Apprenticeship

by Olivia Crosby

Career training, credentials—and a paycheck in your pocket

"I learn new things every day," says Elizabeth Cummings, who is training as an electrician apprentice. "I get to use my hands and my mind. I'm practically guaranteed a great career in a few years—a job that I know I'll like and that pays very well."

In fact, Cummings earns full-time pay while she learns. "It's better than any scholarship," she says. Cummings is describing a few of the benefits of apprenticeship. She was looking for a free education in a highly skilled field. Like thousands of others, she found what she wanted in apprenticeship.

Apprenticeships are available for more than 850 occupations. Construction and manufacturing apprenticeships are most common, but apprenticeships are available for all sorts of occupations. Possibilities range from telecommunications, environmental protection, and pastry making to healthcare, childcare, and the arts.

What do all of these programs have in common? They combine structured on-the-job training with classroom instruction. Current programs vary in length from 1 to 6 years. Throughout that time, apprentices work—and learn—as employees. And when they complete a registered program, apprentices receive a nationally recognized certificate from the U.S. Department of Labor—proof of their qualifications.

Apprenticeship also can be combined with other kinds of training. Classroom instruction often counts toward licenses, certifications, and college degrees.

But for all its advantages, apprenticeship takes time and effort. So before deciding if apprenticeship is right for you, keep reading to learn more about what apprenticeship is and how to find, choose, and qualify for a program.

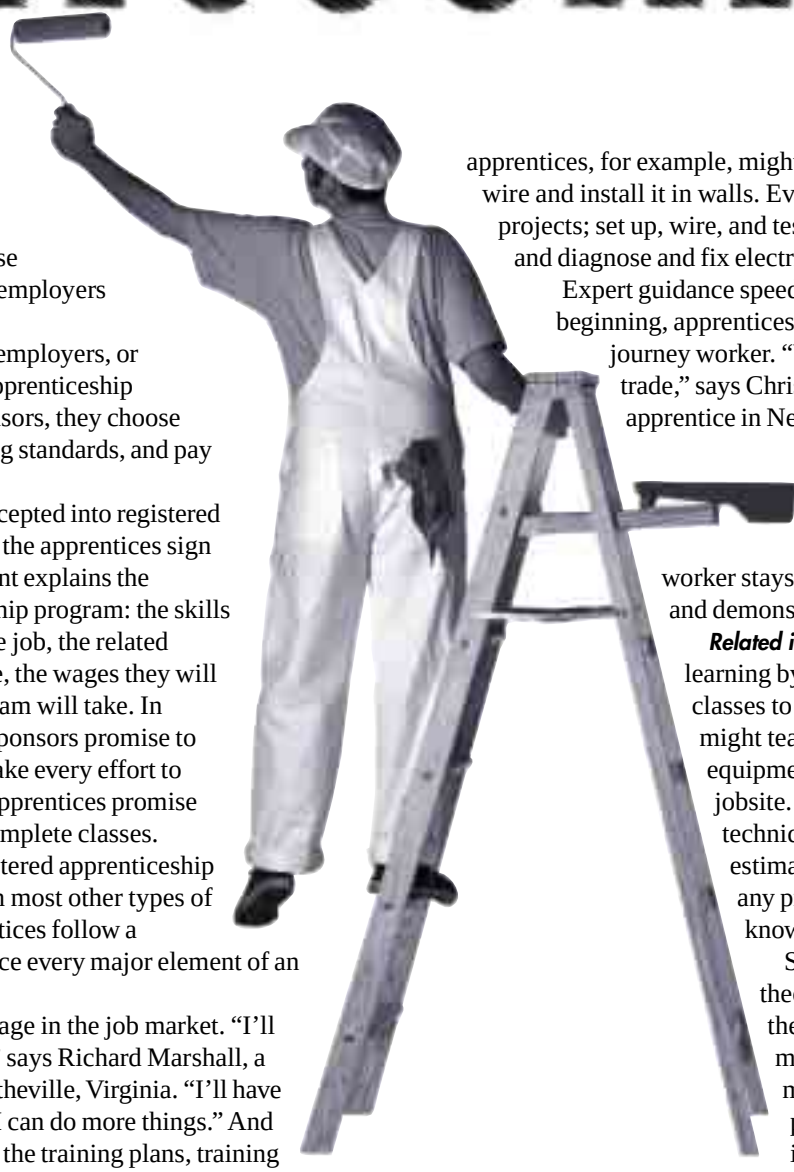
Apprenticeship: The basics

Apprenticeship is career preparation. It mixes learning on the job with learning in class. A child development apprentice, for example, might spend the day as an assistant teacher, helping to supervise children, lead activities, and make arts and crafts materials. That evening, in class, the apprentice might learn safety procedures and theories of child development.

Most formal apprenticeships are registered with the U.S. Department of Labor. This registration means the program meets Government standards of fairness, safety, and training. Graduates of registered programs are called journey workers.

Olivia Crosby is a contributing editor to the *OOQ*, (202) 691-5716.

enticeships



They receive certificates of completion from the U.S. Department of Labor or an approved State agency. These certificates are accepted by employers nationwide.

Employee associations, employers, or employer groups manage apprenticeship programs. As program sponsors, they choose apprentices, develop training standards, and pay wages and other expenses.

When apprentices are accepted into registered programs, the sponsors and the apprentices sign an agreement. The agreement explains the specifics of the apprenticeship program: the skills apprentices will learn on the job, the related instruction they will receive, the wages they will earn, and the time the program will take. In signing an agreement, the sponsors promise to train the apprentices and make every effort to keep them employed. The apprentices promise to perform their jobs and complete classes.

On-the-job training. Registered apprenticeship training is more formal than most other types of on-the-job training. Apprentices follow a structured plan. They practice every major element of an occupation.

This variety is an advantage in the job market. "I'll end up more well rounded," says Richard Marshall, a machinist apprentice in Wytheville, Virginia. "I'll have more steady work because I can do more things." And because employers develop the training plans, training keeps up with the needs of the industry.

Apprentices start by learning simple, repetitive tasks and then gradually progress to complex duties. Electrician apprentices, for example, might begin by learning to cut wire and install it in walls. Eventually, they will plan projects; set up, wire, and test entire construction sites; and diagnose and fix electrical problems.

Expert guidance speeds the learning process. In the beginning, apprentices are closely supervised by a journey worker. "You learn all the tricks of the trade," says Chris Wilcox, a carpenter apprentice in Newark, Connecticut. "They work with you and show you how to do it." But soon, apprentices gain independence. A journey worker stays nearby to answer questions and demonstrate new skills.

Related instruction. In addition to learning by doing, apprentices take classes to learn the basics. A first class might teach the names and uses of the equipment a student will see on a jobsite. Later, students learn techniques, such as drafting, cost estimating, or reading blueprints—any procedure the worker must know to perform the occupation.

Students also learn the theories underlying the work they do. For metal workers, this means learning trigonometry, measurement, and applied physics. For cooks, it includes learning about nutrition and the economics of restaurant management. For science technicians, chemistry or physics is essential.

Apprentices see their academics pay off in the job they do.

"At work, I notice the children behaving just the way we studied in class," says Norma Grey, a child development apprentice in Huntington, West Virginia. Understanding these behaviors helps her work with the children more effectively.

Related instruction comes in a variety of formats. Many apprentices attend a vocational school or community college one or two evenings a week after work. Others go to school full time for a few weeks each year. Still others take classes over the Internet or through the mail. Wherever and whenever they study, most apprentices need at least 144 hours of instruction per year.

Earnings. As employees, apprentices earn wages for the work they do. Unless they are part of a prison rehabilitation program, apprentices must make at least minimum wage to start, but they usually earn more. Beginning apprentices often earn about half of what fully trained workers do. They receive raises periodically—usually, every few months. "Workers are more valuable as they learn more skills, so we pay them more," explains Tom Gibbs, a former heating and air conditioning apprentice who now hires apprentices for his heating and air conditioning business in Ames, Iowa.

Time commitment. Learning a skilled occupation takes time. How much time depends on the occupation. All apprenticeship programs require at least 2,000 hours of work experience. Some take up to 12,000. These hours translate into about 2 to 6 years. Most programs require about 4 years—or 8,000 hours—on the job.

The table beginning on page 16 shows the approximate number of years required to train for each apprenticeable occupation. But the times listed are estimates. People can reduce the years required by working more hours per week. Or, they can get credit for education and experience they already have. Marshall is benefiting from this flexibility. His experience in a prior job and the classes he's taken at a community college will shave hundreds of hours from his apprenticeship.

