

# Welding Technology

The Welding Technology curriculum provides students with a sound understanding of the science, technology, and applications essential for successful employment in the welding and metal industry.

Instruction includes consumable and non-consumable electrode welding and cutting processes. Courses in math, blueprint reading, metallurgy, welding inspection, and destructive and non-destructive testing provide students with industry-standard skills developed through classroom training and practical applications.

Successful graduates of the Welding Technology curriculum may be employed as entry-level technicians in the welding and metalworking industries. Career opportunities also exist in construction, manufacturing, fabrication, sales, quality control, supervision, and welding-related self-employment.

For specific information about potential positions and wages in welding employment, visit the Central Piedmont Career Coach website.

## Welding Technology (A50420)

### Degree Awarded

The Associate in Applied Science - Welding Technology is awarded by the college upon completion of this program.

- Welding Technology - Automation (A50420A) (p. 1)
- Welding Technology - Construction Pipe and Heavy Maintenance Welding (A50420C) (p. 1)
- Welding Technology - Entrepreneurial Welding Business & Technical Sales (A50420E) (p. 2)
- Welding Technology - Fabrication and Manufacturing (A50420F) (p. 3)
- Welding Technology = Construction Pipe-Fitting and Installation (A50420P) (p. 3)

### Admissions

- Completion of a high school diploma or equivalent is required.
- Many courses have prerequisites or co-requisites. Check the Courses section for details.

### Contact Information

The Welding Technology program is in the Skilled Trades Division. For more information, call the Welding Technology Program Chair at 704.330.4426 or the Skilled Trades Division at 704.330.4445.

### Welding Technology - Automation

General Education Requirements

ENG 111	Writing and Inquiry	3.0
---------	---------------------	-----

Take 3 credits of the following:	3.0
----------------------------------	-----

ENG 112	Writing and Research in the Disciplines	
---------	---	--

ENG 113	Literature-Based Research	
---------	---------------------------	--

ENG 114	Professional Research & Reporting	
---------	-----------------------------------	--

Select one of the following:	3.0
------------------------------	-----

MAT 110	Mathematical Measurement and Literacy	
---------	---------------------------------------	--

MAT 143	Quantitative Literacy	
---------	-----------------------	--

Select one of the following:	3.0
------------------------------	-----

COM 110	Introduction to Communication	
COM 231	Public Speaking	
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	
Select 3 credits of the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	

Major Requirements		
ACA 122	College Transfer Success	1.0
CIS 110	Introduction to Computers	3.0
PFT 110	Introduction to Pipe Fitting	4.0
WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0
WLD 270	Orbital Welding TIG/Pipe	4.0
WLD 143	Welding Metallurgy	2.0
WLD 265	Automated Welding/Cutting	4.0
WLD 262	Inspection & Testing	3.0
or NDE 110	Intro to Nondestructive Examination	
WLD 268	Robotic Gas Metal Arc Welding	4.0
WLD 151	Fabrication I	4.0
ELC 111	Introduction to Electricity	3.0
Take 1 credit of the following:		1.0
WOL 110	Basic Construction Skills	
MAC 118	Machine Shop Basic	
ISC 112	Industrial Safety	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	

Total Credits	69
---------------	----

### Welding Technology - Construction Pipe and Heavy Maintenance Welding Track (A50420C)

General Education Requirements

ENG 111	Writing and Inquiry	3.0
---------	---------------------	-----

*Welding Technology*

Take 3 credits of the following: 3.0

ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	

Select one of the following: 3.0

MAT 110	Mathematical Measurement and Literacy	
or MAT 143	Quantitative Literacy	

Select one of the following:

COM 110	Introduction to Communication	3.0
or COM 231	Public Speaking	

Select 3 credits of the following: 3.0

ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

Select 3 credits of the following: 3.0

ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	

**Major Requirements**

ACA 122	College Transfer Success	1.0
CIS 110	Introduction to Computers	3.0
WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0
WLD 116	SMAW (stick) Plate/Pipe	4.0
WLD 143	Welding Metallurgy	2.0
WLD 151	Fabrication I	4.0
WLD 261	Certification Practices	2.0
WLD 122	GMAW (MIG) Plate/Pipe	3.0
or WLD 132	GTAW (TIG) Plate/Pipe	
WLD 215	SMAW (stick) Pipe	4.0
or WLD 270	Orbital Welding TIG/Pipe	
WLD 221	GMAW (MIG) Pipe	3.0
or WLD 231	GTAW (TIG) Pipe	
WLD 262	Inspection & Testing	3.0
or NDE 110	Intro to Nondestructive Examination	

