SOUTHEASTERN
LOUISIANA UNIVERSITY

Occupational Safety, Health, and Environment (OSH&E) Program
Department of Computer Science and Industrial Technology
Southeastern Louisiana University
SLU 10847
Hammond, LA 70402

November 6, 2009

Dear OSH&E Advisory Committee Member,

On behalf of Southeastern Occupational Safety, Health, and Environment (OSH&E) Program, we would like to give our sincere appreciation for your involvement in the OSH&E Advisory Committee as well as your participation in the meetings and discussion.

Enclosed please find the report of the OSH&E Advisory Committee meeting that was held on October 23, 2009. Please feel free to let us know should you have your questions and comments!

It is great honor and pleasure to invite you to our next semi-annual meeting, which is tentatively scheduled from 11:30 AM to 2:00 PM on **April 23, 2010** at the **Hammond** campus. A formal letter will be sent to you when the meeting date and venue are determined.

Thank you very much for your consistent contribution to the program!

Sincerely,

Mr. Lawrence Mauerman
Coordinator, OSH&E

Dr. Lu Yuan
Assistant Professor

Ms. Dorinda Folse
OSH&E IAC Chairperson

OSH&E Advisory Committee
October 23, 2009 Meeting Report by Dr. Lu Yuan

The last Occupational Safety, Health, and Environment (OSH&E) Advisory Committee meeting was held from 9:30 AM to 1:00 PM on October 23, 2009 at Southeastern University Center in Hammond. (Please see the attached example photos!) This meeting was part of the Annual Department Advisory Committee Meeting. The attendees include nine of the nineteen OSH&E Advisory Committee members (Appendix A with updated information). Mr. Lawrence Mauerman, Drs. Lu Yuan and Ephraim Massawe, the three full-time faculty members of the OSH&E program, were the co-hosts of the meeting. Three OSH&E student members (David Barker, Gregory Culberson, and Roland McFarlane) and one Industrial Technology student member (Seth Badeaux) were present as well. Special guests include René Nieto (on behalf of Beth Inbau), Director of Training of National Safety Council South Louisiana Chapter, and Evelyn O'Quinn, Secretary/Treasurer of Evergreen QHSSE Solutions, LLC. Absent were Richard Matherne, Don Jones, Wayne LaCombe, Dorinda Folse, Beth Inbau, Lance Roux, Alan Rovira, Michael Gautreaux, Michael Page, and Connie Fabré.

Appendix B lists the agenda of the overall meeting, which started with the welcoming speech from Dr. Dan McCarthy, Dean of College of Science & Technology. Then Mr. George Fairbanks, the Department Advisory Committee Chairperson, addressed the group appreciating the contribution that every committee member has been constantly making to the department. He also talked about the plan of establishing an executive committee to oversee the activities of the Department Advisory Committee.

Next, Dr. Cris Koutsougeras, the Department Head reported the departmental progress. He announced the plan of the OSH&E program submitting an application for the ABET accreditation early 2010. He also showed some pictures of the new building (60,000 square foot) that the Department will have about two or three years from now. This building will accommodate the entire department's needs by hosting laboratories, classrooms, faculty offices, and research labs, etc.

At that time the committee broke out into groups by degrees and concentrations.

The agenda for the OSH&E AC meeting is attached in Appendix C. Ms. Dorinda Folse, the OSH&E Advisory Committee Chairperson, was scheduled to welcome the committee members and also present the OSHA updates. Unfortunately, her father was sick and she would have to accompany him undergoing surgery. She could not make the meeting but had asked us to extend her apologies to the committee. Mr. Lawrence Mauerman greeted committee members and introductions were followed.

After the introduction, items on the agenda were discussed in order. Under old business, Mr. Mauerman first presented the ABET accreditation process (Appendix D). The request for an evaluation is due by January 31, 2010. The self-study report (a document that summarizes the basic facts and data about the program as required by ABET) needs to be finished in the next spring semester and submitted before July 1, 2010. A site visit will be conducted by an ABET program evaluation team sometime in the fall semester 2010.

Mr. Mauerman also summarized the work that the program has done and will continue to do, highlighting the importance of "closing the loop of continuous improvement" as required by ABET. He explained some important facts about the program:

1) Definition of the program, including the program objectives and outcomes, course objectives, and rubrics for measurement of achievement, etc.
2) Program evaluation, conducted through advisory committee evaluation, student opinion of teaching, course specification evaluation, alumni and employer surveys, etc.
3) Completion of the circle, including review and examination of all program measures, development of recommendations for improvement, feedback, and implementation of necessary changes to achieve improvement, etc.

Next, Dr. Yuan reported the assessment of OSH&E program outcomes (Appendix E). He started with the rubric for assessing OSH&E program outcomes that was developed in the last spring semester. As recommended by ABET, the rubric uses a set of categories developed from the performance criteria to define and describe progression toward meeting important components of work being completed, critiqued, or assessed. Such a development will be extremely helpful in an objective evaluation of the program. Mr. Rick Saizan suggested that we use the Bloom's Taxonomy to go through the description of the rubric and to make sure the levels of expectation are clear and precise.

As the rubric will be used as a fundamental tool for program outcome assessment, Dr. Yuan presented the overall plan and timeline for such an assessment. A four-year cycle of evaluation was determined, covering three phases of development: 1) Identification and Method Development; 2) Data Collection and Evaluation; and 3) Feedback and Action. There are a total of twenty performance criteria under the umbrella of four program outcomes. As the identification and documentation of methods have been performed during the last academic year, the focus for this year and the next two will be the next two phases of assessment with the allocation of different performance criteria for different years.

A curriculum map showing the match of different courses to the relevant program objectives were displayed. The evaluation of program outcomes starts from the examination of OSHE courses that satisfy competencies for OHS&E BS program. A list of course materials including exams, projects, assignments, and in-class activities, and samples of students' performance on those items need to collected and scrutinized to ensure that course objectives are achieved and are in line with the program objectives and outcomes. Dr. Yuan illustrated an example of evaluation of his OSHE 112 *Design of Hazard Controls*. He examined the questions on the three exams that are required for this class and categorized them into different groups representing course objectives. These course objectives were also linked to targeted project objectives, expected outcomes, and performance criteria. Summary statistics of students' performance on each exam question were also presented, where a percentage of 75 for correct answers was used as a cut-off point for success according to the major field assessment plan and the rubric.

Mr. Steve Pereira asked whether ABET has the requirement of a standardized test for every course. Dr. Yuan got the answer from Mr. John Segna, the ABET ASAC (Applied Science Accreditation Commission) Chair-Elect during the ABET Commission Summit in the following

week of the meeting. ABET doesn't have any standardized tests and instead would like to see different types of tests for different courses in the curriculum. Mr. Rick Saizan shared the group with his experience of using the computer software to create the test questions at the Safety Council of the LA Capital Area. It was not discussed at the meeting, but Mr. David Barker, a current OSH&E student later suggested some of the exam questions should resemble some of the questions for the ASP examination. This should help students prepare to take this test upon graduation.

The next item under old business is OSH&E alumni survey (Appendix F), which was sent earlier this semester to the 55 OSH&E graduates (28 AAS and 27 BS) since spring 2004. The University Office of Institutional Research & Assessment provided invaluable help in designing the survey questions. Currently we have received 17 (7 AAS and 10 BS) responses. There are 4 unknown addresses, so the response rate is 33.3% (17/51). Our graduates work in a variety of industries and organizations. Most of them feel the program is great. Typical comments from the alumni included:

- Greatly enhance the practical application of OSHE concepts and standards.
- Ways to reduce cost without sacrificing safety, health, environmental performance would be great to learn.
- Take more field trips.
- Promotion of internship.
- More emphasis on hard sciences and more teaching of techniques to "sell safety".
- The program should be focused on how current EH&S professionals manage their organizational programs.
- Etc.

Mr. Mauerman then talked about the updated OSH&E curriculum sheets for advising (Appendix G). As explained in the previous meetings, these new sheets represent the approved change on the OSH&E AAS and BS curricula for the current academic year. Based on the recommendations from the committee members, a list of professional electives from other disciplines including industrial technology, accounting, criminal justice, health studies, and biostatistics, was included in the updated OSH&E BS curriculum. Mr. Don Steadman suggested the consideration of security related courses. The two electives (*Private and Public Sector Security* and *International Crime and Terrorism*) in criminal justice address his concerns.

Regarding the industrial support, Mr. Mauerman reiterated the request for help from the committee members to create a list of recommended equipment and instrument for the OSH&E program. We are extremely grateful for the monitoring equipment and instruments that ExxonMobil Chalmette Refining donated. The equipment, which includes microscopes for asbestos and fiber analysis, a gas chromatograph and other instruments for the collection and analysis of hazardous agents in the workplace and environment, has a current value of more than $40,000. Please read Appendix H for more coverage on the donation! Several committee members (Mr. Steve Pereira, Mr. Rick Saizan, and Mr. James Kerr) suggested that if the university needs more support on equipment and instruments, it is appropriate to contact the manufacturers directly.

