

# CHEMICAL ENGINEERING

**Chemical engineering** is a certain type of [engineering](#) which deals with the study of operation and design of chemical plants as well as methods of improving production. Chemical engineers develop economical commercial processes to convert raw material into useful products. Chemical engineering uses principles of [chemistry](#), [physics](#), [mathematics](#), [biology](#), and [economics](#) to efficiently use, produce, design, transport and transform energy and materials. The work of chemical engineers can range from the utilization of [nanotechnology](#) and [nanomaterials](#) in the laboratory to large-scale industrial processes that convert chemicals, raw materials, living cells, microorganisms, and energy into useful forms and products. Chemical engineers are involved in many aspects of plant design and operation, including safety and hazard assessments, [process design](#) and analysis, [modeling](#), [control engineering](#), [chemical reaction engineering](#), [nuclear engineering](#), [biological engineering](#), construction specification, and operating instructions.

Chemical engineers typically hold a degree in Chemical Engineering or Process Engineering. Practicing engineers may have professional certification and be accredited members of a professional body. Such bodies include the [Institution of Chemical Engineers](#) (IChemE) or the [American Institute of Chemical Engineers](#) (AIChE). A degree in chemical engineering is directly linked with all of the other engineering disciplines, to various extents.

A 1996 *British Journal for the History of Science* article cites James F. Donnelly for mentioning an 1839 reference to chemical engineering in relation to the production of [sulfuric acid](#).<sup>[1]</sup> In the same paper, however, [George E. Davis](#), an English consultant, was credited with having coined the term.<sup>[2]</sup> Davis also tried to found a Society of Chemical Engineering, but instead it was named the [Society of Chemical Industry](#) (1881), with Davis as its first secretary.<sup>[3][4]</sup> The *History of Science in United States: An Encyclopedia* puts the use of the term around 1890.<sup>[5]</sup> "Chemical engineering", describing the use of mechanical equipment in the chemical industry, became common vocabulary in England after 1850.<sup>[6]</sup> By 1910, the profession, "chemical engineer," was already in common use in Britain and the United States.