

# Lakeland

COMMUNITY COLLEGE

PROGRAM GUIDE

Applied Studies Division

## Welding and Fabricating Technology

- Associate of Applied Science Degree in Industrial Welding
- Industrial Welding Certificates

 Opportunity  
starts **HERE**  
[lakelandcc.edu](http://lakelandcc.edu)



# Welding and Fabrication Technology



The Associate of Applied Science (AAS) Degree in Welding and Fabrication Technology is designed to prepare students for immediate employment in the manufacturing, construction and energy industries, as well as in the public sector. The range and depth of program courses prepare students to be job-ready for employment in positions including: fabrication, welding, soldering and brazing, as well as in sales, inspection, repair, supervision and management. The basic technical welding courses may be taken at Lakeland or by successfully completing the 15-week comprehensive welding program at Lincoln Electric ([lincolnelectric.com](http://lincolnelectric.com)) through Lakeland's partnership with Lincoln Electric. The American Welding Society Certification of Qualification exam is embedded in the advanced welding courses. Successful completion of these exams results in the issuance of a portable industry recognized credential. The Manufacturing Institute, an affiliate of the National Association of Manufacturers, has designated Lakeland Community College as an M Status school as the industrial welding program aligns with industry-recognized standards. Students successfully completing Lakeland's AAS Degree in Welding and Fabrication Technology will be well positioned to advance their studies in a bachelor of science in industrial welding program.

## Career Opportunities

Students completing the degree will be prepared for employment in a wide range of welding processes including: SMAW (stick), GTAW (TIG), GMAW (MIG), FCAW (flux cored) and pipe welding. They will also be prepared to plasma cut, gouge and solder in addition to being well versed in welding inspection and welding economics. Students at Lakeland not only earn a degree, but also take national certification exams (American Welding Society, American Society of Mechanical Engineers and American Petroleum Institute) that many employers require.

## Job Outlook

The state of Ohio has the third largest manufacturing capabilities in the country. According to the U.S. Bureau of Labor Statistics, employment in the welding industry is expected to grow nationally 6 percent through 2026. The defense industry and the nation's aging infrastructure are expected to drive growth in the field. The program at Lakeland was developed in collaboration with area employers and, in part, because of the current demand and the growing concern over impending baby boomer retirements expected in the coming years. This is expected to result in an even greater shortage of qualified welders throughout the many industries that rely on professional, skilled welders.

## Lakeland's Program

Lakeland offers stackable academic credentials which build to an Associate of Applied Science (AAS) Degree in Welding and Fabrication Technology. The individual academic certificates in six specialties (two - six credits each) build to the Industrial Welding I Certificate (21 credits) which builds to the Industrial Welding II Certificate (37 - 43 credits), the former representing basic welding in the flat and horizontal positions while the latter represents advanced welding in the upright and overhead positions. Those certificates all build to the AAS in Industrial Welding (66 credits). Specialties include thermal cutting, gouging, brazing and soldering, SMAW, GTAW, GMAW, FCAW and pipe welding. Learning is achieved through understanding welding theory and

through the development of technical skills, soft skills and project-based learning which afford students the opportunity to become skilled in real world applications.

Students have the option of taking the five required basic technical courses on Lakeland's campus or through the 15-week comprehensive welding program offered at Lincoln Electric ([lincolnelectric.com](http://lincolnelectric.com)). Those opting for the Lincoln Electric program are required to take WELD 1030 and WELD 1040 on Lakeland's campus. The remainder of the AAS degree program is available on campus, online and/or through credit by certification. Students with training, experience and holding welding certifications may be considered for credit by certification by completing the appropriate paperwork online at [fastpathohio.org](http://fastpathohio.org).

For all options, students may transfer their credits to colleges and universities to further their education.

**NOTE:** *Equipment required on the first day of technical welding classes: long pants; welding helmet (shade #10 or above); safety glasses; work gloves; welding jacket; leather work boots, preferably steel toe; 8" crescent wrench; soapstone and holder; tape measure; combination square, chipping hammer, wire brush, tool bag, center punch and 12 oz. ball peen hammer, and 4 1/2" grinder is optional.*

## Lakeland Community College Admission Requirements

For admission into Lakeland, students must be a high school graduate or have obtained a high school diploma equivalency. Please consult Lakeland Community College's Enrollment Guide (available on Lakeland's website at [lakelandcc.edu/enrollment](http://lakelandcc.edu/enrollment)) for specific admissions requirements and procedures.

