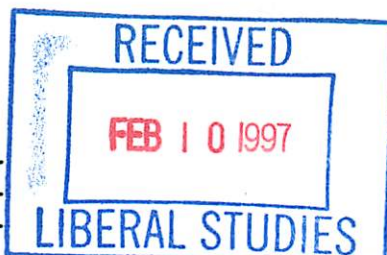


LSC Use Only
Number: _____
Submission Date: _____
Action-Date: _____



UWUCC USE Only
Number: 96-566
Submission Date: _____
Action-Date: App 4/15/97

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

Senate App 4/29/97

I. CONTACT

Contact Person Dr. Lon Ferguson Phone 3018

Department Safety Sciences

II. PROPOSAL TYPE (Check All Appropriate Lines)

☒ **COURSE**

Prin Ind Safety I

Suggested 20 character title

☐ **New Course ***

Course Number and Full Title

☒ **Course Revision**

SA 111 Principles of Industrial Safety I

Course Number and Full Title

☐ **Liberal Studies Approval +**
for new or existing course

Course Number and Full Title

☐ **Course Deletion**

Course Number and Full Title

☐ **Number and/or Title Change**

Old Number and/or Full Old Title

New Number and/or Full New Title

☒ **Course or Catalog Description Change** SA 111 Principles of Industrial Safety I

Course Number and Full Title

PROGRAM:

☐ **Major**

☐ **Minor**

☐ **Track**

☐ **New Program ***

Program Name

☐ **Program Revision ***

Program Name

☐ **Program Deletion ***

Program Name

☐ **Title Change**

Old Program Name

New Program Name

III. Approvals (signatures and date)

[Signature] 11/11/96 Lon H. Ferguson 3/12/96
Department Curriculum Committee

[Signature] 11/11/96 Mary E. Swisher
College Curriculum Committee

+ Director of Liberal Studies (where applicable)

[Signature] 11 Nov 96 Robert Soule 12 FEB 96
Department Chair

[Signature] 11 Nov 96 Charles G. Foxi
College Dean

*Provost (where applicable)

No new courses require

Attachment B

SA 111 Principles of Industrial Safety I

Catalog Description

SA 111 Principles of Industrial Safety I

(3c-0-l-3sh)

Prerequisites: SA 101

Stresses understanding the complexity of the industrial hazard control problem by thoroughly examining elements of safety and health enumerated in the OSHA promulgated standards. Emphasis given to plant layout and design, materials handling, boilers and unfired pressure vessels, machine guarding and robotics safety.

SYLLABUS OF RECORD

I. Catalog Description

Course Title: SA 111 Principles of Industrial Safety 1	3 credits
Prerequisites: SA 101	3 lecture hours
	0 lab hours
	(3c-0l-3sh)

Stresses understanding the complexity of the industrial hazard control problem by thoroughly examining elements of safety and health enumerated in the OSHA promulgated standards. Emphasis given to plant layout and design, materials handling, boilers and unfired pressure vessels, machine guarding and robotics safety.

II. Course Objectives

Students completing this course will be able to:

- A. Distinguish between some basic types of manufacturing processes.
- B. Demonstrate competency in using the OSHA standards by identifying specific violations of current standards.
- C. Identify other sources of safety and health standards such as ANSI, NFPA, etc.
- D. Describe important considerations in building design and layout such as egress, walking surfaces, materials handling, sanitation and traffic control.
- E. Define the specific classes of industrial trucks, the common hazards associated with their operation and control strategies to reduce hazards.
- F. Identify point of operation and power transmission exposures for a variety of industrial equipment as well as develop control strategies to reduce exposures.
- G. Discuss safety considerations involved in the construction, installation and maintenance of boilers and unfired pressure vessels.
- H. Describe the basic components of an industrial robot as well as common hazards and safeguards.

