

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		04-46c	Apr 3/22/05	Apr 4/26/05

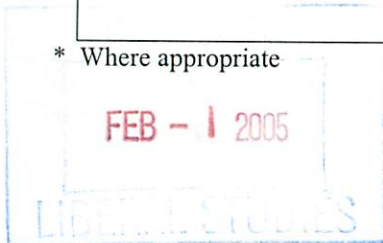
Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Dr. John Engler	Email Address JME@iup.edu
Proposing Department/Unit Safety Sciences Department	Phone 7-3018

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)		
<input checked="" type="checkbox"/> New Course	<input type="checkbox"/> Course Prefix Change	<input type="checkbox"/> Course Deletion
<input type="checkbox"/> Course Revision	<input type="checkbox"/> Course Number and/or Title Change	<input type="checkbox"/> Catalog Description Change
<i>Current Course prefix, number and full title</i>		SAFE 220 Hazardous Materials
<i>Proposed course prefix, number and full title, if changing</i>		
2. Additional Course Designations: check if appropriate		
<input type="checkbox"/> This course is also proposed as a Liberal Studies Course.	<input type="checkbox"/> Other: (e.g., Women's Studies, Pan-African)	
<input type="checkbox"/> This course is also proposed as an Honors College Course.		
3. Program Proposals		
<input type="checkbox"/> New Degree Program	<input type="checkbox"/> Program Title Change	<input type="checkbox"/> Other
<input type="checkbox"/> New Minor Program	<input type="checkbox"/> New Track	
<i>Current program name</i>		<i>Proposed program name, if changing</i>
4. Approvals		
Department Curriculum Committee Chair(s)	<i>Lor Ferguson</i>	1/12/05
Department Chair(s)	<i>Lor Ferguson</i>	1/21/05
College Curriculum Committee Chair	<i>Elizabeth Palmer</i>	1/28/05
College Dean	<i>Raymond P. Zoni</i>	2-1-05
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	<i>Gail Sechrist</i>	3-22-05

* Where appropriate



New Course Proposal: SAFE 220 Hazardous Materials

Part II. Description of Curricular Change

1. Syllabus of Record.

The new syllabus is attached in Appendix A.

2. Course Analysis Questionnaire

Section A: Details of the Course

A1 How does this course fit into the programs of the department? For which students is the course designed? Explain why this content cannot be incorporated into an existing course.

This course is designed as a sophomore level hazardous materials course for Safety Science Majors but it can also be taken as an elective for Safety Science Minors and Environmental Health Majors. A portion of the content of this course was briefly covered in SAFE 210 Environmental Safety & Health Regulations but the area of hazardous materials is much too broad to be covered in a unit of one course. In addition, we had previously attempted to cover emergency response in SAFE 210 as well but in light of September 11th the coverage of this area must also be expanded. Our advisory committee, alumni surveys and graduate exit surveys have identified the need to expand our coverage of hazardous materials and emergency response planning in our curriculum.

A2 Does this course require changes in the content of existing courses or requirements for a program?

Yes, we will be revising SAFE 210 to remove any overlap between the two courses and to renumber SAFE 210 to 410 so it will be a senior level course.

A3 Has this course ever been offered at IUP on a trial basis ?

No, it has not been offered on a trial basis.

A4 Is this course to be a dual-level course?

No, this course will not be dual level.

A5 If this course may be taken for variable credit, what criteria will be used to relate the credit to the learning experience of each student?

This course will not be offered for variable credit.

A6 Do other higher education institutions currently offer this course?

Yes, Murray State University does offer a similar course. Murray State's program is accredited by ABET and is many times considered a benchmark program in safety.

Murray State University offers:

OSH 311 Hazardous Materials and Emergency Planning

This course is designed to develop an awareness and comprehension of disaster response programs, operations and responsibilities emphasizing the transpiration, storage and handling of hazardous materials.

A7 Is the content, or are the skills, of the proposed course recommended or required by a professional society, accrediting authority, law or other external agency?

Yes, our accreditation criteria from the Applied Science Accreditation Commission of the Accreditation Board for Engineering and Technology requires the coverage of hazardous materials and emergency response, see appendix C Safety Curriculum Criteria .

Section B: Interdisciplinary Implications

B1 Will this course be taught by instructors from more than one department or team taught within the department?

This course will be taught by Safety Sciences Faculty only and it will not be team taught.

B2 What is the relationship between the content of this course and the content of courses offered by other departments?

The content of this course focuses on hazardous materials with a focus on the industrial environment and the only content that would be close would be courses in Environmental Health. The Environmental Health courses focus on community and environmental health.

B3 Will this course be cross-listed with other departments?

No, this course will not be cross listed with other departments.

B4 Will seats in this course be made available to students in the School of Continuing Education?

