



## Welding

### Course Objectives

Compass Career College's Welding program provides instruction on the various processes and techniques of welding including oxyfuel cutting, carbon arc cutting, shielded metal arc welding, gas tungsten arc welding, flux-cored arc welding, gas metal arc welding, pipe welding, and plasma arc cutting. The Welding program has been divided into the following technical competency levels to meet the individual career goals of its students:

[Basic Welding](#)

[Welding Technician](#)

[Welding Specialist](#)

[Pipe Technician](#)

[Aluminum Technician](#)

### Basic Welding Curriculum

Students have the ability to:

- Identify common hazards in welding.
- Explain and Identify proper personal protection equipment/procedures used in welding.
- Describe how to avoid welding fumes.
- Identify and explain uses for MSDS.
- Explain safety techniques for storing and handling cylinders.
- Explain how to avoid electrical shocks when welding.
- Explain proper material handling methods.
- Perform oxyfuel cutting by safely operating a motorized, portable oxyfuel cutting machine.
- Properly use plasma arc cutting equipment to make various types of cuts.
- Properly use air carbon arc cutting (CAC-C) equipment for washing and gouging activities.
- Prepare materials and select proper joint design based on welding procedure specifications (WPS) or instructor directions.
- Perform visual inspection of fillet welds and identify weld imperfections and their causes.
- Set up and use shielded metal arc welding (SMAW) equipment to perform stringer, weave, and overlapping beads with E6010 and E7018 Electrodes.
- Utilize job code specifications to inspect joint fit-up and alignment.
- Make groove welds with backing in the 1G, 2G, 3G, and 4G positions using E7018 electrodes.
- Make welds on pads and open-root V-groove welds in the 1G, 2G, 3G, and 4G positions using E 6010 and E7018 electrodes.

Length of study: 425 Clock hours: approximately 17 weeks

Course Number	Course Title	Textbook ISBN	Purchase Price	Lecture Hours	Lab Hours	Total Hours
CC110	Core Curriculum	Core Curriculum Training Guide 9780136086376	\$83.00	44	31	75
WELD 110	Intro to Welding	Level 1 – Entry Welder Trainee Guide 9780136099673	\$103.00	11	64	75
WELD 120	Beginning SMAW			25	100	125
WELD 130	Advanced SMAW			25	100	125
		<b>Totals</b>	<b>\$186.00</b>	<b>105</b>	<b>295</b>	<b>400</b>

**NOTE: All classes are from 8:00 am – 4:00 pm, Monday – Thursday.  
Night classes may be offered on a space available basis.**

## **Welding Technician Curriculum**

Student has the ability to:

- Perform all tasks in the Basic Welder curriculum.
- Identify and interpret welding symbols on detail drawings and welding procedure specifications (WPS).
- Identify and explain physical characteristics, mechanical properties, and metallurgical considerations for welding materials.
- Explain process and safely demonstrate proficiency with pre and post heat treatment of metals.
- Explain and safely demonstrate proficiency with gas metal arc and flux cored arc welding (GMAW and FCAW) equipment.
- Correctly perform GMAW and FCAW various welds on carbon steel plate.
- Explain and safely demonstrate proficiency with tungsten arc welding (GTAW) equipment.
- Correctly perform GTAW various welds on carbon steel plate.

Length of study: 625 Clock hours: approximately 25 weeks

<b>Course Number</b>	<b>Course Title</b>	<b>Textbook ISBN</b>	<b>Purchase Price</b>	<b>Lecture Hours</b>	<b>Lab Hours</b>	<b>Total Hours</b>
CC110	Core Curriculum	Core Curriculum Training Guide 9780136086376	\$83.00	44	31	75
WELD 110	Intro to Welding	Level 1 – Entry Welder Trainee Guide 9780136099673	\$103.00	11	64	75
WELD 120	Beginning SMAW			25	100	125
WELD 130	Advanced SMAW			25	100	125
WELD 210	Intro to Advanced Welding	Level 2 – Advanced Welder Trainee Guide 9780136099703	\$149.00	25	100	125
WELD 220	Advanced Welding			15	85	100
		<b>Totals</b>	<b>\$335.00</b>	<b>145</b>	<b>480</b>	<b>625</b>

***NOTE: All classes are from 8:00 am – 4:00 pm, Monday – Thursday.  
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## Pipe Technician Curriculum

Student has the ability to:

- Perform all tasks in the Welding Technician curriculum.
- Correctly perform SMAW open root v-groove welds on pipe in the following positions: 1G – rotated, 2G, 5G, and 6G.
- Correctly perform GMAW open root v-groove welds on pipe in the following positions: 1G – rotated, 2G, 5G, and 6G.
- Correctly perform FCAW open root v-groove welds on pipe in the following positions: 1G – rotated, 2G, 5G, and 6G.
- Correctly perform GTAW open root v-groove welds on carbon steel pipe in the following positions: 2G, 5G, and 6G.
- Correctly prepare for and perform GTAW open root v-groove welds with low-alloy and/or stainless steel filler metal on carbon steel pipe in the following positions: 2G, 5G, and 6G.
- Correctly prepare for and perform SMAW open root v-groove welds on stainless steel plate and pipe in the following positions: 1G – rotated, 2G, 5G, and 6G.