III. Course Outline

- A. Occupational Safety & Health Standards (4 Hours)
 - 1. Development of standards
 - 2. Enforcement of standards
 - 3. Consensus standards
- B. Introduction to Industrial Processes (3 Hours)
 - 1. Types of processes
 - 2. Process flow
 - 3. Process related hazards

- C. Industrial Building and Plant Layout (6 Hours)
1. Site planning
 2. Building layout
 3. Egress and traffic control
 4. Walking and working surfaces
- D. Powered Industrial Vehicles (6 Hours)
1. Classes of industrial trucks/vehicles
 2. Safe operation of vehicles
 3. Maintenance & inspection of vehicles
 4. Training of operators
 5. Automatic guided vehicles
- E. Boilers and Unfired Pressure Vessels (3 Hours)
1. Construction & installation
 2. Inspection & maintenance
- F. General Requirements for Machine Guarding (4 Hours)
1. Point of operation guarding
 2. Power transmission guarding
 3. Administrative controls
- G. Metal and Wood Working Machinery (6 Hours)
1. Grinders, shapers & sanding machines
 2. Lathes & mills
 3. Sawing machines
 4. Drilling machines
- H. Cold and Hot Forming Machinery (6 Hours)
1. Cold and hot metal process
 2. Mechanical and hydraulic punch presses
 3. Press brakes and shears
 4. Forging hammers
- I. Robotics Safety (4 Hours)
1. Types of robots
 2. Uses for robots
 3. Hazards associated with robots
 4. Controls for robotics hazards

IV. Evaluation Methods

The faculty person assigned to teach this course could be one of several faculty within the Safety Sciences Department. What follows is an example of the evaluation methods and weighting used by one of those faculty:

The final grade in this class will be determined using a combination of the following:

- A. At least two examinations (60%)
All examinations will be announced and will be closed book except for the use of the Code of Federal Regulations (29CFR 1910) during certain sections.
Questions on exams will be short answer, multiple choice, true/false and matching.
- B. Quizzes (10%)
Quizzes will be similar in format to the examinations, however they will not be announced. Quizzes will emphasize readings from the text and handouts and current notes.
- C. Homework (15%)
 - 1. Industrial scenarios which require the use of OSHA & ANSI standards to identify hazards and possible control strategies.
 - 2. Written chapter summaries from the text.
- D. Individual and Group Projects (15%)
Projects will include case studies of industrial exposures and the development of a crane inspection form.

The following grading scale will be used to assign letter grades, related to the evaluation of student performance based on a percentage scale:

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = Below 60%

At the discretion of the instructor, a grading curve that results in an appropriate distribution of grades may be used in place of the scale described above.

V. Required Texts

Laing, Patricia, M. Editor. Accident Prevention Manual for Industrial Operations - Engineering & Technology. Eleventh Edition. Chicago: National Safety Council, 1996.

Code of Federal Regulations 29 Parts 1900 to 1910 (up to section 1000) General Industry Standards. 1995 Edition. Washington D.C.: U.S. Government Printing Office, 1996.

VII. Special Resource Requirements

None

VIII. Bibliography

Brauer, Roger L. Safety and Health for Engineers. New York: Van Nostrand Reinhold, 1994.

Grimaldi, J. & Simonds, R. Safety Management. Fifth Edition. Boston, MA: Irwin, 1989.

Hammer, Willie. Occupational Safety Management & Engineering. Fourth Edition. Englewood Cliffs, NJ: Prentice Hall, 1989.

Laing, P. M. Power Press Safety Manual. Chicago, IL: National Safety Council, 1989.

MacCollum, D. V. Crane Hazards and Their Prevention. Des Plaines, IL: American Society of Safety Engineers, 1993.

Yankee, H. W. Manufacturing Processes. Englewood Cliffs, NJ: Prentice Hall, 1989.