Some employers' programs focus on skills more than on time at work. In these programs, apprentices still need work experience, but they have to pass skills tests to progress. Skills-based programs take roughly the same amount of time to finish as other programs do.

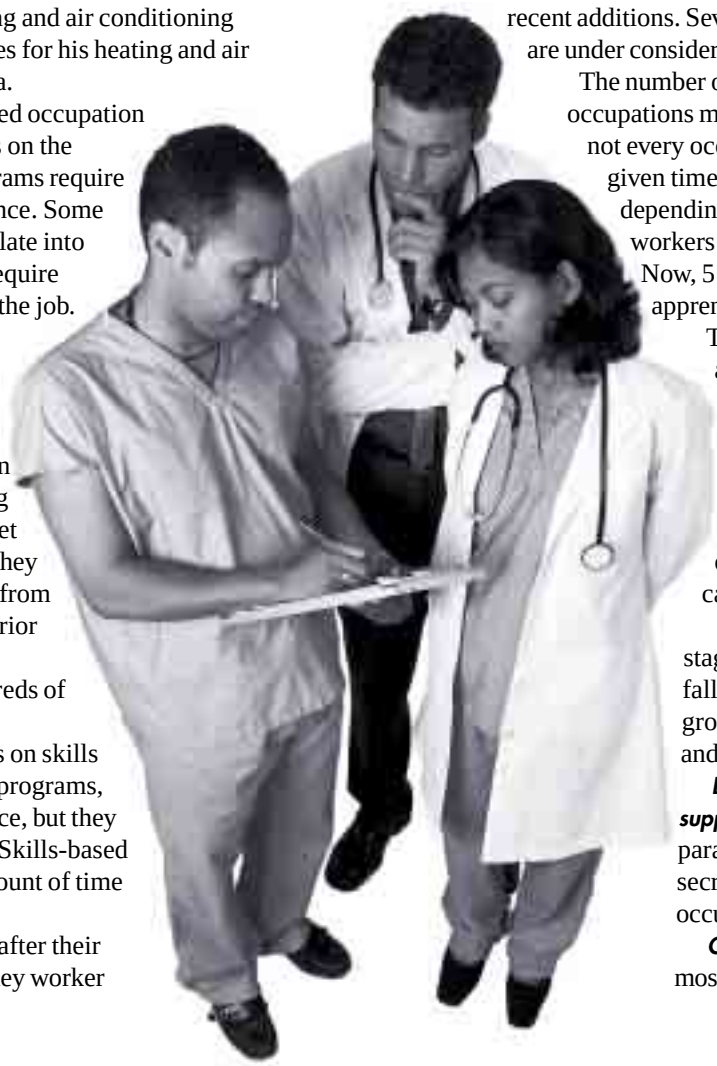
Many people keep training long after their apprenticeship ends. Reaching journey worker status opens the door to advanced instruction. Cummings, for example, hopes to take master classes in solar energy systems after receiving her certificate of completion.

Apprenticeable occupations: 858 and counting

Any occupation can be registered as apprenticeable if it meets four criteria:

- It is clearly defined;
- It is customarily learned on the job;
- It requires manual, mechanical, or technical skill; and
- It requires at least 2,000 hours of work experience and, usually, at least 144 hours of related instruction.

Currently, 858 occupations meet these standards. The most common are listed in the box on the facing page. But the U.S. Department of Labor adds more occupations as employers propose and register them. Internetworking technician, youth development practitioner, and plastic molds designer are some recent additions. Several computer occupations are under consideration.



The number of apprenticeable occupations may seem overwhelming, but not every occupation is available at a given time. Programs open and close depending on the number of new workers needed in an occupation. Now, 518 occupations have apprentices working in them.

The number of occupations available for apprenticeship varies from one State to another. But in most States, there are hundreds of occupations to choose among. Apprenticeable occupations can be categorized as follows:

Arts. Theater arts, including stage technicians and actors, fall into this relatively small group, as do designers and arts and crafts workers.

Business and administrative support. Office managers, paralegals, and medical secretaries are some of the occupations in this category.

Construction. These are the most commonly available

Construction occupations are the most commonly available apprenticeships.

apprenticeships. Most employers of construction workers consider apprenticeships the best training for these jobs. Workers in this group include plumbers, electricians, and terrazzo workers. Many, such as residential carpenters and acoustical carpenters—who install panels and materials that absorb or affect sound—use considerable math skills. Some, such as reinforcing metal workers, need strength and endurance.

Installation, maintenance, and repair, including telecommunications technicians and power plant operators. Working as service technicians, engine mechanics, or body repairers, some apprentices learn to fix cars and planes. Apprentices also learn to maintain electronics, musical instruments, and power plant machinery. Also in this group are apprentices who install equipment. Millwrights, who install industrial machinery, are an example. Workers who install and maintain communication and sound equipment—such as communications and telecommunications technicians and line installers—also are included.

Production. Production occupations employ the second most commonly available group of apprenticeships. Again, many production employers consider apprenticeship the best way to learn these jobs. Metal workers in this category include tool and die makers and machinists, who create specialized parts out of metal and other materials. Apprentices in precision assembly occupations include those who construct circuit boards and electrical appliances. Others build prototypes, operate printing machines, and conduct safety inspections.

The 25 most popular apprenticeships, 2001

According to the U.S. Department of Labor apprenticeship database, the occupations listed below had the highest numbers of apprentices in 2001. These findings are approximate because the database includes only about 70 percent of registered apprenticeship programs—and none of the unregistered ones.

- Boilermaker
- Bricklayer (construction)
- Carpenter
- Construction craft laborer
- Cook (any industry)
- Cook (hotel and restaurant)
- Correction officer
- Electrician
- Electrician (aircraft)
- Electrician (maintenance)
- Electronics mechanic
- Firefighter
- Machinist
- Maintenance mechanic (any industry)
- Millwright
- Operating engineer
- Painter (construction)
- Pipefitter (construction)
- Plumber
- Power plant operator
- Roofer
- Sheet metal worker
- Structural-steel worker
- Telecommunications technician
- Tool and die maker

Science, drafting, and computing. Science apprenticeships include chemical, engineering, mapping, or environmental technicians. Drafters, tool and die designers and nondestructive testers are other examples. Computer programmers and internetworking technicians are a few of the computer occupations that are apprenticeable.

Service. Many of the most skilled service occupations are apprenticeable. Cooking, for example, is most often learned in an apprenticeship program. Protective service workers, including police patrol officers, correctional officers, and firefighters, commonly receive apprenticeship training. Landscaping and customer service apprenticeships are a few of the other programs available in some States.

Apprenticeships for service occupations range from about 12 months to 5 years.

Table 1

Commonly apprenticed occupations with the highest earnings[1]

Occupation	Median annual earnings, 2000
Power distributor and dispatcher	$48,570
Electrical and electronics repairer, powerhouse, substation, and relay	48,540
Ship engineer	47,530
Elevator installer and repairer	47,380
Power plant operator	46,090
Electrical power-line installer and repairer	45,780
Petroleum pump system operator, refinery operator, and gauger	45,180
Gas plant operator	44,730
Telecommunications equipment installer and repairer, except line installer	44,030
Avionics technician	41,300
Tool and die maker	41,110
Aircraft structure, surfaces, rigging, and systems assembler	40,850
Chemical plant and system operator	40,750
Aircraft mechanic and service technician	40,550
Stationary engineer and boiler operator	40,420

[1] Includes apprenticeable occupations for which long-term on-the-job training or a postsecondary vocational award is the most common form of training, according to the Bureau of Labor Statistics.

Which occupation is right for you?

When exploring careers, prospective apprentices should think about the kind of work they enjoy and what they do best. Some apprenticeable occupations, such as electrical and metal working occupations, require workers to have strong math and problemsolving skills. Others, including nursing and law enforcement, focus on working with the public. Occupations such as jewelry making and tool design demand concentration and attention to detail. Career counselors can help jobseekers choose and test occupations to see which fit their interests.

Another thing to consider is working conditions. Does the work require stamina, as millwrighting does? Does it require moving from job to job, as construction does? Is it clean, as healthcare occupations are? Or dirty, as automotive repair is?

Earnings are important, too. Several apprenticeable occupations—electrician, carpenter, and elevator repairer, for example—pay some of the highest wages in the economy. Others, such as childcare development specialist, pay less. Table 1 shows the earnings of the top-paying occupations for which many people train as apprentices. It shows median earnings—half of all workers in the occupation make less than this amount and half make more.

