

# Welding (WLD)

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## Welding (WLD)

The Welding degree prepares students for employment in manufacturing, construction, automotive, and energy industries where welding skills are in demand. The program includes hands-on practice in a variety of welding processes as well as metal fabrication, testing, and quality control. Students in the associate's degree program also participate in cooperative education work opportunities. Graduates are prepared to take certification tests offered by the American Welding Society.

## 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)

All degree-seeking students must complete a First Year Experience (FYE) course as part of the first 12 credit hours taken at Cincinnati State.

<b>Semester 1</b>	<b>Lec</b>	<b>Lab</b>	<b>Credits</b>
PSY 100	Applied Psychology: Human Relations		3
WLD 100	Fundamentals of Welding		3
WLD 105	Print Reading and & Weld Design		3
WLD 110	Shielded Metal Arc Welding		4
<b>Semester 2</b>			
WLD 120	Gas Metal Arc Welding		4
WLD 130	Flux Cored Arc Welding		4
MET 131	MET Computer Aided Drafting 1		3
MAT 121	Technical Algebra and Geometry with Statistics		3
<b>Semester 3</b>			
WLD 291	Full-Time Cooperative Education 1: Welding		2
MET 111	Manufacturing Processes 1		3
<b>Semester 4</b>			
WLD 210	Gas Tungsten Welding		4
MET 140	Engineering Materials		3
ENG 101	English Composition 1		3
COMM 1XX Communication Elective			3
<b>Semester 5</b>			
WLD 220	Metal Fabrication		3
WLD 230	Pipe Welding		4
WLD 250	Welding Inspection and Certification		3
ENG 10X English Composition Elective			3
XXX XXX Humanities/Social Sciences Elective			3
<b>Semester 6</b>			
WLD 292	Full-Time Cooperative Education 2: Welding		2
Total Credits:			63

**Electives****Communication Elective**

COMM 105	Interpersonal Communication	3
COMM 110	Public Speaking	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

**Humanities/Social Sciences Elective**

Any ART, CRJ, CULT, ECO, FRN, GEO, HST, LIT, MUS, PHI, POL, PSY (except PSY 100), REL, SOC, SPN, THE

**Welding Certificate (WLDC)**

Semester 1		Lec	Lab	Credits
WLD 100	Fundamentals of Welding			3
WLD 105	Print Reading and & Weld Design			3
WLD 110	Shielded Metal Arc Welding			4
<b>Semester 2</b>				
WLD 120	Gas Metal Arc Welding			4
WLD 130	Flux Cored Arc Welding			4
<b>Semester 3</b>				
WLD 210	Gas Tungsten Welding			4
XXX XXX Technical Elective 1				3
<b>Semester 4</b>				
WLD 250	Welding Inspection and Certification			3
XXX XXX Technical Elective 2				3
Total Credits:		0	0	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	4

**Faculty****Program Chair**

Mike DeVore  
PhD, PE

**Co-op Coordinator**

To be announced

## 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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=100subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=100subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=105subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=105subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=110subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=110subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=120subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=120subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=130subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=130subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=191subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=191subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=192subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=192subject_code=WLD))

### **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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=193subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=193subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=194subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=194subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=195subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=195subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=196subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=196subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=198subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=198subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=199subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=199subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=210subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=210subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=220subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=220subject_code=WLD))

**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

View Sections ([http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course\\_number=230subject\\_code=WLD](http://webapps.cincinnatiastate.edu/wwwTools/MCL/default.aspx?course_number=230subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=250subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=250subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=291subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=291subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=292subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=292subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=293subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=293subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=294subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=294subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=295subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=295subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=298subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=298subject_code=WLD))

**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

View Sections ([http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course\\_number=299subject\\_code=WLD](http://webapps.cincinnati.state.edu/wwwTools/MCL/default.aspx?course_number=299subject_code=WLD))