

# WELDING TECHNOLOGY (Preparatory Program)

## Curriculum Guide for Academic Year 2012-2013

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Students planning to **transfer** to a four-year college or university should refer to the ASSIST web site at [www.assist.org](http://www.assist.org) and **consult a counselor** before beginning a program of study. Please call 562-938-4561 for the LAC, or 562-938-3920 for PCC to schedule a meeting with a counselor. Students may also wish to visit the Transfer Center on either campus.

### Program of study leading to: Associate in Science (A.S.) Degree

Select Option **ONE** (1) or Option **TWO** (2):

**Option 1:**

<u>REQUIRED COURSES (Complete 40 units from the following courses):</u>	UNITS	In Progress	Completed Grade
WELD 211                      Fundamentals of Welding & Tools of Trade	9		
WELD 212                      Arc Welding & Fabrication	9		
WELD 213                      Advanced Arc Welding	9		
WELD 214                      Inert Gas Welding (Heliarc, MIG)	9		
WELD 221                      Arc Welding Structural Certification	4		
WELD 400AD                  Welding (General)	2		
WELD 410AD                  Welding (Arc)	2		
WELD 460AD                  Welding (Acetylene Gas)	2		
WELD 480AD                  Welding (Inert Gas)	2		
SHMET 220A                  Basic Sheet Metal Layout and Fabrication	4		
<b>TOTAL UNITS</b>	<b>40</b>		

**Option 2:**

<u>REQUIRED COURSES (Complete 40 units from the following courses):</u>	UNITS	In Progress	Completed Grade
SHMET 220A                  Basic Sheet Metal Layout and Fabrication	4		
<b>IN ADDITION, Complete 36 UNITS of WELD</b> —18 units of which must be from the 200 series courses listed above, and the balance of which may be any 200/400 WELD series courses (no credit allowed for repetition of courses).	36		
<b>TOTAL UNITS</b>	<b>40</b>		

**Associate Degree requirements continued from the previous page:**

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**REQUIRED FOR THE COMMUNICATION & ANALYTICAL THINKING General Education component:**

Math Requirement: Complete Math 120<sup>#</sup> or 130<sup>#</sup> or 130A<sup>#</sup> OR a more advanced level of Mathematics<sup>#</sup>.

**RECOMMENDED for the NATURAL SCIENCES General Education component:**

ENVR 1 (Energy for the Future) OR CHEM 2<sup>#</sup>

For graduation with an **Associate in Science (A.S.) Degree with a major in Welding Technology**

- Minimum Unit Requirements:** Any course that appears on a curriculum guide and the General Education Pattern (Plan A) may fulfill both major and general education requirements (Approved by College Curriculum Committee Spring 2012). For this degree, complete a minimum of 60 units in courses numbered 1-599. Please note that additional elective units may be required to meet this minimum based upon courses selected to fulfill General Education for the Associate Degree.

<b>Welding Technology Major:</b>	40	units
<b>General Education/A.S.</b>	19	units
<b>Minimum Total Units:</b>	60	units

- Scholarship:** Maintain an **overall grade point average (GPA) of 2.0** ("C" average) based on all accredited college work applied to the degree, no matter where completed. For this **field of concentration, complete each course above with a grade of "C" or better**, or "P" if course is graded on a P/NP basis.
- Residence for the Degree:** Complete at least 30 units of the required 60 in residence at LBCC, or complete in residence at LBCC at least 20 units within the last 30 units of work applied to the degree.
- Residence for the Field of Concentration:** Complete fifty percent (50%) or more of the unit requirements for this field of concentration in residence; this means at **least 20 units** of the required 40 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.
- General Education and Proficiency Requirements:** Complete the required A.A./A.S. General Education and Proficiency requirements\*, otherwise known as "Plan A". For Plan A requirements, refer to the general catalog or view it online at <http://osca.lbcc.edu>.
- Complete and submit the degree application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu/>. Refer to the Schedule of Classes (<http://schedule.lbcc.edu>) and click the "Important Dates" link to view the actual deadline for each semester.

\*The requirements for general education/proficiency and the field of concentration (major) need to be from the same catalog year. This catalog year may be any year between the year of initial enrollment to the present, provided continuous enrollment is maintained throughout. See the catalog for definition of "continuous enrollment".

**Program of study leading to:  
Certificate of Achievement**

**REQUIRED COURSES**—Complete the 40 units of required courses as listed in the Associate Degree requirements box on the first page.