Select 3 credits of the following: 3.0

WOL 110	Basic Construction Skills	
MAC 118	Machine Shop Basic	
ISC 112	Industrial Safety	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	

Total Credits 68

**Welding Technology - Entrepreneurial Welding Business & Technical Sales Track (A50420E)**

**General Education Requirements**

ENG 111 Writing and Inquiry 3.0

Take 3 credits of the following: 3.0

ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	

Select one of the following:

COM 110	Introduction to Communication	3.0
or COM 231	Public Speaking	

Select 3 credits of the following 3.0

ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

Select 3 credits of the following: 3.0

ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	

Select one of the following:

MAT 110	Mathematical Measurement and Literacy	3.0
or MAT 143	Quantitative Literacy	

**Major Requirements**

ACA 122	College Transfer Success	1.0
CIS 110	Introduction to Computers	3.0
WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0

WLD 143	Welding Metallurgy	2.0
WLD 151	Fabrication I	4.0
ELC 111	Introduction to Electricity	3.0
WLD 262	Inspection & Testing	3.0
or NDE 110	Intro to Nondestructive Examination	
WLD 265	Automated Welding/Cutting	4.0
or WLD 270	Orbital Welding TIG/Pipe	
BUS 110	Introduction to Business	3.0
BUS 137	Principles of Management	3.0
BUS 139	Entrepreneurship I	3.0
or BUS 230	Small Business Management	
Select 3 credits of the following:		3.0
WOL 110	Basic Construction Skills	
MAC 118	Machine Shop Basic	
ISC 112	Industrial Safety	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	
Total Credits		68

## Welding Technology - Fabrication and Manufacturing Track (A50420F)

### General Education Requirements

ENG 111	Writing and Inquiry	3.0
Take 3 credits of the following:		3.0
ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
Take 3 credits of the following:		3.0
COM 110	Introduction to Communication	
COM 231	Public Speaking	
Take 3 credits of the following:		3.0
MAT 110	Mathematical Measurement and Literacy	
MAT 143	Quantitative Literacy	
Take 3 credits of the following:		3.0
ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	
Take 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	

POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	

### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0

### Other Major Requirements

ACA 122	College Transfer Success	1.0
CIS 110	Introduction to Computers	3.0
ELC 111	Introduction to Electricity	3.0
MAC 121	Introduction to CNC	2.0
or MAC 118	Machine Shop Basic	
WLD 132	GTAW (TIG) Plate/Pipe	3.0
WLD 143	Welding Metallurgy	2.0
WLD 151	Fabrication I	4.0
WLD 251	Fabrication II	3.0
WLD 265	Automated Welding/Cutting	4.0
WLD 262	Inspection & Testing	3.0
or NDE 110	Intro to Nondestructive Examination	
Select 4 credits from the following:		4.0
WOL 110	Basic Construction Skills	
MAC 118	Machine Shop Basic	
ISC 112	Industrial Safety	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	

Total Credits 68

## Welding Technology - Construction Pipe-Fitting and Installation (A50420P)

### General Education Requirements

ENG 111	Writing and Inquiry	3.0
MAT 121	Algebra/Trigonometry I	3.0
COM 110	Introduction to Communication	3.0
or COM 231	Public Speaking	
Take 3 credits of the following:		3.0
ENG 112	Writing and Research in the Disciplines	
ENG 113	Literature-Based Research	
ENG 114	Professional Research & Reporting	
Select 3 credits of the following:		3.0
ECO 251	Principles of Microeconomics	
ECO 252	Principles of Macroeconomics	
HIS 111	World Civilizations I	
HIS 112	World Civilizations II	
HIS 131	American History I	
HIS 132	American History II	
POL 120	American Government	
PSY 150	General Psychology	
SOC 210	Introduction to Sociology	
Select 3 credits of the following:		3.0

ART 111	Art Appreciation	
ART 114	Art History Survey I	
ART 115	Art History Survey II	
DRA 111	Theatre Appreciation	
HUM 120	Cultural Studies	
HUM 130	Myth in Human Culture	
MUS 110	Music Appreciation	
MUS 112	Introduction to Jazz	
PHI 215	Philosophical Issues	
PHI 240	Introduction to Ethics	
REL 110	World Religions	

**Major Requirements:**

ACA 122	College Transfer Success	1.0
CIS 110	Introduction to Computers	3.0
WLD 110	Cutting Processes	2.0
WLD 112	Basic Welding Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
PFT 110	Introduction to Pipe Fitting	4.0
PFT 210	Advanced Pipe Fitting	4.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 132	GTAW (TIG) Plate/Pipe	3.0
or WLD 116	SMAW (stick) Plate/Pipe	
WLD 141	Symbols and Specifications	3.0
WLD 262	Inspection & Testing	3.0
or NDE 110	Intro to Nondestructive Examination	
WLD 143	Welding Metallurgy	2.0
WLD 151	Fabrication I	4.0
WLD 270	Orbital Welding TIG/Pipe	4.0
Take 2 credits of the following:		2.0
WOL 110	Basic Construction Skills	
ISC 112	Industrial Safety	
WBL 111	Work-Based Learning I	
WBL 121	Work-Based Learning II	

Total Credits 68

## Welding Technology Diploma (D50420)

### Diploma Awarded

A diploma in Welding Technology is awarded by the college upon completion of this program.