The meeting was then entering the discussion on new business. Several important plans and tasks were announced:

1) Continuous assessment of OSH&E program outcomes: The committee members were invited to join us to collect and analyze course materials and student performance. It was later decided during the bi-weekly OSH&E faculty meeting on November 4, 2009 that Mr. Mauerman, Drs. Yuan and Ephraim would be exclusively performing this specific task on Friday November 20, 2009. A strategic plan and steps of assessment will be created from that one-day workshop. The adjunct instructors and other pertinent committee members will then be contacted to continue the work sometime in December and/or early next year.
2) OSH&E employer survey: The responses of OSH&E alumni survey will first be analyzed as we continue to receive them. The OSH&E employer survey questions will then be generated with the help from the University Office of Institutional Research & Assessment. The survey is expected to be sent out early next year.
3) OSH&E equipment inventory: We are planning to construct a list of equipment and instruments that the OSH&E program currently have before the end of the semester.
4) ABET consultation: It was not announced during the meeting due to time limit, but we would like to request the sponsorship for inviting the ABET consulters to come to the campus for advising and consultation and/or helping us to visit other ABET accredited programs to gain advice and experience.

The meeting adjourned at 12 PM and the committee members headed to the Luncheon room.


ABET

Appendix A
OSH&E Advisory Committee

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*** indicates a former member**

Appendix B

DEPARTMENT OF COMPUTER SCIENCE AND INDUSTRIAL TECHNOLOGY ADVISORY COMMITTEE MEETING

Friday, October 23, 2009

Agenda

9:30-10:00 a.m	**Registration with Coffee, Juice & Pastries**		Room 139
	CSIT Faculty Welcomes Committee Members		
10:00	**General Assembly: Call to Order**		Room 139
	Mr. George Fairbanks, Advisory Committee Chairperson		
10:00-10:05	**Welcome & Comments from the Dean**		
	Dr. Dan McCarthy, Dean, College of Science & Technology		
10:05-10:15 a.m.	**Advisory Committee Address**		
	Mr. George Fairbanks, Advisory Committee Chairperson		
10:15-10:25 a.m.	**Departmental Progress Report**		
	Dr. Cris Koutsougeras, Department Head		
10:30-12:00	**Break-out by Degree**		
	Computer Science	Dr. Ghassan Alkadi	Room 133
	Engineering Technology	Dr. Junkun Ma	Room 127
	OSH&E	Mr. Lawrence Mauerman	Room 122
	Industrial Technology	Dr. Roy Bonnette	Room 139
	Industrial Technology Subcommittee Meetings		
	Automated Systems	Dr. Mike Asoodeh	Room 104
	Drafting & Design	Dr. Mike Beauvais	Room 203B
	CTEC	Mr. Ed. Rode	Room 139
	Supervision	Dr. Roy Bonnette	Room 139
12:00-1:00 p.m.	**Luncheon**	**Room 125**	
1:00-2:00	**Tour of the Department's Labs**		

Appendix C
OSH&E Advisory Committee

Semi-Annual Meeting Agenda
October 23, 2009

Time	Issues	Actions
10:35 - 10:45 am	Welcome & Introduction (By Ms. Dorinda Folse)	
10:45 - 11:15 am	Old Business 1. Application for ABET Accreditation (By Mr. Lawrence Mauerman) 2. Assessment of OSH&E Program Outcomes (By Dr. Lu Yuan) 3. OSH&E Alumni Survey (By Dr. Lu Yuan) 4. OSH&E Curriculum Sheets (By Mr. Lawrence Mauerman) 5. Industrial Support (By Mr. Lawrence Mauerman)	
11:15 - 12:00 pm	New Business 1. Assessment of OSH&E Program Outcomes (By Dr. Lu Yuan) 2. OSH&E Employer Survey (By Dr. Lu Yuan) 3. OSH&E Equipment Inventory (By Mr. Lawrence Mauerman) 4. ABET Consultation (By Mr. Lawrence Mauerman) 5. Others	
12:00 pm	Luncheon	

Appendix D
ABET Accreditation Process

Application: Request for an evaluation is due by **31 January, 2010.** Site visit: **fall semester, 2010.**

What we have done (and continue to do):

Definition of our program:

- Develop clearly defined program objectives and outcomes – What should a graduate have when he/she leaves Southeastern with an OSH&E degree?
- Program content – courses and other curriculum items
- Course objectives and outcomes
    - Clearly stated objectives and outcomes
    - Criterion testing based on objectives
    - Rubrics for each objective – measurement of achievement

Program Evaluation:

- Advisory Committee Evaluations
- Student Opinion of Teaching
- Course Opinion Evaluation
- Alumni Evaluations
- Employer Evaluations

The Circle:

- Careful review and examination of all of the above
- Development of recommendations for improvements
- Response
- Implementation of necessary changes to achieve improvement

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Program Evaluators
Board of Directors
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Deadlines and Due Dates

The ABET accreditation cycle is approximately one-and-a-half years from beginning to end. The following is a brief outline of the activities and important dates that occur during this cycle. Contact us for more information.

January
Institution requests accreditation evaluation for program(s). Deadline to submit the requisite transcript(s) and request for evaluation visit to take place in fall is **January 31**. Institution outside of the U.S. is also required to submit request for approval(s) by **January 31**.

February - June
Institution prepares self-study. Self-study reports for evaluations visit to take place in fall must be received by ABET headquarters no later than **July 1**.

March - June
ABET commissions assign visit team chair(s) and visit team members. Visit date(s) is chosen.

July
Institution submits self-study. Deadline to submit self-study for evaluation visit to take place in fall is **July 1**.

September - December
Evaluation visit(s) takes place on institution's campus. ABET team presents factual findings orally on campus. Then, following a 7-day response period for the institution to report errors of fact or observation, the team finalizes and submits its preliminary findings and recommendations (called a "draft statement") to the leadership of the appropriate commission for editing.

December - February
Draft statements are edited and sent to the institution for response.

February - April
Institution responds to draft statement(s) within 30 days.

May - June
Final changes are made to draft statement(s) if necessary, based on institutional response. Statement(s) is finalized.

July
Annual Summer Commission Meeting held. Commissioners review final statement(s) and determine final accreditation action(s).

August
Institution is notified of final accreditation action(s).

Events

Institute for the Development of Excellence in Assessment Leadership
August 3-7

Industry Advisory Council Meeting
August 6-7

Society Summit
September 14

...more

Latest News

Milligan Named ABET Executive Director

Borrowman Elected ABET President, Hinn Elected Secretary

Two Public Directors Named to ABET Board

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Page last modified June 23, 2009

Appendix E
Rubric for Assessing OSH&E Program Outcomes
Draft by Dr. Lu Yuan 05/18/2009

Objective 1: Apply knowledge and principles of mathematics, science, technology, and management in industry, business, or other related areas of employment as occupational safety, health, and environment professionals.

Expected Outcomes: Students completing the Baccalaureate degree in OSH&E will demonstrate the ability to apply basic mathematical and scientific knowledge in the safety, health, and environment field.

Performance Criteria	Below Expectations 1	Progressing to Criteria 2	Meets Criteria 3	Exceeds Criteria 4	Score
1. Students know how to apply basic mathematical and statistical knowledge in the safety, health, and environment field.	Student fails to solve typical OSH&E problems using basic mathematical and statistical knowledge.	Student identifies typical OSH&E problems, but struggles to select proper mathematical and statistical tools needed to solve the problems.	Student correctly identifies typical OSH&E problems and applies basic mathematical and statistical knowledge, but makes minor mistakes during problem solving.	Student clearly identifies typical OSH&E problems and correctly applies basic mathematical and statistical knowledge to solve the problems.	
2. Students know basic principles in chemistry, physics, and biology as it pertains to the practice of safety, health, and environment.	Student is unable to understand basic principles in chemistry, physics, and biology that are applied to the OSH&E field.	Student understands basic principles in chemistry, physics, and biology that are applied to the OSH&E field, but struggles to apply those principles properly to solve specific problems.	Student understands and applies basic principles in chemistry, physics, and biology that are applied to the OSH&E field, but makes minor mistakes and/or demonstrates a lack of clarity during problem solving.	Student clearly and correctly understands and applies basic principles in chemistry, physics, and biology that are applied to the OSH&E field to solve specific problems.	

