FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: February 28, 2013

SUBJECT: Curriculum Proposal #12-13-28, REVISION #4
Final Faculty Senate Approval 3/5/2013

I recommend approval of the attached REVISION #4 of Curriculum Proposal #12-13-28 from the College of Science and Technology, Department of Technology. This proposal is now ready to be submitted to Faculty Senate.

be First

FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: January 23, 2013

SUBJECT: Curriculum Proposal #12-13-28, REVISION #3

I recommend approval of the attached REVISION #3 of Curriculum Proposal #12-13-28 from the College of Science and Technology, Department of Technology.

This revision includes one additional change and corrects the review date of REVISION #2 from November 11, 2012 to December 11, 2012.

c: Dr. Christina Lavorata
Dr. Anthony Gilberti
Dr. Melissa Abbott
Ms. Evie Brantmayer

FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: January 17, 2013

SUBJECT: Curriculum Proposal #12-13-28, REVISION #2

I recommend approval of the attached REVISION #2 of Curriculum Proposal #12-13-28 from the College of Science and Technology, Department of Technology. This Revision includes revisions requested by the Curriculum Committee on ~~November 11, 2012.~~ December 11, 2012.

c: Dr. Christina Lavorata
Dr. Anthony Gilberti
Dr. Melissa Abbott
Ms. Evie Brantmayer
Ms. Leslie Lovett

be First

FAIRMONT STATE UNIVERSITY

MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby

DATE: December 6, 2012

SUBJECT: Curriculum Proposal #12-13-28

I recommend approval of the attached Curriculum Proposal #12-13-28 from the College of Science and Technology, Department of Technology.

This proposal aligns the Occupational Safety Program with the current 120-hour degree requirement for the BS. In addition, this proposal incorporates the new General Studies requirements. Additional modifications are a result of the Occupational Safety Program's Continuous Improvement Plan and recommendations of the Industrial Advisory Committee.

c: Dr. Christina Lavorata
Dr. Anthony Gilberti
Dr. Melissa Abbott
Ms. Evie Brantmayer

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number:	12-13-28
School/Department/Program:	College of Science and Tech, Dept of Tech, Occupational Safety Program, BS
Preparer/Contact Person:	Melissa Abbott
Telephone Extension:	304-367-4633
Date Originally Submitted:	Nov. 12, 2012
Revision (Indicate date and label it Revision #1, #2, etc.):	February 26, 2013, Revision #4
Implementation Date Requested:	Fall 2013

I. **PROPOSAL**. Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

This proposal is designed to align the Occupational safety program with the current 120 hr. degree requirement and newly approved general studies curriculum. Other changes are based on results of Occupational Safety Program's Continuous Improvement Plan and recommendations/approval by the program's Industrial Advisory Committee. These changes include; deleting SFTY 3335 Air Pollution and 3345 Water Pollution, thus combining into a new course SFTY 3355 Air and Water Pollution. A capstone course has also been added into the curriculum, SFTY 4480 (4 hours). The course number for SFTY 2260 has been changed to SFTY 3360. This course number change will also affect the Occupational Safety Minor and the A.S. in Safety Engineering Technology (Cirr. Proposal 12-13-29)

II. **DESCRIPTION OF THE PROPOSAL**. Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

A. Deletion of course(s) or credit(s) from program(s)
INFO 1100 – Computer Concepts and Applications (3 hours)
SFTY 3335 – Air Pollution (3 hours)
SFTY 3345 – Water Pollution (3 hours)
ENGL 1109 - Technical Report Writing (3 hours)
Liberal Studies Cultural and Civil (6 hours)
HLCA 1170/HLCA 1171 – Anatomy & Physiology (4 hours)

Total hours deleted. 22 hours

B. Addition of course(s) or credit(s) from program(s)
SFTY 3355 – Air and Water Pollution (3 hours)
SFTY 4480 – Application of Safety Strategies (4 hours)
BUSN 3306 – Business Law I (3 hours)
PHED 2211 – Anatomy & Physiology (4 hours)

Total hours added. 14 hours

C. Provision for interchangeable use of course(s) with program(s)

SFTY 3335 and SFTY 3345 will be offered for the last time, Spring 2013. Student accommodations after spring 2013 will involve the successful completion of SFTY 3355 and an advisor approved elective

course for substitution needs. Since SFTY 2260 will be changed to SFTY 3360, this will also affect the Occupational Safety Minor.

