

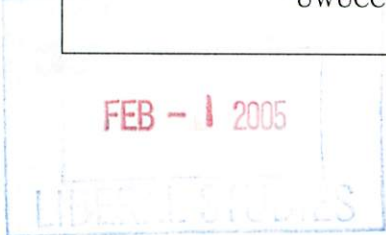
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		04-46d	Appr 3/22/05	Appr 4/26/05

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Dr. Lon Ferguson	Email Address Ferguson@iup.edu
Proposing Department/Unit Safety Sciences	Phone 7-3019

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 type="checkbox"/> New Course <input type="checkbox"/> Course Prefix Change <input type="checkbox"/> Course Deletion <input checked="" type="checkbox"/> Course Revision <input type="checkbox"/> Course Number and/or Title Change <input type="checkbox"/> Catalog Description Change		
SAFE 311 Fire Protection		
<u>Current</u> Course prefix, number and full title	<u>Proposed</u> course prefix, number and full title, if changing	
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 <input type="checkbox"/> Catalog Description Change <input type="checkbox"/> Program Revision		
<u>Current</u> program name	<u>Proposed</u> program name, if changing	
4. Approvals		
Department Curriculum Committee Chair(s)	Lon Ferguson	Date 1/12/05
Department Chair(s)	Lon Ferguson	1/21/05
College Curriculum Committee Chair	Elizabeth Palmer	1/28/05
College Dean	Barbara J. Zoni	2-1-05
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate: (include title)		
UWUCC Co-Chairs	Gail Sechrist	3-22-05



Course Revision: SAFE 311 Fire Protection

Part II. Description of the Curriculum Change

1. Syllabus of Record.

The new syllabus of record for this revised course is attached in Appendix A.

2. A summary of the proposed revisions:

a. The course objectives have been updated by removing the two previous objectives:

- Identify an example of a hazardous material for each of the nine classes of Hazardous Materials as defined by the Department of Transportation (DOT).
- Demonstrate competency in using the National Fire Protection Association (NFPA) Fire Protection Guide on Hazardous Materials and the DOT North American Emergency Response Guidebook.

Both of these objectives are now being covered in SAFE 220 Hazardous Materials.

b. Course content was revised by removing the unit on Hazardous Materials which again will now be covered in SAFE 220 Hazardous Materials.

c. Course description was changed to remove references to hazardous materials:

New Course Description

Designed to teach the fundamental concepts involved in the protection of people and property from fire and explosion. Basic fire safety terminology, fire chemistry and extinguishment, fire safety references and standards and fire program management are discussed. The class will also discuss control measures for common fire and explosion hazards, and the design of buildings in terms of life safety and fire suppression systems. Development of programs in fire safety as well as the evaluation and control of fire and explosion hazards will be studied in laboratory sessions. Practical application of fire principles will be completed in laboratory sessions.

Old Course Description

Designed to teach the fundamental concepts involved in the protection of people and property from fire and explosion. Basic fire safety terminology, fire chemistry and extinguishment, fire safety references and standards and fire program management are discussed along with the properties of hazardous materials. The class will also discuss control measures for common fire and explosion hazards, and the design of buildings in terms of life safety and fire suppression systems. Development of programs in fire safety as well as the evaluation and control of fire and explosion hazards will be studied in laboratory sessions. Practical application of fire principles will be completed in laboratory sessions.

3. Justification/rationale for the revision.

In general, these revisions were necessary to prevent the duplicate coverage of Hazardous Materials. When we revised SAFE 311 two years ago we added this new content but have discovered over the past two years that there is too much content to cover in this course over a semester especially now that we have only two hours of lecture each week.

4. The old syllabus of record.

The old syllabus of record is attached in Appendix B.

5. Liberal Studies course approval.

These changes do not affect the Liberal Studies requirements.

Part III. Letters of Support or Acknowledgement

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

APPENDIX A: NEW SYLLABUS OF RECORD

I. Catalog Description

SAFE 311 Fire Protection

2 lecture hours

3 lab hours

Prerequisites: SAFE 211, CHEM 102, and PHYS 112

3 credit hours

(2c-3l-3cr)

Designed to teach the fundamental concepts involved in the protection of people and property from fire and explosion. Basic fire safety terminology, fire chemistry and extinguishment, fire safety references and standards and fire program management are discussed. The class will also discuss control measures for common fire and explosion hazards, and the design of buildings in terms of life safety and fire suppression systems. Development of programs in fire safety as well as the evaluation and control of fire and explosion hazards will be studied in laboratory sessions. Practical application of fire principles will be completed in laboratory sessions.

