BSIE Program Objectives
The BSIE Program Educational Objectives represent the expected characteristics of industrial engineering graduates within three to five years of receiving a Bachelor of Science degree in Industrial Engineering. The BSIE curriculum has been designed as the foundation for these educational objectives. Tennessee Tech industrial engineering graduates will:

1. Lead the planning, designing, developing, and controlling integrated systems.
2. Apply industrial engineering concepts and tools to improve processes in service and manufacturing systems.
3. Use analytical techniques to model complex systems and make inferences for effective decisions.
4. Pursue graduate education in either a research or professional degree program.

BSIE Program Outcomes
The educational mission of the ISE Department is to develop benchmark quality industrial engineers with broad-based expertise in the design, development, and management of integrated production and service systems. This research mission is to develop and transfer innovative technologies for modeling and solving the problems of such integrated systems. To meet these missions, educational objectives have been established for the BSIE program in accordance with ABET engineering accreditation criteria and the inputs of industry, alumni, faculty, and student constituents. The department’s Industrial Advisory Board annually reviews these objectives as well as the program outcomes and assessment metrics for curriculum effectiveness. This system of program management has resulted in an undergraduate industrial engineering program designed to provide a strong engineering foundation so that graduates have the technical competence and broad education to develop effective and ethical engineering solutions to contemporary, societal problems; to communicate effectively; and to function positively in teams, and to be prepared to engage in life-long learning. An important aspect of the program is that all BSIE students earn academic credit for participating in an IE design internship course, i.e., a team-based project with a local industry or other organization, before graduation.

The ABET-mandated outcomes are:

(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
(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
(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
In addition to meeting or exceeding each of the ABET Criterion 3 (a-k) program outcomes, the BSIE program has four signature outcomes on which the curriculum is founded. These outcomes ensure that Tennessee Tech industrial engineering graduates have the ability to:

- specify data requirements to assess and improve system performance;
- develop and evaluate abstract models of system performance;
- utilize analytical techniques for decision making; and
- demonstrate leadership abilities in individual and team situations.

**BSIE Program Assessment**

As part of the requirements for engineering accreditation, the industrial engineering program is assessed annually by the faculty in conjunction with the Industrial Advisory Board. One or more Course Outcomes map to each Program Outcome. Therefore, the basis for assessing success in meeting Program Outcomes will be primarily the student’s success in courses.

Other assessment tools for Program Outcomes include:

- Annual survey of juniors and seniors
- Annual student interviews by the Industrial Advisory Board
- Senior exit interviews by departmental chairperson
- Evaluation of capstone design projects
- Scores on selected topics of the Fundamentals of Engineering Examination

Because Program Educational Objectives reflect graduates’ performance three to five years after graduation, employer visits and alumni surveys are used for assessment of the Objectives.