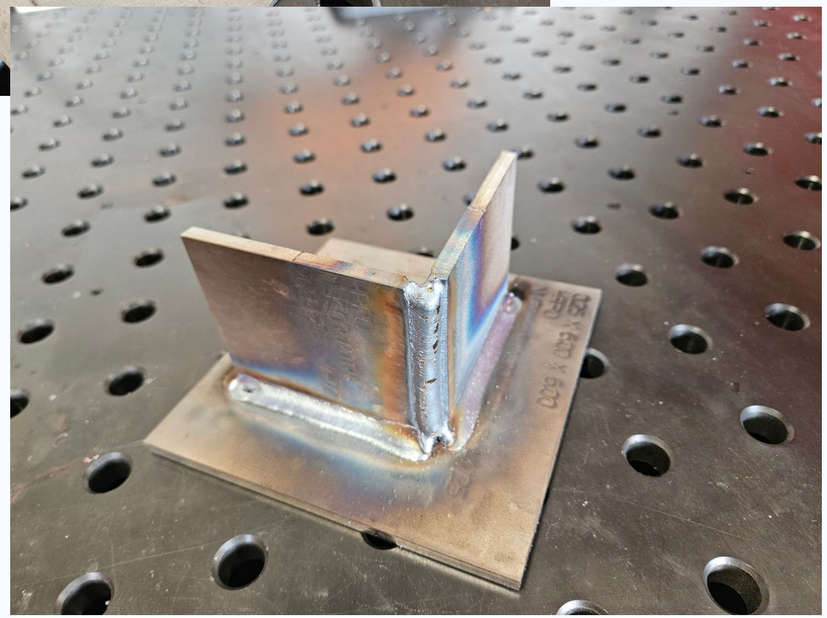
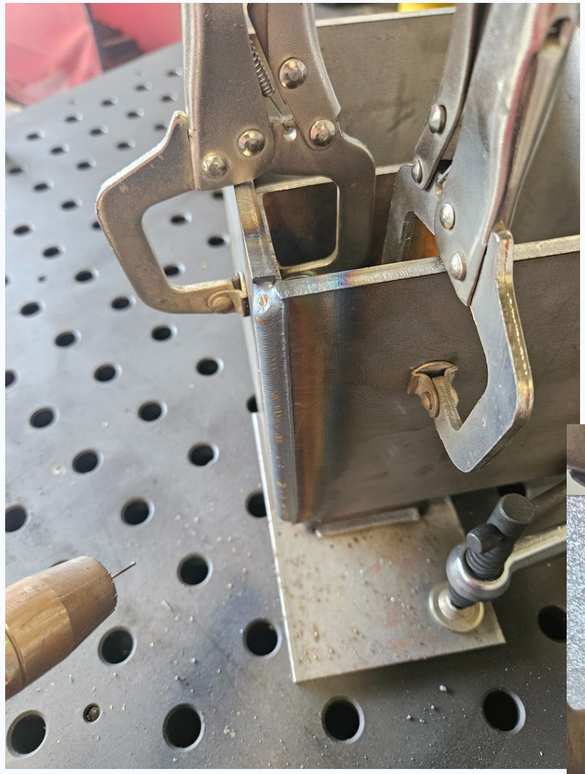
PHOTOS OF LABS