Job prospects also vary by occupation. Choosing an occupation with many openings leads to better job prospects and greater ability to move from one location to another. The Bureau of Labor Statistics estimates the number of nationwide job openings in occupations. Table 2 shows which commonly apprenticed

Table 2

Commonly apprenticed occupations expected to have the most job openings[1]

Occupation	Total job openings for workers new to the occupation, projected 2000-10
Cook, restaurant and cafeteria	502,435
Automotive service technician and mechanic	349,049
Licensed practical and licensed vocational nurse	321,841
Carpenter	301,791
Police and sheriff's patrol officer	268,745
Electrician	251,152
Hairdresser, hairstylist, and cosmetologist	237,720
Maintenance and repair worker, general	221,172
Welder, cutter, solderer, and brazer	211,365
Plumber, pipefitter, and steamfitter	134,007
Machinist	127,139
Bus and truck mechanic and diesel engine specialist	113,581
Emergency medical technician and paramedic	97,499
Firefighter	89,574
Computer-controlled machine tool operator, metal and plastic	89,390
Heating, air-conditioning, and refrigeration mechanic and installer	79,485
Telecommunications line installer and repairer	76,170
Automotive body and related repairer	69,430
Cabinetmaker and bench carpenter	66,263

[1] Includes apprenticeable occupations for which long-term on-the-job training or a postsecondary vocational award is the most common form of training, according to the Bureau of Labor Statistics.

occupations are projected to have the most job openings between 2000 and 2010.

Finding an open program

After selecting possible occupations, the next step is to look for openings in apprenticeship programs. Finding open programs can be a challenge, especially in small occupations. To find every opportunity, apprenticeship seekers need to check several sources.

A good place to start is with your State Bureau of Apprenticeship or State office of the U.S. Department of Labor. These agencies list current programs, and some will help people contact businesses that might want to start new programs. The addresses and phone numbers for the Federal offices are listed at the end of this article.

Next, try career counseling offices. Many apprenticeship

sponsors publicize openings at career centers and local high schools, and career counselors usually know about the programs in their community.

Trade unions and professional associations have information, too. These organizations often recruit apprentices once or twice a year, distributing applications at their headquarters. For contact information for these organizations, check the *Encyclopedia of Associations* or the *Occupational Outlook Handbook*, available at many libraries and most career centers. The *Handbook* also is online at **www.bls.gov/oco**.

Some apprenticeships are advertised in newspapers, on job boards, and with State job services, just like other kinds of jobs.

Joining the military is another way to participate in apprenticeships. People who enlist in certain occupations, including cook and engine mechanic, can complete registered apprenticeships during military training. Each branch of the military has its own rules about apprenticeship availability. Local recruiters can provide additional information.

If you can't find an apprenticeship program, consider studying at a vocational school or community college. You

might be able to transfer credits to an apprenticeship program later. Or you might find a school that offers many of apprenticeship's benefits. The box below discusses some qualities to look for in a school.

Choosing a program

People might uncover many different apprenticeship programs in the same occupation. To choose which program is best, would-be apprentices need to look closely at each program's characteristics.

Registration and accreditation. Consider whether a program is registered with the U.S. Department of Labor. Many employers have greater trust in the training offered by registered programs than in the training offered by unregistered ones. Also because only registered programs give graduates journey worker status, graduates of these programs have more job choices. Gary McManus, the field services director for a California fire department sees the advantages of registration. "Our firefighters are more mobile now," he says. "They can move anywhere, show their journey worker card, and be accepted in a new department."

In some occupations, the U.S. Department of Labor, with help from industry groups and experts, has established national training guidelines. If a registered program meets these

If you can't find an apprenticeship, try this

Sometimes, apprenticeship openings are unavailable, but there is another way to reap some of apprenticeship's benefits: vocational schools and community colleges. These schools prepare students for many skilled occupations, and this training often is faster than apprenticeship. To find training most similar to apprenticeship, students can choose a school with the following:

Recognized credential. Schools cannot offer journey worker certificates, but they do offer vocational certificates or college degrees. To ensure the value of the certificates a school offers, ask which agencies accredit the school. Then, check that the accrediting agencies are approved by the U.S. Department of Education. And finally, call the accreditor to verify the school's current status.

The U.S. Department of Education's College Opportunities Online system simplifies the process of checking accreditation. The system is available online at **www.nces.ed.gov/ipeds/cool**. Visitors type in the name of a school and receive information about that school, including the organizations that accredit it. Visitors still need to call the accrediting organizations to verify that the schools have been approved. Contact information for these organizations is available online at **www.ed.gov/offices/OPE/accreditation/natlagencies.html**.

Professional or trade associations also evaluate training programs associated with their occupations. These associations publish lists of approved programs.

Marketable skills. To learn up-to-date, marketable skills, look for a school that meets with industry groups or follows written industry standards when designing a curriculum.

Investigate the backgrounds of teachers. What certifications or degrees do they have? Do they have work experience?

Also, most schools keep track of the success of their graduates. Ask to see these records. Choose schools whose graduates find work in their field. You could also check the percentage of students who complete the school's program and the number who default on student loans.

On-the-job training. To gain work experience while you learn, look for programs that include formal internships or co-ops. Recent studies by educators suggest that combining a degree with a co-op or long-term internship increases graduates' earnings, likelihood of being promoted, and likelihood of finding and keeping a job. This is especially true if schools have a formal relationship with an employer.

Free classroom training. Schools, unlike most apprenticeships, charge tuition. But you may qualify for financial aid and scholarships to lower the bill. The U.S. Department of Education administers a financial aid program for all types of secondary education, including vocational education. To apply for financial aid, such as grants, loans, and work study, call tollfree, 1 (800) 433-3243. The application also is online at **www.fafsa.ed.gov**.

Frequently, State governments also offer aid. Uncover these funds by calling your State Department of Education, the financial aid department of a local college, and the Department of Health and Human Services.

Touring a jobsite helps prospective apprentices get a feel for an occupation's work environment.

guidelines, employers will know precisely what skills the program's graduates have. This gives graduates an added advantage in the job market.

Other types of industry accreditation are important for certain occupations. Cooking occupations are one example. The American Culinary Federation accredits training programs for cooks and pastry chefs. Graduates from accredited programs have better job prospects.

Finally, in most construction and manufacturing occupations and some others, apprentices can choose between union and nonunion programs. Apprentices in union programs become union members, paying dues, receiving union benefits, and following union rules.

Pay and benefits. Apprentices' wages vary from one program to another. Earnings depend on geographic location and an employer's circumstances. In areas with a labor shortage, wages for apprenticeships have increased considerably. "Now, we pay higher wages to start, especially to people who have taken a shop class," says Gibbs, about the apprentices he hires for his business. "It's the law of supply and demand."

Employee benefits also vary. Some programs offer new apprentices full health, dental, and retirement benefits immediately; others do not offer benefits at all. A few programs—including all programs in Wisconsin—pay apprentices for the time they spend in class. Some employers also pay testing fees for workers trying to earn additional occupational certificates.

Type of related instruction. Apprentices spend many hours studying. How they study depends on the program they choose. Before selecting a program, consider: Do you want to learn in a classroom with a teacher, or would you prefer correspondence or online classes? Do you want to attend a community college or a trade school? How far from your worksite are you willing to travel?

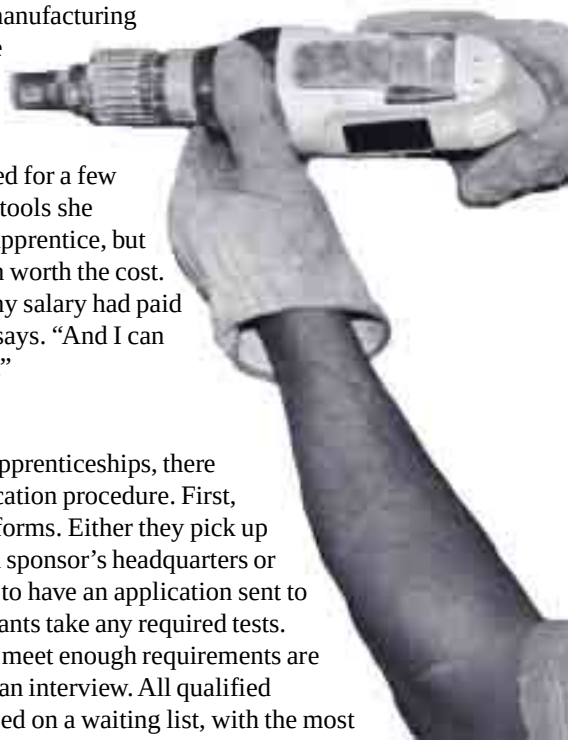
Timing is another factor. Many programs ask apprentices to attend class after work once or twice a week, which gets tiring. But earnings are steady. Others offer a few weeks of full-time classes periodically throughout the year. In protective service occupations, instruction at service academies can last several months.