## For more information

[lakelandcc.edu/welding](http://lakelandcc.edu/welding)  
Ryan Eubank, Welding and Fabrication Technology Program Coordinator  
440.525.7542 • [reubank@lakelandcc.edu](mailto:reubank@lakelandcc.edu)  
Counseling • 440.525.7200










## Welding and Fabrication Technology (9414)

### Associate of Applied Science Degree

The Associate of Applied Science (AAS) Degree in Welding and Fabrication Technology is designed to prepare students for immediate employment in the manufacturing, construction and energy industries as well as in the public sector. The range and depth of program courses prepare students to be job ready for employment in positions including: fabrication, welding, soldering, and brazing, as well as in sales, inspection, repair, supervision and management. The basic technical welding courses may be taken at Lakeland or by successfully completing the 15-week Comprehensive Welding Program at Lincoln Electric (<http://lincolnelectric.com>) through Lakeland's partnership with Lincoln Electric.

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Equipment required on the first day of technical welding classes: long pants; welding helmet (shade #10 or above); safety glasses; work gloves; welding jacket; leather work boots, preferably steel toe; 8" crescent wrench; soapstone and holder; tape measure; combination square, chipping hammer, wire brush, tool bag, center punch, and 12 oz. ball peen hammer, and 4 1/2" grinder is optional.


Course	Title	Credit Hours
<b>First Semester</b>		
FYEX 1000	First Year Experience	1
CIVT 2025	Safety in Construction	2
OR		
OSHA 30-Hour General Industry Outreach Training		
OR		
OSHA 30-Hour Construction Industry Outreach Training		
WELD 1030	Arc Welding Fundamentals 	3
WELD 1040	Introduction to Metal Fabrication and Mechanized Welding 	3
WELD 1300	Thermal Cutting, Gouging, Brazing, and Soldering 	2
WELD 1320	Basic SMAW (Stick) Welding 	2
WELD 1340	Basic FCAW (Flux Cored) and GMAW (MIG/MAG) Welding 	3
Credit Hours		16
<b>Second Semester</b>		
BUSM 1300	Introduction to Business	3
WELD 1330	Basic GTAW (TIG) Welding 	3
WELD 1370	Basic Pipe Welding 	3
Select course(s) from the Welding Electives list 		6
Credit Hours		15
<b>Summer</b>		
COMM 1000 or COMM 1100	Effective Public Speaking or Effective Interpersonal Communications	3
ENGL 1110 or ENGL 1111	English Composition I (A) <sup>2</sup> or English Composition I (B)	3
Credit Hours		6
<b>Third Semester</b>		
MATH 1080	Introduction to Technical Mathematics	4
Select course(s) from the Welding Electives list 		9
Credit Hours		13

## Fourth Semester

BUSM 1330	Business Ethics	3
BUSM 2000	Principles of Management	3
PHYS 1550	Everyday Physics	3
PSYC 1500	Introduction to Psychology	3
Select course(s) from the Arts and Humanities Electives list		3
Credit Hours		15
Total Credit Hours		65

<sup>1</sup> In addition to the supplies listed in the course description, this course also requires welders or MIG pliers as part of the required supplies.

<sup>2</sup> English course selection is based on placement test results (ENGL 1111 English Composition I (B) is 4 credits, only 3 credits apply to the degree).

 This course is designated as a technical course in the program. Students must earn a 'C' grade or higher in the course to fulfill the college's graduation requirements policy.