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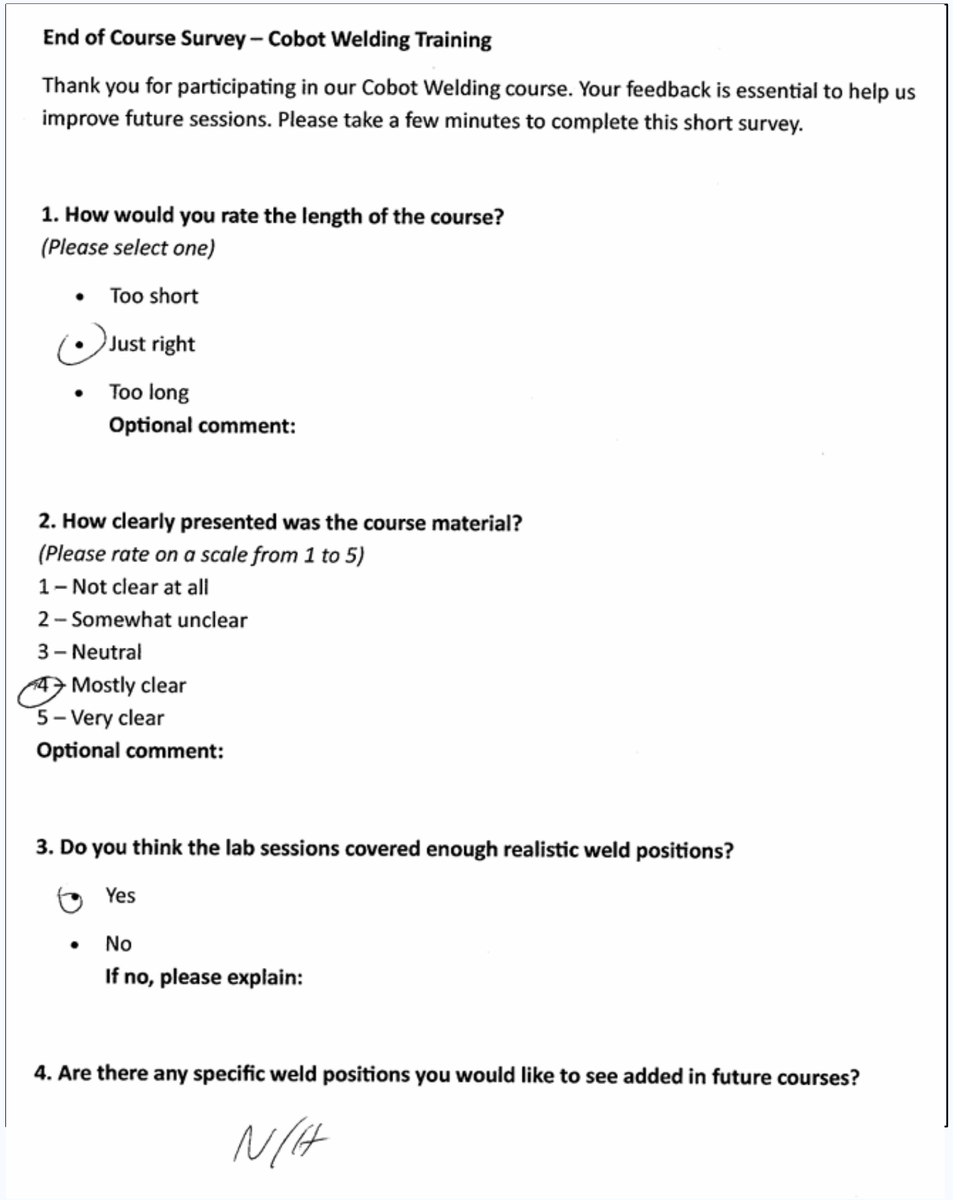
SCA COURSE IMPLEMENTATION

- Feedback training - May - Tabet, NWTC
- Train the trainer trainer - June (2-6) - Tabet
- First training cohort (lead instructor Koryne Andrews) - June (23 - 27) -Tabet
- Ongoing training on regular basis
- Train the trainer trainer – September (exp) - NWTC
- First training cohort at NWTC (lead instructor James ..) - September (exp) – NWTC
- Ongoing training on regular basis

TRAINING COURSE - EARLY FEEDBACK

It seems that the students were **overall very pleased** with the course and found it very useful. (see student attached reviews). The majority rated the course **clear/very clear** and all rated the lab sessions as covering the right amount of material. Students made some suggestions for future additions. Our observations are that **they all left well qualified** to independently use any of these systems with high expectation of success, as desired.



End of Course Survey – Cobot Welding Training

Thank you for participating in our Cobot Welding course. Your feedback is essential to help us improve future sessions. Please take a few minutes to complete this short survey.

1. How would you rate the length of the course?
(Please select one)

- Too short
- (•) Just right
- Too long

Optional comment:

2. How clearly presented was the course material?
(Please rate on a scale from 1 to 5)
1 – Not clear at all
2 – Somewhat unclear
3 – Neutral
(4) Mostly clear
5 – Very clear
Optional comment:

3. Do you think the lab sessions covered enough realistic weld positions?

- (•) Yes
- No

If no, please explain:

4. Are there any specific weld positions you would like to see added in future courses?

N/A

PHOTO OF CLASS

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QUESTIONS?

CONTACT INFORMATION:

SwitchWeld.com

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