**REQUIRED COURSES**

		<b>In</b>	
		<b>Progress</b>	<b>Completed</b>
<b>TOTAL UNITS</b>	<b>40</b>		

For graduation with a **Welding Technology Certificate of Achievement:**

- Complete each of the **REQUIRED COURSES** listed above with a **minimum grade of "C"** or better, or "P" if course is graded on a P/NP basis.
- Complete fifty percent (50%) or more of the unit requirements for this field of concentration in residence; this means at **least 20 units** of the required 40 must be **completed at Long Beach City College**. Credit earned by exam, where applicable, may be included.
- Complete and submit the certificate application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu/>. Refer to the Schedule of Classes (<http://schedule.lbcc.edu>) and click the "Important Dates" link to view the actual deadline for each semester.

Program of study leading to:  
**Certificate of Accomplishment**

**Certificate: Advanced ARC Welder 4986**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
WELD 213	Advanced ARC Welding	9		
WELD 415AD	Shielded Metal Arc Welding (SMAW) Flat/Horz Open Root Groove Welds	2		
<b>OR</b>	<b>OR</b>			
WELD 416AD	Shielded Metal Arc Welding (SMAW) Vert and O/H Open Root Groove Welds			
<b>TOTAL UNITS</b>		<b>11</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 1.5 years.

**Certificate: ARC Welding 4987**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
WELD 410AD	Welding (ARC) (take four times)	2:2:2:2		
<b>TOTAL UNITS</b>		<b>8</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 1.5 years.

**Certificate: ARC Welding and Fabrication 4988**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
WELD 212	Arc Welding and Fabrication	9		
WELD 413AD	Shielded Metal Arc Welding (SMAW) Flat/Horz Groove Welds with Backing	2		
<b>OR</b>	<b>OR</b>			
WELD 414AD	Shielded Metal Arc Welding (SMAW) Vert and OV/HD Groove Welds with Backing			
<b>TOTAL UNITS</b>		<b>11</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 1.5 years.

**Certificate: Gas Tungsten ARC Welding (GTAW) 4989**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
WELD 214	Inert Gas Welding (Heliarc, MIG)	9		
WELD 480AD <b>OR</b>	Welding (Inert Gas) <b>OR</b>	2		
WELD 482AD	Gas Tungsten ARC Welding Basic Joints			
<b>TOTAL UNITS</b>		<b>11</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 1.5 years.

**Certificates of Accomplishment requirements continue on the following page.**

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**Certificate: Oxygen Acetylene Welding/Cutting 4990**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
WELD 211	Fundamentals of Welding & Tools of the Trade	9		
WELD 460AD	Welding (Acetylene Gas)	2		
<b>TOTAL UNITS</b>		<b>11</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 1.5 years.

**Certificate: Shielded Metal ARC Welding 4991**

<u>REQUIRED COURSE</u>		UNITS	In Progress	Completed Grade
WELD 412AD	Shielded Metal Arc Welding (ARC) (take four times)	3:3:3:3		
<b>TOTAL UNITS</b>		<b>12</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 2.5 years.

**Certificate: Structural Certification 4992**

<u>REQUIRED COURSES</u>		UNITS	In Progress	Completed Grade
WELD 221	Arc Welding Structural Certification	4		
WELD 414AD	Shielded Metal Arc Welding (SMAW) Vert and OV/HD Welds with Backing	2		
<b>TOTAL UNITS</b>		<b>6</b>		

**ADDITIONAL REQUIREMENTS:** All of the required courses must be completed within 1.5 years.

For graduation with a **Certificate of Accomplishment:**

1. Complete the above required units with a minimum grade point average of 2.0 ("C" average).
2. Fifty percent (50%) or more of the required units must be completed in residence at LBCC.
3. Complete and submit the certificate application form to the Admissions and Records office during your final semester of course work. These forms are available in the Admissions and Records office, or online at <http://admissions.lbcc.edu/>.

### Career Opportunities

Students prepare for entry level welding positions in aerospace, piping industry, and construction.

### Program Mission and Outcomes

To obtain the knowledge and skills necessary to acquire a degree or certificate for employment.

**Outcomes:**

- Perform common welds in the flat and vertical positions using oxygen and acetylene process.
- Perform common welds in the flat and vertical positions using gas tungsten arc welding (GTAW) process.
- Perform common welds in the flat and vertical positions using shielding metal arc welding (SMAW) process.

### Legend

† This course has a prerequisite. Prerequisite courses must be complete with at least a "C" or "P" grade. Refer to the General Catalog (<http://www.lbcc.edu/cat/index.html>), the Schedule of Classes (<http://schedule.lbcc.edu/>), or the online Credit Course Outline (<http://wdb-asir.lbcc.edu/coursecurriculum/coursedetails/>) for specific prerequisite information.