

Structural Welding



The mission of the Structural Welding program is to provide those skills necessary to successfully pass the AWS-D1.1 Structural Certification Test and become employed in the welding and fabrication industry.

Kent Berklund, Department Head

Telephone: (907) 224-6120
Fax: (907) 224-4408
E-mail: kent.berklund@avtec.edu

Robert Frasher, Instructor

Telephone: (907) 224-6127
Fax: (907) 224-4408
E-mail: robert.frasher@avtec.edu

Dennis Estes, Instructional Aide

Telephone: (907) 224-6128
Fax: (907) 224-4408
E-mail: dennis.estes@avtec.edu

Length of Course: 670 (includes 45 hours for Math) clock hours, 102 training days

Enrollment: August and January

Training Hours: 8:30 a.m. to 3:30 p.m., Monday through Friday

Certificate Level: Structural Welding

Occupational Levels:

- Structural Welder
- Structural Welder SMAW
- Structural Welder Helper

Industry Certifications:

National certification is available through the American Welding Society, an independent agency. This testing is an additional cost, and is performed in Anchorage. It is the student's responsibility to make transportation arrangements to the testing site. Contact the instructor for exact costs. In addition to earning the AVTEC Structural Welding certificate, students can also prepare for and earn the following industry certification:

Structural Certification to AWS structural steel code D1.1

Entry Requirements:

For specific information on entry guidelines in reading and mathematics for this program, contact the Admissions Office at (800) 478-5389.

TABE tests scores for this program must be:

Reading	552
Combined Math	552

Physical requirements of the occupation are the ability to lift 100 pounds, carry 50 pounds, stoop, kneel, crawl, walk, and stand continuously. The student must have the ability to manipulate various types of welding equipment and welding processes, which require the ability to feed filler metal and manipulate the torch head for temperature or arc length. Have the ability to manipulate welding fixtures, place material in fixtures above your head and weld in various positions for extended periods. Welding requires good hand-eye coordination and eyesight corrected to 20/20 with excellent depth perception. We strongly recommend an eye examination prior to enrollment, so that corrective lenses or glasses may be obtained prior to the start of class.

Structural Welding

The future for welding careers looks bright. Certified, skilled welders continue to be in demand in the construction industry, and in all petroleum-related and heavy equipment industries. Graduates of AVTEC's Structural Welding program hold good jobs in a wide variety of working settings. In short, Alaskan employers are always looking for highly trained welders—especially for those who are willing to work under occasionally adverse conditions.

The Structural Welding program emphasizes steel welding; however, all students are expected to become proficient welders on nonferrous materials such as aluminum. Primary focus is on stick electrode welding: students train on S.M.A.W. (stick electrode), G.M.A.W. and F.C.A.W. (wire feed processes), G.T.A.W. (TIG), plasma arc and air arc cutting, oxyacetylene welding, and cutting machines. Destructive tests are performed on groove welds in both the stick and wire feed processes. An introduction to Non-Destructive testing is an integral part of the program.



The AVTEC Welding shop is equipped with state-of-the-art welding equipment and with travel torches, iron worker, shear and press brake.

Earn University of Alaska Credit While Attending AVTEC

Structural Welding graduates may earn up to 16 University of Alaska college credits (depending on coursework completed) while attending AVTEC.

Program Requirements

Occupational levels of Structural Welder, Structural Welder SMAW, and Structural Welder Helper will be assigned upon successful completion of the training program, based on the student's proficiency of the program's competencies.

To achieve a Structural Welding certificate, students must complete the following requirements: Related Studies, O.A.W. - Oxyacetylene Welding, S.M.A.W. - Stick Electrode, G.M.A.W. - MIG, F.C.A.W. - Flux Core, G.T.A.W. – TIG and Introduction to NDT. This is a total of 670 contact hours.

Related Studies

Contact Hours: 75

Participate in school safety orientation, complete achievement tests, obtain First Aid & CPR card, complete applied math, participate in resume writing and job search training, participate in interview and communications training.

O.A.W. – Oxyacetylene Welding

Contact Hours: 40

Show knowledge of safety and operation of oxyacetylene welding and cutting equipment; describe and identify physical and mechanical properties as they relate to the weldability of metals; identify, demonstrate proper care of, and correctly use common and specific tools used in the welding trades; identify and describe various AWS weld symbols.

S.M.A.W. – Stick Electrode

Contact Hours: 385

Demonstrate proficiency in stick electrode welding to the American Welding Society D1.1 standard; describe and

demonstrate air carbon arc cutting and gouging; identify hard surfacing electrodes and produce acceptable welds in three positions using proper technique.

G.M.A.W. – MIG

Contact Hours: 40

Demonstrate basic skills in MIG welding technique.

F.C.A.W. – Flux Core

Contact Hours: 40

Demonstrate basic skills in flux cored arc welding technique.

G.T.A.W. – TIG

Contact Hours: 50

Demonstrate basic skills in TIG welding technique.

INTRODUCTION TO NDT

Contact Hours: 40

Develop an understanding of the various processes used in the field of Non-destructive testing. Identify, apply and evaluate NDT results from the following testing methods: Visual and Optical, Penetrant, Magnetic Particle, Radiography, Ultrasonic, Acoustic Emission and Leak testing.