Finally, many programs offer classes that count toward college or certificate programs. Some offer dual enrollment in a college, making it easier to earn a degree.

Facilities. Before deciding to join a program, see what life will be like on the job. Tour the worksite for clues about the quality of training and the work environment. Is the equipment modern? Are procedures up to date? Is the worksite comfortable and safe? Do workers seem willing to demonstrate and teach skills? What would the work schedule and commute from home be like?

A tour is an excellent opportunity to ask employees about their jobs. By asking questions, would-be apprentices can learn about the occupation and the program sponsor. As always, it is important to dress neatly and behave professionally when visiting potential employers. Each contact is a kind of interview.

Costs. Some apprentices are required to buy tools, manuals, and textbooks. This is especially common for people in construction and manufacturing occupations. Some programs offer discounts to apprentices.



Cummings saved for a few months to buy the tools she would need as an apprentice, but she considers them worth the cost. "In a few weeks, my salary had paid for the tools," she says. "And I can use them for years."

Qualifying

For all registered apprenticeships, there is a standard application procedure. First, applicants fill out forms. Either they pick up the application at a sponsor's headquarters or jobsite or they ask to have an application sent to them. Next, applicants take any required tests. Finally, those who meet enough requirements are asked to complete an interview. All qualified applicants are placed on a waiting list, with the most

qualified applicant listed first.

The requirements of an apprenticeship program are set by the organization or employer sponsoring the program. Applicants are ranked according to their skills, education, and experience.

Apprenticeships in some occupations are highly competitive, with more applicants than openings. In addition to meeting basic requirements, apprenticeship seekers need to show they are more qualified than other applicants are. Applicants for competitive programs may have to wait weeks or months before an opening becomes available. Preapprenticeship programs, described below, can help people improve their chances of getting an apprenticeship.

Having a relative or friend in an occupation used to be an advantage when competing for an apprenticeship. But now the law dictates that all applicants be treated equally and be rated only according to job-related characteristics.

Requirements. All apprenticeship programs require applicants to be at least 16 years old. And most programs require applicants to be at least 18—unless they are in a special program that combines high school with apprenticeship.

Some apprenticeship programs, including pharmacist assistant, require coursework in science.

Most apprenticeship programs require applicants to have a high school diploma or a passing score on the high school equivalency exam. Some also ask applicants to complete specific classes related to the occupation. Data communications installer apprentices, for example, usually need at least a C in algebra.

Even if specific grades and classes are not required for a program, selecting officials look for applicants with solid high school records. Classes in English, math, and science are important for all applicants. For applicants interested in mechanical, manufacturing, or construction occupations, courses in drafting and industrial arts are an advantage. Attending a vocational school after high school is another way to gain a competitive edge.

In addition to requiring education, sponsors often administer aptitude tests. The most common tests measure reading, math, and problemsolving skills, but tests vary by occupation. The scene artist program in New York City, for example, asks applicants to pass a drawing test.

Work experience also improves an applicant's chances. Sponsors look for applicants who have had paid jobs or volunteer work. Some companies offer apprenticeships only to people already working for the company in another job.

A doctor's examination is needed for some apprenticeships that require physical skills—such as above average strength. But all physical requirements must be related to the occupation.

In many apprenticeable occupations, workers need skills such as attention to detail.

Interview. Applicants who meet basic qualifications advance to the interview stage. They meet with the employer or a few people from the organization sponsoring the program. Applicants answer questions about their work and school experience and their reasons for wanting to apprentice.

The interviewers ask about qualifications, but they also try to discover personality traits. Interviewers want to hire people who have determination and commitment to the occupation. Curiosity is also important. "I need people who want to learn," says Gibbs. "Every year, there's new technology to master." Interviewers might ask questions such as:

- Why do you want this apprenticeship?
- Why do you think you would be good at this job?
- Have you ever worked as part of a team?
- Do you know what the work is like?
- What would you like to be doing in 5 or 10 years?
- How will you come to work if your car breaks down?

Interviewers for registered apprenticeship programs keep records summarizing applicants' answers. These notes help them choose applicants and explain acceptance decisions.

Program sponsors say applicants should treat an apprenticeship interview like any job interview: research the occupation, be on time, dress neatly, shake hands, make eye contact, and be ready to give examples of your qualifications and work habits. Increase the chances of success by having a question or two of your own to ask and writing a thank-you note after the interview.

Ranking. When the interviews are complete, sponsors rank applicants from most to least qualified. They assign points to each applicant based on test results; past education, grades, and experience; and interview performance. The person with the most points gets the first opening. If there are more qualified people than openings, people who don't get into a program are put on a waiting list.

Preapprenticeship programs. Nonprofit organizations, schools, and government agencies try to help people qualify for apprenticeships. They target specific groups, including high schoolers, disadvantaged youths, veterans, and women.

Some preapprenticeship programs begin by exposing people to different occupations. Chicago Women in Trades, for example, offers jobsite visits, job shadowing opportunities, and assessment tests. Mentors explain what the application process is like and conduct mock interviews.

Many groups, including Chicago Women in Trades, offer tutoring in reading, math, and mechanical skills. The tutoring, which is designed to help applicants pass qualifying exams, usually lasts between 1 and 8 weeks. The U.S. Department of Housing and Urban Development's Step-up programs offer similar help to people with low incomes who are interested in apprenticing in construction, maintenance, and, soon, environmental protection occupations. Step-up programs sometimes offer support during the apprenticeship as well, including childcare and transportation assistance.

In another type of program, some military veterans qualify for counseling about apprenticeships and stipends while they train, along with the credit they receive for their military training.

One of the fastest growing preapprenticeship initiatives is the school-to-apprenticeship program. School-to-apprenticeship allows high school students to begin their apprenticeships as juniors and seniors. These students take occupational classes in addition to their regular high school curriculum. They concentrate on math and science or other classes important to the occupation they are considering.

Students work part time—often, earning credit for on-the-job training. After graduation, they become full-time

Pastry chefs, like all apprentices, receive on-the-job training from experienced workers.

apprentices, with the advantage of having already completed many of the requirements. To learn where school-to-apprenticeship is offered, ask high school guidance counselors or call school district administrators.

For more information

Learn more about apprenticeship and preapprenticeship programs by visiting a school or career guidance counselor. Counselors can help you decide on an occupation and find open programs. America's Workforce Network tollfree help line, 1 (877) US2-JOBS (872-5672), has operators who can find career counselors and apprenticeship programs in a caller's ZIP code.

Trade associations, unions, and other professional organizations have information about apprenticeships specific to their occupation. To find organizations, visit a local public library.

The Employment and Training Administration of the U.S. Department of the Labor offers a CD-ROM and several brochures describing apprenticeship. For a copy of these materials, call the Administration at (202) 693-2796, or call the U.S. Department of Labor tollfree at 1 (866) 487-2365. The Administration's Web site, **www.doleta.gov/atels_bat**, offers more detailed information, including a database of training providers and explanations of apprenticeship regulations.

State governments are another good source of information. With the help of the U.S. Department of Labor's State offices, State Apprenticeship Councils oversee registered apprenticeship programs in their area. They help employers and employer groups to start programs, and they tell would-be apprentices about opportunities.

