

PROGRAM PROPOSAL FOR AN UNDERGRADUATE CERTIFICATE:
CERTIFICATE IN OCCUPATIONAL SAFETY

1. Name of the proposed undergraduate certificate.

Certificate in Occupational Safety

2. Name of the department(s) involved.

Agricultural and Biosystems Engineering (ABE)

3. Name of contact person(s).

Department of Agricultural and Biosystems Engineering
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4. General description of the undergraduate certificate.

This certificate program is designed for undergraduates in any major who wish to enhance their degree and employment possibilities by adding expertise in occupational safety technology and management. Requirements for the Certificate in Occupational Safety are satisfied by completing a minimum of 20 credits.

Course Requirements

Students will complete the following 14 credits of core course:

- TSM 270. Principles of Injury Prevention. (3-0) Cr. 3.
- TSM 272. Introduction to Occupational Safety. (2-0) Cr. 2.
- TSM 370. Occupational Safety. (3-0) Cr. 3.
- TSM 372. Legal Aspects of Occupational Safety and Health. (2-0) Cr. 2.
- TSM 470. Industrial Hygiene: Physical, Chemical, and Biological Hazards. (3-0) Cr. 3.
- TSM 493G. Workshop in Technology (Occupational Safety). Cr. 1

At least six credits must be selected from the following courses:

- TSM 276. Fire Protection and Prevention. (3-0) Cr. 3.
- TSM 477. System Safety Analysis. (3-0) Cr. 3.
- H S 105. First Aid and Emergency Care. (1-2) Cr. 2.
- H S 110. Personal and Consumer Health. (3-0) Cr. 3.
- H S 305. Instructor's First Aid and Cardio-pulmonary Resuscitation. (1-2) Cr. 2.
- I E 271. Applied Ergonomics and Work Design. (3-0) Cr. 3.

Other Requirements

A minimum of 12 credits applied toward the Certificate cannot be used to meet any other departmental, college, or university requirement.

Courses taken for the Certificate may not be taken on a pass not-pass basis.

A grade of C (2.0) or better is required in courses applied toward the certificate.

A certificate is not awarded if the baccalaureate degree is not finished.

For students earning an ISU baccalaureate degree, a certificate is awarded concurrent with or after the ISU baccalaureate degree.

After receiving a baccalaureate degree from any accredited institution, a student may enroll at ISU to earn the certificate.

5. *Need for the proposed undergraduate certificate.*

Every manager in every industry has occupational safety responsibilities. The ABE department's occupational safety option within the industrial technology degree prepares safety professionals whose career path focuses on occupational safety. This Certificate in Occupational Safety is designed to meet the needs of the vast majority of students who will find themselves with management responsibilities (including safety), but are not planning on careers as safety professionals. This Certificate will be attractive to current and prospective ISU students across all colleges, but particularly students who are planning careers in engineering, agriculture-related industries, and management.

This certificate program will also be very attractive to employees in Iowa companies who have management and/or safety responsibilities and a baccalaureate degree, but not in occupational safety. The Occupational Safety Certificate will provide these employees with desired professional development and recognition of their increased professional knowledge and skills. This type of formal professional development in occupational safety that leads to an academic credential has been frequently requested of the ABE safety faculty when conducting safety training for a variety of industries.

6. *Objectives of the proposed undergraduate certificate including the student learning outcomes and how the learning outcomes will be assessed.*

The objective of this certificate program is to prepare technically-oriented managers to meet their professional safety responsibilities.

Required course experiences in this certificate program will help students develop competencies in the following areas:

- Safety management
- Safety administration
- Safety training
- Hazard recognition and analysis
- Accident investigation
- Legal responsibilities and regulations
- Industrial hygiene
- Fire safety
- Industrial ergonomics
- First aid and CPR

Elective course experiences in this certificate program will help students develop competencies in the following areas:

- Systems safety
- Health promotion

These competency areas are addressed in the courses as indicated:

Competency	Courses
Safety management	TSM 272, 370
Safety administration	TSM 272, 370, 372
Safety training	TSM 272, 370, 372
Hazard recognition and analysis	TSM 270, 272, 370, 470
Accident investigation	TSM 272, 477
Legal responsibilities and regulations	TSM 272, 370, 372, 477
Industrial hygiene	TSM 272, 470
Fire safety	TSM 270, 276, 477
Industrial ergonomics	IE 271; TSM 370, 470
First aid and CPR	HS 105, 305; TSM 270
Systems safety	TSM 477
Health promotion	HS 110

The primary assessment measures used to evaluate student mastery of desired competencies are the evaluations, by the instructor, of student work assigned during the courses taken and through student reflections associated with key assignments in each course. Student outcomes will be assessed through the documentation of student competencies using student portfolios based on the model that ABE uses for all departmental students.