3. Students know basic principles in business management as it pertains to the practice of safety, health, and environment.	Student is unable to understand basic principles in business management that are applied to the OSH&E field.	Student understands basic principles in business management that are applied to the OSH&E field, but struggles to apply those principles properly to solve specific problems.	Student understands and applies basic principles in business management that are applied to the OSH&E field, but demonstrates a lack of clarity during problem solving.	Student clearly and correctly understands and applies basic principles in business management that are applied to the OSH&E field to solve specific problems.	

Objective 2: Apply practical-oriented knowledge and skills in safety, health, and environment to anticipate, identify and evaluate hazardous conditions and practices, to develop hazard control designs, methods, procedures and programs, and to implement and manage effective safety and health programs.

Expected Outcomes 2A: Students completing the Baccalaureate degree in OSH&E will demonstrate the understanding of safety, health, and environment knowledge.

Performance Criteria	**Below Expectations 1**	**Progressing to Criteria 2**	**Meets Criteria 3**	**Exceeds Criteria 4**	**Score**
2A1. Students understand occupational safety, health, and environment fundamentals.	Student fails to understand occupational safety, health, and environment fundamentals.	Student understands the basics of occupational safety, health, and environment, but struggles to differentiate between concepts.	Student understands the basics of occupational safety, health, and environment and how they are interrelated, but demonstrates a lack of clarity.	Student clearly and correctly understands occupational safety, health, and environment fundamentals.	
2A2. Students know legal aspects of safety, health, and environmental practices.	Student fails to understand the legal framework within the OSH&E field.	Student understands the legal framework within the OSH&E field, but struggles to differentiate between agency/organization responsibilities.	Student understands the legal framework within the OSH&E field and how different agencies/organizations are interrelated, but demonstrates a lack of clarity.	Student clearly and correctly understands the legal framework within the OSH&E field.	
2A3. Students understand the interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body.	Student fails to understand physical, chemical, biological, and ergonomic agents, factors, and/or stressors.	Student understands the impacts of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body, but struggles to differentiate between substances.	Student understands the interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body, but demonstrates a lack of clarity.	Student clearly and correctly understands the impacts and interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body.	

2A4. Students understand the application of laws, regulations, standards, and codes to safety, health and environmental conditions.	Student fails to understand the application of laws, regulations, standards, and codes to safety, health and environmental conditions.	Student understands how to apply laws, regulations, standards, and codes to safety, health and environmental conditions, but struggles to differentiate between substances.	Student understands the application of laws, regulations, standards, and codes to safety, health and environmental conditions, but demonstrates a lack of clarity.	Student clearly understands and correctly applies laws, regulations, standards, and codes to safety, health and environmental conditions.	
2A5. Students understand and use basic principles of fire prevention and protection in the workplace.	Student fails to understand basic principles of fire prevention and protection in the workplace.	Student understands basic principles of fire prevention and protection in the workplace, but struggles to use the principles properly.	Student understands and uses basic principles of fire prevention and protection in the workplace, but demonstrates a lack of clarity.	Student clearly understands and correctly uses basic principles of fire prevention and protection in the workplace.	
2A6. Students know industrial and construction safety throughout the work processes.	Student fails to understand industrial and construction safety throughout the work processes.	Student understands industrial and construction safety throughout the work processes, but struggles to differentiate between concepts and substances.	Student understands industrial and construction safety throughout the work processes, but demonstrates a lack of clarity.	Student clearly and correctly understands industrial and construction safety throughout the work processes.	

Expected Outcomes 2B: Students completing the Baccalaureate degree in OSH&E will demonstrate the ability to obtain the necessary skills to anticipate, identify and evaluate safety, health, and environment hazards, and to develop and implement hazard control methods, programs, and system designs.

Performance Criteria	Below Expectations 1	Progressing to Criteria 2	Meets Criteria 3	Exceeds Criteria 4	Score
2B1. Students know how to apply basic laboratory techniques associated with industrial hygiene and basic sciences.	Student fails to understand basic laboratory techniques associated with industrial hygiene and basic sciences.	Student understands the application of basic laboratory techniques associated with industrial hygiene and basic sciences, but struggles to differentiate between concepts and methods.	Student understands the application of basic laboratory techniques associated with industrial hygiene and basic sciences, but demonstrates a lack of clarity.	Student clearly understands and correctly applies basic laboratory techniques associated with industrial hygiene and basic sciences.	
2B2. Students know how to anticipate, identify and evaluate hazardous agents, conditions, and practices.	Student fails to understand how to anticipate, identify and evaluate hazardous agents, conditions, and practices.	Student understands how to anticipate, identify and evaluate hazardous agents, conditions, and practices, but struggles to differentiate between methods.	Student understands different methods to anticipate, identify and evaluate hazardous agents, conditions, and practices, but demonstrates a lack of clarity.	Student clearly understands and correctly applies different methods to anticipate, identify and evaluate hazardous agents, conditions.	
2B3. Students know fundamental exposure assessment techniques.	Student fails to understand fundamental exposure assessment techniques.	Student understands the basics of exposure assessment techniques, but struggles to differentiate between methods.	Student understands different fundamental exposure assessment techniques, but demonstrates a lack of clarity.	Student clearly understands fundamental exposure assessment techniques.	

2B4. Students know how to develop hazard control designs, methods, procedures, and programs.	Student fails to understand how to develop hazard control designs, methods, procedures, and programs.	Student understands how to develop hazard control designs, methods, procedures, and programs, but struggles to differentiate between concepts and methods.	Student understands different means to develop hazard control designs, methods, procedures, and programs, but demonstrates a lack of clarity.	Student clearly understands and correctly develops hazard control designs, methods, procedures, and programs.	
2B5. Students know how to conduct accident/incident investigation and analysis.	Student fails to understand how to conduct accident/incident investigation and analysis.	Student understands how to conduct accident/incident investigation and analysis, but struggles to differentiate between theories, models and methods.	Student understands different theories, models and methods to conduct accident/incident investigation and analysis, but demonstrates a lack of clarity.	Student clearly understands and correctly conducts accident/incident investigation and analysis.	
2B6. Students know how to implement and manage effective safety, health, and environment programs.	Student fails to understand how to implement and manage effective safety, health, and environment programs.	Student understands how to implement and manage effective safety, health, and environment programs, but struggles to differentiate between elements.	Student understands different elements to implement and manage effective safety, health, and environment programs, but demonstrates a lack of clarity.	Student clearly understands and correctly implements and manages effective safety, health, and environment programs.	

Objective 3: Become effective communicators and ethical facilitators within the practice of safety, health, and environment.

Expected Outcomes: Students completing the Baccalaureate degree in OSH&E will demonstrate the ability to express thoughts effectively in oral and written communications, and to understand ethical behaviors and professional responsibility.

Performance Criteria	**Below Expectations 1**	**Progressing to Criteria 2**	**Meets Criteria 3**	**Exceeds Criteria 4**	**Score**
1. Students are able to effectively express thoughts in oral and written communications.	Student fails to effectively express thoughts in oral and written communications.	Student expresses thoughts in oral and written communications, but struggles to demonstrate the effectiveness.	Student generally effectively expresses thoughts in oral and written communications, but demonstrates a lack of consistency.	Student consistently and effectively expresses thoughts in oral and written communications.	
2. Students know the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment.	Student fails to understand the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment.	Student understands the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment, but struggles to differentiate between concepts and methods.	Student understands different techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment, but demonstrates a lack of clarity.	Student clearly understands the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment.	
3. Students are able to effectively function as a part of multi-disciplinary team.	Student fails to effectively function as a part of multi-disciplinary team.	Student functions as a part of multi-disciplinary team, but struggles to demonstrate the effectiveness.	Student generally effectively functions as a part of multi-disciplinary team, but demonstrates a lack of consistency.	Student consistently and effectively functions as a part of multi-disciplinary team.	

Objective 4: Continue professional development to address the need of applying principles of safety, health, and environment within a constantly changing and increasingly diverse environment.

Expected Outcomes: Students completing the Baccalaureate degree in OSH&E will demonstrate the ability to broaden education and life-long learning necessary to understand safety, health, and environment issues within a global and social context.