In States without apprenticeship councils, local offices of the U.S. Department of Labor's Bureau of Apprenticeship and Training do this work alone. Listed on the following pages are apprenticeship offices for every State:

Alabama
USDOL OATELS-BAT
Medical Forum Bldg., Room 648
950 22nd St. North
Birmingham, AL 35203
(205) 731-1308

Alaska
USDOL OATELS-BAT
Room G-30
605 W. 4th Ave.
Anchorage, AK 99501
(907) 271-5035

Arizona
USDOL ETA OATELS-BAT
3221 N. 16th St., Suite 105
Phoenix, AZ 85016
(602) 640-2964

Arkansas
USDOL OATELS-BAT
Federal Bldg., Room 3507
700 W. Capitol St.
Little Rock, AR 72201
(501) 324-5415

California
USDOL ETA OATELS-BAT
1301 Clay St., Suite 1090-N
Oakland, CA 94612-5217
(510) 637-2951

Colorado
USDOL OATELS-BAT
U.S. Custom House
721 19th St., Room 469
Denver, CO 80202
(303) 844-4794

Connecticut
USDOL ETA OATELS-BAT
Federal Bldg.
135 High St., Room 367
Hartford, CT 06103
(203) 240-4311

Delaware
USDOL ETA OATELS-BAT is temporarily closed. The State Government apprenticeship office is
Apprenticeship and Training Section
Division of Employment and Training
4425 N. Market St., Station 313
PO Box 9828
Wilmington, DE 19809
(302) 761-8118

District of Columbia
USDOL ETA OATELS-BAT
Frances Perkins Bldg.
200 Constitution Ave., NW.
Washington, DC 20210
(202) 693-2796

Florida
USDOL ETA OATELS-BAT
City Centre Bldg., Suite 4140
227 N. Bronough St.
Tallahassee, FL 32301
(850) 942-8336

Georgia
USDOL OATELS-BAT
Room 6T80
61 Forsyth St., SW.
Atlanta, GA 30303
(404) 562-2323

Hawaii
USDOL ETA OATELS-BAT
300 Ala Moana Bvld., Room 5-117
Honolulu, HI 96850
(808) 541-2519

Idaho
USDOL OATELS-BAT
Suite 204
1150 N. Curtis Rd.
Boise, ID 83706-1234
(208) 321-2973

Illinois
USDOL OATELS-BAT
230 S. Dearborn St., Room 656
Chicago, IL 60604
(312) 353-4690

Indiana
USDOL OATELS-BAT
Federal Bldg. and U.S. Courthouse
46 E. Ohio St., Room 414
Indianapolis, IN 46204
(317) 226-7592

Iowa
USDOL OATELS-BAT
210 Walnut St., Room 715
Des Moines, IA 50309
(515) 284-4690

Kansas
USDOL ETA OATELS-BAT
444 SE. Quincy St., Room 247
Topeka, KS 66683-3571
(785) 295-2624

Kentucky
USDOL ETA OATELS-BAT
Federal Bldg., Room 168
600 Martin Luther King Pl.
Louisville, KY 40202
(502) 582-5223

Louisiana
USDOL ETA OATELS-BAT is temporarily closed. The State Government apprenticeship office is
Louisiana Department of Labor
1001 N. 23rd St.
PO Box 94094
Baton Rouge, LA 70804-9094
(504) 342-7820

Maine
USDOL ETA OATELS-BAT
Federal Bldg.
68 Sewall St., Room 401
Augusta, ME 04330
(207) 622-8235

Maryland
USDOL ETA OATELS-BAT
Federal Bldg., Room 430-B
31 Hopkins Plaza
Baltimore, MD 21201
(410) 962-2676

Massachusetts
USDOL ETA OATELS-BAT
JFK Federal Bldg., Room E-370
Boston, MA 02203
(617) 565-2288

Michigan
USDOL OATELS-BAT
801 S. Waverly St., Room 304
Lansing, MI 48917
(517) 377-1746

Minnesota
USDOL ETA OATELS-BAT
316 N. Robert St., Room 144
St. Paul, MN 55101
(651) 290-3951

Mississippi
USDOL OATELS-BAT
Federal Bldg., Suite 410
100 W. Capitol St.
Jackson, MS 39269
(601) 965-4346

Missouri
USDOL OATELS-BAT
1222 Spruce St., Room 9.102E
Robert A. Young Federal Bldg.
St. Louis, MO 63103
(314) 539-2522

Montana
USDOL ETA OATELS-BAT
Federal Office Bldg.
10 W. 15th, Suite 1300
Helena, MT 59626
(406) 441-1076

Nebraska
USDOL ETA OATELS-BAT
111 S. 18th Plaza, Suite C-49
Omaha, NE 68102
(402) 221-3281

Nevada
USDOL ETA OATELS-BAT
600 Las Vegas Blvd., Suite 520
Las Vegas, NV 89101
(702) 388-6771

New Hampshire
USDOL ETA OATELS-BAT
143 N. Main St., Suite 205
Concord, NH 03301
(603) 225-1444

New Jersey
USDOL ETA OATELS-BAT
Woodbridge Corporate Plaza
Bldg. E, Room 300
485, Route 1, South
Iselin, NJ 08830
(732) 750-9191

New Mexico
USDOL ETA OATELS-BAT
505 Marquette Rd., Room 830
Albuquerque, NM 87102
(505) 776-2389

New York
USDOL ETA OATELS-BAT
Leo O'Brien Federal Bldg., Room 809
Albany, NY 12202
(518) 431-4008

North Carolina
USDOL ETA OATELS-BAT
Terry Stanford Federal Bldg.
310 New Bern Ave., Suite 260
Raleigh, NC 27601
(919) 733-7540

North Dakota
USDOL ETA OATELS-BAT
304 E. Broadway, Room 332
Bismarck, ND 58501
(701) 250-4700

Ohio
USDOL ETA OATELS-BAT
200 N. High St., Room 605
Columbus, OH 43215
(614) 469-7375

Oklahoma
USDOL ETA OATELS-BAT
1500 S. Midwest Blvd., Suite 202
Midwest City, OK 73110
(405) 732-4338

Oregon
USDOL ETA OATELS-BAT
256 Warner-Milne Rd., Room 3
Portland, OR 97045
(503) 557-8257

Pennsylvania
USDOL ETA OATELS-BAT
Federal Bldg.
228 Walnut St., Room 356
Harrisburg, PA 17120
(717) 221-3496

Puerto Rico
Department of Labor and Human Resources
Edificio Prudencio Rivera Martinez
505 Munoz Rivera Ave.
PO Box 3088
Hato Rey, PR 00918
(787) 754-2119

Rhode Island
USDOL ETA OATELS-BAT
Federal Bldg.
100 Hartford Ave.
Providence, RI 02909
(401) 528-5198

South Carolina
USDOL ETA OATELS-BAT
Strom Thurmond Federal Bldg.
1835 Assembly St., Room 838
Columbia, SC 29201
(803) 765-5547

South Dakota
USDOL ETA OATELS-BAT
320 E. Capitol St., Room 205
Pierre, SD 57501
(605) 224-6693

Tennessee
USDOL ETA OATELS-BAT
Airport Executive Plaza
1321 Murfreesboro Rd., Suite 541
Nashville, TN 37210
(615) 781-5318

Texas
USDOL ETA OATELS-BAT
VA Bldg., Room 2105
2320 La Branch St.
Houston, TX 77004
(713) 718-3696

Apprenticeable occupations

Utah
USDOL ETA OATELS-BAT
1600 West 2200 South, Suite 101
Salt Lake City, UT 84119
(801) 975-3650

Vermont
USDOL ETA OATELS-BAT
Federal Bldg.
11 Elmwood Ave., Room 109
Burlington, VT 05401
(802) 951-6278

Virgin Islands
Virgin Islands Department of Labor
2162 King Cross St.
Christiansted, Saint Croix
U.S. Virgin Islands 00820-4958
(809) 773-1440 Ext. 224

Virginia
USDOL ETA OATELS-BAT
Federal Bldg., Suite 404
400 N. 8th St.
Richmond, VA 23219
(804) 771-2488

Washington
USDOL ETA OATELS-BAT
1400 Talbot Rd. South, Suite 100
Renton, WA 98504
(360) 902-5320

West Virginia
USDOL ETA OATELS-BAT
One Bridge Place, 2nd Floor
10 Hale St.
Charleston, WV 25301
(304) 347-5794

Wisconsin
USDOL ETA OATELS-BAT
740 Regent St., Suite 104
Madison, WI 53715-1233
(608) 441-5377

Wyoming
USDOL ETA OATELS-BAT
American National Bank Bldg.
1912 Capitol Ave., Room 508
Cheyenne, WY 82001-3661
(307) 772-2448

