



Customer
Support
Curriculum



**CRAW Training
& Certification**

CRAW
AWS CERTIFIED ROBOTIC ARC WELDING



CRAW Training & Certification

Wolf Robotics, LLC is an authorized AWS Approved Testing Center (ATC) for the certification testing of Operators and Technicians in the AWS CRAW (Certified Robotic Arc Welding) program.

The CRAW Operator and Technician designations were created to establish a standard qualification guideline for the certification of individuals involved with the robotic arc welding process. The levels are based on knowledge of robotics, welding experience and education. Certification must be renewed every three years.

PROGRAM RESPONSIBILITIES

The AWS Certification Program for Robotic Arc Welding Operators and Technicians allows welding personnel employed in various welding sectors to measure themselves against occupation standards. It also will signify that the individual has demonstrated the capability of working with various codes, standards and specifications. Proof of active welding practices or employment, or re-examination is required every three years and ensures that the participant is current with the welding industry.

The American Welding Society (AWS) sets the principal requirements for taking the examination and is responsible for defining the content of the exams and how they are conducted. AWS scores all written exams in their headquarters facility in Miami, Florida and will issue certification credentials. All testing materials distributed by AWS remains the property of AWS.

AWS will review and process all applications and set and collect all appropriate fees.

The ATC will provide the personnel, facilities and procedures to perform certification testing for AWS including written exams and performance testing using a designated arc welding robot. The ATC also develops procedures to assure equipment operates within required parameters and that traceability of test materials is maintained.



PROGRAM LEVELS

Manufacturing companies need a specific type of person to manage the robotic arc welding systems in their facilities if they are to be successful. AWS has developed a program for measuring an individual's capabilities determined by their skills, education and experience.



CRAW Training & Certification

Level 1 - CRAW Operator

AWS requires the following experience and education for this level:

- Minimum 2 years of welding experience
- Good mechanical aptitude
- 1 year diploma in welding or robotic instruction
- Good written and oral communication skills

These skills and training are recommended by AWS:

- Completion of original equipment manufacturer or equivalent robotic programming course
- Understand and use a teach pendant
- Basic knowledge of robot peripheral equipment
- Proper operation knowledge of tools and hardware (i.e. Plasma cutting, band saws, etc.)
- Destructive testing methodology background (i.e. Macroetch, bend test, etc.)
- Safety instruction on robot mechanical and control circuitry
- Visual inspection capability of system

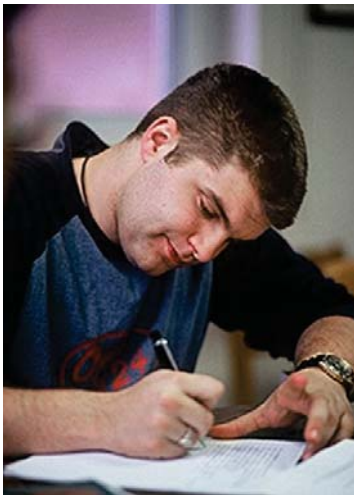
Level 2 - CRAW Technician

AWS requires the following experience and education for this level:

- Meet Level 1 & 2 requirements
- Minimum 5 years of welding experience
- 2 year Associates Degree in Welding/Robotics/Electrical or equivalent
- Current AWS CWI certification

These skills and training are recommended by AWS:

- Knowledge of quality measuring tools for measuring weld cross section
- Familiar with personal computers



CERTIFICATION TESTS

Each level of certification has a required group of tests that must be completed within a certain time period and with a passing rate of 75%.

Robotic Programming

The operator will manipulate a robotic welding cell to achieve desired results performing a number of tasks to demonstrate familiarity with the components.

Closed Book Exam

Over 130 multiple choice questions are included in the closed book test to evaluate the subjects general knowledge of weld setup, processes, terminology, symbols, safety, testing, conversions, programming and logic.

Performance Tests

Consisting of a series of tasks which includes welding a test plate within plus or minus 3 months of taking the written exam and meeting the requirements of the macroetch and weld bend tests for quality fusion.

The Performance test must be administered by a CRAW-T level instructor at a facility offering the appropriate type of robot for the student.



CRAW Training & Certification

CRAW TRAINING (3-Day Class)

Wolf Robotics, LLC offers CRAW-T or O training classes at our facility. Classes may be taken in conjunction with CRAW certification testing or separately. Apply for training directly through Wolf Robotics and allow 6 weeks to process. Training does not require AWS application. A minimum class size may be required.

Contact Wolf Robotics for more information and to register for classes at Training@wolfrobotics.com or call **1-866-WOLF-911**.

CRAW CERTIFICATION

Applications for certification testing must be submitted through the American Welding Society (AWS) along with appropriate fees. The Performance Test Candidate Information Booklet and the Application form can be downloaded from the AWS website at <http://www.aws.org/certification/CRAW/>.

Certification testing is conducted at various dates throughout the year. For more information, fees and dates go to the AWS website:

<http://www.aws.org/certification/CRAW/> or the Wolf Robotics website:

<http://www.wolfrobotics.com/training/CRAW/>.

Training courses and certification can be scheduled consecutively, if desired.

Certification at Wolf Robotics, is conducted on ABB S4C+ or IRC5 series equipment, depending on availability. A prerequisite knowledge and experience with this equipment is required.

Please contact the Wolf Robotics, LLC for information on class schedules and pricing.



4600 Innovation Drive
Fort Collins, CO 80525 USA
866-WOLF-911 Toll Free
+1.970.225.7600 Phone
+1.970.225.7700 Fax
www.wolfrobotics.com
wolf.info@wolfrobotics.com