Performance Criteria	Below Expectations 1	Progressing to Criteria 2	Meets Criteria 3	Exceeds Criteria 4	Score
1. Students are encouraged to become a member of ASSE (American Society of Safety Engineers) Southeastern Louisiana University Student Section and be actively involved in the events and activities organized by the Student Section. At least 50% of upper-level students are ASSE members.	Student shows no interest in becoming a member of ASSE Southeastern Louisiana University Student Section and is not involved in the events and activities organized by the Student Section. Lower than 50% of upper-level students are ASSE members.	Student is interested in becoming a member of ASSE Southeastern Louisiana University Student Section and is involved in the events and activities organized by the Student Section, but does not become a member eventually. Close to 50% of upper-level students are ASSE members.	Student becomes a member of ASSE Southeastern Louisiana University Student Section and is generally actively involved in the events and activities organized by the Student Section. At least 50% of upper-level students are ASSE members.	Student becomes a member of ASSE Southeastern Louisiana University Student Section and is consistently actively involved in the events and activities organized by the Student Section. 75% of upper-level students are ASSE members.	
2. Students are encouraged to continue personal growth and improvement by pursuing the widely recognized certifications including Certified Safety Professional (CSP) and Certified Industrial Hygienist (CIH). As measured on the Southeastern Alumni Survey, 50% of the OSH&E graduates will become CSPs.	Student shows no interest in continuing personal growth and improvement by pursuing the widely recognized certifications including CSP and CIH. As measured on the Southeastern Alumni Survey, lower than 50% of the OSH&E graduates will become CSPs.	Student is interested in continuing personal growth and improvement by pursuing the widely recognized certifications including CSP and CIH. As measured on the Southeastern Alumni Survey, close to 50% of the OSH&E graduates will become CSPs.	Student takes early steps to continue personal growth and improvement by pursuing the widely recognized certifications including CSP and CIH. As measured on the Southeastern Alumni Survey, 50% of the OSH&E graduates will become CSPs.	Student consistently continues personal growth and improvement by pursuing the widely recognized certifications including CSP and CIH. As measured on the Southeastern Alumni Survey, 75% of the OSH&E graduates will become CSPs.	

Learning Outcomes	Performance Criteria	First Cycle												
		2008-2009			2009-2010			2010-2011			2011-2012			
		Identification and Method Development	Data Collection and Evaluation	Feedback and Action	Identification and Method Development	Data Collection and Evaluation	Feedback and Action	Identification and Method Development	Data Collection and Evaluation	Feedback and Action	Identification and Method Development	Data Collection and Evaluation	Feedback and Action	Identification and Method Development
1. An ability to apply basic mathematical and scientific knowledge in the safety, health, and environment field	1. Ability to apply basic mathematical and statistical knowledge in the safety, health, and environment field	Y			Y				Y				Y	
	2. Understanding basic principles in chemistry, physics, and biology as it pertains to the practice of safety, health, and environment	Y				Y				Y	Y			
	3. Understanding basic principles in business management as it pertains to the practice of safety, health, and environment	Y						Y				Y	Y	
2A. Understanding of safety, health, and environment knowledge	2A1. Ability to understand occupational safety, health, and environment fundamentals	Y				Y				Y	Y			
	2A2. Ability to know legal aspects of safety, health, and environmental practices	Y			Y				Y				Y	
	2A3. Understanding the interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body	Y						Y				Y	Y	
	2A4. Understanding the application of laws, regulations, standards, and codes to safety, health and environmental conditions	Y				Y				Y	Y			
	2A5. Ability to understand and use basic principles of fire prevention and protection in the workplace	Y			Y				Y				Y	
	2A6. Ability to know industrial and construction safety throughout the work processes	Y						Y				Y	Y	
2B. An ability to obtain the necessary skills to anticipate, identify and evaluate safety, health, and environment hazards, and to develop and implement hazard control methods, programs, and system designs	2B1. Ability to apply basic laboratory techniques associated with industrial hygiene and basic sciences	Y				Y				Y	Y			
	2B2. Ability to anticipate, identify and evaluate hazardous agents, conditions, and practices	Y				Y				Y	Y			
	2B3. Understanding fundamental exposure assessment techniques	Y						Y				Y	Y	
	2B4. Ability to develop hazard control designs, methods, procedures, and programs	Y			Y				Y				Y	

system designs	2B5. Ability to conduct accident/incident investigation and analysis	Y						Y				Y	Y	
	2B6. Ability to implement and manage effective safety, health, and environment programs	Y			Y				Y				Y	
3. An ability to express thoughts effectively in oral and written communications, and to understand ethical behaviors and professional responsibility	1. Ability to effectively express thoughts in oral and written communications	Y				Y				Y	Y			
	2. Understanding the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment	Y						Y				Y	Y	
	3. Ability to effectively function as a part of multi-disciplinary team	Y			Y				Y				Y	
4. An ability to broaden education and life-long learning necessary to understand safety, health, and environment issues within a global and social context	1. Students are encouraged to become a member of ASSE (American Society of Safety Engineers) Southeastern Louisiana University Student Section and be actively involved in the events and activities organized by the Student Section. At least 50% of upper-level students are ASSE members.	Y			Y				Y				Y	
	2. Students are encouraged to continue personal growth and improvement by pursuing the widely recognized certifications including Certified Safety Professional (CSP) and Certified Industrial Hygienist (CIH). As measured on the Southeastern Alumni Survey, 50% of the OSH&E graduates will become CSPs.	Y				Y				Y	Y			

	Objective 1. Apply knowledge and principles of mathematics, science, technology, and management in industry, business, or other related areas of employment as occupational safety, health, and environment professionals											
	First Year			Second Year			Third Year			Fouth Year		
First Semester	MATH 161	College Algebra	3	CHEM 101	General Chemistry I	3	CHEM 102	General Chemistry II	3	OSHE 424	System Safety Methodologies	3
	OSHE 111	Introduction to Occupational Safety and Health	3	CLAB 103	General Chemistry Lab I	1	CLAB 104	General Chemistry Lab II	1	MGNT 351	Principles of Management	3
	OSHE 112	Design of Hazard Controls	3	MATH 241	Elementary Statistics	3	ECON 201	Principles of Economics (Macroeconomics)	3		Professional Elective	3
	GBIO 151	General Biology	3				ZOO 241	Human Phisiology	4			
	BIOL 152	General Biology Lab	1				OSHE 381	Safety in Chemical and Process Industries	3			
Second Semester	MATH 162	Plane Trigonometry	3	PHYS 191	General Physics I	3	CHEM 261	Survey of Organic Chemistry	3	OSHE 382	Construction Safety	3
	CMPS 173	Software for Management of Data	3	PLAB 193	General Physics Lab I	1	IT 242	Materials and Processes	3	OSHE 421	Measurement of Safety Performance and Accident Investigation and Analysis	3
	OSHE 121	Safety and Health Program Management and Administration	3	OSHE 242	Ergonomics	3	OSHE 341	Field Methods of Industrial Hygiene and Toxicology	3	IT 391/492	Industrial Internship / Research and Development	3
	OSHE 141	Principles of Industrial Hygiene &Toxicology	3	OSHE 261	Fire Proection and Prevention	3					Professional Elective	3
											Professional Elective	3

	Objective 2. Apply practical-oriented knowledge and skills in safety, health, and environment to anticipate, identify and evaluate hazardous conditions and practices, to develop hazard control designs, methods, procedures and programs, and to implement and manage effective safety and health programs											
	First Year			Second Year			Third Year			Fouth Year		
First Semester	OSHE 111	Introduction to Occupational Safety and Health	3	OSHE 251	Environmental Laws and Regulations	3	OSHE 381	Safety in Chemical and Process Industries	3	OSHE 424	System Safety Methodologies	3
	OSHE 112	Design of Hazard Controls	3							OSHE 471	Education and Training Methods for Occupational Safety and Health	3
										OSHE 311/323/441	Professional Elective	3
Second Semester	OSHE 121	Safety and Health Program Management and Administration	3	OSHE 231	Safety Laws, Regulations, and Standards	3	IT 242	Materials and Processes	3	OSHE 382	Construction Safety	3
	OSHE 141	Principles of Industrial Hygiene &Toxicology	3	OSHE 242	Ergonomics	3	OSHE 341	Field Methods of Industrial Hygiene and Toxicology	3	OSHE 421	Measurement of Safety Performance and Accident Investigation and Analysis	3
				OSHE 261	Fire Proection and Prevention	3				IT 391/492	Industrial Internship / Research and Development	3
										OSHE 322/451	Professional Elective	3
										OSHE 322/451	Professional Elective	3

	Objective 3. Become effective communicators and ethical facilitators within the practice of safety, health, and environment											
	First Year			Second Year			Third Year			Fouth Year		
First Semester	ENGL 101	Freshmen Composition	3	PSYC 101	General Psychology I	3	ENGL 230/231/232	World/English/American Literature	3	OSHE 424	System Safety Methodologies	3
	OSHE 111	Introduction to Occupational Safety and Health	3	OSHE 251	Environmental Laws and Regulations	3	OSHE 381	Safety in Chemical and Process Industries	3	OSHE 471	Education and Training Methods for Occupational Safety and Health	3
	OSHE 112	Design of Hazard Controls	3								Professional Elective	3
Second Semester	ENGL 102	Critical Reading and Writing	3	COMM 211	Introduction to Public Speaking	3	HIST 101/102/201/202	Western Civilization / American History	3	OSHE 382	Construction Safety	3
	OSHE 121	Safety and Health Program Management and Administration	3	OSHE 231	Safety Laws, Regulations, and Standards	3	ENGL 322	Introduction to Professional and Technical Writing	3	OSHE 421	Measurement of Safety Performance and Accident Investigation and Analysis	3
	OSHE 141	Principles of Industrial Hygiene &Toxicology	3	OSHE 242	Ergonomics	3	OSHE 341	Field Methods of Industrial Hygiene and Toxicology	3	IT 391/492	Industrial Internship / Research and Development	3
				OSHE 261	Fire Proection and Prevention	3					Professional Elective	3
											Professional Elective	3