Arts

Actor	2
Audio operator	2
Bank-note designer	5
Camera operator	3
Cartoonist, motion pictures	3
Cloth designer	4
Commercial designer	4
Decorator	4
Director, television	2
Display designer	4
Displayer, merchandise	1
Electronic prepress system operator (desktop publisher)	5
Field engineer, radio and television	4
Film or videotape editor	4
Floral designer	1
Fur designer	4
Furniture designer	4
Graphic designer	1.5
Illustrator	4
Industrial designer	4
Interior designer	2
Light technician	4
Mailer	4
Painter	1
Painter, hand (any industry)	3
Photographer, lithographic	5
Photographer, photoengraving	6
Photographer, still	3
Program assistant	3
Radio station operator	4
Recording engineer	2
Script supervisor	1
Sound mixer	4
Stage technician	3
Stained glass artist	4
Taxidermist	3
Transportation clerk	1.5
Wardrobe supervisor	2
See also: printing	

Business and administrative support

Alarm operator	1
Dispatcher, service	2
Funeral director	2
Hotel associate	2
Legal secretary	1
Manager, retail store	3
Material coordinator	2
Medical secretary	1
Office manager/administrative services	2
Paralegal	3
Photocomposing-perforating-machine operator	2
Post-office clerk	2
Purchasing agent	4
Salesperson, parts	2
Supercargo	2
Telecommunicator (police, fire, and ambulance dispatcher)	4
Telegraphic-typewriter operator	3

Construction and mining

Acoustical carpenter	4
Architectual coatings finisher	3
Asphalt-paving-machine operator	3
Assembler, metal building	2
Boatbuilder, wood	4
Boilerhouse mechanic	3
Boilermaker fitter	4
Boilermaker I	3
Boilermaker II	3
Bricklayer, brick and tile	4
Bricklayer, construction	3
Bricklayer, firebrick and refractory tile	4
Carpenter	4
Carpenter, interior systems	4
Carpenter, maintenance	4
Carpenter, mold	6
Carpenter, piledriver	4
Carpenter, rough	4
Carpenter, ship	4
Carpet layer	3
Casket assembler	3
Cement mason	2
Chimney repairer	1
Construction craft laborer	2
Construction driver	4
Coppersmith (ship and boat)	4
Cork insulator, refrigeration	4
Drilling-machine operator	3
Dry-wall applicator	2
Electrician	4
Electrician, ship and boat	4
Elevating-grader operator	2
Elevator constructor	4
Elevator repairer	4
Fence erector	3
Floor layer	3
Floor-covering layer	3
Form builder, construction	2
Gas-main fitter	4
Gauger	2
Glazier	3
Glazier, stained glass	4
Hazardous-waste-material technician	2
Inspector, building	3
Insulation worker	4
Joiner, ship and boat	4

Officially recognized by the U.S. Department of Labor, Bureau of Apprenticeship and Training, with estimated term in years

Lather	3
Marble finisher	2
Marble setter	3
Mine inspector (government) coal	4
Mine inspector (government) metal and nonmetal	4
Miner I (mine and quarry)	1
Monument setter	4
Mosaic worker	3
Motor-grader operator	3
Multi-story window installer or builder	3
Neon-sign servicer	4
Operating engineer	3
Ornamental-iron worker	3
Painter, construction	3
Painter, shipyard	3
Paperhanger	2
Pavement striper	2
Pipe coverer and insulator	4
Pipefitter (construction)	4
Pipefitter (ship and boat)	4
Plasterer	2
Plumber	4
Prop maker	4
Prospecting driller	2
Protective-signal installer	4
Protective-signal repairer	3
Reinforcing-metal worker	3
Residential carpenter	2
Residential wireperson	2.4
Roofer	2
Sheet-metal worker	4
Shipwright	4
Sign erector I	3
Soft-tile setter	3
Steam service inspector	4
Stonemason	3
Street-light servicer	4
Structural-steel worker	3
Tank setter (petroleum)	2
Taper	2
Terrazzo finisher	2
Terrazzo worker	3
Tile finisher	2
Tile setter	3
Tuckpointer, cleaner, caulker	3
Well-drill operator	4

Installation, maintenance, and repair, including telecommunications and power plant operation

Communications equipment

Automatic-equipment technician	4
Central-office installer	4
Central-office repairer	4
Electrician, radio	4
Equipment installer (telecommunications)	4
Maintenance mechanic, telephone	3
Private-branch-exchange installer	4
Private-branch-exchange repairer	4
Radio mechanic	3
Sound technician	3
Station installer and repairer	4
Submarine cable equipment technician	2
Telecommunications technician	4

Electronic equipment

Aircraft mechanic, electrical	4
Audio-video repairer	2
Automotive-generator-and-starter repairer	2
Avionics technician	4
Battery repairer	2
Control equipment electric-technician	5
Corrosion-control fitter	4
Electrical instrument repairer	3
Electrical-appliance repairer	3
Electrical-appliance servicer	3
Electrician, aircraft	4
Electrician, automotive	2
Electrician, locomotive	4
Electrician, maintenance	4
Electrician, powerhouse	4
Electrician, substation	3
Electric-meter installer I	4
Electric-meter repairer	4
Electric-motor repairer	4
Electric-tool repairer	4
Electric-track-switch maintainer	4
Electronic systems technician	4
Electronic-organ technician	2
Electronics mechanic	4
Electronic-sales-and-service technician	4
Field service engineer	2
Meteorological equipment repairer	4
Power-transformer repairer	4
Propulsion-motor-and-generator repairer	4
Radio repairer	4
Relay technician	2
Repairer, hand tools	3
Tape-recorder repairer	4
Television-and-radio repairer	4
Transformer repairer	4

Industrial machinery

Automated equipment engineer-technician	4
Automotive-maintenance-equipment servicer	4
Aviation support equipment repairer	4
Bakery-machine mechanic	3
Canal-equipment mechanic	2
Composing-room machinist	6
Conveyor-maintenance mechanic	2
Cooling tower technician	2
Electronic-production-line-maintenance	1
Forge-shop-machine repairer	3
Fuel-system-maintenance worker	2
Hydraulic repairer	4
Hydraulic-press servicer	2
Hydroelectric-machinery mechanic	3
Industrial engine technician	4
Industrial machine systems technician	2
Laundry-machine mechanic	3
Machine erector	4
Machine fixer (carpet and rug)	4
Machine fixer (textile)	3
Machine repairer, maintenance	4
Machinist, linotype	4
Maintenance mechanic, any industry	4
Maintenance mechanic, compressed gas	4
Maintenance mechanic, grain and feed	2
Maintenance repairer, building	2
Maintenance repairer, industrial	4
Marine-services technician	3
Millwright	4
Overhauler (textile)	2
Pinsetter adjuster, automated	3
Pinsetter mechanic, automatic	2
Pneumatic-tool repairer	4
Pneumatic-tube repairer	2
Powerhouse mechanic	4
Pump erector (construction)	2
Pump servicer	3
Repairer I, chemical industry	4
Repairer, welding equipment	2
Repairer, welding systems and equipment	3
Rubberizing mechanic	4
Scale mechanic	4
Sewing-machine repairer	3
Stoker erector and servicer	4
Treatment-plant mechanic	3

Line installers

Cable installer-repairer	3
Cable splicer	4
Cable television installer	1
Line erector	3
Line installer-repairer	4
Line maintainer	4
Line repairer	3
Trouble shooter II	3

Precision equipment

Aircraft-armament mechanic	4
Aircraft-photographic-equipment	4
Aircraft mechanic, armament	4

Apprenticeable occupations

Biomedical equipment technician	4
Camera repairer	2
Dental-equipment installer and servicer	3
Electromedical-equipment repairer	2
Fretted-instrument repairer	3
Instrument mechanic, any industry	4
Instrument mechanic, weapon systems	4
Instrument repairer	4
Machinist, motion-picture equipment	2
Photographic equipment technician	3
Photographic-equipment-maintenance technician	3
Piano technician	4
Piano tuner	3
Pipe-organ tuner and repairer	4
Watch repairer	4
Wind-instrument repairer	4

Vehicles

Aircraft mechanic, plumbing and hydraulics	4
Airframe-and-power-plant mechanic	4
Automobile air-conditioning mechanic	1
Automobile body repairer	4
Automobile glass installer	2
Automobile mechanic	4
Automobile radiator mechanic	2
Automobile-repair-service estimator	4
Automobile spring repairer, hand	4
Automotive cooling-system diagnoser	2
Automotive repairer, heavy	2
Aviation safety equipment technician	4
Brake repairer	2
Car repairer, railroad	4
Carburetor mechanic	4
Construction-equipment mechanic	4
Diesel mechanic	4
Electrician, water transportation	4
Engine repairer, service	4
Front-end mechanic	4
Fuel-injection servicer	4
Gas-engine repairer	4
Logging-equipment mechanic	4
Machinist, marine engine	4
Mechanic, endless track vehicle	4
Mechanic, industrial truck	4
Mine-car repairer	2
Motorboat mechanic	3
Motorcycle repairer	3
Outboard-motor mechanic	2
Repairer, recreational vehicle	4
Rocket-engine-component mechanic	4
Rocket-motor mechanic	4
Service mechanic (automobile manufacturing)	2
Small-engine mechanic	2
Tractor mechanic	4
Transmission mechanic	2
Truck-body builder	4
Tune-up mechanic	2
Undercar specialist	2

