Welding (WLD, WLDC, & BWC)

Welding (WLD)

The Welding associate's 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 other welding areas including metal fabrication, visual inspection, and blueprint reading.

The associate's degree program includes cooperative education work opportunities as well.

The Welding associate's degree curriculum is aligned with the American Welding Society's SENSE program (Schools Excelling through National Skills Standards Education).

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.

Basic Welding Certificate (BWC)

The Basic Welding Certificate prepares students to become an entry level welder, entry level fabricator, or an assistant to a welder or fabricator. Students learn to produce and read blueprints with welding symbols and to produce quality welds from the prints. Students who successfully complete the certificate program earn an OSHA 10 card and are eligible to take the American Welding Society (AWS) first level certification test (D1.1).

For more information, please contact the Engineering and Information Technologies Division at (513) 569-1743.

To apply for this program at Cincinnati State, visit the Admissions (http://www.cincinnatistate.edu/academics/admission/) section of the College website.

Welding (WLD)

Semester 1		Lec	Lab	Credits
WLD 100	Fundamentals of Welding (**B**)	2	3	3
WLD 105	Print Reading and Weld Design (**B**)	2	2	3
FYE 1XX First Year Experience Elective (**B**)		1	0	1
WLD 115	Gas Metal Arc Welding and Flux Cored Arc Welding (**B**)	2	6	4
ENG 101	English Composition 1 (**G**)	3	0	3
Semester 2				
WLD 111	Shielded Metal Arc Welding 1 (**B**)	2	6	4
MAT 105	Quantitative Reasoning (**G**)	2	2	3
PSY 10X Psychology Elective (**G**)		3	0	3
MET 111	Manufacturing Processes 1 (**T**)	2	3	3
Semester 3				
WLD 260	Weldability of Metals (**T**)	2	2	3
MET 131	MET Computer Aided Drafting 1 (**T**)	2	3	3
ENG 10X English Composition Elective (**G**)		3	0	3
XXX XXX Arts/ Humanities or Natural Science Elective (**G**)		3	0	3
Semester 4				
WLD 210	Gas Tungsten Arc Welding (**T**)	2	6	4
WLD 231	Pipe Welding 1 (**T**)	2	6	4
CIT 105	OSHA 10 General Industry Safety (**T**)	1	0	1
XXX XXX Welding Technical Elective (**T**)		2	2	3
Semester 5				
WLD 220	Metal Fabrication (**T**)	2	3	3
WLD 291	Full-Time Cooperative Education 1: Welding (**T**)	1	40	2
Semester 6				
WLD 292	Full-Time Cooperative Education 2: Welding (**T**)	1	40	2
WLD 250	Welding Inspection and Codes (**T**)	2	3	3
Total Credits:		**42**	**127**	**61**

Electives

First Year Experience Elective		
FYE 100	College Success Strategies: Overview	1
FYE 105	College Success Strategies: Overview and Application	2
FYE 110	College Success Strategies: Practice and Application	3
Psychology Elective		
PSY 102	Applied Psychology: Stress Management	3

PSY 110	Introduction to Psychology	3
Arts/Humanities Elective (take one course from either Arts/ Humanities or Natural Science)		**3**
Any ART, FRN, LIT, MUS, PHI, POL, REL, SPN, THE		
Natural Science Elective (take one course from either Arts/ Humanities or Natural Science)		
Any CHE, EVS, PHY, PSC		
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 Technical Elective (select 1 course)		
EET 101	Electronic Fundamentals 1	3
MET 112	Manufacturing Processes 2	3
MET 132	MET Computer Aided Drafting 2	3
MET 140	Engineering Materials	3
WLD 112	Shielded Metal Arc Welding 2	4
WLD 232	Pipe Welding 2	4

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

The letters G, B, and T (displayed after course titles or elective descriptions) identify types of courses required by the Ohio Department of Higher Education as part of an associate's degree curriculum.

G = General Education course in this curriculum

B = Basic Skills course in this curriculum

T = Technical course in this curriculum

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
MAT 105	Quantitative Reasoning	2	2	3
Semester 2				
WLD 111	Shielded Metal Arc Welding 1	2	6	4
MET 111	Manufacturing Processes 1	2	3	3
MET 131	MET Computer Aided Drafting 1	2	3	3
Semester 3				
WLD 115	Gas Metal Arc Welding and Flux Cored Arc Welding	2	6	4
WLD 210	Gas Tungsten Arc Welding	2	6	4
CIT 105	OSHA 10 General Industry Safety	1	0	1
WLD XXX	Technical Elective	2	3	3
Total Credits:		**19**	**34**	**31**

