

Industrial Production Managers

(0*NET 11-3051.00)

Significant Points

- While there is no standard preparation, a college degree is required.
- Applicants with a college degree in industrial engineering, management, or business administration, and particularly those with an undergraduate engineering degree and a master's degree in business administration or industrial management, enjoy the best job prospects.
- Projected slower-than-average growth in employment reflects increasing productivity.

Nature of the Work

Industrial production managers coordinate the resources and activities required to produce millions of goods every year in the United States. Although their duties vary from plant to plant, industrial production managers share many of the same major responsibilities. These responsibilities include production scheduling, staffing, procurement and maintenance of equipment, quality control, inventory control, and the coordination of production activities with those of other departments.

The primary mission of industrial production managers is planning the production schedule within budgetary limitations and time constraints. They do this by analyzing the plant's personnel and capital resources to select the best way of meeting the production quota. Industrial production managers determine, often using mathematical formulas, which machines will be used, whether new machines need to be purchased, whether overtime or extra shifts are necessary, and what the sequence of production will be. They monitor the production run to make sure that it stays on schedule and correct any problems that may arise.

As production techniques have evolved beyond traditional mass assembly lines, industrial production managers have adapted to "lean" production techniques. Many manufacturers have adopted lean production techniques, while some others use a combination of lean and mass production techniques. In a traditional assembly line, each worker is responsible for only a small portion of the assembly, repeating that task on every product. Lean production employs teams to build and assemble products in stations or cells. When companies use stations, one worker may work alone with handtools and various parts to complete a large portion of the assembly process. Rather than specializing in a specific task, workers are capable of performing all jobs within a team. Without the constraints of the traditional assembly line, companies can be more flexible in their production process, more easily changing production levels on different product lines.

The increased flexibility of lean manufacturing enables industrial production managers to experiment with ways of improving the assembly and manufacturing process. As companies strive to minimize inventory, they want to maintain only a limited stock of finished products. Employing manufacturing cells and stations, companies can more quickly react to changes in customer demand so that limited inventories will not get too low.

Industrial production managers also must monitor product standards. Inspecting samples of finished goods and recording defects enables managers to statistically analyze quality control problems.

While traditional quality control programs reacted only to problems that reached a certain significant level, newer management techniques and programs, such as ISO 9000, Total Quality Management (TQM), or Six Sigma, emphasize continuous quality improvement. If the problem relates to the quality of work performed in the plant, the manager may implement better training programs or reorganize the manufacturing process, often based upon the suggestions of employee teams. If the cause is substandard materials or parts from outside suppliers, companies may work with their suppliers to improve their quality.

Because the work of many departments is related, managers work closely with heads of other departments such as sales, procurement, and logistics to plan and implement company goals, policies, and procedures. For example, the production manager works with the procurement department to ensure that plant inventories are maintained at their optimal level. This is vital to a firm's operation because maintaining the inventory of materials necessary for production ties up the firm's financial resources, yet insufficient quantities cause delays in production. A breakdown in communications between the production manager and the purchasing department can cause slowdowns and a failure to meet production schedules. Just-in-time production techniques have reduced inventory levels, making constant communication among the manager, suppliers, and purchasing departments even more important. Computers play an integral part in this coordination. They also are used to provide up-to-date information on inventory, the status of work in progress, and quality standards.

Production managers usually report to the plant manager or the vice president for manufacturing, and may act as liaison between executives and first-line supervisors. (Information about top executives may be found elsewhere in the *Handbook*.) In many plants, one production manager is responsible for all aspects of production. In large plants with several operations—aircraft assembly, for example—there are managers in charge of each operation, such as machining, assembly, or finishing.

Working Conditions

Most industrial production managers divide their time between production areas and their offices. While in the production area, they must follow established health and safety practices and wear the required protective clothing and equipment. The time in the office, which often is located near production areas, usually is spent meeting with subordinates or other department managers, analyzing production data, and writing and reviewing reports.



Industrial production managers often work near the factory floor.

Most industrial production managers work more than 40 hours a week, especially when production deadlines must be met. In facilities that operate around-the-clock, managers often work late shifts and may be called at any hour to deal with emergencies. This could mean going to the plant to resolve the problem, regardless of the hour, and staying until the situation is under control. Dealing with production workers as well as superiors when working under the pressure of production deadlines or emergency situations can be stressful. Corporate restructuring has eliminated levels of management and support staff, thus shifting more responsibilities to production managers and compounding this stress.

