

# Education Today / Career Tomorrow

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## Precision Machining

Machinists use machine tools, such as lathes, milling machines, and machining centers, to produce precision metal parts. Precision machinists produce large quantities of one part, as well as small batches or one-of-a-kind items.

Before they machine a part, machinists must carefully prepare the operation. These workers review blueprints for a job. Next, they calculate where to bore into the workpiece, how fast to work, the material temperature, and how much material to remove.

After the layout is completed, machinists position the workpiece on the machine tool—drill press, lathe, or milling machine—set the controls, and make the cuts. During the process, they must constantly monitor the feed rate and speed of the machine. After the work is completed, machinists check the accuracy of their work.

Because the technology of machining is changing rapidly, machinists must learn to operate a wide range of machines.

As engineers create new machine tools and materials, machinists must constantly learn new machining techniques.

Today, machine shops are relatively clean, well lit, and ventilated. Many computer-controlled machines are enclosed, minimizing the exposure of workers to noise, debris, and lubricants.

Source:  
*The Occupational Outlook Handbook*

## Job Outlook Money Matters

Job opportunities for machinists will continue to be positive.

Machinists will become more efficient as a result of improvements in technologies such as CNC machine tools, autoloaders, and high-speed machining.

Due to modern production techniques, employers prefer workers, such as machinists, who have a wide range of skills and are capable of performing almost any task in a machine shop.

### Career: Machinist

**Job Description:** Machinists assemble, repair, and fabricate metal parts by operating mechanical equipment. They also assemble parts into sub-units or complete units. Machinists use blueprints and design sketches to ensure the proper dimensions and tolerance levels of the finished product.

**Salary:** \$24,673 - 60,022 Annually

For more information on how to start your career in Precision Machining, please contact:

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## Education Needed

Machinists train in apprenticeship programs, informally on the job, or community or technical colleges. Experience with machine tools is helpful.

Someone interested in becoming a machinist should be mechanically inclined, have good problem-solving abilities, be able to work independently, and be able to do highly accurate work that requires concentration and physical effort.

Courses in mathematics (especially trigonometry), blueprint reading, metalworking, and drafting are highly recommended.

Apprenticeship programs consist of shop training and related classroom instruction lasting up to 4 years. A growing number of machinists learn the trade through 2-year programs at technical colleges.

Completing a recognized certification program provides a machinist with better career opportunities. As machine shops have increased their use of computer-controlled equipment, training in the operation and programming of CNC machine tools has become essential.

As new automation is introduced, machinists normally receive additional training to update their skills. Experienced machinists become CNC programmers, tool and die makers, mold makers, and are promoted to supervisory or administrative positions in their firms.

*It's a Matter of Perspective*

Teacher	Student
<p>"We have an incredible machining program at MTI. There is a 100 percent placement rate after graduation, so the job outlook is extremely promising. We have brand new equipment in our class rooms and, with hands-on experience, we are preparing students to earn a living. Manatee County and the surrounding areas offer great opportunity for this type of career." --Dave Grenier</p>	<p>"I got into this program because the facilities are top of the line. I also wanted to continue my family's trade. I want to use my skills and take my career as far as I can. My ultimate career is engineering or programming. The most important skill I have learned from this program is to start at the beginning and learn the basics first, then go from there." --Steve Goodwin</p>

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