

# Welding (WLD)

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## Welding (WLD)

The Welding degree prepares students for high-demand employment opportunities in industries such as manufacturing, construction, automotive, aerospace, and energy piping. Students gain hands-on skill training in oxyacetylene welding (OAW), oxyfuel cutting (OFC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux core arc welding (FCAW) and gas tungsten arc welding (GTAW). Students also develop knowledge and skills in welding processes including metal fabrication, visual inspection, and blueprint reading. The degree program includes cooperative education work opportunities as well.

The Welding curriculum is aligned with the American Welding Society's SENSE program, where graduates can earn Level 2 certification.

## Welding Certificate (WLDC)

The Welding Certificate prepares students for immediate employment in organizations where welders are in demand, including manufacturing, construction, automotive, and energy industries. The program includes hands-on practice in a variety of welding processes as well as metal fabrication, testing, and quality control. Graduates are prepared to take certification tests offered by the American Welding Society.

## Welding (WLD)

Semester 1		Lec	Lab	Credits
WLD 100	Fundamentals of Welding ( <b>B</b> )	2	3	3
WLD 105	Print Reading and Weld Design ( <b>B</b> )	2	2	3
FYE 1XX First Year Experience Elective ( <b>B</b> )		1	0	1
PSY 1XX Psychology Elective ( <b>G</b> )		3	0	3
XXX XXX Humanities Elective or Natural Science Elective ( <b>G</b> )		3	0	3
Semester 2				
WLD 120	Gas Metal Arc Welding ( <b>T</b> )	2	6	4
EET 101	Electronic Fundamentals 1 ( <b>B</b> )	2	3	3
MAT 121	Technical Algebra and Geometry with Statistics ( <b>G</b> )	2	2	3
WLD 110	Shielded Metal Arc Welding ( <b>T</b> )	2	6	4
Semester 3				
MET 1XX Mechanical Engineering Technology Elective ( <b>B</b> )		2	3	3
WLD 210	Gas Tungsten Welding ( <b>T</b> )	2	6	4
WLD 130	Flux Cored Arc Welding ( <b>T</b> )	2	6	4
ENG 101	English Composition 1 ( <b>G</b> )	3	0	3
Semester 4				
WLD 291	Full-Time Cooperative Education 1: Welding ( <b>T</b> )	1	40	2
Semester 5				
WLD 220	Metal Fabrication ( <b>T</b> )	2	3	3
WLD 230	Pipe Welding ( <b>T</b> )	2	6	4
WLD 250	Welding Inspection and Certification ( <b>T</b> )	2	3	3
MET 140	Engineering Materials ( <b>B</b> )	2	2	3
ENG 10X English Composition Elective ( <b>G</b> )				3

**Semester 6**

WLD 292	Full-Time Cooperative Education 2: Welding ( T )	1	40	2
Total Credits:		38	131	61

**Electives****First Year Experience Elective**

FYE 100	College Survival Skills	1
FYE 105	College Success Strategies	2
FYE 110	Community College Experience	3

**Psychology Elective**

PSY 100	Applied Psychology: Human Relations	3
PSY 102	Applied Psychology: Stress Management	3
PSY 110	Introduction to Psychology	3

**Humanities Elective**

Any ART, FRN, LIT, MUS, PHI, POL, REL, SPN, THE	3
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**Natural Science Elective**

Any CHE, EVS, PHY, PSC	3
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**Mechanical Engineering Technology Elective**

MET 111	Manufacturing Processes 1	3
MET 131	MET Computer Aided Drafting 1	3

**English Composition Elective**

ENG 102	English Composition 2: Contemporary Issues	3
ENG 104	English Composition 2: Technical Communication	3
ENG 105	English Composition 2: Business Communication	3

**Welding Certificate (WLDC)**

Semester 1		Lec	Lab	Credits
WLD 100	Fundamentals of Welding	2	3	3
WLD 105	Print Reading and Weld Design	2	2	3
WLD 110	Shielded Metal Arc Welding	2	6	4
<b>Semester 2</b>				
WLD 120	Gas Metal Arc Welding	2	6	4
WLD 130	Flux Cored Arc Welding	2	6	4
<b>Semester 3</b>				
WLD 210	Gas Tungsten Welding	2	6	4
XXX XXX Technical Elective 1				3
<b>Semester 4</b>				
WLD 250	Welding Inspection and Certification	2	3	3
XXX XXX Technical Elective 2				3
Total Credits:		14	32	31

**Electives****Technical Electives**

MET 111	Manufacturing Processes 1	3
MET 112	Manufacturing Processes 2	4
MET 131	MET Computer Aided Drafting 1	3
MET 140	Engineering Materials	3
WLD 220	Metal Fabrication	3

WLD 230

Pipe Welding

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## Courses

### **WLD 100 Fundamentals of Welding**

**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on fundamental principles of welding and joining processes. Topics include: welding techniques and equipment, welding safety, OSHA training, and career exploration.