Employment

Industrial production managers held about 182,000 jobs in 2002. Almost all are employed in manufacturing industries, including the plastics product manufacturing, printing and related support activities, motor vehicle parts manufacturing, and semiconductor and other electronic component manufacturing industries. Production managers work in all parts of the country, but jobs are most plentiful in areas where manufacturing is concentrated.

Training, Other Qualifications, and Advancement

Because of the diversity of manufacturing operations and job requirements, there is no standard preparation for this occupation. However, a college degree is required, even for those who have worked their way up through the ranks. Many industrial production managers have a college degree in business administration, management, industrial technology, or industrial engineering. Others have a master’s degree in industrial management or business administration (MBA). Some are former production-line supervisors who have been promoted. Although many employers prefer candidates with a business or engineering background, some companies hire well-rounded liberal arts graduates.

As production operations become more sophisticated, increasing numbers of employers are looking for candidates with graduate degrees in industrial management or business administration. Combined with an undergraduate degree in engineering, either of these graduate degrees is considered particularly good preparation. Managers who do not have graduate degrees often take courses in decision sciences, which provide them with techniques and mathematical formulas that can be used to maximize efficiency and improve quality. Companies also are placing greater importance on a candidate’s interpersonal skills. Because the job requires the ability to compromise, persuade, and negotiate, successful production managers must be well-rounded and have excellent communication skills.

Those who enter the field directly from college or graduate school often are unfamiliar with the firm’s production process. As a result, they may spend their first few months in the company’s training program. These programs familiarize trainees with the production process, company policies, and the requirements of the job. In larger companies, they also may include assignments to other departments, such as purchasing and accounting. A number of companies hire college graduates as first-line supervisors and later promote them.

Some industrial production managers have worked their way up through the ranks, perhaps after having worked as first-line supervisors. These workers already have an intimate knowledge of the production process and the firm’s organization. To be selected for promotion, however, they must obtain a college degree, must demonstrate leadership qualities, and usually must take company-sponsored courses in management skills and communication techniques.

In addition to formal training, industrial production managers must keep informed of new production technologies and management practices. Many belong to professional organizations and attend trade shows at which new equipment is displayed; they also attend industry conferences and conventions at which changes in production methods and technological advances are discussed. Some take courses to become certified in various quality and management systems.

Industrial production managers with a proven record of superior performance may advance to plant manager or vice president for manufacturing. Others transfer to jobs with more responsibilities at larger firms. Opportunities also exist for consultants. (For more information, see the statement on management analysts elsewhere in the *Handbook*.)

Job Outlook

Employment of industrial production managers is expected to grow more slowly than the average for all occupations through 2012. However, a number of job openings will stem from the need to replace workers who transfer to other occupations or leave the labor force. Applicants with a college degree in industrial engineering, management, or business administration, and particularly those with an undergraduate engineering degree and a master’s degree in business administration or industrial management, enjoy the best job prospects. Employers also are likely to seek candidates who have excellent communication skills and who are personable, flexible, and eager to enhance their knowledge and skills through ongoing training.

Although manufacturing output is projected to rise, increases in productivity among industrial production managers and the workers they supervise will limit growth in employment of these managers. Productivity gains among managers will stem from the increasing use of computers for scheduling, planning, and coordination. Productivity gains among workers will limit both the number of employees in factories and the need for supervision. In addition, more emphasis on quality in the production process has redistributed some of the production manager’s oversight responsibilities to supervisors and workers on the production line. Because production managers are so essential to the efficient operation of a plant, they have not been greatly affected by recent efforts to flatten management structures. Nevertheless, this trend has led production managers to assume more responsibilities and has limited the creation of more employment opportunities.

Earnings

Median annual earnings for industrial production managers were \$67,320 in 2002. The middle 50 percent earned between \$50,710 and \$88,880. The lowest 10 percent earned less than \$38,980, and the highest 10 percent earned more than \$114,750. Median annual earnings in the manufacturing industries employing the largest numbers of industrial production managers in 2002 were:

Management of companies and enterprises	\$89,570
Semiconductor and other electronic component manufacturing	78,070
Motor vehicle parts manufacturing	73,570
Plastics products manufacturing	60,720
Printing and related support activities	59,270

Related Occupations

Industrial production managers oversee production staff and equipment, ensure that production goals and quality standards are being

met, and implement company policies. Occupations requiring similar training and skills are engineers, management analysts, operations research analysts, top executives, and industrial engineers, including health and safety.

Sources of Additional Information

For more information on industrial production management, contact local manufacturers or schools with programs in industrial management.