## Electives

Course	Title	Credit Hours
<b>Technical Electives</b>		
WELD 2320	Advanced SMAW (Stick) Welding	3
WELD 2330	Advanced GTAW (TIG) Welding	3
WELD 2340	Advanced FCAW (Flux Cored) Welding <sup>1</sup>	3
WELD 2350	Advanced GMAW (MIG/MAG) Welding <sup>1</sup>	3
WELD 2370	Advanced Pipe Welding	3
WELD 2380	GTAW (TIG) Pipe Welding Application	3
WELD 2400	Welding Inspection	3
WELD 2410	Welding Economics	2
<b>Arts and Humanities Electives</b>		
ARTS 1120	Art Appreciation	3
ARTS 2220	Survey of Art I	3
ARTS 2230	Survey of Art II	3
ENGL 2250	Survey of American Literature I	3
ENGL 2260	Survey of American Literature II	3
ENGL 2280	Survey of British Literature I	3
ENGL 2290	Survey of British Literature II	3
HUMX 1100	Introduction to Humanities	3
HUMX 1200	The American Experience in the Arts	3
MUSC 1200	Music Appreciation	3
MUSC 1215	World Music	3
MUSC 1800	Popular Music: Rock, Jazz, Country, and Hip-Hop	3
MUSC 2200	Music History and Literature I	3
MUSC 2250	Music History and Literature II	3
PHIL 1500	Introduction to Philosophy	3
PHIL 2000	Comparative Religion	3
PHOT 1000	History of Photography	3

## FCAW (Flux Cored) Welding Certificate (4333)

NOTE: No prior welding experience is necessary for this course.

Course	Title	Credit Hours
WELD 1340	Basic FCAW (Flux Cored) and GMAW (MIG/MAG) Welding <sup>1</sup>	3
WELD 2340	Advanced FCAW (Flux Cored) Welding <sup>1</sup>	3
Total Credit Hours		6

<sup>1</sup> In addition to the supplies listed in the course description, this course also requires welders or MIG pliers as part of the required supplies.

## GMAW (MIG/MAG) Welding Certificate (4334)

NOTE: No prior welding experience is necessary for this course.

Course	Title	Credit Hours
WELD 1340	Basic FCAW (Flux Cored) and GMAW (MIG/MAG) Welding <sup>1</sup>	3
WELD 2350	Advanced GMAW (MIG/MAG) Welding <sup>1</sup>	3
Total Credit Hours		6

<sup>1</sup> In addition to the supplies listed in the course description, this course also requires welders or MIG pliers as part of the required supplies.

## GTAW (TIG) Welding Certificate (4330)

NOTE: No prior welding experience is necessary for this course.

Course	Title	Credit Hours
WELD 1330	Basic GTAW (TIG) Welding	3
WELD 2330	Advanced GTAW (TIG) Welding	3
Total Credit Hours		6

## Pipe Welding Certificate (4331)

NOTE: WELD 1370 Basic Pipe Welding has a prerequisite of WELD 1030 Arc Welding Fundamentals and WELD 1320 Basic SMAW (Stick) Welding or permission of instructor. Students may need to take an additional course if they do not already meet this prerequisite requirement.

Course	Title	Credit Hours
WELD 1370	Basic Pipe Welding	3
WELD 2370	Advanced Pipe Welding	3
Total Credit Hours		6

## SMAW (Stick) Welding Certificate (4326)

NOTE: No prior welding experience is necessary for this course.

Course	Title	Credit Hours
WELD 1320	Basic SMAW (Stick) Welding	2
WELD 2320	Advanced SMAW (Stick) Welding	3
Total Credit Hours		5

## Thermal Cutting, Gouging, Brazing, and Soldering Certificate (4335)

*NOTE: No prior welding experience is necessary for this course.*

Course	Title	Credit Hours
WELD 1300	Thermal Cutting, Gouging, Brazing, and Soldering	2
Total Credit Hours		2

## Welding and Fabrication Technology I Certificate (4336)

This certificate introduces students to basic technical skills in industrial welding, as well as theory and safety. Successful completion of these courses will prepare students to gain entry into positions including fabrication, welding, soldering, and brazing.