	Objective 4. Continue professional development to address the need of applying principles of safety, health, and environment within a constantly changing and increasingly diverse environment											
	First Year			Second Year			Third Year			Fouth Year		
First Semester							OSHE 381	Safety in Chemical and Process Industries	3	OSHE 424	System Safety Methodologies	3
										OSHE 471	Education and Training Methods for Occupational Safety and Health	3
										OSHE 311/323/441	Professional Elective	3
Second Semester							OSHE 341	Field Methods of Industrial Hygiene and Toxicology	3	OSHE 382	Construction Safety	3
										OSHE 421	Measurement of Safety Performance and Accident Investigation and Analysis	3
										IT 391/492	Industrial Internship / Research and Development	3
										OSHE 322/451	Professional Elective	3
										OSHE 322/451	Professional Elective	3

OSHE Courses that Satisfy Competencies for OSH&E BS Program

Mathematics, Science and Statistics	OSHE Courses
Graduates know how to apply basic mathematical and statistical knowledge in the safety, health, and environment field.	**111**, 112, **121**, **141**, 231, **242**, 251, **261**, 311, 322, 323, 341, **381**, 382, **421**, **424**, **441**, 451, 471
Graduates know basic principles in chemistry, physics, and biology as it pertains to the practice of safety, health, and environment.	**111**, **112**, 121, **141**, 231, **242**, 251, **261**, 311, 322, 323, 341, **381**, **382**, 421, **424**, **441**, 451, 471
Graduates know basic principles in business management as it pertains to the practice of safety, health, and environment.	**111**, **112**, **121**, 141, **231**, 242, 251, 261, **311**, 322, 323, 341, 381, 382, **421**, 424, 441, 451, **471**
Communications and Social Sciences	
Graduates are able to effectively express thoughts in oral and written communications.	**111**, **112**, **121**, **141**, **231**, **242**, **251**, 261, 311, **322**, 323, 341, **381**, **382**, **421**, **424**, 441, 451, **471**
Graduates know the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment.	**111**, **112**, **121**, 141, 231, 242, 251, 261, 311, **322**, 323, 341, 381, **382**, **421**, **424**, 441, 451, 471
Graduates are able to effectively function as a part of multi-disciplinary team.	**111**, **112**, 121, 141, 231, **242**, 251, 261, 311, 322, 323, 341, 381, **382**, **421**, **424**, 441, **451**, **471**
Safety, Health, and Environment Knowledge	
Graduates understand occupational safety, health, and environment fundamentals.	**111**, **112**, **121**, **141**, **231**, **242**, **251**, **261**, 311, 322, 323, 341, 381, 382, 421, 424, 441, 451, 471
Graduates know legal aspects of safety, health, and environmental practices.	**111**, **112**, **121**, **141**, **231**, **242**, **251**, **261**, 311, 322, 323, 341, **381**, **382**, **421**, **424**, 441, 451, 471
Graduates understand the interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body.	111, 112, 121, **141**, 231, **242**, 251, 261, 311, 322, 323, **341**,

	381, 382, 421, 424, **441**, 451, 471
Graduates understand the application of laws, regulations, standards, and codes to safety, health and environmental conditions.	**111**, 112, **121**, 141, **231**, 242, **251**, 261, 311, 322, 323, 341, **381**, **382**, 421, 424, 441, **451**, 471
Graduates understand and use basic principles of fire prevention and protection in the workplace.	**111**, 112, 121, 141, 231, 242, 251, **261**, 311, 322, 323, 341, **381**, 382, 421, 424, 441, 451, 471
Graduates know industrial and construction safety throughout the work processes.	**111**, 112, 121, 141, 231, 242, 251, 261, 311, 322, 323, 341, 381, **382**, 421, **424**, 441, 451, 471
Safety, Health, and Environment Practical Skills	
Graduates know how to apply basic laboratory techniques associated with industrial hygiene and basic sciences.	111, 112, 121, **141**, 231, 242, 251, 261, 311, 322, 323, **341**, 381, 382, 421, 424, **441**, 451, 471
Graduates know how to anticipate, identify and evaluate hazardous agents, conditions, and practices.	**111**, **112**, **121**, **141**, 231, **242**, 251, 261, 311, 322, 323, **341**, **381**, **382**, 421, **424**, **441**, 451, 471
Graduates know fundamental exposure assessment techniques.	**111**, **112**, 121, **141**, 231, **242**, 251, 261, 311, 322, 323, **341**, **381**, **382**, 421, **424**, **441**, 451, 471
Graduates know how to develop hazard control designs, methods, procedures, and programs.	111, **112**, 121, **141**, 231, **242**, 251, **261**, 311, 322, 323, **341**, **381**, 382, 421, **424**, 441, 451, 471
Graduates know how to conduct accident/incident investigation and analysis.	**111**, 112, **121**, 141, 231, 242, 251, 261, 311, 322, 323, 341, 381, 382, **421**, 424, 441, 451, 471
Graduates know how to implement and manage effective safety, health, and environment programs.	**111**, 112, **121**, 141, 231, 242, 251, 261, **311**, **322**, **323**, 341, 381, 382, **421**, **424**, 441, 451, **471**