D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

Not Applicable

E. Other changes to existing courses such as changes to title, course number, and elective or required status.

SFTY 2260: Fire Prevention – Course number change to **SFTY 3360: Fire Prevention**. The course will maintain the same catalog description. The course number is being changed to reflect the relocation of the course in the Occupational Safety Program model schedule.

SFTY 4420: System Safety and Management – Change from 4 hour course credit to 3 hour course credit because the hands-on applications in the course will be absorbed in the new SFTY 4480. SFTY 4420 will be taught as it was originally written and approved.

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU, PC&TC, or shared) and specify its status as an elective or required course.

SFTY 3335 (Air Pollution, 3 credits) and SFTY 3345 (Water pollution, 3 credits) are being merged together into one 3 hour course. The course description will be as follows:

SFTY 3355 Air and Water Pollution (3 credits): This course is designed as a continuation of SFTY 2291 Environmental Engineering Technology: Hazardous Waste. This course will extend the student's knowledge in environmental regulations related to the CAA and CWA. Students will also be introduced to various control technologies related to air and water pollution. PR: SFTY 2291

This course will be owned by FSU and serves as a required course in the Occupational Safety program.

SFTY 4480: Application of Safety Strategies (4 credits): This course is designed to serve as a capstone course for Occupational Safety majors. Students are required to successfully complete an approved senior project in the field of Safety, Health or Environmental. This course requires successful student participation on teams, in presentations, employee training and professional written communications. PR: SFTY 4400, SFTY 4420

This course will be owned by FSU and serves as a required course in the Occupational Safety program.

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.

See Appendix A of this proposal.

3. Include, as an appendix, a detailed course outline consisting of at least two levels.

See Appendix B of this proposal.

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

SFTY 3355: Air and Water Pollution

SFTY 3345 course was not included in the current Occupational assessment plan. However, merger of the two courses into one (SFTY 3355) will allow faculty a greater opportunity to collect assessment points for the following outcomes as they relate to air and water pollution.

The following outcomes are to be assessed based upon the occupational safety program assessment cycle schedule:

Course Outcomes: (aligned with the Occupational Safety Program's continuous improvement plan and ASAC of ABET Accreditation Criteria)
At the end of this course;

1. Students will have demonstrated a proficiency in identifying and solving rudimentary safety related problems through the utilization of general safety knowledge, mathematical, and scientific concepts. (ABET Outcome)
   - 1.a. Students shall successfully utilize mathematical and scientific applications needed from prerequisite courses including: *Assessment Number: 3*
     - 1.a.1. Mathematical calculations
     - 1.a.2. Conversion of basic scientific units
     - 1.a.3. Identification of basic chemical formulas
     - 1.a.4. Identification of the basic environmental regulatory structure
   - 1.b. By the end of the semester, students shall demonstrate competency in solving problems relating to the following: *Assessment Number: 1 & 2, 4, 5, 6*
     - 1.b.1. Atmospheric chemical reactions
     - 1.b.2. Air and Water Pollution sources
     - 1.b.3. Air and Water Pollution Control Devices
     - 1.b.4. Air and Water Pollution Regulatory Applications
2. Students will have demonstrated competencies in anticipating, recognizing, evaluating and controlling hazards through the application and synthesis of knowledge both theoretical and applied. (ABET Outcome)
   - 2.a. By the end of the semester, students shall demonstrate competency in applying and synthesizing information by successfully completing the following: *Assessment Number: 4, 6, 10, 11*
     - 2.a.1. Describe regulatory responsibilities including permitting of a theoretical air pollution source and water pollution source.
     - 2.a.2. Identify necessary air pollution control devices of theoretical air pollution sources.
     - 2.a.3. Identify necessary water pollution control systems and processes for a theoretical air pollution source.
3. Students will have demonstrated comprehension of contemporary safety related issues and the global ramification of those issues. (ABET Outcome)
   - 3.a. By the end of the semester, students shall be familiar with exploring the societal and global implications of air and water pollution through reviewing historical cases as well as forward-looking exercises. Student shall complete the following: *Assessment Number: 4,10,11*
     - 3.a.1. Research current global air and water pollution problems.
     - 3.a.2. Watch Al Gore's "*An Inconvenient Truth*" and write a position paper.
4. Students will have demonstrated a comprehension of ethical and moral edicts as pertaining to the safety profession. (ABET Outcome)
   - 4.a. By the end of the semester, students shall know the ethical framework for Environmental professionals. *Assessment Number: 4,5,6*
     - 4.a.1. Explain the six canons of the Code of Ethics and Standards of Practice for Environmental Professionals.

