

# Careers

## Textile Production

**M**AGINE LOOKING IN ON A MODERN textile mill. Row after row of colorful cones hold yarns that twine through the intricate machinery. At rapid speeds the yarns are drawn into the weaving or knitting machines, where fabrics in beautiful patterns swiftly emerge to be used for apparel, accessories, or home fashions.

Weaving and knitting are not the only jobs handled by textile mills today. Many are vertically integrated, which means they produce the yarns and apply the finishes, in addition to manufacturing the fabrics. Most textile mills in the United States stretch through the New England states and down into the Carolinas. Many exist in other countries.

The people who work in textile production make up the largest segment of the textile industry. People typically rotate on the various shifts to keep the mill running around the clock. Careers that cover a wide range of responsibilities contribute to the mill's operation—everything from chemists in laboratories to those who keep the machinery whirring.

Think about all the fabrics you see around you every day, and you will realize the scope of textile production. In textile mills, machines run at high speeds turning out fabrics in a wide array of colors and patterns.

### IS THIS FIELD FOR YOU?

Textile production encompasses a wide range of careers. If you asked what qualities each person brings to the job, however, workers in these fields are apt to agree with the statements below.

- I pay attention to detail.
- I'm interested in the process by which things happen.
- I have a strong sense of self-direction.
- I like to take charge of my environment.
- I enjoy seeing how my efforts contribute to a group's success.
- I can balance several tasks at once.

### Education and Training

Although a high-school diploma lands some jobs in textile production, employers often look for technical training or related experience. For a machine operator, an associate's degree that focuses on computer skills and electronics is useful. A textile engineer prepares with a bachelor's degree, studying textile machinery and the effects of mechanical forces on fibers. A textile scientist may have a doctorate in analytical chemistry and possibly years of teaching and research experience.

Many firms have management training programs for new employees, starting with summer internships for promising college seniors. A course in company management methods is first. By rotating assignments in different areas of the plant, a candidate learns about the jobs and machinery. Seminars with experienced managers and technicians further prepare employees for leadership positions.

### Possible Career Paths

In textile production a person's career path can branch in different directions. A machine operator with a two-year degree might advance to line supervisor. By adding a four-year degree in chemical engineering, the operator could become a manufacturing

### THE SKILLS YOU NEED

Running heavy machinery and running scientific experiments may seem like vastly different jobs; however, both are likely to require the following common skills:

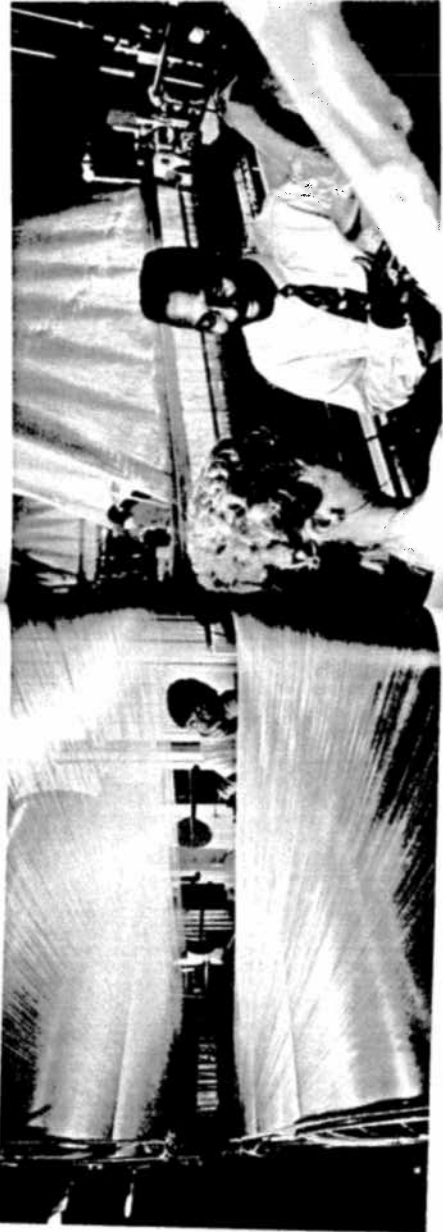
- Problem solving
- Analytical thinking
- Communication
- Teamwork
- Eye-hand coordination
- Record keeping
- Attention to detail

production engineer who supervises an entire range of production processes. With sales training, a person who has line and supervisory experience could take a different path. By becoming a machinery manufacturer's representative, the employee could train line operators to use new equipment.

Similar paths run through other areas of textile production. A chemical engineer may work on a new process for extruding polyester. Some years later that person may be the product engineer who oversees such a project, from research and development, to patenting, to marketing.