Yes, we will hold five seats for students in the School of Continuing Education.

Section C: Implementation

C1 Are faculty resources adequate?

Faculty resources are adequate to support this change to add this course with the following changes to our program and to course scheduling. In the past we have offered SAFE 301(3 workload hours), 303 (3 workload hours) and 402 (6 workload hours) every semester for a total of 24 workload hours each year. With the proposed curriculum changes to eliminate SAFE 301, 303, and 402 we will offer one section of SAFE 320 (9 workload hours) in the Spring and SAFE 420 (9 workload hours) in the Fall for a total of 18 workload hours each year. This will be a savings of 6 workload hours which will be used to support two new SAFE courses, this course as well as SAFE 212 both of which will only be offered once a year.

C2 What other resources will be needed to teach this course and how adequate are the current resources: Reply in terms of the following:

- Space: We will use the existing classrooms for the lecture.
- Equipment: We will use the existing equipment that was used in SAFE 311 Fire Protection.
- Laboratory Supplies and other Consumable Goods: We will use existing consumable supplies that were used in SAFE 311 Fire Protection.
- Library materials: The existing library resources to teach environmental safety courses is adequate.
- Travel Funds: Existing travel funds to support this class are adequate.

C3 Are any of the resources for this course funded by a grant?

None of the resources for this course are funded by a grant.

C4 How frequently do you expect this course to be offered?

We plan to offer this course once a year.

C5 How many sections of this course do you anticipate offering in any single semester?

We plan to offer one lecture section each year during the Fall semester.

C6 How many students do you plan to accommodate in a section of this course? What is the justification for this planned number of students?

We can accommodate up to 40 students in the lecture due to space constraints within Johnson Hall.

C7 Does any professional society recommend enrollment limits or parameters for a course of this nature?

No professional societies recommend any enrollment limits.

C8 If this course is a distance education course, see the Implementation of Distance Educations Agreement and the Undergraduate Distance Education Review Form in Appendix D and respond to the questions listed.

This course is not a distance education course.

Section D: Miscellaneous

Include any additional information valuable to those reviewing this new course proposal.

Not applicable!

Part III. Letters of Support or Acknowledgement

This new course may be an elective in the B.S. in Environmental Health and therefore a letter of support from this program is attached.

APPENDIX A: Syllabus of Record

I. Catalog Description

SAFE 220 Hazardous Materials	3 class hours 0 lab hours 3 credits
Prerequisites: SAFE 101	(3c-01-3cr)

Provide the student a basic understanding of the storage, transportation and use of hazardous materials in business. This will include a discussion on hazardous materials, specifically the definitions, categories, regulations and evaluation of hazardous materials. Emergency response planning will also be covered in this class.

II. Course Objectives

The students will be able to:

- A. discuss the basic concept of ecosystems and the interaction between organisms and the environment.
- B. utilize federal regulations related to hazardous materials to assess compliance
- C. apply chemical spill risk assessment and identify appropriate hazard control techniques
- D. identify an example of a hazardous material for each of the nine classes of Hazardous Materials as defined by the Department of Transportation (DOT).
- E. demonstrate competency in using the National Fire Protection Association (NFPA) Fire Protection Guide on Hazardous Materials and the DOT North American Emergency Response Guidebook.
- F. evaluate risk from disasters and develop appropriate disaster response plans
- G. communicate effectively.

III. Course Outline

- A. Introduction: Background (5 hours)
 - 1. Historical perspective on hazardous materials
 - 2. Interrelationships of matter, energy and environment
 - 3. Overview of environmental and hazardous materials regulations
- B. Principles of Hazardous Materials (6 hours)
 - 1. Fate and transport characterization
 - 2. Ecosystems and communities
 - 3. Bio Hazards

- C. Properties of Hazardous Materials (12 hours)
1. Categories of hazardous materials properties
 2. Federal regulations
 3. Hazardous materials definitions
 4. Human Toxicology
 5. Determination of properties of hazardous materials

Midterm (1 hour)

- D. Transportation of Hazardous Materials (9 hours)
1. DOT Regulations
 2. Labeling of Hazardous Materials
 3. Placarding of Hazardous Materials

- E. Emergency Preparedness (9 hours)
1. Assessment of risk
 2. Planning considerations
 3. Developing an Emergency Plan
 4. Evaluation of plan
 5. Resources for emergency preparedness

Final Examination (2 hours)

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 for this course:

Your final grade in this class will be a compilation of the following:

A. Examinations	30%
B. Quizzes	30%
C. Homework/Projects	35%
D. Class Participation	5%

Examinations and Quizzes: The examinations and quizzes will be short answer, multiple choice, true/false and matching with material coming from lecture notes, the text and handouts.