II. Course Objectives

Students completing this course will be able to:

- A. define basic fire prevention terminology and identify reference sources available for the safety and health profession related to fire safety.
- B. develop an emergency evacuation plan.
- C. identify the five classifications of building construction and be able to evaluate a building in terms of life safety.
- D. discuss the basic chemistry and physics of fire to include the four components of the Fire Tetrahedron and the three types of heat transfer.
- E. develop control measures to address the fire hazards associated with electricity and the storage and use of flammable and combustible liquids, gases and solids in industry.
- F. discuss the common fire extinguishment agents used and the different options available in terms of fire suppression, fire detection and alarm systems.
- G. demonstrate how to use and inspect a portable fire extinguisher.
- H. develop design criteria for a sprinkler system based on specific building occupancies.

III. Course Outline

A. Introduction to Fire Safety

(6 hours)

- Importance of Fire Safety
- Fire Safety Terminology
- Sources of Information on Fire Safety
- Chemistry and Physics of Fire

- B. Common and Special Hazards (5 hours)
- Electricity as a Fire Hazard
 - Electrical Hazard Classifications
 - Processes Involving Flammable Gases
 - Processes Involving Flammable Liquids
 - Processes Involving Combustible Solids
- C. Building Construction (3 hours)
- Fire Resistive Ratings
 - Types of Building Construction
 - Building Codes
 - Considerations in Building Construction
- D. Means of Egress (4 hours)
- Life Safety Terminology
 - General Requirements for Life Safety
 - Evaluating Exit Capacity
 - NFPA Hazard Content Classifications
- E. Fire Extinguishment (7 hours)
- Fire Detection and Alarms
 - Fire Extinguishment Agents
 - Portable Fire Extinguishers
 - Fixed Fire Extinguishment Systems
 - Explosion Prevention
- F. Fire Program Management (3 hours)
- Planning a Response Strategy
 - Elements of an Emergency Response Plan
 - OSHA Requirements on a Fire Brigade
 - Fire Investigations
- G. Culminating Activity (2 hours)
- Final Exam Week

Laboratory Exercises (14 three hour laboratories)

The following laboratory exercises are an integral part of the course, giving the students an opportunity to observe and apply many of the fire safety concepts first hand, at appropriate times during the course.

Laboratory Number	Title of Laboratory	Lecture Units Covered
1	Introduction to Lab (equipment and write-up of reports)	A
2	Web Based Fire Sites	A
3	Fire Chemistry	A-B
4	Design of Flammable Liquid Storage Rooms	B
5-6	Fire Resistance	C
7 - 8	Life Safety (building design and evaluation)	D
9	Portable Fire Extinguishers (use/inspection and training)	E
10 -12	Sprinkler Systems (design, operation and inspection)	E
13	Emergency Response Plans	F
14	Fire Inspections and Audits	B - F

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. Unit Quizzes (A-G)	40%
B. Homework	25%
C. Laboratory Reports	25%
D. Course Portfolio	5%
E. Class Participation	5%

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

Homework: Homework will include specific assignments related to material covered in the specific unit, many of which are case studies and small group projects involving fire safety, as well as assignments involving the use of OSHA and NFPA standards.

Laboratory Reports: Students will complete a laboratory report after each laboratory session. The format for these reports as well as a grading rubric will be provided during the first laboratory class.

Course Portfolio: All students will be required to complete a course portfolio. The specific requirements for the portfolio will be provided during the first class meeting.

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

The following grading scale will be used to assign letter grades for this course:

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 Texts

Cote, B. (1991). Principles of Fire Protection. Quincy, MA: National Fire Protection Association.

Supplemental Readings:

Laboratory Manual available from Pro Packet.

VIII. Special Resource Requirements

None

IX. Bibliography

Brannigan, F. (1999). Building Construction for the Fire Service, 3rd edition. Quincy, MA: National Fire Protection Association.

Bunker, M. and Moore, W. (editors). (1999). National Fire Alarm Code Handbook. Quincy, MA: National Fire Protection Association.

Collins, L. and Schneid, T. (2001). Disaster Management and Preparedness. New York, NY: Lewis Publishers.

Cote, A. (editor). (2000). Fire Protection Handbook, 18th edition. Quincy, MA: National Fire Protection Association.

Cote, R. (editor). (2000). Life Safety Code Handbook, 8th edition. Quincy, MA: National Fire Protection Association.

