

# WELDING

The Welding program offers numerous training options. Students can enroll into process-specific courses such as shielded metal arc-welding, flux-core arc-welding, gas metal arc-welding, or gas tungsten arc-welding to acquire skill sets on ferrous and non-ferrous metals. Students can complete a one-year vocational Certificate of Achievement degree, or a two-year Associate of Science degree which commonly leads to supervisor and shop management opportunities. Ventura College WEL students are prepared for a wide range of manufacturing metal fabrication-related positions such as certified welder, quality-control inspection, project designers, and various levels of supervision and business ownership.

## WEL V01 Introduction to Welding 2 Units

*Formerly:* WEL V01A

*In-Class Hours:* 17.5 lecture, 52.5 laboratory

This course is intended for major and non-major students interested in an introduction to welding fabrication. Students will learn welding processes, vocabulary, job layout, basic metallurgy and industrial safety. Students will gain introductory skill in Oxyacetylene Welding (OAW), Arc/ Shielded Metal Arc Welding (SMAW) and Oxyfuel Gas Cutting (OFC).

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

## WEL V02 Blueprint Reading: Manufacturing 3 Units

*Same-As:* DRFT V02A

*In-Class Hours:* 52.5 lecture

This course covers the interpretation of mechanical drawings typical of the metal working field; theory of common types of projections, dimensioning principles, machine standards, application of creative sketching and interpretation of blueprints.

**Grade Modes:** Letter Graded

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## WEL V03 ARC and MIG Welding 8 Units

*Formerly:* WEL V03A

*In-Class Hours:* 70 lecture, 210 laboratory

*Prerequisites:* WEL V01

This course offers theory and intermediate vocational skill in Arc/ Shielded Metal Arc Welding (SMAW) and Metal Inert Gas/Gas Metal Arc Welding (MIG/GMAW) process. Students will develop technical ability in welding methodology, project layout, metallurgy, industrial safety and related technical mathematics. Students can prepare for industry certification testing. Students cannot complete both WEL V03 and WEL V13A or WEL V13B. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## WEL V04 TIG and Flux Core Welding 8 Units

*Formerly:* WEL V04A

*In-Class Hours:* 70 lecture, 210 laboratory

*Prerequisites:* WEL V01

This course offers theory and intermediate vocational skills in Tungsten Inert Gas/Gas Tungsten Arc Welding (TIG/GTAW) and Flux Core Arc Welding (FCAW) processes. Students will develop skills in welding methodology, project layout, industrial safety and related technical mathematics. Students can prepare for industry certification testing.

"Students cannot complete both WEL V04 and WEL V14A or WEL V14B. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## WEL V13A ARC and MIG Welding I 4 Units

*Formerly:* WEL 13A

*In-Class Hours:* 35 lecture, 105 laboratory

*Prerequisites:* WEL V01

This is part I of a course in Arc and MIG welding. This course offers theory and introductory vocational skills in Arc/Shielded Metal Arc Welding (SMAW) and Metal Inert Gas/Gas Metal Arc Welding (MIG/GMAW) processes. Students will develop technical ability in welding methodology, project layout, metallurgy, industrial safety and related technical mathematics. Students can prepare for industry certification testing. Students cannot complete both WEL V03 and WEL V13A or WEL V13B. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

## WEL V13B ARC and MIG Welding II 4 Units

*Formerly:* WEL 13B

*In-Class Hours:* 35 lecture, 105 laboratory

*Prerequisites:* WEL V13A

This is part II of a course in Arc and MIG welding. This course offers theory and intermediate vocational skills in Arc/Shielded Metal Arc Welding (SMAW) and Metal inert Gas/Gas Metal Arc Welding (MIG/GMAW) processes. Students will build on techniques and skills learned in WEL V13A. Students may advance in technical ability in welding methodology, project layout, metallurgy, industrial safety and related technical mathematics. Students can prepare for industry certification testing. Students cannot complete both WEL V13B and WEL V03. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V14A TIG and Flux Core Welding I 4 Units***Formerly:* WEL 14A*In-Class Hours:* 35 lecture, 105 laboratory*Prerequisites:* WEL V01

This is part I of a course in TIG and Flux Core welding. This course offers theory and introductory vocational skills in Tungsten Inert Gas/Gas Tungsten Arc Welding (TIG/GTAW) and Flux Core Arc Welding (FCAW) processes. Students will develop skill in welding methodology, project layout, industrial safety and related technical mathematics. Students can prepare for industry certification testing. Students cannot complete both WEL V14A and WEL V04. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V14B TIG and Flux Core Welding II 4 Units***Formerly:* WEL 14B*In-Class Hours:* 35 lecture, 105 laboratory*Prerequisites:* WEL V14A