Homework/Projects: Homework and projects will be assigned based on the material covered in the specific unit, many of which are case studies and small group projects involving the recognition, evaluation and control of hazardous materials.

Class Participation: This includes but is not limited to individual participation in whole class and small group discussions and other brief class presentations.

V. Example Grading Scale

In general, the following scale will be used in assigning letter grades, related to the evaluation of student performance based on a “percentage” grading scale:

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

VI. Attendance Policy

The attendance policy for this course conforms to the University’s Undergraduate Course Attendance Policy; in that all students are expected to attend and participate in class to enhance their learning.

VII. Required Textbooks

National Safety Council. (2002). *Accident Prevention Manual: Environmental Management*, National Safety Council, Itasca, IL, 2nd edition.

Stringfield, W. (2000). *Emergency Planning and Management*, Government Institutes, Rockville, MD, 2nd edition.

VIII. Special Resource Requirements

None.

IX. Bibliography

Bodger, K. (2003). *Fundamentals of Environmental Sampling*, Government Institutes, Rockville, MD.

Hart, J. & McKiel, M. (2002). ISO 14000: Questions and Answers. National Safety Council, Itasca, IL, 6th edition.

National Safety Council. (2002). 7 Elements of a Successful Environmental Program. National Safety Council, Itasca, IL.

Owen, O. and Chiras, D. (2002). *Natural Resource Conservation, An Ecological Approach*, Macmillan Publishing Company, 8th edition.

Pichtel, J. (2000). *Fundamentals of Site Remediation*. Government Institutes, Rockville, MD.

Spellman, F., Drinan, J. and Whiting, N. (2001). Transportation of Hazardous Materials – A Practical Guide to Compliance. Government Institutes, Rockville, MD.

Spellman, F. and Whiting, N. (1999). Environmental Science and Technology – Concepts and Applications. Government Institutes, Rockville, MD.

Sullivan, T, Editor. (2003). Environmental Law Handbook, Government Institutes, Rockville, MD. 17th edition.

Voyles, James. (2002). Managing Your Hazardous Wastes, Government Institutes, Rockville, MD. 2nd edition.

Historical

Hallenbeck, W.H. (1993). Quantitative Risk Assessment for Environmental and Occupational Health, 2nd edition. Boca Raton, FL: CRC Press.

Harrison, L. (1995). Environmental, Health, and Safety Auditing Handbook, 2nd edition. New York: McGraw-Hill.

Howard, P.H. and Neal, M. (1992). Dictionary of Chemical Names and Synonyms. Boca Raton, FL: Lewis Publishers.

Appendix B Catalog Description

SAFE 220 Hazardous Materials

(3c-01-3cr)

Prerequisites: SAFE 101

Provide the student a basic understanding of the storage, transportation and use of hazardous materials in business. This will include a discussion on hazardous materials, specifically the definitions, categories, regulations and evaluation of hazardous materials. Emergency response planning will also be covered in this class.

Appendix C

ACCREDITATION CRITERIA 2003 Criteria for Accrediting Applied Science Programs

PROGRAM CRITERIA FOR SAFETY AND SIMILARLY NAMED APPLIED SCIENCE PROGRAMS

Lead Society: American Society of Safety Engineers

These program criteria apply to safety, occupational safety, industrial safety and similarly named applied science programs.

I. PROGRAM CRITERIA FOR BACCALAUREATE LEVEL PROGRAMS

Students

The quality and performance of the students and graduates is an important consideration in the evaluation of an academic safety program. The institution must evaluate and monitor students and alumni to determine its success in meeting program objectives.

Program Educational Objectives

Each safety program for which an institution seeks accreditation or reaccreditation shall have in place:

- a. detailed published educational objectives that are consistent with the mission of the institution and these criteria.
- b. a process based on the needs of the program's various constituencies in which the objectives are determined and periodically evaluated.
- c. a curriculum and process that ensures the achievement of these objectives.
- d. a system of ongoing evaluation that demonstrates achievement of these objectives and uses the results to improve the effectiveness of the program.

Program Outcomes and Assessment

Safety programs shall demonstrate that their graduates have:

- a. an ability to apply knowledge of mathematics and science
- b. an ability to analyze and interpret data
- c. an ability to anticipate, identify, and evaluate hazardous conditions and practices
- d. an ability to develop hazard control designs, methods, procedures and programs.
- e. an ability to function on multi-disciplinary teams
- f. an understanding of ethical and professional responsibility
- g. knowledge of contemporary issues within a global and societal context.

Each program must have an assessment process with documented results. Evidence must be given that the results are applied to the further development and improvement of the program. The assessment process must demonstrate that the outcomes important to the mission of the institution and the objectives of the program, including those listed above, are being measured. Evidence that may be used includes, but is not limited to, the following: student portfolios, including design projects; nationally normed subject content examinations; alumni surveys that document professional accomplishments and career development activities, employer surveys; and placement data of graduates.

