Sources of Additional Information
For more details about employment opportunities, contact a telephone company, temporary-help agency, or write to:
- Communications Workers of America, 501 3rd St. NW., Washington, DC 20001. Internet: http://www.cwa-union.org
- International Brotherhood of Electrical Workers, Telecommunications Department, 1125 15th St. NW., Room 807, Washington, DC 20005.

Computer Operators
(O*NET 43-9011.00)

Significant Points
- Employment is expected to decline sharply due to advances in technology.
- Opportunities will be best for operators who have formal computer-related education, are familiar with a variety of operating systems, and keep up-to-date with the latest technology.

Nature of the Work
Computer operators oversee the operation of computer hardware systems, ensuring that these machines are used as efficiently as possible. They may work with mainframes, minicomputers, or networks of personal computers. Computer operators must anticipate problems and take preventive action, as well as solve problems that occur during operations.

The duties of computer operators vary with the size of the installation, the type of equipment used, and the policies of the employer. Generally, operators control the console of either a mainframe digital computer or a group of minicomputers. Working from operating instructions prepared by programmers, users, or operations managers, computer operators set controls on the computer and on peripheral devices required to run a particular job.

Computer operators load equipment with tapes, disks, and paper, as needed. While the computer is running—which may be 24 hours a day for large computers—computer operators monitor the control console and respond to operating and computer messages. Messages indicate the individual specifications of each job being run. If an error message occurs, operators must locate and solve the problem or terminate the program. Operators also maintain logbooks or operating records, listing each job that is run and events, such as machine malfunctions, that occur during their shift. In addition, computer operators may help programmers and systems analysts test and debug new programs. (See the statements on computer programmers; and systems analysts, computer scientists, and data-base administrators elsewhere in the Handbook.)

As the trend toward networking computers accelerates, a growing number of computer operators are working on personal computers (PCs) and minicomputers. In many offices, factories, and other work settings, PCs and minicomputers are connected in networks, often referred to as local area networks (LANs) or multi-user systems. Whereas users in the area operate some of these computers, many require the services of full-time operators. The tasks performed on PCs and minicomputers are very similar to those performed on large computers.

As organizations continue to look for opportunities to increase productivity, automation is expanding into additional areas of computer operations. Sophisticated software, coupled with robotics, enables a computer to perform many routine tasks formerly done by computer operators. Scheduling, loading and downloading programs, mounting tapes, rerouting messages, and running periodic reports can be done without the intervention of an operator. Consequently, these improvements will change what computer operators do in the future. As technology advances, the responsibilities of many computer operators are shifting to areas such as network operations, user support, and database maintenance.

Working Conditions
Computer operators generally work in well-lighted, well-ventilated, comfortable rooms. Because many organizations use their computers 24 hours a day, 7 days a week, computer operators may be required to work evening or night shifts and weekends. Shift assignments usually are made based on seniority. However, increasingly automated operations will lessen the need for shift work, because many companies let the computer take over operations during
force. Opportunities will be best for operators who have formal

replace workers who transfer to other occupations or leave the labor

for the small number of openings that will arise each year to

Employment of computer operators is expected to decline sharply

Job Outlook

bachelor’s degree.

is becoming much more difficult, as employers increasingly require

is expected to decline sharply through the year 2010. Experienced operators are expected to com-

Job Outlook

less desirable working hours. In addition, advances in tele-

Training, Other Qualifications, and Advancement

Committee operators usually receive on-the-job training in order to

Computer operators are employed by service firms in the computer and
data-processing services industry, as more companies contract out

the operation of their data-processing centers.

Training, Other Qualifications, and Advancement

Computer operators usually receive on-the-job training in order to

the key to obtaining an operator job in many large establishments. Employers generally

look for specific, hands-on experience with the type of equipment and related operating systems they use. Additionally, formal com-

puter-related training, perhaps through a community college or tech-

For instance, computer operators who are displaced by automation may be

reassigned to support staffs that maintain personal computer net-

works or assist other members of the organization. Operators who

keep up with changing technology, by updating their skills and

enhancing their training, should have the best prospects of moving

into other areas such as network administration and technical sup-

port. Others may be retrained to perform different job duties, such

as supervising an operations center, maintaining automation pack-

ages, or analyzing computer operations to recommend ways to

increase productivity. In the future, operators who wish to work in

the computer field will need to know more about programming, auto-

mation software, graphics interface, client/server environments, and

open systems, in order to take advantage of changing opportunities.

Earnings

Median annual earnings of computer operators were $27,670 in

2000. The middle 50 percent earned between about $21,280 and

$35,320 a year. The highest 10 percent earned more than $43,950,

and the lowest 10 percent earned less than $17,350. Median annual

earnings in the industries employing the largest numbers of com-

puter operators in 2000 are shown below:

- Computer and data processing services .......................... 28,530
- Hospitals ................................................................. 26,550
- Commercial banks ..................................................... 22,840
- Personnel supply services .......................................... 22,130
- Miscellaneous business services ................................. 21,980

The average salary for computer operators employed by the Fed-

eral Government was $37,574 in early 2001.

According to Robert Half International, the average starting sala-

ries for console operators ranged from $28,250 to $40,500 in 2001.

Salaries generally are higher in large organizations than in small

ones.

Related Occupations

Other occupations involving work with computers include com-

puter software engineers; computer programmers; computer sup-

port specialists and systems administrators; and systems analysts,

computer scientists, and database administrators. Other occupa-

tions in which workers operate electronic office equipment include

data entry and information-processing workers, as well as secretar-

ies and administrative assistants.

Sources of Additional Information

For information about work opportunities in computer operations, contact establishments with large computer centers, such as banks,

manufacturing and insurance firms, colleges and universities, and

data processing service organizations. The local office of the State

employment service can supply information about employment and

training opportunities.