5. Students will have demonstrated a proficiency in working individually, actively participating on teams (including multidisciplinary teams), and communicating professionally and effectively. (ABET Outcome)
   5.a. By the end of the semester, students shall show competency in written and oral communication. *Assessment Number: 10, 11*
      5.a.1. Submit memorandums with course work. (Assessment Number 7)
      5.a.2. Research, prepare and present presentations relating to air and water pollution.

SFTY 4480: Application of Safety Strategies

This course is designed to meet the following assessment criteria:
At the end of this course students shall be able to:

1. Solve problems using mathematical calculations of safety related data.
2. Solve problems using statistical calculations.
3. Identify basic safety engineering design methodologies.
4. Conduct statistical analysis of incident reporting data.
5. Utilize engineering economy applications.
6. Apply accident analysis methodologies to actual industrial case studies
7. Utilize systems safety analysis and probabilities.
8. Apply system safety analysis methodologies to a theoretical or actual facility.
9. Develop applicable regulatory safety programs for an actual industrial facility.
10. Develop safety management tools for an actual industrial facility.
11. Research historical and current safety practices and issues at the actual industrial facility and related facilities. Student shall then prepare a professional overview of recommendations.
12. Explain the eight canons of the Code of Ethics for the Practice of Safety Professionals as recognized by BSCP.
13. Submit memorandums with course work.
14. Research, prepare and present safety management practices for an actual facility to a diversified audience utilizing a professional presentation method.
15. Participate in assigned Safety Management teams for the course and required to develop various elements for successful accomplishment of the assigned team goals.

Assessment Tools Key

Assessment Number	Assessment Tool	Benchmark*		
		Substandard	Target	Professional
1	Pre-Test	<70%	70%-90%	≥ 90%
2	Post-Test	<70%	70%-90%	≥ 90%
3	Pre-req. Test	<70%	70%-90%	≥ 90%
4	Exams	<70%	70%-90%	≥ 90%
5	Homework	<70%	70%-90%	≥ 90%
6	Quizzes	<70%	70%-90%	≥ 90%
7	Portfolios	<70%	70%-90%	≥ 90%
8	Journal	<70%	70%-90%	≥ 90%
9	Laboratories	<70%	70%-90%	≥ 90%
10	Projects	<70%	70%-90%	≥ 90%
11	Other	<70%	70%-90%	≥ 90%

* *Note that the benchmark range does not indicate passing or failing. It is an indicator for continuous improvement of the course.*

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

1. Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

   A total of 8 hours are being deleted from the current program to meet the 120 hours degree requirement. A total of 22 hours are being removed, but an additional 14 hours are being added. Therefore a total of 8 hours will be eliminated from the program.

III. RATIONALE FOR THE PROPOSAL.

A. **Quantitative Assessment**: Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

This proposal is being submitted to meet degree definitions. Quantitative data was not collected to determine which courses needed to be eliminated from the program. However, qualitative data was collected and reported. The following courses are being deleted and a justification for each descriptor has been provided:

Deleted Course Number, Title and Credits	Assessment Parameters and Data (Justification)
INFO 1100 Computer Concepts and Applications, 3 hours	Since students are required to routinely and competently use various Microsoft software via student projects, INFO 1100 serves as a redundant course. Many students test out of the course or take it later in the program after many projects have already required the student to use various Microsoft technologies.
SFTY 3335 Air Pollution, 3 hours	Graduate surveys were administered and the graduates were asked the following question: *36. How much time do you spend on environmental impacts according to the following scale? (project design, regulatory,…)* Only 13.3 % of the respondents indicated that they spend a significant amount of time in this area.
SFTY 3345 Water Pollution, 3 hours	Graduate surveys were administered and the graduates were asked the following question: *36. How much time do you spend on environmental impacts according to the following scale? (project design, regulatory,…)* Only 13.3 % of the respondents indicated that they spend a significant amount of time in this area.

