

# 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.

### 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 (A50420)

#### General Education Requirements

##### Select 3 Credit of the following: 3.0

ENG 111 Writing and Inquiry

##### Select 3 credits from the following: 3.0

COM 110 Introduction to Communication

COM 231 Public Speaking

ENG 112 Writing and Research in the Disciplines

ENG 113 Literature-Based Research

ENG 114 Professional Research & Reporting

##### Select 3 credits from the following: 3.0

MAT 110 Mathematical Measurement and Literacy

MAT 143 Quantitative Literacy

##### Select 3 credits from 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 |
| 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 143    | Welding Metallurgy           | 2.0 |
| PFT 110    | Introduction to Pipe Fitting | 4.0 |
| WLD 231    | GTAW (TIG) Pipe              | 3.0 |
| WLD 151    | Fabrication I                | 4.0 |
| WLD 261    | Certification Practices      | 2.0 |
| WLD 265    | Automated Welding/Cutting    | 4.0 |
| or WLD 270 | Orbital Welding TIG/Pipe     |     |

#### Technical Electives

##### Select 4 credits of the following: 4.0

|         |  |
|---------|--|
| WLD 215 | SMAW (stick) Pipe                          |
| WLD 262 | Inspection & Testing                       |
| BUS 230 | Small Business Management                  |
| NDE 110 | Introduction to Nondestructive Examination |
| ISC 110 | Workplace Safety                           |
| ELC 111 | Introduction to Electricity                |
| ISC 112 | Industrial Safety                          |
| ISC 115 | Construction Safety                        |
| WBL 112 | Work-Based Learning I                      |
| WLD 112 | Basic Welding Processes                    |
| WLD 221 | GMAW (MIG) Pipe                            |
| WLD 251 | Fabrication II                             |
| PFT 210 | Advanced Pipe Fitting                      |
| WLD 268 | Robotic Gas Metal Arc Welding              |

**Total Credits 67**

## 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 |

#### 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 |
| 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. 2)
- Welding Technology Certificate with a Specialization in Entry-Level Welding (C50420-C2) (p. 2)
- Welding Technology Certificate with a Specialization in Inert Gas Welding (C50420-C4) (p. 2)
- Welding Technology Certificate with a Specialization in Advanced Level Welding (C50420-C5) (p. 2)
- Welding Technology Certificate with a Specialization in Robotic Welding and Cutting (C50420-C8) (p. 3)
- Welding Technology Certificate Specialization in Advanced Welding Automation for Manufacturing (C50420-13) (p. 3)
- Welding Technology Certificate Specialization in Gas Metal Arc Welding (C50420-15) (p. 3)
- Welding Technology Certificate Specialization in Welding Technology Advanced Processes (C50420-16) (p. 3)

- Welding Technology Certificate Specialization in Entry Level Pipe-Fitting (C50420-30) (p. 3)

### 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 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       |
| <b>Total Credits</b> |                             | <b>16</b> |

## 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       |
| <b>Total Credits</b> |                            | <b>17</b> |

## Welding Technology Certificate Specialization in Gas Metal Arc Welding (C50420-15)

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

### 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       |
| <b>Total Credits</b> |                            | <b>17</b> |

## Welding Technology Certificate Specialization in Welding Technology Advanced Processes (C50420-16)

|                      |                               |           |
|----------------------|-------------------------------|-----------|
| WLD 261              | Certification Practices       | 2.0       |
| WLD 262              | Inspection & Testing          | 3.0       |
| WLD 265              | Automated Welding/Cutting     | 4.0       |
| WLD 268              | Robotic Gas Metal Arc Welding | 4.0       |
| or WLD 270           | Orbital Welding TIG/Pipe      |           |
| <b>Total Credits</b> |                               | <b>13</b> |

## 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       |
| <b>Total Credits</b> |                            | <b>15</b> |

## Welding Technology Suggested Course Sequences

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 2024-2025 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 your academic advisor about the plan and any questions. This program might also offer diplomas or certificates; visit the catalog or contact the program for details. Visit the Academic Advising page for instructions on locating your assigned advisor: <https://www.cpsc.edu/academics/academic-advising>

| Term I  |                          | Credits   |
|---------|--------------------------|-----------|
| 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       |
| ENG 111 | Writing and Inquiry      | 3.0       |
| ACA 122 | College Transfer Success | 1.0       |
|         | <b>Credits</b>           | <b>19</b> |

| Term II               |   | Credits |
|-----------------------|---|---------|
| 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     |
| MAT 110<br>or MAT 143 | Mathematical Measurement and Literacy<br>or Quantitative Literacy | 3.0     |

You may have completed a program certificate(s). Confirm eligibility with your academic advisor.

| Term III              |   | Credits  |
|-----------------------|---|----------|
| COM 110<br>or COM 231 | Introduction to Communication<br>or Public Speaking | 3.0      |
|                       | <b>Credits</b>                                      | <b>3</b> |

| Term IV               |  | Credits   |
|-----------------------|--|-----------|
| WLD 143               | Welding Metallurgy                                       | 2.0       |
| PFT 110               | Introduction to Pipe Fitting                             | 4.0       |
| WLD 265<br>or WLD 270 | Automated Welding/Cutting<br>or Orbital Welding TIG/Pipe | 4.0       |
| WLD 151               | Fabrication I  | 4.0       |
| Humanities/Fine Arts  |  | 3.0       |
|                       | <b>Credits</b>   | <b>17</b> |

| Term V                    |                         | Credits |
|---------------------------|-------------------------|---------|
| WLD 231                   | GTAW (TIG) Pipe         | 3.0     |
| WLD 261                   | Certification Practices | 2.0     |
| Technical Elective        |                         | 4.0     |
| Behavioral/Social Science |                         | 3.0     |

You may have completed a program certificate(s). Confirm eligibility with your academic advisor.

|                      | Credits   |
|----------------------|-----------|
|                      | <b>12</b> |
| <b>Total Credits</b> | <b>67</b> |