Course Objective	First Exam		Second Exam		Final Exam		Final Project		Extra Credit Exercise		Targeted Program Objective	Expected Outcome	Performance Criterion
	Question	Performance	Question	Performance	Question	Performance	Requirement	Performance	Requirement	Performance			
1. Identify a variety of occupational hazards	3. Which one of the following statements INCORRECTLY describes the general considerations of building and facility designs and layout?	Fall 07: 12/12 = 100% Fall 08: 14/16 = 87.5% Spring 09: 16/18 = 88.9% Average: 42/46 = 91.3%	1. Which one of the following statements about machine safeguarding is correct?		2. What is the desired range of oxygen concentration within a confined space?		1) Check your own company or look around your community for possible sites.		Read the summary report on the Union Carbide Incident (Mar.27, 1998 in Hahnville, LA) conducted by the U.S. Chemical Safety and Hazard Information Board and think about the questions: Whether a confined space incident? And Why and how?		Objective 2: Apply practical-oriented knowledge and skills in safety, health, and environment to anticipate, identify and evaluate hazardous conditions and practices, to develop hazard control designs, methods, procedures and programs, and to implement and manage effective safety and health programs.	Expected Outcomes 2A: Students completing the Baccalaureate degree in OSH&E will demonstrate the understanding of safety, health, and environment knowledge.	2A1. Students understand occupational safety, health, and environment fundamentals.
	4. Which one of the followings does NOT meet the definition of a confined space?	Fall 07: 12/12 = 100% Fall 08: 16/16 = 100% Spring 09: 17/18 = 94.4% Average: 45/46 = 97.8%	3. Which one of the following descriptions about lockout/tagout is INCORRECT?		13. Which one of the following statements about manual material lifting is INCORRECT?		2) Divide the job into steps or tasks and describe them.						
	5. What is the proper range of oxygen concentration within a confined space?	Fall 07: 7/12 = 58.3% Fall 08: 16/16 = 100% Spring 09: 18/18 = 100% Average: 41/46 = 89.1%	7. Which one of the following statements about electrical shock is correct?		16. What is the generally principal cause of deterioration of wire rope used for hoisting in wet mine shafts?		3) Identify possible hazards and group them in different categories, including general safety, ergonomic, chemical, biological, etc.						
	8. The common hazards involved in excavation include all of the followings EXCEPT for:	Fall 07: 9/12 = 75% Fall 08: 10/16 = 62.5% Spring 09: 11/18 = 61.1% Average: 30/46 = 65.2%	10. Which one of the following practices is prohibited in terms of fire doors?		17. Which one of the following statements about powered industrial trucks is correct?								
	9. Which one of the following actions should be AVOIDED when ascending or descending ladders?	Fall 07: 10/12 = 83.3% Fall 08: 16/16 = 100% Spring 09: 16/18 = 88.9% Average: 42/46 = 91.3%			19. Which one of the followings does NOT meet the general safety requirements of tool usage?								
	11. Which one of the following structures presents a major source of slip, trip, and fall injuries if inadequately maintained?	Fall 07: 12/12 = 100% Fall 08: 15/16 = 93.8% Spring 09: 18/18 = 100% Average: 45/46 = 97.8%			20. Which one of the following practices should be forbidden when operating portable power tools?								
	15. Which one of the following statements about unfired pressure vessels is NOT correct?	Fall 07: 8/12 = 66.7% Fall 08: 8/16 = 50% Spring 09: 8/18 = 44.4% Average: 24/46 = 52.2%			75. The most commonly used and abused hand tool is _____.								
	47. Sick building syndrome may be caused by all of the following factors EXCEPT for _____.	Fall 07: 12/12 = 100% Fall 08: 14/16 = 87.5% Spring 09: 18/18 = 100% Average: 44/46 = 95.7%											
2. Recognize information resources regarding occupational hazards	13. Which one of the following organizations provides codes for design, fabrication, and installation of boilers and pressure vessels?	Fall 07: 4/12 = 33.3% Fall 08: 10/16 = 62.5% Spring 09: 16/18 = 88.9% Average: 30/46 = 65.2%	9. Which NFPA (National Fire Protection Association) classification of fires can be extinguished by water?		6. What is a boiler?		4) Conduct hazard analyses using the tools/methods that are either taught in classes, or required by the standard, or employed by previous researchers, or all of them.		Extension Cord Codes: What does Type SO stand for?				
	21-23. Match the description of people involved in confined space with the term it describes.	Fall 07: 10/12 = 83.3% Fall 08: 14/16 = 87.5% Spring 09: 17/18 = 94.4% Average: 41/46 = 89.1%	11-15. Match the description of machine safeguard and device with the category it belongs to.		12. Which one of the followings lists the three categories of hazard parameters in the NFPA (National Fire Protection Association) identification system of hazardous materials?								
	37-40. Match the description of high-pressure system/substance with the term it applies.	Fall 07*: 4/12 = 33.3% Fall 08: 13/16 = 81.2% Spring 09: 16/18 = 88.9% Average: 33/46 = 71.7%	21-25. Match the description of respirator with the term it describes.		15. Which type of ropes has more breaking strength?								
	41. To apply the safety through design concept, it is important to understand the definitions of hazard, accident, and risk, etc. Of which, risk is defined as_____.	Fall 07: 10/12 = 83.3% Fall 08: 14/16 = 87.5% Spring 09: 15/18 = 83.3% Average: 39/46 = 84.8%	31-34. Match the type of combustibles with the NFPA classification of fires.		56. To apply the safety through design concept, it is important to understand the definitions of hazard, accident, and risk, etc. Of which, risk is defined as_____.								
	45. The OSHA construction standard requires fall protection for personnel when they are exposed to a fall of _____ ft or greater in height.	Fall 07: N/A Fall 08: 11/16 = 68.8% Spring 09: 18/18 = 100% Average: 29/34 = 85.3%	35-38. The NFPA identification system of hazardous materials is usually called "NFPA Diamond". For questions 35 through 38, indicate the correct category of specific factors for the example material.		57. A confined space attendant is an employee who _____.								
	49. The statistical data show that _____ is the most common cause of boiler accident.	Fall 07: N/A Fall 08: 8/16 = 50% Spring 09: 14/18 = 77.8% Average: 22/34 = 64.7%	40. A point of operation is defined as _____.		60. In construction industry, fall protection is required for personnel when they are exposed to a fall of _____ ft or greater in height.								
			43. OSHA currently enforces a _____ dBA permissible exposure limit in terms of noise level and no exposure above _____ dBA is permitted.		63. Among the following terms, _____ is defined as a hazardous area created by two or more mechanical parts rotating in opposite directions within the same plane and in close interaction.								
			46. The electrical term, ground, is defined as _____.		66. Fires that occur near energized electrical equipment where non-conducting extinguishing agents must be used are classified as _____.								

			50. In order to more comprehensively understand the chemistry of fire, researchers add _____ to the traditional "fire triangle" symbol and develop the "fire tetrahedron".		69. Material handling is one of the most common job functions and accounts for _____ of all occupational injuries every year.								
					70. A cryogenic liquid has a normal boiling point below _____.								
3. Explain basic principles and technologies to analyze and control occupational hazards	1. What is the correct definition for *Safety Through Design*?	Fall 07*: 5/12 = 41.7% Fall 08: 16/16 = 100% Spring 09: 18/18 = 100% Average: 39/46 = 84.8%	2. Which one of the following considerations does NOT meet the minimum requirements for machine safeguards?		1. Different departments in a company have different responsibilities for hazard controls. What kind of responsibility does the ENGINEERING department have?		4) Conduct hazard analyses using the tools/methods that are either taught in classes, or required by the standard, or employed by previous researchers, or all of them.						
	2. Which one of the following statements about the proactive approach to hazard control is correct?	Fall 07: 11/12 = 91.7% Fall 08: 12/16 = 75% Spring 09: 15/18 = 83.3% Average: 38/46 = 82.6%	4. Which one of the following statements about Personal Protective Equipment (PPE) is appropriate?		3. As discussed in class, there are two types of ventilation systems, local and general. Which one of the following statements describes local ventilation system?		5) Recommend improvements or control interventions for the hazard(s) you have found.						
	6. Color is used widely for safety purposes. Red is the standard color used for:	Fall 07*: 7/12 = 58.3% Fall 08: 16/16 = 100% Spring 09: 17/18 = 94.4% Average: 40/46 = 87.0%	5. Which one of the following statements about respiratory protection is INCORRECT?		4. What is the correct ratio between the horizontal distance from the ladder base to vertical plane of the support and the ladder's length between supports?								
	7. Which one of the following statements about the Company-Contractor relationship during the construction of facilities is NOT correct?	Fall 07: 11/12 = 91.7% Fall 08: 15/16 = 93.8% Spring 09: 18/18 = 100% Average: 44/46 = 95.7%	6. Which one of the following hearing protection devices can be grouped into three broad categories: formable, custom-molded, and molded?		5. How often should roofs be inspected?								
	10. Which one of the following types of work does NOT belong to preventive maintenance?	Fall 07*: 11/12 = 91.7% Fall 08: 8/16 = 50% Spring 09: 14/18 = 77.8% Average: 34/46 = 73.9%	8. What is the primary goal of fire prevention during the building fire safety design and construction phase?		7. Which one of the followings is the preferred material used for machine safeguards under most circumstances?								
	12. Inspection and Maintenance of underground utilities is very hazardous. Which one of the following policies and procedures is INAPPROPRIATE?	Fall 07: 4/12 = 33.3% Fall 08: 7/16 = 43.8% Spring 09: 16/18 = 88.9% Average: 27/46 = 58.7%	16-20. Indicate the proper sequence of lockout procedures.		8. Which one of the following statements properly describes an Interlocked Guard?								
	14. The water treatment in boilers should maintain a pH basic enough to minimize corrosion. What is the recommended maximum pH?	Fall 07: 8/12 = 66.7% Fall 08: 12/16 = 75% Spring 09: 10/18 = 55.6% Average: 30/46 = 65.2%	26-30. Match the description of control measure with the specific type of electrical hazard it can be applied most appropriately.		9. Which one of the following descriptions about lockout/tagout hardware requirements is INCORRECT?								
	16-20. Indicate the priority of hazard control strategies.	Fall 07: 2/12 = 16.7% Fall 08: 8/16 = 50% Spring 09: 10/18 = 55.6% Average: 20/46 = 43.5%	39. The preferred material used for machine safeguards under most circumstances is _____.		10. Which respirator should be used when there are extended work periods (e.g., working in a confined space) required in atmospheres that are or may be immediately dangerous to life and health?								
	24-28. Determine which type of ventilation the description indicates: A. Local and B. General.	Fall 07: N/A Fall 08: 10/16 = 62.5% Spring 09: 13/18 = 72.2% Average: 23/34 = 67.6%	41. The machine safeguarding device that uses a mechanical linkage to assure withdrawal of the hands from the point of operation is called _____.		11. How many milliseconds does it need for a GFCI (Ground-Fault Circuit Interrupter) to interrupt the electric power?								
	29-31. Match the description of different fall protection systems with the correct name.	Fall 07: N/A Fall 08: 14/16 = 87.5% Spring 09: 17/18 = 94.4% Average: 31/34 = 91.2%	42. Locks/tags need to meet all of the following requirements EXCEPT for _____.		14. Which one of the following requirements about the selection and training of crane operators is correct?								
	32-36. Match the description of maintenance plan with the structure it MOST CLOSELY applies.	Fall 07: 6/12 = 50% Fall 08: 7/16 = 43.8% Spring 09: 10/18 = 55.6% Average: 23/46 =50%	44. The respirator that is normally used when there is a short-time need to enter and escape from atmospheres which are or may be immediately dangerous to life and health (IDLH) is _____.		18. What signal should be made before allowing a heavy-duty vehicle to go forward?								
	42. The Permit-Required Confined Spaces (PRCS) entry procedures are defined as 1) _____; 2) Ventilate the space; 3) Conduct tailboard; 4) Complete permit; 5) _____; and 6) Enter the space.	Fall 07: 10/12 = 83.3% Fall 08: 14/16 = 87.5% Spring 09: 13/18 = 72.2% Average: 37/46 = 80.4%	45. Gloves that are used to handle rough or abrasive materials, sparks and heat should be made of _____.		21-25. Rank the priorities of those controls based on what we learned in class.								
	43. In small or restricted areas of the workplace, _____ can provide higher illumination levels.	Fall 07: 10/12 = 83.3% Fall 08: 10/16 = 62.5% Spring 09: 15/18 = 83.3% Average: 35/46 = 76.1%	47. The GFCI (Ground-Fault Circuit Interrupter) interrupts the electric power within as little as _____ of a second.		26-30. Indicate the proper steps of Permit-Required Confined Space (PRCS) entry.								
	44. The ladder should be placed so that the horizontal distance from the base to the vertical plane of the support is _____ the ladder's length between supports.	Fall 07: 12/12 = 100% Fall 08: 16/16 = 100% Spring 09: 18/18 = 100% Average: 46/46 = 100%	48. The fire prevention activity that is vital to alert workers to the emergency and to mobilize fire protection forces when a fire breaks out is _____.		31-35. Match the description of maintenance plan with the structure it most closely applies.								