This is part II of a course in TIG and Flux Core welding. This course offers theory and intermediate vocational skills in Tungsten Inert Gas/Gas Tungsten Arc Welding (TIG/GTAW) and Flux Core Arc Welding (FCAW) processes. Students will build on techniques and skills learned in WEL V14A. Students may advance in methodology, project layout, industrial safety and related technical mathematics. Students can prepare for industry certification testing. Students cannot complete both WEL V14B and WEL V04. Credit will be awarded only for the first course completed with a grade of "C" or better or "P".

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V20 Advanced Welding Applications 4 Units***In-Class Hours:* 35 lecture, 105 laboratory*Prerequisites:* WEL V01

This course offers theory and advanced vocational skill in industrial welding applications. Students will learn advanced metallurgy as it relates to aluminum, sheet-steel, plate and pipe welding. Students will also learn about aircraft and ship-building welding fabrication processes and manufacturing safety hazards. This course allows additional practice and preparation for industrial certifications exams and employment preparation.

*Advisories/Rec Prep:* WEL V03 or WEL V13B; WEL V04 or WEL V14B or equivalent

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V27 Metal Art Sculpture 3 Units***Same-As:* ART V27*In-Class Hours:* 35 lecture, 70 laboratory*Prerequisites:* ART V19 and WEL V01, and WEL V04 or WEL V14A

This course is an introduction to metal art sculpture utilizing practical theory and application of materials, welding techniques and processes. It includes designing, metal cutting, forming techniques and texturing.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

**WEL V30 Applied Metal Fabrication 2 Units***In-Class Hours:* 17.5 lecture, 52.5 laboratory*Prerequisites:* WEL V01, and WEL V04 or WEL V14A

This course is designed to introduce the student to applied metal fabrication techniques, including measuring, cutting, forming, shaping, fitting, shrinking, stretching and finishing. A variety of metal forming equipment will be introduced. Fabricated projects will include custom metal forming for automotive, manufacturing, and/or industrial applications. MIG, TIG and Arc welding techniques will be applied. The students will have the opportunity to work on group as well as individual projects.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V65 Structural Steel and Welding Construction 3 Units***Formerly:* CT 65*Same-As:* CT V65*In-Class Hours:* 52.5 lecture

This course is a study of structural steel and welding use in building construction. Building types, grades of materials, assembly methods, blueprint reading and other subjects will be studied. The course is intended for construction managers, inspectors, project supervisors and construction workers. The course will also help prepare students for related industry certifications.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V95 Welding Internship I 1-4 Units**

*Prerequisites:* Completion of or concurrent enrollment in one course in the discipline

*Corequisites:* Enrolled in a minimum of 7 units to include internship  
This course offers students who are volunteers (unpaid) an opportunity to obtain work experience related to their field of study. Students are accepted as a result of consultation with a designate faculty member in the discipline and the acceptance of an approved work proposal. This is an unpaid occupational work experience course, where 1 unit of credit is earned for each 60 hours of unpaid internship. A maximum of 4 units can be completed in a semester, and no more than 16 units can be earned in total.

*Enrollment Limitations:* Department Chair approval.

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Course may be taken up to 3 times for credit.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

**WEL V96 Welding Internship II 1-4 Units**

*In-Class Hours:* 75-300 paid cooperative

*Prerequisites:* Completion of or concurrent enrollment in one course in the discipline

*Corequisites:* Enrolled in a minimum of 7 units to include internship  
This course offers students who are employed in the field an opportunity to expand their work experience related to their field of study. Students are accepted as a result of consultation with a designated faculty member in the discipline and the acceptance of an approved work proposal. This is a paid occupational work experience course, where 1 unit of credit is earned for each 75 hours of paid internship. A maximum of 4 units can be completed in a semester, and no more than 16 units can be earned in total.

*Enrollment Limitations:* Department Chair approval.

**Grade Modes:** Pass/No Pass Grading

**Repeatable for Credit:** Course may be taken up to 3 times for credit.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** None

- Welding Technology, Associate in Science (<http://catalog.vcccd.edu/ventura/programs-courses/welding/welding-technology-as/>)
- Welding Technology, Certificate of Achievement (<http://catalog.vcccd.edu/ventura/programs-courses/welding/welding-technology-coa/>)