

WELDING TECHNOLOGY - ASSOCIATE IN SCIENCE

² Elective units from course(s) numbered 1-599, if needed, to reach 60 degree-applicable units.

Plan Code: 2988

This program is designed to prepare students for a variety of entry-level positions in today's construction and fabrication industries. Upon completion students will have a thorough knowledge of welding safety, theory and procedures, in accordance with the American Welding Society SENSE Entry Welder program, as well as the skill to perform a variety of welding processes. Successful completion of this degree will prepare students for the following career opportunities: welder, welding inspector, welding technician/fitter, pipe fitter/welder, and metal fabricator.

Program Student Learning Outcomes

- Demonstrate the ability to attain the Institutional Student Learning Outcomes (ISLOs).
- Demonstrate advanced level skills to produce quality welds in the flat, horizontal, vertical, and overhead positions using the SMAW (Shielded Metal Arc Welding) process.
- Demonstrate advanced level skills to produce quality welds in the flat, horizontal, and vertical positions using the GTAW (Gas Tungsten Arc Welding) process.

Program Requirements

This degree requires the completion of General Education coursework plus the following:

Code Number	Course Title	Units
REQUIRED COURSES		
MTFAB 50	Introduction to Metalworking	4
MTFAB 204	Power Metalworking Machine Operations	4
MTFAB 260	Blueprint Reading for Metal Fabrication	3
MTFAB 270	Metallurgy	2.5
WELD 50	Introduction to Welding	3.5
WELD 211	Oxy-fuel Welding and Cutting Technology	2
WELD 212	Introduction to Shielded Metal Arc Welding	3.5
WELD 213	Introduction to Semi-Automatic Welding	3.5
WELD 214	Introduction to Gas Tungsten Arc Welding	3.5
Required Subtotal		29.5
Complete one of the following: ¹		19-39
LBCC General Education (Plan A) (https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-a/)		
CSU GE Breadth (Plan B) (https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-b/)		
IGETC Pattern (Plan C) (https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-c/)		
Electives (as needed to reach 60 degree-applicable units) ²		
Minimum Degree Total		60

¹ Units for the major may be double-counted for LBCC GE, CSU GE, or IGETC; see counselor for limitations.

WELDING TECHNOLOGY - CERTIFICATE OF ACHIEVEMENT

Plan Code: 3988

This program is designed to prepare students for a variety of entry-level positions in today's construction and fabrication industries. Upon completion students will have a thorough knowledge of welding safety, theory and procedures, in accordance with the American Welding Society SENSE (Schools Excelling through National Skills Education) Entry Welder program, as well as the skill to perform a variety of welding processes. Successful completion of this degree will prepare students for the following career opportunities: welder, welding inspector, welding technician/fitter, pipe fitter/welder, and metal fabricator.

Program Student Learning Outcomes

- Demonstrate advanced level skills to produce quality welds in the flat, horizontal, vertical, and overhead positions using the SMAW (Shielded Metal Arc Welding) process.
- Demonstrate advanced level skills to produce quality welds in the flat, horizontal, and vertical positions using the GTAW (Gas Tungsten Arc Welding) process.

Program Requirements

Code Number	Course Title	Units
REQUIRED COURSES		
MTFAB 50	Introduction to Metalworking	4
MTFAB 204	Power Metalworking Machine Operations	4
MTFAB 260	Blueprint Reading for Metal Fabrication	3
MTFAB 270	Metallurgy	2.5
WELD 50	Introduction to Welding	3.5
WELD 211	Oxy-fuel Welding and Cutting Technology	2
WELD 212	Introduction to Shielded Metal Arc Welding	3.5
WELD 213	Introduction to Semi-Automatic Welding	3.5
WELD 214	Introduction to Gas Tungsten Arc Welding	3.5
Total Units		29.5

SEMI-AUTOMATIC WELDING - CERTIFICATE OF ACHIEVEMENT

Plan Code: 3979

This program will emphasize advance welding skills in the GMAW (Gas Metal Arc Welding) and FCAW (Flux Core Arc Welding) processes. Course work includes a comprehensive study with an emphasis on application of fundamental welding techniques and safe industry practices. Potential careers that the program prepares students for include, but are not limited to, Pipe Fitters and Steamfitters, Sheet Metal Workers, as well as Structural Iron and Steel Workers.

