

BME @

NJIT

New Jersey's Science &
Technology University

THE EDGE IN KNOWLEDGE

Preparing for ABET

Visit to class, Monday, October 14

Program Educational Objectives

- Program educational objectives describe what we expect our graduates to attain within a few years after graduation.
- Program educational objectives are based on the needs of the program's constituencies: our students, alumni, employers of graduates, and the BME faculty.

BME Program Educational Objectives

Objective A) To prepare students for productive careers related broadly to biomedical engineering. It is anticipated that BME graduates will embark upon diverse career paths in industry (medical device / pharmaceutical / biotechnology), professional education (including medical school), or research.

Objective B) While working within their selected career path, we expect that our alumni will demonstrate the following traits:

- BME alumni are integrators: We expect BME graduates to translate and effectively communicate their fundamental knowledge of sciences, mathematics, liberal arts, and engineering analysis into actions that address and solve a wide range of problems, especially those related to medicine and biology.
- BME alumni continue their professional growth: We expect BME graduates to advance their skills through professional growth and development opportunities provided by participation in a professional society, continuing education, or graduate study in engineering or other professional fields.
- BME alumni are engaged in service: We expect BME graduates to engage themselves in service to their chosen professional societies as well as their local, national, or global communities.

Student Outcomes

- Student outcomes describe what we expect our students to know and be able to do by the time they graduate.
- These relate to the knowledge, skills, and behaviors that students acquire as they progress through the program.

BME Student Outcomes

By the time students graduate from the Biomedical Engineering Program, they will demonstrate that they possess the following knowledge and skill sets:

- 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 multidisciplinary 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

BME Specific Criteria

ABET accreditation requires that the BME program must prepare graduates to have:

- a. an understanding of biology and physiology
- b. the capability to apply advanced mathematics (including differential equations and statistics) to solve the problems at the interface of engineering and biology
- c. the capability to apply advanced science and engineering to solve the problems at the interface of engineering and biology
- d. the ability to make measurements on and interpret data from living systems
- e. the ability to address problems associated with the interaction between living and non-living materials and systems

Common Questions for Students

- What are the educational objectives and program outcomes?
- Do you understand what you are expected to know by graduation (i.e., the program outcomes) ?
- Are course objectives (program outcomes) clearly defined?
- Did you and are you receiving appropriate academic advising?
- Are faculty readily available?
- How are the labs? Is equipment available?
- How are the computer facilities?
- Do you have adequate access to computer facilities?
- Are the faculty involved in advising and/or monitoring your academic progress?
- What are your placement prospects after graduation?