Industrial Technology Undergraduate Degree Program
Iowa State University
Mission, Objectives, Outcomes and Competencies
December, 2005

The mission of the Industrial Technology (ITec) program at Iowa State University is to prepare women and men for careers that integrate and apply industrial technology to lead and manage human, manufacturing, and safety systems.

Program Objectives

The ITec degree program at Iowa State University has the following educational objectives for its graduates. At two to five years after undergraduate graduation, through professional practice in industrial technology, graduates should:

1. Have demonstrated competence in methods of analysis involving use of mathematics, fundamental physical and biological sciences, technology, and computation needed for the professional practice in the field of industrial technology.
2. Have developed skills necessary to contribute to the design process; including the abilities to think creatively, to formulate problem statements, to communicate effectively, to synthesize information, and to evaluate and implement problem solutions.
3. Be capable of addressing issues of ethics, safety, professionalism, cultural diversity, globalization, environmental impact, and social and economic impact in professional practice.
4. Have demonstrated continuous professional and technical growth, with practical experience, so as to be licensed in their field or achieve that level of expertise, as applicable.
5. Have demonstrated the ability to:
    a. be a successful leader of multi-disciplinary teams,
    b. efficiently manage multiple simultaneous projects,
    c. work collaboratively,
    d. implement multi-disciplinary systems-based solutions,
    e. to apply innovative solutions to problems through the use of new methods or technologies,
    f. contribute to the business success of their employer,
    g. build community.

Intended Student Outcomes

Graduates of the Industrial Technology curriculum should have:

a) an ability to apply knowledge of mathematics, science, technology and applied sciences;
b) an ability to design and conduct experiments, as well as to analyze and interpret data;
c) an ability to formulate or design a system, process or program 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 and solve applied science 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 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; and
k) an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.

Successful attainment of these intended student outcomes is determined by assessing student competencies (before and after graduation) in these areas: engineering/technical knowledge, general knowledge, continuous learning, quality orientation, initiative, innovation, cultural adaptability, analysis and judgment, planning, communication, teamwork, integrity, professional impact, and customer focus. These competencies are related to the intended student outcomes as follows:

Map of Competencies to Student Outcomes

	Competency													
Outcome	Technical Knowledge	General Knowledge	Continuous Learning	Quality Orientation	Initiative	Innovation	Cultural Adaptability	Analysis and Judgment	Planning	Communication	Teamwork	Integrity	Professional Impact	Customer Focus
a) ability to apply knowledge of mathematics, science, technology and applied sciences;	X		X		X			X						
b) an ability to design and conduct experiments, as well as to analyze and interpret data;	X		X	X	X	X		X	X		X			X
c) ability to formulate or design a system, process or program to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;	X		X	X	X	X	X	X	X	X	X			X
d) ability to function on multi-disciplinary teams;					X		X	X	X	X	X	X	X	X
e) ability to identify and solve applied science problems;	X		X	X	X	X		X		X	X			X
f) understanding of professional and ethical responsibility;		X	X	X			X	X				X		
(g) an ability to communicate effectively		X			X					X			X	X
h) the broad education necessary to understand the impact of solutions in a global economic, environmental, and societal context;	X	X	X				X	X						
i) recognition of the need for, and an ability to engage in life-long learning;			X		X									
(j) a knowledge of contemporary issues		X	X				X	X						
(k) an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice	X		X	X	X		X	X						