Program Student Learning Outcomes

- Demonstrate advanced level skills to produce quality welds in the flat, horizontal, vertical, and overhead positions using semi-automatic welding processes: GMAW (Gas Metal Arc Welding) and FCAW (Flux Core Arc Welding).

Program Requirements

Code Number	Course Title	Units
REQUIRED COURSES		
MTFAB 260	Blueprint Reading for Metal Fabrication	3
MTFAB 270	Metallurgy	2.5
WELD 50	Introduction to Welding	3.5
WELD 213	Introduction to Semi-Automatic Welding	3.5
WELD 471	Semi-Automatic Welding (GMAW and FCAW)	1
WELD 472	Gas Metal Arc Welding	2
WELD 483	Gas Metal Arc/Flux Core Arc Welding	2
Total Units		17.5

BASIC SEMI-AUTOMATIC WELDING - CERTIFICATE OF COMPLETION

Plan Code: 6038

This program is designed for those interested in learning basic Gas Metal Arc Welding and Flux-Core Arc Welding. Course work includes an entry-level study with an emphasis on application of fundamental welding techniques and safe industry practices. This course prepares the student for an entry-level position as a Semi-Automatic Welder. The student will also be required to provide all PPE safety gear (personal protective gear) required to safely perform welds in the lab.

Program Student Learning Outcomes

- Demonstrate basic level skills to produce quality welds in the flat, horizontal, vertical, and overhead positions using semi-automatic welding processes: GMAW (Gas Metal Arc Welding) and FCAW (Flux Core Arc Welding).

Program Requirements

Code Number	Course Title	Hours
REQUIRED COURSES		
WELD 600	Welding (General)	72
WELD 671	Semi-Automatic Welding (GMAW and FCAW)	54
Total Hours		126

BASIC ARC WELDING - CERTIFICATE OF COMPLETION

Plan Code: 6039

This program is designed for those interested in learning basic Arc Welding. Course work includes an entry level study with an emphasis on application of fundamental welding techniques and safe industry practices. This course prepares the student for an entry level position as a Shielded Metal Arc Welder. The student will be required to provide all PPE safety gear (personal protective gear) required to safely perform SMAW welds in the lab.

Program Student Learning Outcomes

- Demonstrate entry level skills to produce quality welds in the flat and horizontal positions using SMAW (Shielded Metal Arc Welding) process.

Program Requirements

Code Number	Course Title	Hours
REQUIRED COURSES		
WELD 600	Welding (General)	72
WELD 611	Welding (ARC)	54
Total Hours		126

BASIC OXY-ACETYLENE WELDING - CERTIFICATE OF COMPLETION

Plan Code: 6041

This program is designed for those interested in learning basic Oxy-Acetylene Welding. Course work includes an entry level study with an emphasis on application of fundamental welding techniques and safe industry practices. This course prepares the student for an entry level position as a Oxy-Acetylene Welder. The student be required to provide all PPE safety gear (personal protective gear) required to safely perform Oxy-Acetylene welds in the lab.

Program Student Learning Outcomes

- Demonstrate entry level skills to produce quality welds in the flat and horizontal positions using the Oxy-Acetylene process.

Program Requirements

Code Number	Course Title	Hours
REQUIRED COURSES		
WELD 600	Welding (General)	72
WELD 661	Oxygen Acetylene Welding	54
Total Hours		126

EXPLORING WELDING AND METAL FABRICATION - CERTIFICATE OF COMPLETION

Plan Code: 6035

This program is designed for those interested in exploring the welding and metal fabrication fields. Course work includes an entry-level study with an emphasis on the safe application of fundamental metal fabrication and welding techniques and practices. This program prepares the student for an entry-level position in the metal fabrication and/or welding industry.

Program Student Learning Outcomes

- Demonstrate the basic skills to safely model, fabricate and weld a metal part.

Program Requirements

Code Number	Course Title	Hours
REQUIRED COURSES		
WELD 601	Exploring Welding	18
MTFAB 601	Exploring Metal Fabrication	18
Total Hours		36

GAS TUNGSTEN ARC WELDING (GTAW) - CERTIFICATE OF ACHIEVEMENT

Plan Code: 3989

This program is designed for those interested in entry level welding skills to required GTAW Aluminum, low carbon, and stainless steels. Course work includes a comprehensive study with an emphasis on application of fundamental welding techniques and safe industry practices.