Course	Title	Credit Hours
Comprehensive Lincoln Electric Welding Program		
OR the following five courses:		
WELD 1300	Thermal Cutting, Gouging, Brazing, and Soldering	2
WELD 1320	Basic SMAW (Stick) Welding	2
WELD 1330	Basic GTAW (TIG) Welding	3
WELD 1340	Basic FCAW (Flux Cored) and GMAW (MIG/MAG) Welding <sup>1</sup>	3
WELD 1370	Basic Pipe Welding	3
Total		13
WELD 1030	Arc Welding Fundamentals	3
WELD 1040	Introduction to Metal Fabrication and Mechanized Welding	3
CIVT 2025	Safety in Construction	2
OR		
OSHA 30-Hour General Industry Outreach Training		
OR		
OSHA 30-Hour Construction Industry Outreach Training		
Total		8
<b>Certificate Total</b>		<b>21</b>

<sup>1</sup> In addition to the supplies listed in the course description, this course also requires welders or MIG pliers as part of the required supplies.

## Welding and Fabrication Technology II Certificate (4337)

This certificate provides students instruction in comprehensive technical skills that will prepare them for employment in positions including: fabrication, welding, soldering, and brazing, as well as sales, inspection and repair within the welding industry. The advanced welding courses embed the American Welding Society's Certification of Qualification exam that, upon successful completion, will result in the issuance of an industry recognized credential, which is portable.

Course	Title	Credit Hours
Completion of the Industrial Welding I Certificate		21
Six of the following courses are required:		
WELD 2320	Advanced SMAW (Stick) Welding	3
WELD 2330	Advanced GTAW (TIG) Welding	3
WELD 2340	Advanced FCAW (Flux Cored) Welding <sup>1</sup>	3
WELD 2350	Advanced GMAW (MIG/MAG) Welding <sup>1</sup>	3
WELD 2370	Advanced Pipe Welding	3
WELD 2380	GTAW (TIG) Pipe Welding Application	3
WELD 2400	Welding Inspection	3
WELD 2410	Welding Economics	2
<b>Certificate Total</b>		<b>38-43</b>

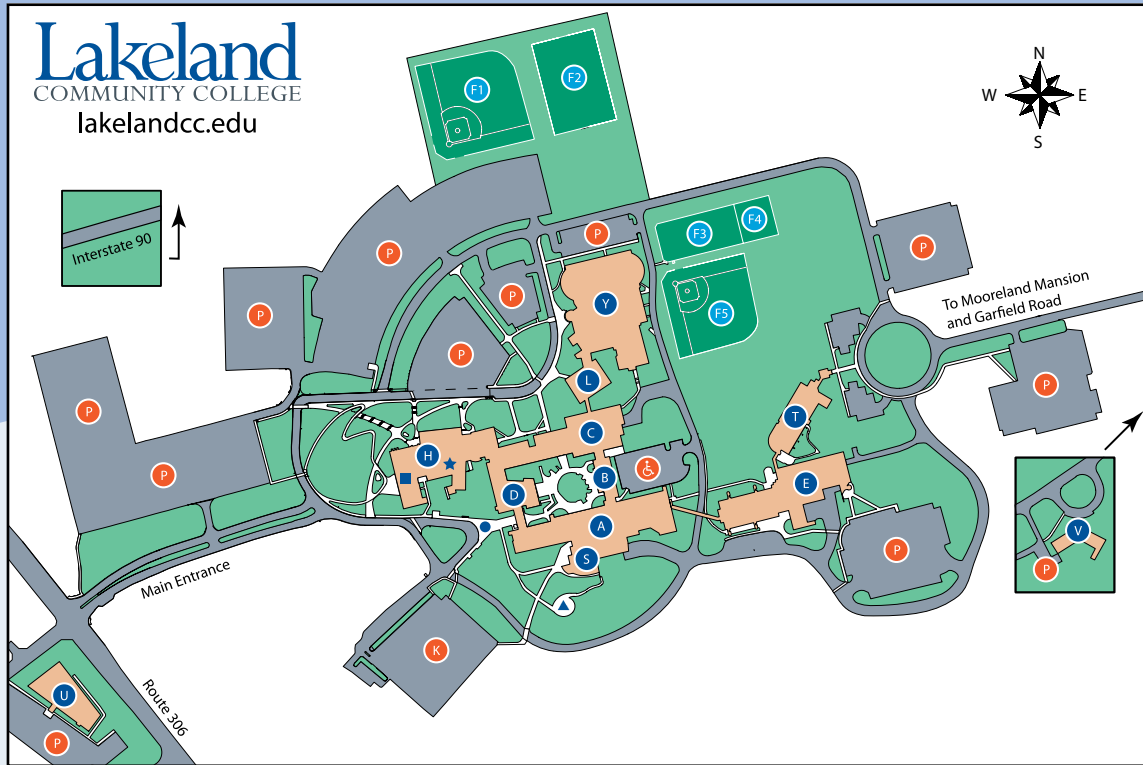
<sup>1</sup> In addition to the supplies listed in the course description, this course also requires welders or MIG pliers as part of the required supplies.