Higher education increases the chances for moving a career forward, since advanced skills transfer more readily to related fields. A textile chemist, for example, may leave the laboratory to work as a county extension agent who advises consumers on clothing care.

Effective communication between supervisors and employees helps keep textile production going.



**CHEMICAL TECHNICIAN**    **ENVIRONMENTAL ENGINEER**    **MACHINE OPERATOR**  
**PROCESS ENGINEER**    **PRODUCT DEVELOPMENT MANAGER**  
**RESEARCH SCIENTIST**    **TEXTILE CHEMIST**  
**TEXTILE CONVERTER**    **YARN TECHNICIAN**

By studying the molecular structure of fibers, textile chemists learn how fibers behave when woven, dyed, finished, and washed. As part of their work, chemists perform experiments and write reports. Textile chemists work for chemical companies, fiber manufacturers, textile mills, and private testing labs. They often do research in university laboratories.

Through research and development, chemists create manufactured fibers with particular characteristics. A textile chemist's work may join with other branches of science. Examples are the chemists who develop recyclable fibers and those who are trying to devise fabrics that deliver medications through the wearer's skin. Chemists sometimes serve as consultants, helping others solve problems.



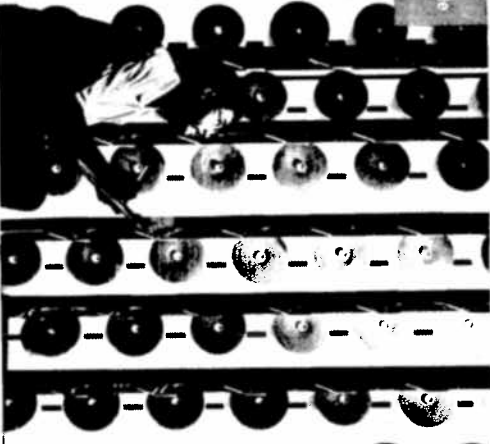
A textile chemist might determine the best dyeing methods for a certain fiber.

### Textile Converter

Textile converters specialize in applying designs, textures, and other finishes to fabrics. As the "middleman" of the textile industry, they buy unfinished fabric from textile mills and turn it into fabrics for apparel and home-fashion manufacturers. Most converters are small operators who work quickly to supply last-minute orders. They may stay up-to-date on the latest trends in colors, patterns, textures and finishes. By understanding how the fashion industry operates, they are better able to anticipate demands. Because they fill smaller orders than large textile mills, they have a special role in the global marketplace.

Chemical technicians also called process technicians, do much of the daily work in the research lab. They set up and run experiments. For example, they might test the damaging effects of heat and light on nylon. Technicians record results, interpret data, and may suggest conclusions. They keep careful notes on every step and each development. Greater use of computers and robotics has changed the technicians' job in recent years. The technician who skillfully uses the latest mass spectrometer may suggest and carry out better ways to use and care for this equipment.

Here, a quality control worker surveys a textile spinning operation.



In a textile mill, trained machine operators create fibers, yarns, and fabrics by extruding, spinning, weaving, knitting, printing, and dyeing. Using a computer, each operator oversees multiple machines, such as padding machines, treating tanks, dye jigs, and vats. The operator prepares a specific set of machines for production and corrects or reports any problems during a run. As an example, a loom operator checks and adjusts the timing on each machine. Then, using sophisticated computer programs, the operator quickly threads the harnesses with the yarns for the pattern. The operator keeps the machine supplied with yarn, stopping to repair any breaks. Machine operators on the production line show initiative as they work with others to solve problems and improve processes.

Environmental engineers use knowledge of scientific and mathematical principles to prevent or solve environmental problems caused by building and running the plant. An engineer might redesign a textile mill's steam production system so it uses less water from a nearby river. Engineers have shown denim manufacturers how to recover and reuse indigo dye. Other engineers have found a way to capture and pipe methane gas from a landfill to fuel a mill's operations. Environmental engineers are a textile company's link to outside groups and programs. An engineer might serve on one of the industry's environmental protection boards or present a plan to reduce the chemicals released in the factory's wastewater.

### CAREER APPLICATIONS

1. Internships. Research internship opportunities in the textile production field. Find out how people can take advantage of these opportunities. What preparations must be made, and where they fit into a student's studies. Write a report of your findings.
2. F.C.C.A. Research the effects that education and training have on career options and advancement in the textile industry. Present your findings in an illustrated talk.
3. Professionalism. You're interviewing for an entry-level job in a textile mill. The interviewer asks you this question: "In our company we look for people who will carry out their work with a high level of professionalism. What qualities do you have that show you're that kind of person?" What qualities will you list for the interviewer and what reasons will you give for including them?