	46. It is recommended that roofs should be inspected _____.	Fall 07: 5/12 = 41.7% Fall 08: 6/16 = 37.5% Spring 09: 13/18 = 72.2% Average: 24/46 =52.2%	49. Most fire protection engineers consider _____ to be the most common and effective fire-fighting tool.		36-40. Place the five steps of lockout procedure in their proper order.								
	48. The top rail of a guardrail system should have a vertical height of approximately _____ inches. And the whole system must be able to withstand at least _____ pounds.	Fall 07: 8/12 = 66.7% Fall 08: 15/16 = 93.8% Spring 09: 16/18 = 88.9% Average: 39/46 = 84.8%	Extra Credits. In the second unit of the class, we talked about several workplace hazards and control measures, including machine safeguarding, electrical hazards, and fire hazards, etc. There are many causes which may lead to certain types of hazards. Assuming that you are hired by a manufacturing company (which operates a variety of machines and electrical equipment) to develop a hazard control program on a specific hazard that you can choose by yourself, such as inappropriate machine guarding, lack of lockout/tagout, misuse of PPE, improper grounding, overloaded circuits, etc., describe the program elements in details.		41-45. Match the description of different fire protection and prevention systems/techniques with the term it most closely applies								
	50. Boilers should be scheduled shutdowns at least _____ to perform preventive maintenance.	Fall 07: 11/12 = 91.7% Fall 08: 6/16 = 37.5% Spring 09: 16/18 = 88.9% Average: 33/46 = 71.7%			46-50. Match the rigging equipment slings with their specific application requirements.								
	Extra Credits. It is highly desired that many different departments work together to achieve effective and reliable hazard control programs. Particularly during the hazard analysis phase, management and safety professionals should collaborate efficiently during each of the following steps, including 1) Establish the hazard parameters; 2) _____51_____; 3) Define the failure codes; 4) _____52_____; 5) _____53_____; 6) Determine the probability of hazard; 7) Write a concluding statement; and 8) _____54_____.				58. Red is the standard color used for _____.								
					59. A safety harness is defined as _____.								
					61. Preventive maintenance has all of the following long-term benefits EXCEPT for _____.								
					62. The maximum recommended pH for water in a boiler is _____.								
					64. Of the following three categories of hazard controls, _____ does not actually eliminate the hazard but merely provides protection from its effects.								
					65. All of the following respirators can be used in oxygen-deficient atmospheres EXCEPT for _____.								
					66. The most appropriate control against overloaded electrical circuits that can be chosen from the following categories is to _____.								
					67. The primary goal of fire prevention during the building fire safety design and construction phase is to _____.								
					71. For a crane operating near power lines that are rated between 50 kv and 350 kv, the minimum necessary clearance between the lines and any part of the crane is _____.								
					72. Conveyor safety rules include all of the following BUT _____.								
					73. Fiber rope should be inspected _____ for damage if used under ordinary conditions.								

					74. Ground rods or electrodes for powered equipment should be driven at least _____ ft into the ground.								
4. Project objective: Select a specific work area from a list provided by the instructor, then analyze the work for potential hazards and develop controls to eliminate or mitigate the hazards							1) Check your own company or look around your community for possible sites.						
							2) Divide the job into steps or tasks and describe them.						
							3) Identify possible hazards and group them in different categories, including general safety, ergonomic, chemical, biological, etc.						
							4) Conduct hazard analyses using the tools/methods that are either taught in classes, or required by the standard, or employed by previous researchers, or all of them.						
							5) Recommend improvements or control interventions for the hazard(s) you have found.						
							6) The project summary will describe the most important hazard(s) you have found and what controls you are recommending.						

Appendix F

September 11, 2009

Dear OSH&E Alumni,

This is the first of what we hope will be many fruitful communications in our efforts to maintain contact with the former students of the Occupational Safety, Health and Environment (OSH&E) degree programs at Southeastern Louisiana University.

As you are probably aware, we are beginning the process for accreditation of our OSH&E degree programs from the Accreditation Board of Engineering Technology (ABET). The process requires us to employ various methods to evaluate our degree programs, determine their effectiveness, and establish means to ensure their continued improvement. To accomplish this we are obtaining help from various sources. Some of the resources we are using include: input from our OSH&E Advisory Committee; the Student Opinion of Teaching surveys (SOTs) that students completed in each class at the end of the semester; semester-end evaluations regarding course content and objectives; surveys completed upon graduation; and a number of other such instruments.

We recognize that one of our most valuable resources is our alumni. The experience you gained as you applied the knowledge you gained at Southeastern in the workplace is the ultimate test of the measure of our effectiveness. The input you provide will be invaluable as we seek ways to improve the OSH&E degree programs.

Attached to this letter is a brief survey form. Will you please take the time to thoughtfully fill it out and return it in the envelope that has been provided? In order that we can review the results and develop plans for suggested improvements in a timely manner, please return it by **October 5, 2009**. We will provide you with feedback regarding the results. Please be advised that you will also receive a regular alumni survey from Southeastern Office of Institutional Research & Assessment later this year. We encourage you to complete that one as well.

By the way, if you have not had a chance to do so, please check out the OSH&E program website on Southeastern's webpage. Let us know what you think.

Sincerely,

Lawrence A. Mauerman, MAS, PE, CSP
Coordinator, OSH&E Degree Programs
Department of Computer Science & Industrial Technology
Telephone: 985-549-3476
E-Mail: lmauerman@selu.edu

Fall 2009 Undergraduate Alumni Survey
Occupational Safety, Health, and Environment Graduates

1. Please provide the following information about your current job or graduate study. All responses will be kept in the strictest confidence.

Your Name: _____

Name of Organization: _____

Job Position: _____

Major Responsibility: _____

Supervisor Name: _____

Mailing Address: _____

Telephone Number: (____)_____

Email Address: _____

2. Which category best describes the type of organization in which you are employed?

[ ] Manufacturing/Process/Refinery
[ ] Retail/Warehouse
[ ] Transportation/Distribution
[ ] Self-employed or private practice
[ ] Government/Military
[ ] Education
[ ] Business
[ ] Nonprofit organization
[ ] Insurance company
[ ] Healthcare
[ ] Other _____

3. Using a scale from 1 to 5, where 1 means <u>Very Dissatisfied</u>, and 5 means <u>Very Satisfied</u>, please indicate how satisfied you are with the following aspects of Occupational Safety, Health, and Environment (OSH&E) program.

	Very Dissatisfied				Very Satisfied
Overall quality of OSH&E program	1	2	3	4	5
Clarity of the degree requirements as outlined in the catalogue and/or curriculum sheets	1	2	3	4	5
Usefulness of the academic advice you received from your advisor	1	2	3	4	5
Opportunities to interact with faculty outside of class	1	2	3	4	5
Effectiveness of the faculty as teachers	1	2	3	4	5
Effectiveness of beginning courses in preparing you for advanced courses	1	2	3	4	5
Quality of instruction in advanced courses	1	2	3	4	5
Faculty treatment of students both inside and outside of the classroom	1	2	3	4	5

Professional activities, associations, or clubs associated with OSH&E	1	2	3	4	5
Opportunity for meaningful interaction with faculty in research or other scholarly activities	1	2	3	4	5
Availability of the required courses in OSH&E	1	2	3	4	5
Availability of elective courses you wanted to take in OSH&E	1	2	3	4	5
Quality of instruction regarding standards and ethics in OSH&E	1	2	3	4	5
Opportunities for you to collaborate with other students on class projects	1	2	3	4	5
Library resources related to OSH&E	1	2	3	4	5
Use of appropriate technology in the classroom	1	2	3	4	5
Facilities and equipment (including computer resources) for courses in OSH&E	1	2	3	4	5
"Real-world" experiences, exposure, examples, etc. in or out of the classroom	1	2	3	4	5
The size of classes in OSH&E	1	2	3	4	5
Help you received information with regard to finding employment in OSH&E	1	2	3	4	5

4. The following is the current statement of the OSH&E program objectives. Please tell us according to your experience whether our program meets each of the four objectives and provide us your suggestions should it be revised.

