

ENGINEERING SCIENCE, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Educational Objectives

The expected accomplishments of Engineering Science graduates in the first several years following graduation are:

1. acquire and apply new knowledge through lifelong learning activities including, but not limited to, masters, doctorate, medical, and law degrees, continuing education, leadership development, management training, innovation/entrepreneurship, and global involvement/awareness;
2. engage in practice in a wide variety of fields including, but not limited to, electrical systems, electronics, mechanical systems, materials development, forensics, biomaterials, medicine, law, and business in industry, academia and government;
3. research, develop, design and/or utilize new products, processes, materials, devices, systems, and/or tools;
4. communicate findings and best practices, at conferences and meetings, and to the general public through presentations, technical publications (journals, reports, memoranda), patents, and other media;
5. apply ethically and professionally the principles and latest tools of engineering, science, and mathematics for the benefit of society;
6. participate in and promote the values of diversity and sustainability in society; and
7. encourage and foster future generations of engineers through mentoring, service, and outreach.

Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Engineering Science program is designed to enable students to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Communicate effectively with a range of audiences
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.