Course Revision: SA 111 Principles of Industrial Safety 1

Description of the Curriculum Change

1. The new syllabus of record for this revised course is attached.
2. What follows is a summary of the proposed changes to SA 111:
 - a. The course description was changed slightly to include the new content proposed for the revised course.
 - b. The course objectives have been expanded from 3 to 8. The three original objectives on the old syllabus of record were very broad and were not behavioral oriented. The new objectives are more specific to the content covered in the course and are behavioral oriented.
 - c. The course was expanded to include an introduction to industrial processes. This unit was added because its coverage is now required by our accrediting agency (ABET). It is also believed that coverage of this material will help our students better understand the hazards associated with specific processes.
 - d. The previous unit of “working and walking surfaces” was moved to the SA 211 course where a laboratory component could be initiated.
 - e. The previous unit “materials handling and storage” was subdivided with coverage of industrial trucks and automatic guided vehicles remaining in SA 111 while the rest of the content was transferred to SA 211. It was believed that coverage of cranes and other types of materials handling equipment would be better served in SA 211 where a laboratory could be used to demonstrate the operation and hazards of the equipment.
 - f. An additional unit was added to address Robotics Safety. The increasing use of robotics in industry makes it critical that our students understand the uses of robotics as well as their inherent hazards and control strategies.
 - g. SA 102 Introduction to Mine Safety & Health is no longer a prerequisite course.
3. In general these revisions were necessary to update the coverage of new material. This additional material was necessary to better meet the needs of our students in their role as safety & health professionals as well as the requirements of our accrediting agency. Portions of the unit on “materials handling and storage” were transferred to SA 211 because it was believed this material could be better presented using the proposed SA 211 laboratories.

4. The old syllabus of record is attached.
5. These course changes do not affect the Liberal Studies requirements.

Letters of Support

1. These course changes will not affect other departments, therefore letters of support from other departments were not obtained.

SYLLABUS OF RECORD

I. Catalog Description

~~SA III Principles of Industrial Safety~~
Prerequisite: SA 101 or SA 102

3c-01-3sh

Stresses understanding the complexity of industrial hazard control problem by thoroughly examining elements of safety and health enumerated in OSHA-promulgated standards. Emphasis given to plant layout and design, materials handling, machine guarding, walking and working surfaces, hazardous materials and combustible liquids, boilers and unfired pressure vessels.

II. Course Objective

- A. To assure the students' understanding of the principles of industrial safety.
- B. To enable the students to apply these principles.
- C. To interpret and apply OSHA standards to business and industry.

III. Course Outline

- A. Occupational Safety and Health Standards (5 hours)
- B. Industrial Buildings and Plant Layout (4 hours)
- C. Walking and Working Surfaces (4 hours)
- D. Materials Handling and Storage (5 hours)
- E. General Requirements for Machinery and Machine Guarding (6 hours)
- F. Machine Tools (5 hours)
- G. Cold Forming of Metals (4 hours)
- H. Hot Working of Metals (5 hours)
- I. Boilers and Unfired Pressurized Vessels (4 hours)

IV. Evaluation Methods

The final grade will be determined by using any combination of at least four(4) of the following evaluation methods within the range of weights shown as determined by the individual faculty member and which must total 100%.

0-60% Exams

There will be a minimum of two written exams consisting of combinations of multiple choice, true/false, matching, completion, and essay questions; or other interactive exams. Make-up exams are at the discretion of the individual faculty member.

0-25% Quizzes

Periodic quizzes will be given. Some individual faculty members may utilize unannounced quizzes. Make-up quizzes are at the discretion of the individual faculty member.

0-15% Homework

Periodic out-of-classroom assignments will be given.

0-40% Term Papers/
Projects

Each student will prepare formal papers or projects on a topic approved by the individual faculty member.

0-20% In-Class Writing

Each student will prepare various assignments in class utilizing free-style writing techniques as scheduled by the individual faculty member.

0-25% Presentations

Each student will participate in an oral presentation topic approved by the individual faculty member.

0-20% Participation

Each student will provide active engagement in the classroom.

0-25% Group Activity

Students will be assigned various activities requiring a collaborative effort with other students.

Extra credit can be assigned to any one of the above evaluation methods at the discretion of the instructor.

The grading scale will be based on the following:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	< 60%

or, at the discretion of the faculty member a grading curve that results in a normal distribution of grades.

V. Required Textbooks, Supplemental Books and Readings

Accident Prevention Manual for Business and Industry (Engineering and Technology). National Safety Council, Chicago, IL. 10th edition.

Code of Federal Regulations 29- Parts 1900-1910. U.S. Government Printing Office, Washington D.C. Latest Edition.

VI. Special Resource Requirements

None

VII. Bibliography

Accident Prevention Manual for Business and Industry (Administration and Programs). National Safety Council, Chicago, IL. 10th edition, 1992.

Occupational Safety Management and Engineering. Willie Hammer, Prentice Hall, Englewood Cliffs, NJ (1985)

Safety and Health for Engineers. Roger Braver, Van Nostrand Reinhold, New York, NY (1990)