## Welding and Fabrication Technology II Certificate (4337)

This certificate provides students instruction in comprehensive technical skills that will prepare them for employment in positions including: fabrication, welding, soldering, and brazing, as well as sales, inspection and repair within the welding industry. The advanced welding courses embed the American Welding Society's Certification of Qualification exam that, upon successful completion, will result in the issuance of an industry recognized credential, which is portable.

Course	Title	Credit Hours
Completion of the Industrial Welding I Certificate		21
Six of the following courses are required:		
WELD 2320	Advanced SMAW (Stick) Welding	3
WELD 2330	Advanced GTAW (TIG) Welding	3
WELD 2340	Advanced FCAW (Flux Cored) Welding <sup>1</sup>	3
WELD 2350	Advanced GMAW (MIG/MAG) Welding <sup>1</sup>	3
WELD 2370	Advanced Pipe Welding	3
WELD 2380	GTAW (TIG) Pipe Welding Application	3
WELD 2400	Welding Inspection	3
WELD 2410	Welding Economics	2
<b>Certificate Total</b>		<b>38-43</b>

<sup>1</sup> In addition to the supplies listed in the course description, this course also requires welders or MIG pliers as part of the required supplies.



**CAMPUS MAP**

- A** A-Building/  
Student Service Center
- B** B-Building
- C** C-Building
- D** D-Building
- E** E-Building
- F1** Baseball Field
- F2** Soccer Field

- F3** Tennis Courts
- F4** Multi-Purpose Court
- F5** Softball Field
- H** H-Building
- K** Faculty Staff Lot
- L** Teaching Learning Center
- P** Parking
- S** S-Building/Breakers Dining
- T** T-Building

- U** Holden University Center
- V** Mooreland Mansion
- Y** Athletic & Fitness Center
- Clocktower
- ★ Dental Hygiene Clinic
- ♿ Handicap Parking
- HIVE
- ▲ Mind Ladders

**Quality Education**

Professors at Lakeland are experts in their fields with real-world experience. Lakeland prepares you for a high-demand career or for transfer to a four-year college or university. Access to bachelor's and graduate degrees is available on campus from partner institutions through Lakeland's Holden University Center ([lakelandcc.edu/uc](http://lakelandcc.edu/uc)).

**Affordable Tuition**

Lakeland's tuition is about one-third the cost of most four-year schools. More than 50 percent of Lakeland students receive some form of financial assistance ([lakelandcc.edu/tuition](http://lakelandcc.edu/tuition)).

**Convenience**

Lakeland offers convenient day, evening, weekend and online courses ([lakelandcc.edu/schedule](http://lakelandcc.edu/schedule)).

**Focus on Students**

Lakeland offers a variety of student services to help you succeed, such as counseling, tutoring, computer labs, career services, free parking and affordable child care.

**Opportunity starts HERE**

**Visit** us on campus or online. Call 440.525.7900, email [recruitmentcenter@lakelandcc.edu](mailto:recruitmentcenter@lakelandcc.edu) or visit [lakelandcc.edu/visit](http://lakelandcc.edu/visit) for a campus tour.

**Apply** online: [lakelandcc.edu/apply](http://lakelandcc.edu/apply)

**Accreditation**

Lakeland Community College is accredited through the Higher Learning Commission (HLC) and participates in the Academic Quality Improvement Program (AQIP). The Higher Learning Commission, 230 South LaSalle Street, Suite 7-500, Chicago, IL 60604-1413, phone: 800.621.7440, [hlcommission.org](http://hlcommission.org).