Other

Power-saw mechanic	3
Oil-field equipment mechanic	2
Air and hydronic balancing technician	3
Air-conditioning installer-servicer	3
Cash-register servicer	3
Coin-machine servicer and repairer	3
Dairy-equipment repairer	3
Dictating-transcribing-machine servicer	3
Door-closer mechanic	3
Facilities locator	2
Farm-equipment mechanic I	3
Farm-equipment mechanic II	4
Furnace installer	3
Furnace installer and repairer	4
Gas-appliance servicer	3
Gas-meter mechanic I	3
Gas-regulator repairer	3
Heating-and-air-conditioning installer and servicer	3
Locksmith	4
Maintenance mechanic, construction and petroleum	4
Mechanical-unit repairer	4
Meter repairer	3
Office-machine servicer	3
Oil-burner servicer and installer	2
Refrigeration mechanic	3
Refrigeration unit repairer	3
Rigger	3
Rigger (ship and boat building)	2
Safe-and-vault service mechanic	4
Service planner (light, heat)	4
Signal maintainer	4

Production

Assembly

Airplane coverer	4
Assembler, aircraft power plant	2
Assembler, aircraft structures	4
Assembler, electromechanical (robotics)	4
Assembler-installer, general	2
Assembly technician	2
Canvas worker	3
Electric-motor assembler and tester	4
Electric-motor, general assembler	2
Electric-motor-and-generator assembler	2
Electric-sign assembler	4
Fabricator-assembler, metal product	4
Fitter (machine shop)	2
Fitter I (any industry)	3
Former, hand (any industry)	2
Glass bender	4
Glass blower	3
Glass blower, laboratory apparatus	4
Glass-blowing-lathe operator	4
Instrument maker	4
Instrument maker and repairer	5
Machine assembler	2
Machine builder	2
Metal fabricator	4
Optical-instrument assembler	2
Plastics fabricator	2
Pottery-machine operator	3
Precision assembler	3
Precision assembler, bench	2
Precision lens grinder	4
Production finisher	2
Production technologist	*
Rubber-stamp maker	4
Ship propeller finisher	3
Wirer, office machines	2

Health

Artificial-glass-eye maker	5
Artificial-plastic-eye maker	5
Blocker and cutter, contact lenses	1
Contour wire specialist, denture	4
Dental ceramist	2
Dental-laboratory technician	3
Finisher, denture	1
Shop optician, benchroom	4
Shop optician, surface room	4

Inspection

Airplane inspector	3
Automobile tester	4
Cable tester (telecommunications)	4
Calibrator (military)	2
Complaint inspector	4
Diesel-engine tester	4
Electric-distribution checker	2
Electric-meter tester	4
Electromechanical inspector	4
Electronics tester	3
Experimental assembler	2
Grader	4
Hydrometer calibrator	2
Metal fabricating inspector	4
Operational test mechanic	3
Outside production inspector	4
Precision inspector	2
Quality control inspector	2
Relay tester	4

Officially recognized by the U.S. Department of Labor, Bureau of Apprenticeship and Training, with estimated term in years

Rubber tester	4
Safety inspector and technician	3
Set-up and lay-out inspector	4
Testing-and-regulating technician	4
Thermometer tester	1
Trouble locator, test desk	2
X-ray-equipment tester	2

Jewelry

Bench hand, jewelry	2
Bracelet and brooch maker	4
Brilliandeer-lopper (jewelry)	3
Caster, jewelry	2
Chaser (silversmithing)	4
Diamond selector (jewelry)	4
Engine turner, jewelry	2
Gem cutter	3
Jeweler	2
Model maker II, jewelry	4
Mold maker I, jewelry	4
Mold maker II, jewelry	2
Pewter caster	3
Pewter fabricator	4
Pewter finisher	2
Pewterer	2
Silversmith II	3
Solderer, jewelry	3
Stone setter	4
Stonecutter, hand	3

Metal and plastic work

Blacksmith	4
Card grinder	4
Caster	2
Coremaker	4
Cupola tender	3
Cylinder grinder	5
Die finisher	4
Die maker, bench, stamping	4
Die maker, jewlery and silver	4
Die maker, paper goods	4
Die maker, stamping	3
Die maker, trim	4
Die maker, wire drawing	3
Die polisher	1
Die setter	2
Die sinker	4
Engine-lathe set-up operator	2
Engine-lathe set-up operator, tool	2
Experimental mechanic	4
Extruder operator	1
Fastener technologist	3
Fixture maker	2
Forging-press operator I	1
Four-slide-machine setter	2
Furnace operator	4
Gear hobber set-up operator	4
Gear-cutting-machine set-up operator	3
Gear-cutting-machine set-up operator, tool	3
Grinder I (clock and watch)	4
Grinder operator, tool	4
Grinder set-up operator, jig	4
Grinder set-up operator, universal	4
Gunsmith	4
Heat treater I	4
Heavy forger	4
Injection-molding-machine operator	1
Lay-out technician	4
Lay-out worker I	4
Lead burner	4
Machine operator I	1
Machine setter, any industry	4
Machine setter, clock	4
Machine setter, machine shop	3
Machine set-up operator	2
Machine try-out setter	4
Machinist	4
Machinist, automotive	4
Machinist, experimental	4
Machinist, outside (ship)	4
Maintenance machinist	4
Milling-machine set-up operator	2
Multi-operation form machine setter	4
Multi-operation-machine operator	3
Numerical control machine operator	4
Ornamental metal worker	4
Pantograph-machine set-up operator	2
Patternmaker, all around	5
Patternmaker, metal	5
Patternmaker, metal, bench	5
Patternmaker, metal products	4
Patternmaker, plastics	3
Plastic fixture builder	4
Plastic process technician	4
Plastic tool maker	4
Plater	3
Roll-threader operator	1
Sample maker, appliances	4
Saw filer	4
Saw maker, cutlery and tools	3
Screw-machine operator, multiple spindle	4
Screw-machine operator, single spinner	3
Screw-machine set-up operator	4
Screw-machine set-up operator, single spindle	3
Shipfitter	4
Spinner, hand	3
Spring coiling machine setter	4
Spring maker	4
Spring-manufacturing set-up technician	4
Stone polisher, machine	3
Tap-and-die-maker technician	4
Template maker	4
Template maker, extrusion die	4
Test technician (machining)	5
Tool builder	4
Tool grinder I	3
Tool maker	4
Tool maker, bench	4
Tool programmer, numerical control	3
Tool-and-die maker	4
Tool-grinder operator	4
Tool-machine set-up operator	3
Turret-lathe set-up operator	4
Welder, arc	4
Welder, combination	3
Welder-fitter	4
Welding-machine operator, arc	3

Molds and models, except jewelry

Cell maker	1
Engineering model maker	4
Mock-up builder	4
Model and mold maker (brick)	2
Model and mold maker, plaster	4
Model builder, furniture	2
Model maker pottery and porcelain	2
Model maker, aircraft	4
Model maker, auto manufacturing	4
Model maker, clock and watch	4
Model maker, firearms	4
Model maker, wood	4
Mold maker, die-casting and plastic	4
Mold maker, pottery and porcelin	3
Mold setter	1
Molder	4
Molder, pattern (foundry)	4
Patternmaker, plaster	3
Patternmaker, stonework	4
Patternmaker, wood	5
Plaster-pattern caster	5
Prototype model maker	4

Plant and system operation

Boiler operator	4
Chemical operator, chief	3
Clarifying-plant operator, textile	1
Electronics utility worker	4
Gas utility worker	2
Hydroelectric-station operator	3
Plant operator	3
Plant operator, furnace	4
Power-plant operator	4
Refinery operator	3
Stationary engineer	4

Apprenticeable occupations

Substation operator	4
Switchboard operator, utilities	3
Turbine operator	4
Waste-treatment operator	2
Wastewater-treatment-plant operator	2
Water-treatment-plant operator	3

