

# METAL FABRICATION TECHNOLOGY - ASSOCIATE IN SCIENCE

Plan Code: 2984

This program will provide the student with the technical competencies required to meet the demands of the metal fabrication industries. This degree will place added emphasis on CNC metal fabrication, design, welding and advance manufacturing techniques and help prepare the student for acceptance into apprenticeship in one of the metalworking trades. The Associate Degree will also provide the General Education courses that help build the scope of knowledge and self-confidence that prepare a student for the working environment.

## Program Student Learning Outcomes

- Demonstrate the ability to attain the Institutional Student Learning Outcomes (ISLOs).
- Perform a common sheet metal layout and fabrication project.
- Perform common metal fabrication using power machinery to produce a fabrication project.
- Design and fabricate an advanced sheet metal project involving two different pieces of CNC fabrication equipment.

## Program Requirements

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

Code Number	Course Title	Units
<b>REQUIRED COURSES</b>		
MTFAB 50	Introduction to Metalworking	4
MTFAB 90	Computer Integrated Manufacturing	3
MTFAB 202	Advanced Metal Layout/Fabrication	4
MTFAB 204	Power Metalworking Machine Operations	4
MTFAB 206	CNC Metal Fabrication Systems	4
MTFAB 260	Blueprint Reading for Metal Fabrication	3
MTFAB 270	Metallurgy	2.5
MTFAB 280	Introduction to Robotic Welding	2.5
MTFAB 421	Metal Fabrication and Layout	1
WELD 50	Introduction to Welding	4
<b>Required Subtotal</b>		<b>32</b>
Complete one of the following:		19-39
LBCC General Education (Plan A) ( <a href="https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-a/">https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-a/</a> )		
CSU GE Breadth (Plan B) ( <a href="https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-b/">https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-b/</a> )		
IGETC Pattern (Plan C) ( <a href="https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-c/">https://lbcc-public.courseleaf.com/academic-requirements/general-education-transfer-degree-certificate-requirements/general-education-plans/plan-c/</a> )		
Electives (as needed to reach 60 degree-applicable units) <sup>2</sup>		
<b>Minimum Degree Total</b>		<b>60</b>

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

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

# METAL FABRICATION TECHNOLOGY - CERTIFICATE OF ACHIEVEMENT

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**Plan Code: 3982**

This program will prepare students for an entry-level position as a trainee in metal layout, fabrication, welding and installation. This certificate will place added emphasis on CNC metal fabrication, design, welding and advance manufacturing techniques and help prepare the student for acceptance into apprenticeship in one of the metalworking trades.

## Program Student Learning Outcomes

- Perform a common sheet metal layout and fabrication project.
- Perform common metal fabrication using power machinery to produce a fabrication project.
- Design and fabricate an advanced sheet metal project involving two different pieces of CNC fabrication equipment.

## Program Requirements

Code Number	Course Title	Units
<b>REQUIRED COURSES</b>		
MTFAB 50	Introduction to Metalworking	4
MTFAB 90	Computer Integrated Manufacturing	3
MTFAB 202	Advanced Metal Layout/Fabrication	4
MTFAB 204	Power Metalworking Machine Operations	4
MTFAB 206	CNC Metal Fabrication Systems	4
MTFAB 260	Blueprint Reading for Metal Fabrication	3
MTFAB 270	Metallurgy	2.5
MTFAB 280	Introduction to Robotic Welding	2.5
MTFAB 421	Metal Fabrication and Layout	1
WELD 50	Introduction to Welding	4
<b>Total Units</b>		<b>32</b>

# ROBOTIC WELDING AUTOMATION - CERTIFICATE OF ACHIEVEMENT

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Plan Code: 3990

This program provides training to gain the technical and applied skills required to perform advanced programming and operational tasks as per the American Welding Society standards and specifications for robotic welding. The program prepares students for jobs in industry including but not limited to Computer-Controlled Machine Tool Operators for Metal and Plastic and Computer Numerically Controlled Machine Tool Programmers for Metal and Plastic.

## Program Student Learning Outcomes

- Demonstrate the ability to program an automated robotic welding system.

## Program Requirements

Code Number	Course Title	Units
<b>REQUIRED COURSES</b>		
MTFAB 50	Introduction to Metalworking	4
MTFAB 260	Blueprint Reading for Metal Fabrication	3
MTFAB 270	Metallurgy	2.5
MTFAB 280	Introduction to Robotic Welding	2.5
MTFAB 281	Advanced Robotic Welding	2.5
WELD 50	Introduction to Welding	4
<b>Total Units</b>		<b>18.5</b>