Friedman, R. (1998). Principles of Fire Protection Chemistry and Physics, 3rd edition. Quincy, MA: National Fire Protection Association.

NFPA. (1997). Fire Protection Guide to Hazardous Materials, 12th Edition, Quincy, MA: National Fire Protection Association.

Puchovsky, M. (editor). (1999). Automatic Sprinkler Systems Handbook, 8th edition. Quincy, MA: National Fire Protection Association.

Quintiere, J. (1998). Principles of Fire Behavior, Boston, MA: Delnar Publishers.

Schram, P and Earley, M. (1997). Electrical Installations in Hazardous Locations, 2nd edition. Quincy, MA: National Fire Protection Association.

US Dept of Transportation, Transport Canada, and Secretariat of Commerce and Transportation of Mexico. (2000). North American Emergency Response Guidebook. Retrieved from <http://hazmat.dot.gov/guidebook.htm>

Historical Bibliography

Benedetti, R. (1996). Flammable and combustible liquids code handbook, 6th edition. Quincy, MA: National Fire Protection Association.

Ladwig, T. (1991). Industrial Fire Prevention and Protection. New York, NY: Van Nostrand Reinhold.

Appendix B: Old Syllabus of Record

I. Catalog Description

SAFE 311 Fire Protection

2 lecture hours

3 lab hours

Prerequisites: CHEM 102, PHYS 112

3 credit hours

(2c-3l-3cr)

Explores the principles involved in the protection of people and property from fire and explosion. Basic fire safety terminology, fire chemistry and extinguishment, fire safety references and standards and fire program management are discussed along with the properties of hazardous materials. Also discussed are control measures for common fire and explosion hazards, and the design of buildings in terms of life safety and fire suppression systems. Development of programs in fire safety as well as the evaluation and control of fire and explosion hazards are studied in laboratory sessions. Practical application of fire principles will be completed in laboratory sessions.

II. Course Objectives

Students completing this course will be able to:

- A. Define basic fire prevention terminology and identify five reference sources available for the safety and health profession related to fire safety.
- B. Describe the OSHA requirements for the development of a fire brigade.
- C. Identify the five classifications of building construction and be able to evaluate a building in terms of life safety.
- D. Discuss the basic chemistry and physics of fire to include the four components of the Fire Tetrahedron and the three types of heat transfer.
- E. Identify an example of a hazardous material for each of the nine classes of Hazardous Materials as defined by the Department of Transportation (DOT).
- F. Demonstrate competency in using the National Fire Protection Association (NFPA) Fire Protection Guide on Hazardous Materials and the DOT North American Emergency Response Guidebook.
- G. Develop control measures to address the fire hazards associated with electricity and the storage and use of flammable and combustible liquids, gases and solids in industry.
- H. Discuss the common fire extinguishment agents used and the different options available in terms of fire suppression, fire detection and alarm systems.
- I. Demonstrate how to use and inspect a portable fire extinguisher.

- I. Demonstrate how to use and inspect a portable fire extinguisher.
- J. Develop design criteria for a sprinkler system based on specific building occupancies.

IV. Course Outline

- A. Introduction to Fire Safety (3 hours)
 - Importance of Fire Safety
 - Fire Safety Terminology
 - Sources of Information on Fire Safety
 - Chemistry and Physics of Fire

- B. Hazardous Materials (3 hours)
 - DOT Hazardous Materials Classifications
 - Sources of Information on Hazardous Materials
 - Hazard Ratings
 - Oxidizing Agents

- C. Common and Special Hazards (5 hours)
 - Electricity as a Fire Hazard
 - Electrical Hazard Classifications
 - Processes Involving Flammable Gases
 - Processes Involving Flammable Liquids
 - Processes Involving Combustible Solids

- D. Building Construction (3 hours)
 - Fire Resistive Ratings
 - Types of Building Construction
 - Building Codes
 - Considerations in Building Construction

- E. Means of Egress (4 hours)
 - Life Safety Terminology
 - General Requirements for Life Safety
 - Evaluating Exit Capacity
 - NFPA Hazard Content Classifications

- F. Fire Extinguishment (7 hours)
 - Fire Detection and Alarms
 - Fire Extinguishment Agents

- Portable Fire Extinguishers
- Fixed Fire Extinguishment Systems
- Explosion Prevention

G. Fire Program Management (3 hours)

- Planning a Response Strategy
- Elements of an Emergency Response Plan
- OSHA Requirements on a Fire Brigade
- Fire Investigations

H. Culminating Activity (2 hours)

- Final Exam Week

Laboratory Exercises (14 three hour laboratories)

The following laboratory exercises are an integral part of the course, giving the students an opportunity to observe and apply many of the fire safety concepts first hand, at appropriate times during the course.