Program Student Learning Outcomes

- Demonstrate introductory level skills to produce quality welds in the flat, horizontal, and vertical positions using the GTAW (Gas Tungsten Arc Welding) process.

Program Requirements

Code Number	Course Title	Units
REQUIRED COURSES		
MTFAB 260	Blueprint Reading for Metal Fabrication	3
WELD 50	Introduction to Welding	3.5
WELD 214	Introduction to Gas Tungsten Arc Welding	3.5
WELD 480	Welding (Inert Gas)	2
WELD 481	Welding (Inert Gas)	1
WELD 482	Gas Tungsten Arc Welding Basic Joints	2
Total Units		15

INTRODUCTION TO GAS TUNGSTEN ARC WELDING (GTAW) - CERTIFICATE OF ACHIEVEMENT

Plan Code: 3977

This program is designed for those interested in entry level welding skills to required GTAW Aluminum, low carbon, and stainless steels. Course work includes a comprehensive study with an emphasis on application of fundamental welding techniques and safe industry practices.

Program Student Learning Outcomes

- Demonstrate introductory level skills to produce quality welds in the flat, horizontal, and vertical positions using the GTAW (Gas Tungsten Arc Welding) process.

Program Requirements

Code Number	Course Title	Units
REQUIRED COURSES		
WELD 50	Introduction to Welding	3.5
WELD 214	Introduction to Gas Tungsten Arc Welding	3.5
WELD 411	Welding (ARC)	1
WELD 481	Welding (Inert Gas)	1
Total Units		9

BASIC GAS TUNGSTEN ARC WELDING - CERTIFICATE OF COMPLETION

Plan Code: 6040

This program is designed for those interested in learning basic GTAW Welding. Course work includes an entry level study with an emphasis on application of fundamental welding techniques and safe industry practices. This course prepares the student for an entry level position as a GTAW Welder. The student will be required to provide all PPE safety gear (personal protective gear) required to safely perform GTAW welds in the lab.

Program Student Learning Outcomes

- Demonstrate entry level skills to produce quality welds in the flat, horizontal, and vertical positions using the GTAW (Gas Tungsten Arc Welding) process.

Program Requirements

Code Number	Course Title	Hours
REQUIRED COURSES		
WELD 600	Welding (General)	72
WELD 681	Welding (Inert Gas)	54
Total Hours		126

SHIELDED METAL ARC WELDING (SMAW) - CERTIFICATE OF ACHIEVEMENT

Plan Code: 3985

This program is designed for those interested in welding structural steel. Coursework includes a comprehensive study with an emphasis on application of fundamental welding techniques and safe industry practices. Potential careers that the program prepares students for include, but are not limited to, Pipe Fitters and Steamfitters, Sheet Metal Workers, as well as Structural Iron and Steel Workers.

Program Student Learning Outcomes

- Demonstrate introductory level skills to produce quality welds in the flat, horizontal, vertical, and overhead positions using SMAW (Shielded Metal Arc Welding) process.

Program Requirements

Code Number	Course Title	Units
REQUIRED COURSES		
MTFAB 260	Blueprint Reading for Metal Fabrication	3
WELD 212	Introduction to Shielded Metal Arc Welding	3.5
WELD 221	Arc Welding Structural Certification	3
WELD 410	Welding (ARC)	2
WELD 413	SMAW Flat/Horz Groove Welds with Backing	2
WELD 414	SMAW Vert & OV/HD Grv Welds w/ Backing	2
Total Units		15.5

INTRODUCTION TO SHIELDED METAL ARC WELDING (SMAW) - CERTIFICATE OF ACHIEVEMENT

Plan Code: 3978

This program is designed for those interested in welding structural steel. Course work includes a comprehensive study with an emphasis on application of fundamental welding techniques and safe industry practices. Potential careers that the program prepares students for include, but are not limited to, Pipe Fitters and Steamfitters, Sheet Metal Workers, as well as Structural Iron and Steel Workers.

Program Student Learning Outcomes

- Demonstrate introductory level skills to produce quality welds in the flat, horizontal, vertical, and overhead positions using SMAW (Shielded Metal Arc Welding) process.

Program Requirements

Code Number	Course Title	Units
REQUIRED COURSES		
WELD 50	Introduction to Welding	3.5
WELD 212	Introduction to Shielded Metal Arc Welding	3.5
WELD 411	Welding (ARC)	1
WELD 481	Welding (Inert Gas)	1
Total Units		9