



CAREER PROFILE

Product Design and Analysis Engineer

JOB OUTLOOK²

The mechanical engineering industry is projected to remain strong, with professionals in some emerging industries likely to see growth even higher than the national average for all occupations. Mechanical engineers, including product design and analysis engineers, will have the chance to work on some of tomorrow's most important innovations, like robotics and self-driving cars. The US Bureau of Labor Statistics predicts that mechanical engineers with the skills and experience to create virtual simulations and those who have expertise in three-dimensional printing will be in particularly high demand.

SALARY RANGE⁵

\$70,000 – \$112,000

WHO ARE THEY?¹

A product design and analysis engineer is responsible for assessing how a product performed throughout its lifecycle and determining how it could be improved upon. An important step in innovation is the process of examining the effectiveness of a product that is already in the market or already being used in order to figure out how it could function more efficiently, how it could be made more cost-effective, or even how it could be created more quickly—and that is the job of a product design and analysis engineer. Even seemingly tiny adjustments could mean millions of dollars saved during production or could mean huge improvements in the usability of a product, so roles like this one are critical for a company like Boeing that is constantly innovating and improving. If you are someone who is never fully satisfied and is always striving to do better and go further, you might make a great product design and analysis engineer.

WHAT DO THEY DO?¹

Product design and analysis engineers are professionals who help companies turn great products into truly excellent ones. At a company like Boeing, this person might take apart a decommissioned aircraft—both via a computer simulation and physically take it apart—and analyze its components. For example, a product design and analysis engineer could set out to understand how changing the design of the wing of that aircraft could make a difference to the functioning of the whole aircraft. They might determine that a slight adjustment to the wing design could lessen the drag on the aircraft, therefore making the whole aircraft fly more efficiently. Their holistic assessment might also include communicating with design engineers, supply management, and third-party suppliers to understand requirements and current manufacturing processes. All of this would result in an analysis and assessment that would help the team to optimize future designs and functionality.



CAREER PROFILE

Product Design and Analysis Engineer

EDUCATION/ TRAINING²

- Bachelor's degree in mechanical engineering or a related STEM field
- Master's degree in mechanical engineering or a related STEM field
- Internships and/or co-ops to gain practical experience

HOW DO I BECOME ONE?²

Mechanical engineers typically need a bachelor's degree in mechanical engineering or a related STEM discipline, and some positions may require a master's degree. Aspiring mechanical engineers should focus on building skills in mathematics, life and physical sciences, and engineering and design, beginning in high school. Students should take courses such as algebra, calculus, statistics, biology, physics, and computer science, along with courses like CAD where available, to build these competencies. Mechanical engineers will also need strong problem-solving and communications skills, along with plenty of creativity.

¹ "Mena Abdelsayed." LinkedIn. <https://www.linkedin.com/in/mena-abdelsayed-544969112/>.

² "Occupational Outlook Handbook." Bureau of Labor Statistics. <https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm>.

³ "Occupational Employment Statistics." Bureau of Labor Statistics. <https://www.bls.gov/oes/current/oes172141.htm>.