

METAL FABRICATION TECHNOLOGY

Curriculum Guide for Academic Year 2020-2021

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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 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

REQUIRED COURSES		UNITS	In Progress	Completed Grade
ELECT 253	OSHA Standards for Construction Safety	2		
MTFAB 50	Introduction to Metalworking	4		
▲ MTFAB 220B	Advanced Metal Layout and Fabrication	4		
▲ MTFAB 220C	Power Metalworking Machine Operations	4		
MTFAB 260	Blueprint Reading for Metal Fabrication	3		
MTFAB 421	Metal Fabrication and Layout	1		
WELD 50	Introduction to Welding	4		
TOTAL UNITS		22		

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

Metal Fabrication Tech. Major	22 units
General Education/A.S. §	19 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 11 units** of the required 22 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:
Certificates of Achievement**

Certificate: Core Skills 3982

REQUIRED COURSES		UNITS	In Progress	Completed Grade
MTFAB 50	Introduction to Metalworking	4		
ELECT 202	Electrical Mathematics	3		
ELECT 253	OSHA Standards for Construction Safety	2		
▲ MTFAB 220C	Power Metalworking Machine Operations	4		
MTFAB 260	Blueprint Reading for Metal Fabrication	3		
MTFAB 421	Metal Fabrication and Layout	1		
WELD 50	Introduction to Welding	4		
CONST 205	Forklift Fundamentals	.5		
TOTAL UNITS		21.5		

Certificate: Advanced Skills 3983

REQUIRED (Complete Required + One (1) area of Emphasis)		UNITS	In Progress	Completed Grade
MTFAB 50	Introduction to Metalworking	4		
ELECT 202	Electrical Mathematics	3		
ELECT 253	OSHA Standards for Construction Safety	2		
▲ MTFAB 220C	Power Metalworking Machine Operations	4		
MTFAB 260	Blueprint Reading for Metal Fabrication	3		
MTFAB 421	Metal Fabrication and Layout	1		
WELD 50	Introduction to Welding	4		
CONST 205	Forklift Fundamentals	.5		
SELECT (1) one of the following areas of emphasis:				
Advanced Metal Fabrication and Layout Skills – Complete a minimum of 15 units				
▲ MTFAB 220B	Advanced Metal Layout and Fabrication	4		
▲ MTFAB 220D	CNC Metal Fabrication Systems	4		
MTFAB 270	Metallurgy	3		
DRAFT 201	Introduction to Drafting	4		
Advanced Metal Fabrication and Arc Welding Skills – Complete a minimum of 13 units				
WELD 212	ARC Welding and Fabrication	4		
WELD 413	SMAW Flat/Horz Groove Welds with Backing	2		
WELD 414	SMAW Vert & OV/HD Grv Welds w/ Backing	2		
WELD 415	SMAW Flat/Horz Open Root Groove Welds	2		
WELD 416	SMAW Vert & OV/HD Open Root Groove Welds OR	2		
WELD 221	Arc Structural Certification OR	3		
MTFAB 270	Metallurgy	3		
Advanced Metal Fabrication and Inert Gas Welding Skills – Complete a minimum of 13 units				
WELD 214	Introduction to Gas Tungsten Arc Welding	4		
WELD 213	Introduction to Semi-Automatic Welding	4		
WELD 480	Welding (Inert Gas)	2		
WELD 482	Gas Tungsten Arc Welding Basic Joints	2		
WELD 483	Gas Metal Arc/Flux Core Arc Welding	2		
WELD 221	Arc Structural Certification	3		
MTFAB 270	Metallurgy	3		
TOTAL UNITS		34.5-36.5		

See the section below for RECOMMENDED courses.

For graduation with a **Metal Fabrication Technology (Core Skills or Advanced Skills) Certificate of Achievement:**

1. 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: For the **Core Skills Certificate**, complete at **least 11 units** of the required 22 at **Long Beach City College**. For the **Advanced Skills Certificate**, complete at **least 17.5-18.5** of the required 32-37 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.

For the **Core Skills Certificate**, the following courses are recommended, **BUT ARE NOT REQUIRED**:

RECOMMENDED but not required for the CORE SKILLS Certificate:

DRAFT 201	Introduction to Drafting	4		
▲ MTFAB 220D	CNC Metal Fabrication Systems	4		
MTFAB 223	Sheet Metal Duct Systems and Fabrication	3		
MTFAB 420	Metal Fabrication and Layout	2		
MTFAB 421	Metal Fabrication and Layout	1		
WELD 400	Band Welding	2		

Program of study leading to: Certificates of Achievement

Certificate: Robotic Welding Automation 3990

REQUIRED COURSES

		UNITS	In Progress	Completed Grade
MTFAB 280	Introduction to Robotic Welding	2.5		
MTFAB 281	Intermediate Robotic Welding	2.5		
WELD 50	Introduction to Welding	4		
MTFAB 50	Introduction to Metalworking	4		
MTFAB 260	Blueprint Reading for Metal Fabrication	3		
MTFAB 270	Metallurgy	3		
TOTAL UNITS		15		

For graduation with a **Robotic Welding Automation 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: Students must complete at **least 9.5 units** of the required 19 at **Long Beach City College**. For the **Advanced Skills Certificate**, complete.

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.

Career Opportunities

This **Associate Degree** will prepare students for entry positions in sheet metal layout, fabrication and installation.

The **Core Skills Certificate of Achievement** will prepare students for an entry-level position as a trainee in sheet metal layout, fabrication and installation. The **Advanced Skills Certificate of Achievement** will prepare students for an entry-level position as a trainee in sheet metal layout, fabrication and installation. The Advanced Skills Certificate will place added emphasis on sheet metal CNC fabrication, drafting and duct system layout and in preparation for acceptance into the Sheet Metal Worker Apprenticeship Program.

Program Mission and Outcomes

The Metal Fabrication Technology program's mission is to provide technical training to meet the demands of the industry and the needs of the individual to demonstrate entry-level skills necessary for employment.

Outcomes:

- Perform a common sheet metal layout and fabrication project.
- Perform common metal fabrication using power machinery to produce a fabrication project.

- Demonstrate the ability to read and interpret construction blueprints.

Outcomes:

Legend

▲ This course has a co-requisite. 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 co-requisite information.