7. *Relationship of the undergraduate certificate to other programs at Iowa State University.*

This undergraduate certificate program is a subset of the safety-related courses in the Industrial Technology: Occupational Safety Option where the required courses for this certificate are currently taught.

8. *Relationship of the undergraduate certificate to the strategic plans of the university, of the college, and of department or program.*

This certificate program will enhance the capacity of Iowa employers to protect their workers from injuries and illnesses by making an occupational safety education program available to both current ISU undergraduates across disciplines and colleges and to working Iowans with current and/or desired safety responsibilities who have an undergraduate degree regardless of discipline. This certificate program is aligned with goals in the college's and university's strategic plans in the areas of *Education, Economic Impact, and Iowa Life*.

9. *Comparison of the proposed undergraduate certificate with similar programs at other universities, including the Regent's universities.*

There are no undergraduate safety programs at either the State University of Iowa or the University of Northern Iowa.

10. *Program requirements and procedures, including:*

a. prerequisites for prospective students:

Students must be in good standing at ISU and have a minimum cumulative GPA of 2.0 or they must already have an undergraduate degree.

b. application and selection process:

Students will fill out an application to be accepted into the Occupational Safety Certificate Program. Applications will be reviewed by the Agricultural and Biosystems Engineering Department's Safety Focus Group.

c. language requirements:

There is no language requirement for this certificate program.

d. courses and seminars presently available for credit toward the program:

Technology Systems Management

- TSM 270. Principles of Injury Prevention. (3-0) Cr. 3.
- TSM 272. Introduction to Occupational Safety. (2-0) Cr. 2.
- TSM 276. Fire Protection and Prevention. (3-0) Cr. 3.
- TSM 370. Occupational Safety. (3-0) Cr. 3.
- TSM 372. Legal Aspects of Occupational Safety and Health. (2-0) Cr. 2.
- TSM 470. Industrial Hygiene: Physical, Chemical, and Biological Hazards. (3-0) Cr. 3.
- TSM 477. System Safety Analysis. (3-0) Cr. 3.

Health and Safety

- H S 105. First Aid and Emergency Care. (1-2) Cr. 2.
- H S 110. Personal and Consumer Health. (3-0) Cr. 3.
- H S 305. Instructor's First Aid and Cardio-pulmonary Resuscitation. (1-2) Cr. 2.

Industrial Engineering

- I E 271. Applied Ergonomics and Work Design. (3-0) Cr. 3.

e. proposed new courses or modifications of existing courses:

All courses listed as requirements or options within this certificate program are currently in existence. We do not foresee a significant increase in workload for teaching faculty involved in the program. There will be new teaching responsibilities associated with offering a 1-credit TSM 493G Workshop in Technology (Occupational Safety) to facilitate the development of the students' portfolios that will be used as part of the documentation and assessment of student competencies.

f. advising of certificate students:

Students will be advised by the professional advisor in the ABE department, Ms. Melody Carroll.

g. implications for related areas within the university:

Safety responsibilities are part of every management position. This certificate program will prepare students, regardless of discipline, to effectively meet these responsibilities. While this program will address the safety needs of future managers from across campus, we believe that students in engineering, agriculture, and management-related curricula will be particularly interested because of the competitive advantage these skills will provide them in the workplace compared to their peers.

11. General description of the resources currently available and future needs

a. faculty members

The faculty members of the safety focus group include:

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b. computers, laboratories, and other facilities

No new facilities will be required.

c. library facilities (journals, documents, etc.) in the proposed area

Because there is already an occupational safety option in the industrial technology degree, the library is already well equipped to meet the needs of students electing this certificate program. No new library resources will be needed.

d. supplies, field work, student recruitment, etc.

Students will be made aware of this certificate program via a website hosted by the ABE department and by emails, flyers, and announcements across campus. Off campus students will be recruited through the activities of the Safety, Training, Instruction, and Research Center, an educational outreach program operated by the ABE department.

12. Describe the needs for new resources and/or reallocated resources

There are no new resources needed and no resources will be reallocated.