

More to Know...Engineering Physics



The opportunities for engineering physics students outside of academia abound. However, engineering physics students face two significant obstacles in pursuing those careers: **knowing their options** and **describing their qualifications** to those unfamiliar with the undergraduate engineering physics experience.

The engineering physics program fosters a breadth of opportunity because it both stresses the fundamentals of science and engineering and gives the student direct exposure to the application of these fundamentals.

Specifically, nearly all physics bachelors noted their training in:

- cognitive areas like complex problem solving
- analytical and critical thinking
- learning how to learn
- broad understanding of basic principles
- foundation for acquiring new knowledge in a rapidly changing world
- innovative design
- experimental capability
- strong quantitative background

Technical skills that it provides include:

- advanced mathematics
- computer skills
- equipment skills
- Laboratory experimentation

Many credit their physics education for important personal traits such as:

- mental discipline
- perseverance
- a strong work ethic
- self-confidence in having completed a difficult and challenging course of study

What do employers look for in an ideal candidate?

Obviously, most employers first look for knowledge and experience that matches their specific and immediate needs. Beyond that, however, many look for some combination of four general skills and traits. One area is problem solving ability including intelligence, quantitative skills, and a practical orientation, e.g., the ability to break a complex problem down to its elementary parts and identify a set of likely solutions. Another area is drive and aspirations including persistence, a strong work ethic, and a high standard of excellence.

A third area is personal impact including such traits as communication skills (writing, speaking, and listening), the ability to work within a team environment, and a personal presence. A fourth area is leadership including initiative and entrepreneurship, which is especially important in the private sector. Employers are looking for people who can assess the strengths of their company, assess the strengths of their team, and propose an idea for a new product or service that is consistent with the company's goals.

Where do Engineering Physics Majors Work?

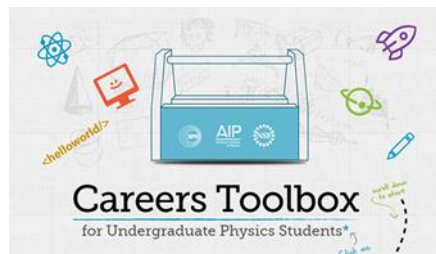
People with physics degrees pursue a remarkable variety of careers in a broad range of settings. Engineering Physics majors tend to work on forefront ideas in technology and science, in either industry or academia. Areas might include aerospace, biophysics, medical physics, renewable energy (photovoltaics, battery technology, fuel cells, ...), transportation, quantum information science, semiconductors, or materials development. Careers could also include systems engineering, teaching, medicine, law (especially intellectual property or patent law), science writing, history of science, philosophy of science, science policy, energy policy, government, or management in technical fields.

Sample Employers:

- Accenture
- Aerospace Corp.
- Air Force Research Laboratory
- Ajax Tocco Magnethermic
- Alcatel-Lucent
- Argonne National Lab
- Battelle
- Bloomberg
- Boeing
- CAR Technologies, LLC
- Center for Automotive Research
- Cisco Systems
- Cook Nuclear Plant
- Electrosience Laboratory
- Fort Calhoun Nuclear Station
- General Electric
- General Electric Aviation
- Great American Financial Resources
- Honda Research and Development Americas, Inc.
- IBM
- IBM
- Idaho National Laboratory
- ITT Industries
- Johns Hopkins University Applied Physics Lab
- JP Morgan Chase
- Los Alamos National Lab
- Meyer Sound, Inc.
- Microsoft
- NASA
- Nationwide Financial
- Northrop Grumman
- Raytheon Integrated Defense Systems
- The Boeing Company
- Wright-Patterson Air Force Base

Common job titles for engineering physics bachelor's degree recipients include:

- Accelerator Operator
- Applications Engineer
- Data Analyst
- Design Engineer
- Hardware Development Engineer
- High School Physics Teacher
- IT Consultant
- Instrumentation Physicist
- Lab Technician
- Laser Engineer
- Optical Engineer
- Programmer/Analyst
- Research Associate
- Software Developer
- Systems Analyst
- Technical Specialist
- Web Developer



Resources:

The Careers Toolbox focuses on undergraduate physics students entering the workforce after graduation. Many of these tools can be applied to finding internships, research positions, or even entrance into graduate programs.

<https://www.spsnational.org/careerstoobox>