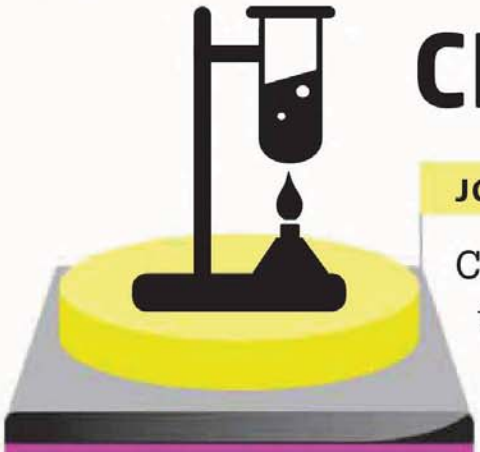


CHEMICAL ENGINEER

SALARY

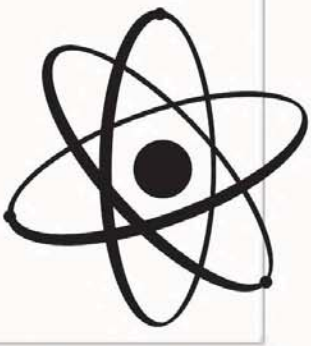
Associate engineer ★★☆☆☆
Senior engineer ★★★★☆

INDUSTRY PROFILE

Huge global industry • Rising energy costs driving innovation • Manufacturing often based in countries with lower labor and resource costs

JOB DESCRIPTION

Chemical engineers develop the technologies that turn raw materials into useful products, such as paints, glues, textiles, and plastics. Some work in laboratories, designing new—or improving existing—products, while others specialize in developing efficient manufacturing processes—the machinery and techniques used to produce the products while meeting quality and safety standards.



AT A GLANCE

YOUR INTERESTS Chemistry • Mathematics • Physics • Biology • Technology • Project Management • Computing

ENTRY QUALIFICATIONS A degree in chemical, process, or biochemical engineering, as well as some practical experience, is required.

LIFESTYLE Working hours are regular in research and development, but shiftwork may be necessary in some processing and manufacturing fields.

LOCATION The work is usually based in an office, laboratory, or chemical plant. Chemical engineers may have to travel sometimes overseas to visit sites.

THE REALITIES This is a high-pressure job demanding swift problem-solving skills. Chemical engineers may be in charge of operating expensive facilities.

SKILLS GUIDE

- Good interpersonal skills to interact with a range of people across the industry.
- Problem-solving and analytical skills to manage complex projects and large budgets.
- Mathematical skills and an ability to apply scientific principles to real-world problems.
- Expertise in specialized computer software, used to process data and control production lines.
- The ability to predict and analyze the commercial results of scientific applications.
- Creativity and innovation to define manufacturing processes that make industrial products.

RELATED CAREERS

- **ENERGY ENGINEER** Researches and develops ways to generate energy from fossil fuels, such as coal and oil, as well as from renewable sources, such as wind, waves, and sunlight.
- **ENVIRONMENTAL ENGINEER** Uses knowledge of engineering, biology, and chemistry to help solve environment-related issues.
- **NUCLEAR ENGINEER** Designs and maintains facilities in the nuclear energy industry. Nuclear engineers are also responsible for decommissioning nuclear facilities when they shut down.
- **PROCESS ENGINEER** Uses chemical and mechanical engineering knowledge to develop efficient manufacturing and production processes.

Chemical engineering graduates are among the best paid of all graduates in their first jobs.

CAREER PATHS

After completing a degree and obtaining experience in the industry, you usually need to study further to gain professional accreditation. You can then choose to specialize in production, research and development, or sales and marketing of your company's products, or you may decide to move into management.

GRADUATE You need a bachelor's degree in chemical or biochemical engineering. For research and development, a graduate degree may be preferred. Larger employers in the field may offer a graduate training program through which it is possible to gain exposure across the diverse areas of the business.

CHEMICAL ENGINEER
Once qualified, you have the option of focusing on researching new products, improving industrial products already in use, or managing activity at a manufacturing plant.

PROCESS ENGINEER Designs, maintains, and optimizes the processes used in the mass production of chemicals and other products. Works in areas as diverse as pharmaceuticals and oil refineries, and oversees the running of a manufacturing plant.

RESEARCH ENGINEER Specializes in the development of new products and manufacturing techniques. Some of this work is at the cutting edge of science, such as advancing new medicines or treatments.

PROJECT MANAGER
Applies engineering, problem-solving, and organizational skills to lead technical projects. Manages timelines and costs while coordinating the efforts of a team.