Industrial Technology (ITEC)
Occupational Safety Option (OS)
A Curricular Program in the College of Agriculture and Life Sciences
Department of Agricultural and Biosystems Engineering
Iowa State University

The mission of the Bachelor of Science academic program in ITEC-OS is to prepare women and men for careers that integrate and apply industrial technology to lead and manage human, manufacturing, and safety systems.

Student Enrollment, Fall 2014: 14

Students Graduate (Summer 2013, Fall 2013 and Spring 2014): 8

Program Outcomes

At two to five years after undergraduate graduation, through professional practice, graduates of the ITEC-OS program 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 agricultural 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 be a successful leader of multi-disciplinary teams.
6. Have demonstrated the ability to efficiently manage multiple simultaneous projects.
7. Have demonstrated the ability to work collaboratively.
8. Have demonstrated the ability to implement multi-disciplinary systems-based solutions.
9. Have demonstrated the ability to apply innovative solutions to problems through the use of new methods or technologies.
10. Have demonstrated the ability to contribute to the business success of their employer.
11. Have demonstrated the ability to build community.

Program Competencies

All programs options have these common Competencies, a series of measurable knowledge and abilities. At the times of graduation, student should have:

   a) an ability to apply knowledge of mathematics, science, 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;
   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 and societal context;
i) 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 scientific and technical tools necessary for professional practice;
l) an ability to develop, implement, and evaluate occupational safety and health programs for businesses and organizations;
m) an ability to identify and analyze hazards and loss producing conditions in work environments; and
n) an ability to eliminate or control occupational hazards using appropriate technologies, administrative interventions, and training for behavior modification.

Map of Workplace Competencies to Program Competencies

	Iowa State University ITEC-OS Program Competencies	Workplace Competencies													
		Technical Knowledge	General Knowledge	Continuous Learning	Quality Orientation	Initiative	Innovation	Cultural Adaptability	Analysis and Judgment	Planning	Communication	Teamwork	Integrity	Professional Impact	Customer Focus
(a)	an ability to apply knowledge of mathematics, science, 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	✖		✖	✖	✖	✖	✖	✖	✖	✖	✖			✖
(d)	an ability to function on interdisciplinary teams					✖		✖	✖	✖	✖	✖	✖	✖	✖
(e)	an ability to identify, formulate 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 engineering solutions is a global and societal context	✖	✖	✖				✖	✖						
(i)	a recognition of the need for, and the ability to engage in, life-long learning			✖			✖								
(j)	a knowledge of contemporary issues		✖	✖				✖	✖						
(k)	an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice	✖		✖	✖	✖		✖	✖						