

# Process Engineer

## WHO ARE THEY?<sup>1,2</sup>

Process engineers are multi-tasking, problem-solving, leadership-oriented professionals who combine business management skills with knowledge of multiple fields of science and mathematics, including chemistry, thermodynamics and physics. They provide leadership at refineries to maximize their efficiency producing oil and gas products. They design systems for tasks as varied as moving heavy parts and machines, delivering products to customers, evaluating plant performance and paying workers. Process engineers are comfortable implementing complex production plans, but also possess analytical minds for troubleshooting and making adjustments to solve problems. They are able to collaborate with colleagues representing diverse areas of expertise within a refinery. They can communicate with clients about product specifications and project status. Successful process engineers maximize the utility of production processes and ensure oil and gas products are produced safely, on time and on budget.

## WHAT DO THEY DO? <sup>1,2</sup>

Process engineers work onsite at refineries to oversee the production of oil and gas products. They purchase, test and maintain plant equipment to make sure it operates correctly and in accordance with government regulations and internal safety and operation standards. They consult with other experts to formulate detailed procedures for refining petroleum; and then oversee implementation of these plans. Process engineers ensure employees are safe and productive. They collect data, write reports and maintain paperwork that documents their facilities' compliance with regulations and overall efficiency. They collaborate with senior management to formulate budgets that minimize costs while achieving maximum productivity.

## JOB OUTLOOK<sup>3</sup>

Overall employment of process engineers is projected to grow at about the average rate for all occupations. The employment outlook for process engineers will depend on oil and gas price fluctuations. When oil and gas prices are higher, companies invest in new on and offshore drilling facilities staffed by engineers and other experts.

## SALARY RANGE<sup>1</sup>

\$76,410–\$96,600

## HOW DO I BECOME ONE?<sup>1</sup>

Process engineers will need a bachelor's degree in chemical engineering, although many also have degrees in other engineering fields, such as industrial, mechanical or electrical engineering. Some colleges and universities offer five- and six-year programs to lead to attainment of both a bachelor's and master's degree, as well as the opportunity to gain practical experience. High school students interested in the field should take upper-level

mathematics and science courses, including algebra, trigonometry, and calculus, as well as computer science, chemistry, and physics. Process engineers also need creativity and problem-solving skills for designing and troubleshooting production processes; critical thinking skills for identifying costs and benefits of alternatives; and communication skills for preparing and explaining documentation to others.

## EDUCATION/TRAINING

- Bachelor's degree in petroleum engineering, or a related engineering field, such as chemical, industrial, mechanical or electrical engineering.
- Although not required for entry level positions, process engineers may wish to pass the exam to obtain a Professional Engineering license.

1. "Occupational Outlook Handbook." U.S. Bureau of Labor Statistics.  
<https://www.bls.gov/ooh/architecture-and-engineering/industrial-engineers.htm>
2. "Learn about Being a Process Engineer." Indeed.  
<https://www.indeed.com/career-advice/careers/what-does-a-process-engineer-do>
3. "Occupational Outlook Handbook." U.S. Bureau of Labor Statistics.  
<https://www.bls.gov/ooh/architecture-and-engineering/petroleum-engineers.htm#tab-2>