Printing

Assistant press operator	2
Auger press operator, manual control	2
Ben-day artist	6
Bindery worker	4
Bindery-machine setter	4
Bookbinder	5
Casing-in-line setter	4
Colorist, photography	2
Compositor	4
Cylinder-press operator	4
Dot etcher	5
Electrotyper	5
Embosser	2
Embossing-press operator	4
Engraver glass	2
Engraver I	5
Engraver, block	4
Engraver, hand, hard metals	4
Engraver, hand, soft metals	4
Engraver, machine	4
Engraver, pantograph I	4
Engraver, picture	10
Engraving press operator	3
Etcher, hand	5
Etcher, photoengraving	4
Film developer	3
Film laboratory technician	3
Film laboratory technician I	3
Folding-machine operator	2
Job printer	4
Letterer (professional and kindred)	2
Linotype operator	5
Lithographic platemaker	4
Lithograph-press operator, tin	4
Machine set-up operator, paper goods	4
Monotype-keyboard operator	3
Offset-press operator I	4
Paste-up artist	3
Photoengraver	5
Photoengraving finisher	5
Photoengraving printer	5
Photoengraving proofer	5
Photograph retoucher	3
Photographic-plate maker	4
Plate finisher	6
Platen-press operator	4
Press operator, heavy duty	4
Printer, plastic	4
Printer-slotter operator	4
Projection printer	4
Proof-press operator	5
Proofsheet corrector	4
Recovery operator (paper)	1
Reproduction technician	1
Retoucher, photoengraving	5
Roller engraver, hand	2
Rotogravure-press operator	4
Scanner operator	2
Sign writer, hand	1
Sketch maker I	5
Sketch maker II	4
Steel-die printer	4
Stereotyper	6
Stripper	5
Stripper, lithographic II	4
Surface-plate finisher	2
Wallpaper printer I	4
Web-press operator	4

Textiles and apparel

Alteration tailor	2
Automobile upholsterer	3
Bootmaker, hand	1
Card cutter, jacquard	4
Carpet cutter (retail trade)	1
Custom tailor	4
Design and patternmaker, shoe	2
Dressmaker	4
Dry cleaner	3
Fur cutter	2
Fur finisher	2
Furniture upholsterer	4
Furrier	4
Harness maker	3
Jacquard-loom weaver	4
Jacquard-plate maker	1
Knitter mechanic	4
Knitting-machine fixer	4
Leather stamper	1
Loom fixer	3
Patternmaker, textiles	3
Saddle maker	2
Sample stitcher	4
Shoe repairer	3
Shoemaker, custom	3
Shop tailor	4
Silk-screen cutter	3
Upholsterer	2
Upholsterer, inside	3
Wire weaver, cloth	4

Woodwork

Accordion maker	4
Cabinetmaker	4
Carver, hand	4
Furniture finisher	3
Harpsichord maker	2
Hat-block maker (woodwork)	3
Head sawyer	3
Jig builder (wood contain)	2
Last-model maker	4
Loft worker (ship and boat)	4
Machine setter, woodwork	4
Machinist, wood	4
Pipe organ builder	3
Pony edger (sawmill)	2
Violin maker, hand	4
Wood-turning-lathe operator	1

Other

Batch-and-furnace operator	4
Chemical operator III	3
Coating machine operator I	1
Cutter, machine	3
Decorator (glass manufacturing)	4
Electrostatic powder coating technician	4
Envelope-folding-machine adjuster	3
Fourdrinier-machine operator	3
Freezer operator	1
Gang sawyer, stone	2
Kiln firer	3
Kiln operator	3
Liner (pottery and porcelain)	3
Miller, wet process	3
Painter, sign	4
Painter, transportation equipment	3
Purification machine operator II	4
Sandblaster, stone	3
Screen printer	2
Siderographer	5
Stencil cutter	2
Stone carver	3
Stone-lathe operator	3
Tinter (paint and varnish)	2
Wire sawyer	2

Science, drafting, and computer

Calibration laboratory technician	4
Chemical laboratory technician	4
Chemical-engineering technician	4
Chief of the party	4
Computer operator	3
Computer programmer	2
Computer-peripheral-equipment operator	1
Dairy technologist	4
Design drafter, electromechanism	4

Officially recognized by the U.S. Department of Labor, Bureau of Apprenticeship and Training, with estimated term in years

Detailer	4
Die designer	4
Drafter, architectural	4
Drafter, automotive design	4
Drafter, automotive design layout	4
Drafter, cartographic	4
Drafter, civil	4
Drafter, commercial	4
Drafter, detail	4
Drafter, electrical	4
Drafter, electronic	4
Drafter, heating and ventilating	4
Drafter, landscape	4
Drafter, marine	4
Drafter, mechanical	4
Drafter, plumbing	4
Drafter, structural	3
Drafter, tool design	4
Electrical technician	4
Electromechanical technician (robotics)	3
Electronics technician	4
Engineering assistant, mechanical equipment	4
Environmental analyst	3.5
Estimator and drafter	4
Foundry metallurgist	4
Geodetic computator	2
Heat-transfer technician	4
Horticulturist	3
Instrument technician, utilities	4
Instrumentation technician	4
Internetworking technician	2.5
Laboratory assistant	3
Laboratory assistant, metallurgy	2
Laboratory technician	1
Laboratory tester	2
Logistics engineer	4
Materials engineer	5
Mechanical-engineering technician	4
Meteorologist	3
Mold designer (plastics industry)	2
Nondestructive tester	1
Optomechanical technician	4
Photogrammetric technician	3
Programmer, engineering and science	4
Quality control technician	2
Radiation monitor	4
Radiographer	4
Research mechanic, aircraft	4
Soil-conservation technician	3
Surveyor assistant, instruments	2
Test equipment mechanic	5
Test-engine operator, geologic samples	2
Tester, geologic samples	3
Tool design checker	4
Tool designer	4
Weather observer	2
Welding technician	4
Wind tunnel mechanic	4

Service and related

Buildings and grounds

Agricultural service worker	2
Exterminator, termite	2
Greenskeeper II	2
Housekeeper	1
Landscape gardener	4
Landscape management technician	1
Landscape technician	2
Rug cleaner, hand	1
Swimming-pool servicer	2
Tree surgeon	3
Tree trimmer (line clear)	2

Cooking

Baker	3
Baker, hotel and restaurant	3
Baker, pizza	1
Bartender	1
Butcher, all-round	3
Butcher, hotel and restaurant	3
Candy maker	3
Cheesemaker	2
Cook, any industry	2
Cook, hotel and restaurant	3
Cook, pastry	3
Meat cutter	3
Wine maker	2

Protective service

Arson and bomb investigator	2
Correction officer	1
Fire apparatus engineer	3
Fire captain	3
Fire engineer	1
Fire inspector	4
Fire medic	3
Firefighter	3
Firefighter, crash and fire	1
Fish and game warden	2
Guard, security	1.5
Investigator, private	1
Police officer	2
Wildland firefighter specialist	1

Health

Ambulance attendant (EMT)	1
Dental assistant	1
Emergency medical technician	3
Health care sanitation technician	1
Licenced practical nurse	1
Medical laboratory technician	2
Nurse assistant	1
Optician, dispensing	2
Optician, goods	4
Optician, goods and retail	5
Orthodontic technician	2
Orthopedic-boot-and-shoe designer	5
Orthotics technician	1
Orthotist	4
Paramedic	2
Pharmacist assistant	1
Podiatric assistant	2
Prostethetist	4
Prosthetics technician	4
Tumor registrar	2

Other service

Animal trainer	2
Barber	1
Childcare development specialist	2
Cosmetologist	1
Counselor	2
Customer service representative	3
Direct support specialist (social and human support)	1.5
Embalmer	2
Horse trainer	1
Horseshoer	2
Teacher aide I	2
Youth development practitioner	1.75

Other

Beekeeper	2
Buttermaker	1.2
Conveyor-system operator	1
Dragline operator	1
Dredge operator	4
Farmer, general	1
Farmworker, general I	2
Fire-control mechanic	1
Fish hatchery worker	2
Inspector, motor vehicles	4
Locomotive engineer	2
Logger, all-round	3
Ordnance artificer (military)	1.5
Pilot, ship	3
Pumper-gauger	1
Truck driver, heavy	3
Truck-crane operator	3

This classification of occupations does not always match the Standard Occupational Classification System (SOC). For SOC comparisons, contact the Bureau of Apprenticeship and Training, (202) 693-2761.
*Skills-based apprenticeship. No term given.