The institution must have and enforce policies for the acceptance of transfer students and for the validation of credit courses taken elsewhere. The institution must also have and enforce procedures to assure that all students meet all program requirements.

Curriculum

- a. Graduates shall demonstrate proficiency in college algebra and statistics.
- b. Graduates shall demonstrate proficiency in the application of chemistry (including organic), physics, physiology, and biology as it pertains to the practice of safety.
- c. Graduates shall demonstrate proficiency in written composition and oral communications.
- d. Graduates shall demonstrate knowledge of the techniques, skills, and modern behavioral tools necessary for the practice of safety.
- e. Safety graduates shall demonstrate knowledge of:
 - 1. safety and health fundamentals
 - 2. industrial hygiene including toxicology
 - 3. systems safety and associated analytical techniques
 - 4. legal aspects of safety, health and environmental practice
 - 5. environmental aspects of safety and health
 - 6. product safety
 - 7. fire prevention and protection
 - 8. construction safety
 - 9. industrial or manufacturing processes
 - 10. applied mechanics for safety
- f. Safety graduates shall demonstrate competency in:
 - 1. laboratory techniques associated with industrial hygiene and basic sciences
 - 2. safety and health program management
 - 3. ergonomics
 - 4. accident/incident investigation and analysis
 - 5. the performance of education and training for safety
 - 6. fundamental exposure measurement techniques
 - 7. measurement of safety performance
- g. Students should be given the opportunity to apply principles of safety and health in a non-academic setting through an intern or cooperative work experience.

Lon Ferguson

From: "Thomas Simmons" <tsimmons@iup.edu>
To: "Lon Ferguson" <ferguson@iup.edu>
Sent: Thursday, January 27, 2005 7:48 PM
Subject: Re: Revisions to Safety Sciences Curriculum

Dear Lon,
 I did look over the hardcopy materials that you sent to me. They look like good changes for your program, and I see benefit for my ENVH Program as well. I will draft a letter of support. Thank you.

Sincerely,
 Tom Simmons

On Thu, 27 Jan 2005 16:11:56 -0500

"Lon Ferguson" <ferguson@iup.edu> wrote:

> Hi Tom:
 >
 >
 > The Safety Sciences Curriculum proposal was recently approved by
 >the CUCC and they asked me to follow-up on previous requests for
 >letters of support for course changes, see memo below.
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 > Your input would be appreciated!
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 >
 > To: Dr. Thomas Simmons, Assistant Chairperson, Biology
 >Department
 >
 >From: Dr. Lon Ferguson, Chairperson, Safety Sciences Department
 >
 > Date: 1/20/2005
 >
 > Re: Revisions to Safety Sciences Curriculum
 >
 > As a member of the Safety Sciences Advisory Committee you are aware
 >of our recent meetings to review our B.S. Curriculum. This review
 >included liberal studies requirements, pre-requisite courses in math,
 >sciences and management as well as core safety courses. Following
 >the most recent meeting, the committee recommended the following
 >changes for department faculty consideration:
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 >
 > · Replace MATH 121 with MATH 105
 >
 > · Add undergraduate 200 level courses in Hazardous Materials

>and Safety Management

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>· Revise SAFE 210 Environmental Safety to eliminate coverage
>of hazardous materials and make this a senior level course to better
>reflect course content.

>

>· Replace ECON 122 with ACCT 200 Accounting Principles I.

>

>· Complete revision of Industrial Hygiene courses (SAFE 301,
>303, and 402) to include two four credit courses with a lab (SAFE 320
>and 420). In a nutshell these courses will no longer be divided into
>recognition, evaluation and control of health hazards but will be
>split based on chemical, biological and physical health hazards. As
>previously done, there was tremendous overlap in coverage and now the
>recognition, evaluation and control of the various hazards will be
>covered in the same course.

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> Based on these recommendations and a review of ABET accreditation
>criteria for safety programs, Department Faculty voted to change our
>B.S. Curriculum. We realize that Environmental Health Majors will be
>affected by the change from the revision of SAFE 210 to 410 but as
>you can see in the attached course proposals the major change was to
>simply remove coverage of hazardous materials and to make this a
>senior level course. We will as we have in the past waive all
>prerequisites for Environmental Health Majors. The other changes
>that will affect electives are the change from SAFE 301,303, and 402
>to SAFE 320 and 420. Hopefully, these courses can remain as elective
>courses for your majors.

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> Please see the attached curriculum and course proposals. As part of
>our curriculum proposal, would you please send a letter of support
>for this change, thank you!

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