ENGL 1109 Technical Report Writing, 3 hours	The Occupational Safety program requires students to complete ENGL1104 and ENGL 1108. These courses are designed to instruct students in various writing methodologies. In addition the Occupational Safety program has identified SFTY 3300 as a writing intensive course. Students are taught to write laboratory and technical reports and sampling project proposals in SFTY 3300. The SFTY 4415 course requires student to prepare various professional technical documents related to their internship experience, such as but not limited to training presentations and modules, written compliance programs, resumes, inspection reports/checklists, project proposals, reports of findings, etc. The professional documents are presented in a portfolio for students to use when applying for professional positions. Students in the SFTY 4400 course are taught to develop written regulatory compliance programs for federal agencies and prepare design proposals and cost benefit analysis reports. The ENGL 1109 course is designed to meet the following outcomes: • Completion of an autobiographical essay *(not needed for Occupational Safety Students)* • Memo development *(Implemented in all Occupational Safety courses)* • Preparation of an expository essay *(not needed for Occupational Safety Students)* • Development of a project proposal *(SFTY 3300 and SFTY 4400)* Based upon this review, the SFTY 4415 provides the field expertise to meets the technical writing needs for Occupational Safety Students.

B. **Qualitative Assessment**: Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

This curriculum change has been developed to ensure the Occupational Safety program meets the 120 hr. degree requirement and current ABET requirements. There will be no faculty needs changes because although one course is being eliminated, another safety course is also being added.

IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their approval of this proposal.

By signing here, you are indicating your college's/school's approval of this proposal.

College/School	Dean	Signature
School of Business	**Richard Harvey**	Richard Harvey
School of Health, Ed & Human Performance	**Van Dempsey**	Van Dempsey PK

V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

Not Applicable

VI. ADDITIONAL COMMENTS.

Not Applicable

Appendix A –

Proposed Course: SFTY 3355 Air and Water Pollution

SFTY 3355 Air and Water Pollution (3 credits): This course is designed as a continuation of SFTY 2291 Environmental Engineering Technology: Hazardous Waste. This course will extend the student's knowledge in environmental regulations related to the CAA and CWA. Students will also be introduced to various control technologies related to air and water pollution. PR: SFTY 2291

Proposed Course: SFTY 4480 Application of Safety Strategies

SFTY 4480: Application of Safety Strategies (4 credits): This course is designed to serve as a capstone course for Occupational Safety majors. Students are required to successfully complete an approved senior project in the field of Safety, Health or Environmental. This course requires successful student participation on teams, in presentations, employee training and professional written communications. PR: SFTY 4400, SFTY 4420

Appendix B

SFTY 3355 Air and Water Pollution

Proposed Course Outline

I. **Environmental Law:**
    1. CAA
    2. CWA
    3. Environmental Ethics

II. **Air Pollution:** (text: prepared Course pack)
    1. Air Pollution History
        a. Events
        b. Regulations
    2. Air Pollution Effects
        a. Scales of Air Pollution
            i. Horizontal/Vertical
            ii. Local
            iii. Urban
            iv. Regional
            v. Global
        b. Cycles of Air Pollution
            i. Carbon
            ii. Sulfur
            iii. Fluoride
            iv. Total Body Burden
        c. Welfare Effects
            i. Acid Rain
            ii. Greenhouse Effect
            iii. Ozone
            iv. Smog
            v. Visibility
    3. Toxicology – Health Effects Related to Air Pollution
        a. Common Contaminants
        b. Toxicological Effects
            i. Symptoms
            ii. Interchemical Activity
    4. Common Contaminants
        a. Criteria Pollutants – Effects and regulations
            i. Carbon Monoxide
            ii. Ozone
            iii. Nitrogen Dioxide
            iv. Particulate Matter
            v. Lead
            vi. Sulfur Dioxide
    5. Air Pollution Sources
        a. Natural
        b. Anthropogenic
    6. Clean Air Act
        a. The Plain English Guide to the Clean Air Act
        b. Title I – NAAQS
        c. Title II – Mobile Sources
        d. Title III – HAPS
        e. Title IV – Sulfur Dioxide
        f. Title V – Permitting
    7. Air Pollution Control
        a. Methods
        b. Devices

III. Water Pollution

(text: Basic Environmental Technology: Water Supply, Waste Management, Pollution Control. Nathanson, Jerry A. Prentice Hall, 2003)

I. Chapter 1 – Basic Concepts
    i. Overview of Environmental Technology
        a. Water supply
        b. Sewage disposal and water pollution control
        c. Stormwater management
        d. Solid and hazardous waste management
        e. Air and noise pollution control
        f. Other environmental factors
    ii. Public health
        a. Communicable diseases
        b. Noninfectious diseases
    iii. Food chains and metabolism
    iv. Aerobic and anaerobic decomposition
    v. Biogeochemical cycles
    vi. Geology and Soils
        a. Types of soils

