



# Machinists

SOC Code 51-4041 • Projected Growth (2020) 5 %

## Description

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### What Machinists Do

Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.

### Duties

Generalized Work Activities:

- **Getting Information** - Observing, receiving, and otherwise obtaining information from all relevant sources.
- **Controlling Machines and Processes** - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- **Making Decisions and Solving Problems** - Analyzing information and evaluating results to choose the best solution and solve problems.
- **Communicating with Supervisors, Peers, or Subordinates** - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- **Handling and Moving Objects** - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.

## Training Opportunities Linked to Those Jobs

(Degree Types and Colleges/Universities)

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### How to Become a Machinist

#### Education and Training

Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree.

#### Job Training

Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. A recognized apprenticeship program may be associated with these occupations.

#### Important Qualities

**Operation Monitoring** - Watching gauges, dials, or other indicators to make sure a machine is working properly.

**Critical Thinking** - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

**Operation and Control** - Controlling operations of equipment or systems.

**Active Listening** - Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

**Coordination** - Adjusting actions in relation to others' actions.

**Monitoring** - Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

**Reading Comprehension** - Understanding written sentences and paragraphs in work related documents.

## Postsecondary Education

Texas Southmost College	South Texas College	Texas State Technical College	The University of Texas at Brownsville	The University of Texas - Pan American
	<a href="#">Precision Manufacturing Technology (CERT)</a>	<a href="#">Industrial Systems Technology (CERT)</a>		
	<a href="#">Precision Manufacturing Technology (AAS)</a>	<a href="#">Precision Manufacturing Technology - Mold, Tool &amp; Die Making (AAS)</a>		

## Local Employers

<a href="#">Bravo Industrial Trade</a>	<a href="#">Brownsville</a>	<a href="#">Msc Industrial Supply</a>	<a href="#">Harlingen</a>
<a href="#">Amfels Inc</a>	<a href="#">Brownsville</a>	<a href="#">Rio Grande Steel Inc</a>	<a href="#">San Benito</a>
<a href="#">Gulf Coast Paper CO Inc</a>	<a href="#">Brownsville</a>	<a href="#">SMI Valley Steel</a>	<a href="#">Harlingen</a>
<a href="#">Manpower Temporary Svc</a>	<a href="#">Brownsville</a>	<a href="#">International Sales &amp; Mfg</a>	<a href="#">Harlingen</a>
<a href="#">Motion Industries Inc</a>	<a href="#">Brownsville</a>	<a href="#">Favelle Favco Cranes USA Inc</a>	<a href="#">Harlingen</a>

## Career Options

### (Specific Job Types)

- Gear Machinist
- Machine Repair Person
- Maintenance Specialist
- Tool Room Machinist
- Journeyman Machinist
- Machinist
- Production Machinist
- Machine Operator
- Maintenance Machinist
- Set-Up Machinist

## Salary Ranges

### Wages for Machinists

Location	Pay Period	2012				
		10%	25%	Median	75%	90%
United States	Hourly	\$11.70	\$14.97	\$18.99	\$23.53	\$28.75
	Yearly	\$24,300	\$31,100	\$39,500	\$48,900	\$59,800
Texas	Hourly	\$11.55	\$14.28	\$18.59	\$23.20	\$28.98
	Yearly	\$24,000	\$29,700	\$38,700	\$48,300	\$60,300
Brownsville-Harlingen, TX MSA	Hourly	\$9.46	\$11.41	\$14.67	\$17.33	\$20.81
	Yearly	\$19,700	\$23,700	\$30,500	\$36,000	\$43,300

## Professional Associations linked to the Careers

Not available at this time.

## Sources

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The information provided in this document was collected from the following sources:

- Occupational Outlook Handbook (<http://www.bls.gov/ooh/>)
- O\*NET OnLine (<http://www.onetonline.org/>)
- Texas CARES (<http://www.texascaresonline.com/>)
- CareerOneStop (<http://www.careeronestop.org/>)



**Course Overview:** Planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities.

# Machinists

**Career Goal (O\*NET Code):** (51-4041) - Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.

**Student Name:** \_\_\_\_\_

**Grade:** \_\_\_\_\_

**School:** \_\_\_\_\_

## SUGGESTED COURSEWORK

## EXTENDED LEARNING EXPERIENCES

Middle School	8th	HS Courses:	(Local districts may list high school credit courses here)	<b>Curricular Experiences:</b> <a href="#">BEST Robotics, Inc</a> <a href="#">FIRST High School Robotics Competition</a> <a href="#">SkillsUSA</a> <a href="#">Technology Student Association</a> TSTC Summer Technology Camps UTB Summer Robotics Camp  <b>Career Learning Experiences:</b> Apprenticeship Career Preparation Internship Job Shadowing	<b>Extracurricular Experiences:</b> National Engineering Design Competition School Newspaper Student Government UIL Academic Competitions Yearbook  <b>Service Learning Experiences:</b> Campus Service Organizations Community Service Volunteer Habitat for Humanity Peer Mentoring / Peer Tutoring	
High School	9th	<b>Core Courses:</b>	English I Algebra I or Geometry Biology			World Geography Languages other than English I Physical Education
		<b>Career-Related Electives:</b>	Principles of Manufacturing			
	10th	<b>Core Courses:</b>	English II Geometry or Algebra II Chemistry			World History Languages other than English II
		<b>Career-Related Electives:</b>	Precision Metal Manufacturing or Welding			
	11th	<b>Core Courses:</b>	English III Algebra II or Pre-Calculus Physics/Principles of Technology I			United States History Professional Communications Languages other than English III
		<b>Career-Related Electives:</b>	Advanced Precision Metal Manufacturing or Advanced Welding			
	12th	<b>Core Courses:</b>	English IV Precalculus/Engineering Mathematics/Calculus Engineering Design and Problem Solving	Government/Economics Fine Arts		
		<b>Career-Related Electives:</b>	Practicum in Manufacturing or Problems and Solutions or Career Preparation I			

### COLLEGE CREDIT OPPORTUNITIES -- High School

Students should take Advanced Placement (AP), International Baccalaureate (IB), dual credit, Advanced Technical Credit (ATC), or locally articulated credit courses, if possible. List those courses that count for college credit on your campus.

**How to Become a Machinist**  
 The education level and qualifications needed to enter these jobs vary depending on the industry and employer. Although a high school diploma is enough for most jobs, experience and extra training is needed for more advanced assembly work.

### Career Options:

### Professional Associations:

Postsecondary		<a href="#">Texas Southmost College</a> <a href="#">South Texas College</a> <a href="#">Texas State Technical College</a>	<ul style="list-style-type: none"> <li>• Gear Machinist</li> <li>• Maintenance Specialist</li> <li>• Journeyman Machinist</li> <li>• Production Machinist</li> <li>• Maintenance Machinist</li> <li>• Machine Repair Person</li> <li>• Tool Room Machinist</li> <li>• Machinist</li> <li>• Machine Operator</li> <li>• Set-Up Machinist</li> </ul>
		<a href="#">Precision Manufacturing Technology (CERT)</a> <a href="#">Industrial Systems Technology (CERT)</a> <a href="#">Precision Manufacturing Technology (AAS)</a> <a href="#">Precision Manufacturing Technology - Mold, Tool &amp; Die Making (AAS)</a>	
		<a href="#">University of Texas at Brownsville</a> <a href="#">University of Texas - Pan American</a>	

Students may select other elective courses for personal enrichment purposes.

This plan of study serves as a guide, along with other career planning materials, for pursuing a career path and is based on the most recent information as of 2012. All plans meet high school graduation requirements as well as college entrance requirements.