Prerequisites: None

### **WLD 105 Print Reading and & Weld Design**

**3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course on interpreting various types of prints used in the welding industry. Topics include: print reading, measurements, types of welds and joints, and welding symbols.

Prerequisites: AFM 090

### **WLD 110 Shielded Metal Arc Welding**

**4 Credits. 2 Lecture Hours. 6 Lab Hours.**

A course on techniques and operations associated with Shielded Metal Arc Welding (SMAW). Topics include: operating principles of gas and arc welding and cutting equipment, gas and arc welding processes, groove welds, and fillet welds.

Prerequisites: AFM 090

### **WLD 120 Gas Metal Arc Welding**

**4 Credits. 2 Lecture Hours. 6 Lab Hours.**

A course on techniques and operations associated with Gas Metal Arc Welding (GMAW). Topics include: operating principles, equipment and accessories, and GMAW Spray Transfer techniques.

Prerequisites: WLD 100 and WLD 110

### **WLD 130 Flux Cored Arc Welding**

**4 Credits. 2 Lecture Hours. 6 Lab Hours.**

A course on techniques and operations associated with Flux Cored Arc Welding (FCAW). Topics include: operating principles, equipment and accessories, and FCAW-G/GM (dual shield), and FCAW-S (self-shielded) operations.

Prerequisites: WLD 100 and WLD 110

### **WLD 191 Part-Time Cooperative Education 1: Welding**

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their first part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 100

### **WLD 192 Part-Time Cooperative Education 2: Welding**

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their second part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 191

### **WLD 193 Part-Time Cooperative Education 3: Welding**

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their third part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 192

### **WLD 194 Part-Time Cooperative Education 4: Welding**

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fourth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 193

### **WLD 195 Part-Time Cooperative Education 5: Welding**

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fifth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 194

**WLD 196 Part-Time Cooperative Education 6: Welding**

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their sixth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 195

**WLD 198 First Year Special Topics in Welding**

**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Welding, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Vary by section

**WLD 199 First Year Independent Project in Welding**

**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A project related to Welding that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Welding faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Vary by section

**WLD 210 Gas Tungsten Welding**

**4 Credits. 2 Lecture Hours. 6 Lab Hours.**

A course on techniques and operations associated with Gas Tungsten Arc Welding (GTAW). Topics include: safety; shielding gases; GTAW machines and set up; selection of filler rods; GTAW weld positions; and GTAW beads, bead patterns, and joints.

Prerequisites: WLD 120 and WLD 130

**WLD 220 Metal Fabrication**

**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on metal fabrication techniques used in industry. Topics include: thermal cutting, oxy-fuel gas cutting, plasma arc cutting, and metal fabrication safety.

Prerequisites: WLD 105 and MET 111

**WLD 230 Pipe Welding**

**4 Credits. 2 Lecture Hours. 6 Lab Hours.**

A course on techniques associated with pipe welding operations. Topics include: nomenclature, safety, pipe welding positions, layout and preparation, and completing horizontal welds (2G), vertical welds (5G), and welds on a 45 degree angle (6G).

Prerequisites: WLD 210

**WLD 250 Welding Inspection and Certification**

**3 Credits. 2 Lecture Hours. 3 Lab Hours.**

A course on welding techniques as applied to the American Welding Society Structural Steel Code D1.1. Topics include: weld discontinuities, visual examination of tack, intermediate layers, completed welds, and required documentation. Students perform welder qualification tests and practice inspecting weld defects.

Prerequisites: WLD 210

**WLD 291 Full-Time Cooperative Education 1: Welding**

**2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 100

**WLD 292 Full-Time Cooperative Education 2: Welding**

**2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 291

**WLD 293 Full-Time Cooperative Education 3: Welding**

**2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their third full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 292

**WLD 294 Internship 1: Welding**

**2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first unpaid field learning experience related to their degree. Students must follow applicable policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 100

**WLD 295 Internship 2: Welding****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second unpaid field learning experience related to their degree. Students must follow applicable policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: WLD 294

**WLD 298 Second Year Special Topics in Welding****1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Welding, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Vary by section

**WLD 299 Second Year Independent Project in Welding****1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A project related to Welding that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Welding faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Vary by section