Laboratory Number	Title of Laboratory	Lecture Units Covered
1	Introduction to Lab (equipment and write-up of reports)	A
2	Web Based Fire Sites	A
3 - 4	Response to Hazardous Materials	B
5	Design of Flammable Liquid Storage Rooms	C
6	Design of Spray Paint Booth	C
7 - 8	Life Safety (building design and evaluation)	D - E
9	Portable Fire Extinguishers (use/inspection and training)	F
10 -12	Sprinkler Systems (design, operation and inspection)	F
13	Emergency Response Plans	G
14	Fire Inspections and Audits	B - G

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:

F. Unit Quizzes (A-G)	40%
G. Homework	25%
H. Laboratory Reports	25%
I. Course Portfolio	5%
J. Class Participation	5%

NOTE: These percentages are approximates and may be changed based on course developments and instructor needs.

Unit Quizzes: The seven quizzes will be short answer, multiple choice, true/false and matching with material coming from lecture notes, the text and handouts. Quizzes will not be made up unless prior arrangements have been made with the instructor.

Homework: Homework will include specific assignments related to material covered in the specific unit, many of which are case studies and small group projects involving fire safety, as well as assignments involving the use of OSHA and NFPA standards. Late homework will be penalized 10% per day and will not be accepted after it has been returned to the class.

Laboratory Reports: Students will complete a laboratory report after each laboratory session. The format for these reports as well as a grading rubric will be provided during the first laboratory class.

Course Portfolio: All students will be required to complete a course portfolio. The specific requirements for the portfolio will be provided during the first class meeting.

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

The following grading scale will be used to assign letter grades for this course:

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

VI. Attendance Policy

Although there is no formal attendance policy for this class, student learning is enhanced by regular attendance and participation in class discussions and the university expects all students to attend class.

VII. Required Texts

Cote, B. (1991). Principles of Fire Protection. Quincy, MA: National Fire Protection Association.

Supplemental Readings:

The instructor at the start of each unit will provide additional readings and other course handouts.

VIII. Special Resource Requirements

None

IX. Bibliography

Brannigan, F. (1999). Building Construction for the Fire Service, 3rd edition. Quincy, MA: National Fire Protection Association.

Bunker, M. and Moore, W. (editors). (1999). National Fire Alarm Code Handbook. Quincy, MA: National Fire Protection Association.

Collins, L. and Schneid, T. (2001). Disaster Management and Preparedness. New York, NY: Lewis Publishers.

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Cote, R. (editor). (2000). Life Safety Code Handbook, 8th edition. Quincy, MA: National Fire Protection Association.

Friedman, R. (1998). Principles of Fire Protection Chemistry and Physics, 3rd edition. Quincy, MA: National Fire Protection Association.

NFPA. (1997). Fire Protection Guide to Hazardous Materials, 12th Edition, Quincy, MA: National Fire Protection Association.

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Quintiere, J. (1998). Principles of Fire Behavior, Boston, MA: Delnar Publishers.

Schram, P and Earley, M. (1997). Electrical Installations in Hazardous Locations, 2nd edition. Quincy, MA: National Fire Protection Association.

US Dept of Transportation, Transport Canada, and Secretariat of Commerce and Transportation of Mexico. (2000). North American Emergency Response Guidebook. Retrieved from <http://hazmat.dot.gov/gydebook.htm>

Historical Bibliography

Benedetti, R. (1996). Flammable and combustible liquids code handbook, 6th edition. Quincy, MA: National Fire Protection Association.

Ladwig, T. (1991). Industrial Fire Prevention and Protection. New York, NY: Van Nostrand Reinhold.

Appendix C: Catalog Description

SAFE 311 Fire Protection

(2c-3l-3cr)

Prerequisites: SAFE 211, CHEM 102, and PHYS 112

Designed to teach the fundamental concepts involved in the protection of people and property from fire and explosion. Basic fire safety terminology, fire chemistry and extinguishment, fire safety references and standards and fire program management are discussed. The class will also discuss control measures for common fire and explosion hazards, and the design of buildings in terms of life safety and fire suppression systems. Development of programs in fire safety as well as the evaluation and control of fire and explosion hazards will be studied in laboratory sessions. Practical application of fire principles will be completed in laboratory sessions.