### Admissions

Completion of a high school diploma or equivalent is required as the foundation of a career in this area.

### Contact Information

The Welding Technology program is in the Skilled Trades Division. For more information, call the Welding Technology program Chair at 704.330.4426 or the Skilled Trades Division at 704.330.4445.

#### General Education Requirements

ENG 111	Writing and Inquiry	3.0
MAT 110	Mathematical Measurement and Literacy	3.0

<b>Major Requirements</b>		
WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0
WLD 116	SMAW (stick) Plate/Pipe	4.0
WLD 122	GMAW (MIG) Plate/Pipe	3.0
WLD 132	GTAW (TIG) Plate/Pipe	3.0
WLD 221	GMAW (MIG) Pipe	3.0
WLD 231	GTAW (TIG) Pipe	3.0
WLD 151	Fabrication I	4.0
CIS 111	Basic PC Literacy	2.0
or CIS 110	Introduction to Computers	
Total Credits		46

## Welding Technology Certificates (C50420)

The following certificates can be earned in the Welding Technology Program (A50420).

- Welding Technology Certificate with a Specialization in S.M.A.W. of Pipe Welding (C50420-C1) (p. 5)
- Welding Technology Certificate with a Specialization in Entry-Level Welding (C50420-C2) (p. 5)
- Welding Technology Certificate with a Specialization in Inert Gas Welding (C50420-C4) (p. 5)
- Welding Technology Certificate with a Specialization in Advanced Level Welding (C50420-C5) (p. 5)
- Welding Technology Certificate with a Specialization in Expert Level Welding (C50420-C6) (p. 5)
- Welding Technology Certificate with a Specialization in Robotic Welding and Cutting (C50420-C8) (p. 5)
- Welding Technology Certificate with a Specialization in Orbital GTAW Welding (C50420-C9) (p. 5)
- Welding Technology Certificate Specialization in G.M.A.W. of Pipe Welding (C50420-10) (p. 5)
- Welding Technology Certificate Specialization in S.M.A.W. Structure Steel Welding (C50420-11) (p. 5)
- Welding Technology Certificate Specialization in Steel Fabrication (C50420-12) (p. 5)
- Welding Technology Certificate Specialization in Advanced Welding Automation for Manufacturing (C50420-13) (p. 6)
- Welding Technology Certificate Specialization in Wrought Metals (C50420-14) (p. 6)
- Welding Technology Certificate Specialization in Entry Level Pipe-Fitting (C50420-30) (p. 6)
- Welding Technology Certificate Specialization in Pipe-Fitting (C50420-31) (p. 3)
- Welding Technology Certificate Specialization in Advanced Pipe-Fitting (C50420-32) (p. 6)

### Admissions

Completion of a high school diploma or equivalent is encouraged as the foundation of a career in this area.

## Contact Information

For more information, call the Welding Technology Program Chair at 704.330.4426 or the Skilled Trades Division at 704.330.4445.

### Welding Technology Certificate with a Specialization in S.M.A.W. of Pipe Welding (C50420-C1)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 141	Symbols and Specifications	3.0
WLD 116	SMAW (stick) Plate/Pipe	4.0
WLD 215	SMAW (stick) Pipe	4.0
Total Credits		18

### Welding Technology Certificate with a Specialization in Entry-Level Welding (C50420-C2)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0
Total Credits		18

### Welding Technology Certificate with a Specialization in Inert Gas Welding (C50420-C4)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0
Total Credits		13

### Welding Technology Certificate with a Specialization in Advanced Level Welding (C50420-C5)

#### Major Requirements

WLD 116	SMAW (stick) Plate/Pipe	4.0
WLD 122	GMAW (MIG) Plate/Pipe	3.0
WLD 132	GTAW (TIG) Plate/Pipe	3.0
WLD 261	Certification Practices	2.0
Total Credits		12