II. Chapter 2 – Hydraulics (overview only)
    i. Pressure
        a. Hydrostatic pressure
        b. Measurement of pressure
    ii. Flow
        a. Continuity of flow
        b. Conservation of energy
    iii. Flow in pipes under pressure
    iv. Flow measurement
    v. Gravity flow in pipes

III. Chapter 3 – Hydrology
    i. Water use and availability
    ii. Hydrologic cycle
    iii. Rainfall
    iv. Surface water
        a. Watersheds
        b. Streamflow
    v. Droughts
    vi. Reservoirs
    vii. Groundwater
        a. Aquifers
        b. Groundwater flow
        c. Wells

IV. Chapter 4 – Water Quality
    i. Fundamental concepts of chemistry
    ii. Water quality
        a. Turbidity
        b. Temperature
        c. Color, taste, and odor
    iii. Chemical parameters of water quality
        a. Dissolved oxygen

        b. Biochemical oxygen demand
        c. Acidity
        d. Toxic and radioactive substances
    iv. Biological parameters of water quality
        a. Microorganisms
        b. Testing for coliforms
    v. Water sampling
V. Chapter 5 – Water Pollution
    i. Classification of water pollutants
    ii. Thermal pollution
    iii. Soil erosion and sediment control
    iv. Stream pollution
        a. Dissolved oxygen
        b. Zones of pollution
        c. Minimum DO
    v. Groundwater pollution
        a. Sources of contamination
        b. Preventive measure
    vi. Water quality standards
        a. Clean water act
VI. Chapter 6 - Drinking water purification
    i. Safe drinking water act
    ii. Sedimentation
    iii. Coagulation and flocculation
    iv. Filtration
    v. Disinfection
VII. Chapter 7 – Water Distribution System
    i. Design factors
        a. Pipeline layout
    ii. Centrifugal pumps
VIII. Chapter 9 – Stormwater management
    i. Estimating storm runoff
        a. Effects of land development
    ii. Best management practices
    iii. Flood plains
IX. Chapter 10 – Wastewater treatment and disposal
    i. Preliminary and primary treatment
    ii. Secondary treatment
    iii. Tertiary treatment

SFTY 4480 – Application of Safety Strategies
Course Outline

This course is designed and managed to allow senior-level students to complete professional projects utilizing the skills and knowledge attained during their academic tenure at FSU. Under the tutelage of the program's faculty, the students select projects at local industrial sites. This senior project is comprised of the following components:

1. Project selection (faculty approval required)
    a. Site inspection
    b. Site assessment
    c. Opening meeting with company to present recommendations
    d. Choose projects to undertake

2. Team formation/ teamwork
    a. Teamwork slideshow to review the teamwork / team building principles learned in MANF. 2250
    b. Seniors volunteer for projects
    c. Choose team leaders
    d. Ground rules established (including leadership style)
    e. Evaluations submitted every two weeks to faculty
    f. Continuous improvement loop used to mitigate deficiencies

3. Project management
    a. Establish timelines for project
    b. Weekly project update meetings with faculty

4. Professional use of academic competencies for critical thinking and problem solving
    a. Project topics (minimum) include general safety, industrial hygiene, environmental compliance, ergonomics, and fire safety must all be considered when applicable
    b. A minimum of one non-regulatory safety issue must be addressed (faculty approval required)

5. Project completion
    a. Train site employees
    b. During closing meeting, turnover all formal programs, sampling results, and abatement recommendations
    c. Present a summary of the projects to the company, faculty, students, and Industrial Advisory Committee members.

