

# Career Spotlight

## Chemical Engineer

*Chemical engineering is the branch of engineering that deals with the application of physical science and life sciences with mathematics to the process of converting raw materials or chemicals into more useful or valuable forms. In addition to producing useful materials, modern chemical engineering is also concerned with pioneering valuable new materials and techniques.*



### EDUCATION

Engineers typically enter the occupation with a bachelor's degree in mathematics or an engineering specialty, but some basic research positions may require a graduate degree. Most engineering programs involve a concentration of study in an engineering specialty, along with courses in both mathematics and the physical and life sciences. Engineers offering their services directly to the public must be licensed. Continuing education to keep current with rapidly changing technology is important for engineers.

### WHEN MATH IS USED

Much of chemical engineers' mathematical work is planning and the theoretical "modeling" of production processes and analysis that takes place on computer or in preliminary reports.

### POTENTIAL EMPLOYERS

About 37 percent of engineering jobs are found in manufacturing industries and another 28 percent in professional, scientific, and technical services, primarily in architectural, engineering, and related services. Many engineers also work in the construction, telecommunications, and wholesale trade industries. Some engineers also work for Federal, State, and local governments in highway and public works departments. Ultimately, the type of engineer determines the type of potential employer.

### FACTS

Chemical engineers use math frequently in the laboratory. They use advanced computer software to aide in their research and production processes to model theoretical synthesis techniques and properties of chemical compounds.

### CITATIONS

[http://en.wikipedia.org/wiki/Chemical\\_engineering](http://en.wikipedia.org/wiki/Chemical_engineering)

<http://www.cbsalary.com/national-salary-chart.aspx?specialty=Chemical+En...>

<http://www.bls.gov/oco/ocos027.htm>

<http://www.princetonreview.com/careers.aspx?cid=33>

<http://mathmajor.org/careers/chemical-engineer/>

### MATH REQUIRED

- College Algebra
- Geometry
- Trigonometry
- Calculus I and II
- Linear Algebra
- Differential Equations
- Statistics

**Low-end Salary:** \$56,520/yr

**Median Salary:** \$90,300/yr

**High-end Salary:** \$139,670/yr