Length of study: 1100 Clock hours: approximately 44 weeks

Course Number	Course Title	Textbook ISBN	Purchase Price	Lecture Hours	Lab Hours	Total Hours
CC110	Core Curriculum	Core Curriculum Training Guide 9780136086376	\$83.00	44	31	75
WELD 110	Intro to Welding	Level 1 – Entry Welder Trainee Guide 9780136099673	\$103.00	11	64	75
WELD 120	Beginning SMAW			25	100	125
WELD 130	Advanced SMAW			25	100	125
WELD 210	Intro to Advanced Welding	Level 2 – Advanced Welder Trainee Guide 9780136099703	\$149.00	25	100	125
WELD 220	Advanced Welding			15	85	100
WELD 310	Expert Welding 1	Level 3 – Expert Welder Trainee Guide 9780132135115	\$149.00	10	90	100
WELD 320	Expert Welding 2			10	90	100
WELD 330	Expert Welding 3			25	100	125
WELD 340	Expert Welding 4			30	120	150
		<b>Totals</b>	<b>\$484.00</b>	<b>220</b>	<b>880</b>	<b>1100</b>

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## **Aluminum Technician Curriculum**

Student has the ability to:

- Perform all tasks in the Welding Technician curriculum.
- Identify and explain physical characteristics, mechanical properties, and metallurgical considerations for welding aluminum materials.
- Correctly utilize GMAW equipment to build a pad with stringer and/or weave beads.
- Correctly prepare for and perform GMAW multiple-pass fillet welds on aluminum plate in the following positions: 1F, 2F, 3F, 4F.
- Correctly prepare for and perform GMAW multiple-pass v-groove welds on aluminum plate with backing in the following positions: 1G, 2G, 3G, 4G.
- Correctly utilize GTAW equipment to build a pad with stringer and/or weave beads.
- Correctly prepare for and perform GTAW multiple-pass fillet welds on aluminum plate in the following positions: 1F, 2F, 3F, 4F.
- Correctly prepare for and perform GTAW multiple-pass v-groove welds on aluminum plate with backing in the following positions: 1G, 2G, 3G, 4G.
- Correctly prepare for and perform GTAW v-groove and modified u-groove welds on aluminum pipe in the following positions: 2G, 5G, 6G.
- Correctly prepare for and perform GTAW v-groove with backing welds on aluminum pipe in the following positions: 2G, 5G, 6G.

Length of study: 1100 Clock hours: approximately 44 weeks

<b>Course Number</b>	<b>Course Title</b>	<b>Textbook ISBN</b>	<b>Purchase Price</b>	<b>Lecture Hours</b>	<b>Lab Hours</b>	<b>Total Hours</b>
CC110	Core Curriculum	Core Curriculum Training Guide 9780136086376	\$83.00	44	31	75
WELD 110	Intro to Welding	Level 1 – Entry Welder Trainee Guide 9780136099673	\$103.00	11	64	75
WELD 120	Beginning SMAW			25	100	125
WELD 130	Advanced SMAW			25	100	125
WELD 210	Intro to Advanced Welding	Level 2 – Advanced Welder Trainee Guide 9780136099703	\$149.00	25	100	125
WELD 220	Advanced Welding			15	85	100
WELD 410	GMAW 1	Level 4 – Welding Advanced Topics Trainee Guide 9780132137225	\$105.00	10	90	100
WELD 420	GTAW 2			10	90	100
		<b>Totals</b>	<b>\$440.00</b>	<b>165</b>	<b>660</b>	<b>825</b>

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### **Welding Specialist Curriculum**

Student has the ability to:

- Perform all tasks in the Welding Technician curriculum.
- Perform all tasks in the Pipe Technician curriculum.
- Perform all tasks in the Aluminum Technician curriculum.

Length of study: 1300 Clock hours: approximately 52 weeks

<b>Course Number</b>	<b>Course Title</b>	<b>Textbook ISBN</b>	<b>Purchase Price</b>	<b>Lecture Hours</b>	<b>Lab Hours</b>	<b>Total Hours</b>
CC110	Core Curriculum	Core Curriculum Training Guide 9780136086376	\$83.00	44	31	75
WELD 110	Intro to Welding	Level 1 – Entry Welder Trainee Guide 9780136099673	\$103.00	11	64	75
WELD 120	Beginning SMAW			25	100	125
WELD 130	Advanced SMAW			25	100	125
WELD 210	Intro to Advanced Welding	Level 2 – Advanced Welder Trainee Guide 9780136099703	\$149.00	25	100	125
WELD 220	Advanced Welding			15	85	100
WELD 310	Expert Welding 1	Level 3 – Expert Welder Trainee Guide 9780132135115	\$149.00	10	90	100
WELD 320	Expert Welding 2			10	90	100
WELD 330	Expert Welding 3			25	100	125
WELD 340	Expert Welding 4			30	120	150
WELD 410	GMAW 1	Level 4 – Welding Advanced Topics Trainee Guide 9780132137225	\$105.00	10	90	100
WELD 420	GTAW 2			10	90	100
		<b>Totals</b>	<b>\$589.00</b>	<b>240</b>	<b>1060</b>	<b>1300</b>

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