

## **PROGRAM EDUCATIONAL OBJECTIVES**

The Engineering Physics program at Murray State University produces graduates who:

- A. are equipped to function as productive, qualified engineering professionals in entry-level corporate research, development, and production positions. This includes the ability to communicate effectively, work collaboratively, and solve problems creatively.
- B. are able to practice engineering in areas where traditional science and engineering disciplines overlap, utilizing their ability to incorporate significant computational, analytical, and experimental skills in accomplishing the engineering task.
- C. are prepared to successfully enter and complete programs of graduate study in one of several engineering fields as well as in physics.
- D. are aware of their responsibility to contribute to society as ethical, socially conscious practitioners of their profession.

## **PROGRAM OUTCOMES**

Graduates of the Engineering Physics program at Murray State University will attain:

- a. an ability to apply knowledge of mathematics, science, and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- d. an ability to function on multi-disciplinary teams;
- e. an ability to identify, formulate, and solve engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively;
- h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- i. a recognition of the need for, and an ability to engage in life-long learning;
- j. a knowledge of contemporary issues;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- l. an ability to apply advanced mathematics through multivariate calculus, differential equations, and/or numerical techniques;
- m. a knowledge of contemporary analytical and experimental techniques;
- n. a competence in the use of computational tools and in the use of a high-level programming language.
- o. a depth of knowledge in calculus-based physics at an advanced level;
- p. familiarity with the physical, electronic, thermal, and/or optical properties of materials.