Appendix C

B.S. Degree in Occupational Safety
Current Program

Required Major Courses			**HRS**	
MATH	1102	Applied Tech Math II	3	
MATH	1113	Applied Statistics	4	
PHYS	1101	Intro to Physics I	4	
PHYS	1102	Intro to Physics II	4	
SCIE	1000	Human Biology	4	
BIOL	1170	Anatomy and Physiology	4	
MECH	1100	Statics	3	
ENGL	1109	Technical Report Writing	3	
MANF	2250	Total Quality and SPC	3	
SFTY	1100	Safety/Env. Components of Industry	3	
SFTY	1150	Safety Mgmt and Concepts of Acc. Prev.	3	
SFTY	2250	Safety and Compliance	3	
SFTY	2260	Fire Prevention	3	
SFTY	2291	Env. Engineer Tech: Hazardous Waste	4	
SFTY	2280	Construction Safety and law	3	
SFTY	2290	Industrial Hygiene and Tox	4	
SFTY	3300	IH Applications and Practices	4	
SFTY	3310	Ergonomics and Human Factors	3	
SFTY	3335	Air Pollution	3	
SFTY	3345	Water Pollution	3	
SFTY	4400	Safety Engineering Design	3	
SFTY	4415	Safety Internship	3	
SFTY	4420	System Safety and Management	4	
TOTAL Required Major Courses				78
Major Electives				6
		Approved Tech Electives	6	
Minor Electives				0
TOTAL HOURS FOR MAJOR				**84**

Required Liberal Studies Courses				
First Year Experience				15
ENGL	1104	Written English I	3	
ENGL	1108	Written English II	3	
MATH	1101	Applied Tech Math I	3	
INFO	1100	Computer Concepts and Application	3	
COMM	2200, 2201, OR 2202	Communication	3	
Scientific Discovery				8
CHEM	1101, 1102	Introduction to Chemistry I Introduction to Chemistry II	8	
Cultural / Civilization Exploration				9
		Student Option to meet degree definition	9	
Society / Human Interactions				6
PSYC	1101	Introduction to Psychology	3	

Student Option to meet degree definition	3
Artistic / Creative Expression	6
TOTAL LIBERAL STUDIES HOURS	**44**
TOTAL FREE ELECTIVES	**0**
TOTAL HOURS	**128**

B.S. Degree in Occupational Safety
Proposed Program

Required Major Courses		HRS
SCIE 1000	Human Biology	4
CHEM 1102	Chemistry II	4
MATH 1102	Tech Math II	3
SFTY 1100	Safety/Env. Components of Industry	3
SFTY 1150	Safety Management/ Conc. Of Acc Prev.	3
SFTY 2250	Safety and Compliance	3
SFTY 2291	Env Eng Tech: Hazardous Waste	4
PHYS 1101	Physics I	4
SFTY 2280	Construction Safety	3
SFTY 2290	Industrial Hygiene & Toxicology	4
PHYS 1102	Physics II	4
PHED 2211	Anatomy & Physiology	4
SFTY 3300	IH Sampling & Methodologies	4
MECH 1100	Statics	3
SFTY 3360	Fire Prevention	3
SFTY 3310	Ergonomics & Human Factors	3
SFTY 3355	Air and Water Pollution	3
MATH 1113	Statistics	3
SFTY 4400	Safety Engineering Design	3
SFTY 4415	Safety Internship	3
SFTY 4420	Systems Safety and Management	3
BUSN 3306	Business Law I	3
SFTY 4480	Application of Safety Strategies	4
TOTAL Required Major Courses		78
Approved Tech Electives		6
Minor Electives		XX
TOTAL HOURS FOR MAJOR		**84**

Required General Studies Courses	
Attribute IA – Critical Analysis	X
Major Course – SFTY 1100	
Attribute IB – Quantitative Literacy	3
MATH 1101	
Attribute IC – Written Communication	6
ENGL 1104/ ENGL 1108	
Attribute ID - Teamwork	X
Major Course – SFTY 4420	
Attribute IE – Information Literacy	X

	Major Course – SFTY 2250	
Attribute IF – Technology Literacy		X
	Major Course – SFTY 3300 (writing intensive)	
Attribute IG – Oral Communication		3
	COMM 2202 (Preferred), 2200 or 2201	
Attribute III - Citizenship		3
	Student Choice, Any course in III	
Attribute IV - Ethics		3
	MANF 2250	
Attribute V - Health		2
	PHED 1100	
Attribute VI - Interdisciplinary		X
	Major Course – SFTY 4420	
Attribute VIIA - Arts		3
	Student Choice, Any course in VIIA	
Attribute VIIB - Humanities		3
	Student Choice, Any course in VIIB	
Attribute VIIC – Social Sciences		3
	PSYC 1101	
Attribute VIID - Natural Science		4
	CHEM 1101	
Attribute VIII – Cultural Awareness		3
	Student Choice, Any course in VIII	
Additional General Studies hours		X
TOTAL GENERAL STUDIES HOURS		**36**
TOTAL FREE ELECTIVES		**XX**
TOTAL HOURS		**120**