Electives

Technical Elective		
WLD 112	Shielded Metal Arc Welding 2	4
WLD 220	Metal Fabrication	3
WLD 260	Weldability of Metals	3

Basic Welding Certificate (BWC)

Semester 1		**Lec**	**Lab**	**Credits**
WLD 100	Fundamentals of Welding	2	3	3
WLD 105	Print Reading and Weld Design	2	2	3
Semester 2				
CIT 105	OSHA 10 General Industry Safety	1	0	1
WLD XXX	Welding Elective	2	6	4
Total Credits:		**7**	**11**	**11**

Electives

WLD 111	Shielded Metal Arc Welding 1	4
WLD 115	Gas Metal Arc Welding and Flux Cored Arc Welding	4
WLD 210	Gas Tungsten Arc Welding	4

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

Welding (WLD)

- Students will have the ability to create structurally sound and visually correct welds using the SMAW process.
- Students will have the ability to create structurally sound and visually correct welds using the GMAW process.
- Students will have the ability to create structurally sound and visually correct welds using the FCAW process.
- Students will have the ability to create structurally sound and visually correct welds using the GTAW process.
- Students will have the ability to weld pipe.
- Students will have the ability to perform metal layout using blueprints
- Students will receive OSHA 10 credentials.
- Students will receive industry welding certification.

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: oxy-acetylene welding and cutting techniques, plasma cutting, track cutting, and welding safety.
Prerequisites: None

WLD 101 Applied Welding Processes
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course for non-welding majors who want to apply basic welding skills for art, hobbies, or other personal uses. Topics include welding safety, theory, operating principles, and equipment; and techniques for Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), and metal cutting processes.
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, welding symbols, technical math, and metric conversions.
Prerequisites: MAT 093 or appropriate placement

WLD 111 Shielded Metal Arc Welding 1
4 Credits. 2 Lecture Hours. 6 Lab Hours.
A course on techniques and operations associated with Shielded Metal Arc Welding (SMAW). Topics include: SMAW theory and operating principles, all-position welding of groove welds, and fillet welding using electrodes E6010, E6013, and E7018.
Prerequisites: WLD 100

WLD 112 Shielded Metal Arc Welding 2
4 Credits. 2 Lecture Hours. 6 Lab Hours.
A continuation of WLD 111 covering techniques and operations associated with Shielded Metal Arc Welding (SMAW). Topics include: all-positions open V-groove welds on plate, and fillet welds.
Prerequisites: WLD 111

WLD 115 Gas Metal Arc Welding and Flux Cored Arc Welding
4 Credits. 2 Lecture Hours. 6 Lab Hours.
A course on welding techniques associated with Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW). Topics include: theory, operating principles, equipment, and accessories; GMAW spray transfer techniques; and FCAW-G/GM (dual shielded) and FCAW-S (self-shielded) operations.
Prerequisites: None
Corequisites: WLD 100

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 115

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 210 Gas Tungsten Arc Welding
4 Credits. 2 Lecture Hours. 4 Lab Hours.
A course on techniques and operations associated with Gas Tungsten Arc Welding (GTAW). Topics include: GTAW theory, machines and set up, GTAW welding on non-ferrous and ferrous materials, and GTAW all-positions welding.
Prerequisites: WLD 100

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; basic metal fabrication, layout, assembly, and fit-up; and heat distortion effects.
Prerequisites: WLD 105 and WLD 115

WLD 231 Pipe Welding 1
4 Credits. 2 Lecture Hours. 4 Lab Hours.
A course on basic techniques associated with pipe welding operations. Topics include: pipe welding theory; pipe welding positions, layout, and preparation; and welding in the 2G and 5G positions with electrodes E6010 and E7018.
Prerequisites: WLD 111

WLD 232 Pipe Welding 2
4 Credits. 2 Lecture Hours. 6 Lab Hours.
A continuation of WLD 231 covering techniques associated with pipe welding operations. Topics include: pipe welding theory and nomenclature; safety; advanced pipe welding positions, layout, and preparation; and welding in the 5G and 6G positions using shielded metal arc welding (SMAW) and gas tungsten arc welding (GTAW) processes.
Prerequisites: WLD 231

WLD 250 Welding Inspection and Codes
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, intermediate layers, completed welds, and required documentation. Students perform welder qualification tests and practice inspecting weld defects.
Prerequisites: WLD 111

WLD 260 Weldability of Metals
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on properties of metals that affect weldability. Topics include: carbon steels, low alloy steels, tool steels, and stainless steels; cast iron and non-ferrous metals; processes including pre-heating, post-heating, annealing, normalizing, and hardening; repair welding techniques; and Rockwell hardness testing.
Prerequisites: WLD 100

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