### Welding Technology Certificate with a Specialization in Expert Level Welding (C50420-C6)

#### Major Requirements

WLD 231	GTAW (TIG) Pipe	3.0
WLD 215	SMAW (stick) Pipe	4.0
WLD 221	GMAW (MIG) Pipe	3.0

WLD 262	Inspection & Testing	3.0
Total Credits		13

### Welding Technology Certificate with a Specialization in Robotic Welding and Cutting (C50420-C8)

#### Major Requirements

WLD 141	Symbols and Specifications	3.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 110	Cutting Processes	2.0
ELC 111	Introduction to Electricity	3.0
WLD 265	Automated Welding/Cutting	4.0
Total Credits		16

### Welding Technology Certificate with a Specialization in Orbital GTAW Welding (C50420-C9)

#### Major Requirements

WLD 141	Symbols and Specifications	3.0
WLD 110	Cutting Processes	2.0
WLD 131	GTAW (TIG) Plate	4.0
ELC 111	Introduction to Electricity	3.0
WLD 270	Orbital Welding TIG/Pipe	4.0
Total Credits		16

### Welding Technology Certificate Specialization in G.M.A.W. of Pipe Welding (C50420-10)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 141	Symbols and Specifications	3.0
WLD 122	GMAW (MIG) Plate/Pipe	3.0
WLD 221	GMAW (MIG) Pipe	3.0
Total Credits		15

### Welding Technology Certificate Specialization in S.M.A.W. Structure Steel Welding (C50420-11)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 141	Symbols and Specifications	3.0
Total Credits		14

### Welding Technology Certificate Specialization in Steel Fabrication (C50420-12)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 122	GMAW (MIG) Plate/Pipe	3.0

WLD 141	Symbols and Specifications	3.0
Total Credits		17

### Welding Technology Certificate Specialization in Advanced Welding Automation for Manufacturing (C50420-13)

This program is also available to high school students through Career and College Promise.

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 121	GMAW (MIG) FCAW/Plate	4.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 141	Symbols and Specifications	3.0
WLD 265	Automated Welding/Cutting	4.0
Total Credits		17

### Welding Technology Certificate Specialization in Wrought Metals (C50420-14)

#### Major Requirements

WLD 110	Cutting Processes	2.0
WLD 112	Basic Welding Processes	2.0
WLD 152	Wrought Metals I	4.0
WLD 252	Wrought Metals II	4.0
WLD 141	Symbols and Specifications	3.0
Total Credits		15

### Welding Technology Certificate Specialization in Entry Level Pipe-Fitting (C50420-30)

#### Major Requirements

PFT 110	Introduction to Pipe Fitting	4.0
MAT 110	Mathematical Measurement and Literacy	3.0
or MAT 143	Quantitative Literacy	
WLD 112	Basic Welding Processes	2.0
WLD 141	Symbols and Specifications	3.0
WOL 110	Basic Construction Skills	3.0
Total Credits		15

### Welding Technology Certificate Specialization in Pipe-Fitting (C50420-31)

#### Major Requirements:

PFT 110	Introduction to Pipe Fitting	4.0
WLD 110	Cutting Processes	2.0
WLD 112	Basic Welding Processes	2.0
WLD 141	Symbols and Specifications	3.0
MAC 118	Machine Shop Basic	2.0
Total Credits		13

Students must complete Welding Technology Certificate Specialization in Entry Level Pipe-Fitting (C50420-30) before being admitted.

### Welding Technology Certificate Specialization in Advanced Pipe-Fitting (C50420-32)

#### Major Requirements

PFT 210	Advanced Pipe Fitting	4.0
WLD 115	SMAW (Stick) Plate	5.0
WLD 131	GTAW (TIG) Plate	4.0
WLD 143	Welding Metallurgy	2.0
WLD 262	Inspection & Testing	3.0
or NDE 110	Intro to Nondestructive Examination	
Total Credits		18

#### Advanced Pipe Fitting

The following is the suggested plan for when to take each course to complete the Associate in Applied Science degree, based on the program requirements of the 2022-2023 catalog. This is only a recommendation — you may take courses in another order upon consultation with your advisor. This plan is based on you starting with college-level math and English courses, starting your program in the fall, and attending full-time. You can also follow this sequence if you attend part-time. Speak with an advisor about the plan and any questions. This program might also offer diplomas or certificates; visit the catalog or contact the program for details.

Welding Technology - Automation suggested course sequence

Welding Technology - Construction Pipe and Heavy Maintenance suggested course sequence

Welding Technology - Construction Pipefitting and Installation suggested course sequence

Welding Technology - Entrepreneurial Business and Sales suggested course sequence

Welding Technology - Fabrication and Manufacturing suggested course sequence