



## CAREER PROFILE

# Design Engineer

### JOB OUTLOOK<sup>4</sup>

Employment is expected to grow by 4 percent by 2028. By becoming a Design Engineer, you are putting into practice the wise words of Albert Einstein, “Imagination is more important than knowledge.”<sup>5</sup> The next generation of Engineering Design students will be creating designs, building, and testing in entirely virtual environments. VR design will dramatically speed up the production of solutions. A specialist will apply these new solutions to fast-growing industries focused on the search for new forms of energy.

### SALARY RANGE<sup>3</sup>

\$56,000–\$136,000

### WHO ARE THEY?

Design Engineers use technical knowledge, design skills, and mathematical expertise to develop innovative solutions to problems. They create the initial concept, plan, development, and management of projects in a range of sectors. Design Engineers have strong technical knowledge and problem-solving abilities as well as communication, leadership, and project management skills. Depending on the choice of a specialist area, they may also be described as CAD engineers, consulting engineers, or product design engineers.<sup>1</sup> They can find jobs with oil and gas companies, refineries, aerospace and automotive industries, construction and building, medical engineering, transportation and highways, and water treatment service.

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

Design Engineers have a wide range of problems to solve. They may find themselves working on small solutions to improve efficiency, working on large equipment that needs to be replaced, or working on ways to make everyone safer. Design Engineers will design or redesign mechanical and thermal devices or subsystems using analysis and computer-aided design. They find failures in systems and recommend solutions. They use a computer extensively to design and prototype. They create prototypes of devices to evaluate the effectiveness of a solution and oversee the manufacturing process for the device. Design Engineers are the point people for issues that may come up in the day-to-day running of any organization.

<sup>1</sup> Prospects, Design engineer, On the internet, <https://www.prospects.ac.uk/job-profiles/design-engineer> (visited on January 31, 2020)

<sup>2</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Mechanical Engineers, on the Internet <https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm#tab-2> (visited January 31, 2020).

<sup>3</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Mechanical Engineers, on the Internet <https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm#tab-5> (visited January 31, 2020).

<sup>4</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Mechanical Engineers, on the Internet <https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm#tab-6> (visited January 31, 2020).

<sup>5</sup> Allabout careers, Design Engineering, on the Internet <https://www.allaboutcareers.com/careers/career-path/design-engineering> (visited January 31, 2020)



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### EDUCATION/ TRAINING

Students should look for cooperative-education programs, in which they earn academic credit and other internships.

In addition to a bachelor's degree, this position may require:

- ABET-accredited program
- A passing score on the Fundamentals of Engineering (FE) exam
- A passing score on the Professional Engineering (PE) exam
- AutoCAD certifications
- ASME certifications
- State and local licensing
- A Ph. D for some research and development programs

### HOW DO I BECOME ONE?<sup>6</sup>

Design Engineers need a bachelor's degree in design or mechanical engineering. They need a strong ability to do common mathematics with engineering variables. Design Engineers need to be well versed in fluid dynamics and structural calculations. The coursework is less theoretical and more practical application. They need to deconstruct more significant problems into smaller ones and design effective solutions. Design Engineers need to have excellent listening skills as, they often work on projects with others and analyze different solutions provided by other experts.

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<sup>6</sup> Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Mechanical Engineers, on the Internet <https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm#tab-4> (visited January 31, 2020).