1) Apply knowledge and principles of mathematics, science, technology, and management in industry, business, or other related areas of employment as occupational safety, health, and environment professionals

[ ] Agree [ ] Don't Know [ ] Disagree, suggestions: _____

2) Apply practical-oriented knowledge and skills in safety, health, and environment to anticipate, identify and evaluate hazardous conditions and practices, to develop hazard control designs, methods, procedures and programs, and to implement and manage effective safety, health, and environment programs

[ ] Agree [ ] Don't Know [ ] Disagree, suggestions: _____

3) Become effective communicators and ethical facilitators within the practice of safety, health, and environment

[ ] Agree [ ] Don't Know [ ] Disagree, suggestions: _____

4) Continue professional development to address the need of applying principles of safety, health, and environment within a constantly changing and increasingly diverse environment

[ ] Agree [ ] Don't Know [ ] Disagree, suggestions: _____

5. On a scale of 1 through 5, where 1 means <u>Did Not Help at All</u> and 5 means <u>Helped a Lot</u>, indicate how much the OSH&E program at Southeastern helped you in developing the following skills or abilities:

	Did Not Help At All				Helped A Lot
Ability to apply basic mathematical and statistical knowledge in the safety, health, and environment field	1	2	3	4	5
Understanding basic principles in chemistry, physics, and biology as it pertains to the practice of safety, health, and environment	1	2	3	4	5
Understanding basic principles in business management as it pertains to the practice of safety, health, and environment	1	2	3	4	5
Ability to understand occupational safety, health, and environment fundamentals	1	2	3	4	5
Ability to know legal aspects of safety, health, and environmental practices	1	2	3	4	5
Understanding the interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body	1	2	3	4	5
Understanding the application of laws, regulations, standards, and codes to safety, health and environmental conditions	1	2	3	4	5
Ability to understand and use basic principles of fire prevention and protection in the workplace	1	2	3	4	5
Ability to know industrial and construction safety throughout the work processes	1	2	3	4	5
Ability to apply basic laboratory techniques associated with industrial hygiene and basic sciences	1	2	3	4	5
Ability to anticipate, identify and evaluate hazardous agents, conditions, and practices	1	2	3	4	5
Understanding fundamental exposure assessment techniques	1	2	3	4	5
Ability to develop hazard control designs, methods, procedures, and programs	1	2	3	4	5
Ability to conduct accident/incident investigation and analysis	1	2	3	4	5
Ability to implement and manage effective safety, health, and environment programs	1	2	3	4	5
Ability to effectively express thoughts in oral and written communications	1	2	3	4	5
Understanding the techniques, skills, and modern behavioral tools necessary for the practice of safety, health, and environment	1	2	3	4	5
Ability to effectively function as a part of multi-disciplinary team	1	2	3	4	5

6. Please indicate the degree to which the CONCEPTS you learned in each of the following classes have helped you in your current/previous jobs and/or graduate studies.

	Did Not Help At All				Helped A Lot	
OSHE 111 *Introduction to Occupational Safety and Health [Introduction to Safety and Health]*	1	2	3	4	5	NA
OSHE 112 *Design of Hazard Controls*	1	2	3	4	5	NA
OSHE 121 *Safety and Health Program Management and Administration*	1	2	3	4	5	NA
OSHE 141 [OSHE 241] *Principles of Industrial Hygiene*	1	2	3	4	5	NA
OSHE 231 *Safety Laws, Regulations, and Standards*	1	2	3	4	5	NA
OSHE 242 *Ergonomics*	1	2	3	4	5	NA
OSHE 251 *Environmental Laws and Practices*	1	2	3	4	5	NA
OSHE 261 *Fire Protection and Prevention*	1	2	3	4	5	NA
OSHE 311 *Safety and Health Program Development*	1	2	3	4	5	NA
OSHE 322 *Behavior Aspects of Safety*	1	2	3	4	5	NA
OSHE 323 *Product Safety and Liability*	1	2	3	4	5	NA
OSHE 341 *Field Methods of Industrial Hygiene and Toxicology*	1	2	3	4	5	NA
OSHE 381 [OSHE 281] *Safety in Chemical and Process Industries*	1	2	3	4	5	NA

OSHE 382 [OSHE 282] *Construction Safety*	1	2	3	4	5	NA
OSHE 421 [OSHE 321] *Measurement of Safety Performance and Accident Investigation and Analysis*	1	2	3	4	5	NA
OSHE 424 [OSHE 324] *System Safety Methodologies*	1	2	3	4	5	NA
OSHE 441 *Industrial Toxicology*	1	2	3	4	5	NA
OSHE 451 *Hazardous Materials Management [Industrial Waste Management]*	1	2	3	4	5	NA
OSHE 471 [OSHE 371] *Education and Training Methods for Occupational Safety and Health*	1	2	3	4	5	NA

7. What course(s), not listed above, have helped you in your job(s) and/or graduate studies? If you can not remember a course number, the course name or subject matter is enough.

8. What concepts were NOT taught that, if taught, would have better prepared you for your job(s) or graduate studies?

9. Do you currently hold licensure/certification in the safety, health, and environment field? If yes, please list type(s) of licensure/certification held. If no, do you plan to obtain licensure/certification in the next 12 months?

10. Are you a member of any professional organization? If yes, please list the name(s).

11. What changes would you suggest to improve the OSH&E program? Please feel free to write on either the back of this page or additional paper!

Appendix G

YEAR 2009-2010

ADVISOR: _____ STUDENT PHONE NUMBER: _____

CURRICULUM IN INDUSTRIAL TECHNOLOGY
ASSOCIATE OF APPLIED SCIENCE DEGREE
OCCUPATIONAL SAFETY, HEALTH & ENVIRONMENT CONCENTRATION

NAME: _____ W#: _____

COMPUTER SCIENCE (3 hrs)
CMPS 173 ___ 3___

ENGLISH (6 hrs)
ENGL 101 ___ 3___
ENGL 102 □ ___ 3___
Proficiency ___

□ ***MUST*** show proficiency
⊥ ***MUST*** make a minimum grade of "C" in all major courses

⊥ Occupational Safety, Health, & Environment (24 hrs)
⊥ OSHE 111 ___ 3___
⊥ OSHE 112 ___ 3___
⊥ OSHE 121 ___ 3___
⊥ OSHE 141 [241] ___ 3___
⊥ OSHE 231 ___ 3___
⊥ OSHE 242 ___ 3___
⊥ OSHE 251 ___ 3___
⊥ OSHE 261 ___ 3___

MATHEMATICS (9 hrs)
MATH 161 □ ___ 3___
MATH 162 ___ 3___
MATH 241 ___ 3___
Proficiency ___

NATURAL SCIENCE (12 hrs)
GBIO 151 ___ 3___
BIOL 152 ___ 1___
CHEM 101 ___ 3___
CLAB 103 ___ 1___
PHYS 191 ___ 3___
PLAB 193 ___ 1___

OTHER (6-9 hrs)
SE 101 ___0-3___
PSYC 101 ___ 3___
COMM 211 ___ 3___

NO 100-LEVEL COURSE WILL BE ACCEPTED WITHOUT APPROVAL OF THE DEPARTMENT HEAD.

APPROVED: _____

(T) = Course Taking this Semester
*** ( ) = Transfer Credits**

TOTAL SEMESTER HOURS: 60 - 63
TOTAL MAJOR HOURS: 24
(**NOTE**: ½ of all major hours **must** be taken at SLU.)

ADVISOR: _____ STUDENT PHONE NUMBER: _____

CURRICULUM IN OCCUPATIONAL SAFETY, HEALTH, AND ENVIRONMENT
BACHELOR OF SCIENCE DEGREE

NAME: _____ W#: _____

BUSINESS (6 hrs)
ECON 201 ___ 3___
MGMT 351 ___ 3___

COMPUTER SCIENCE (3 hrs)
CMPS 173 ___ 3___

ENGLISH (12 hrs)
ENGL 101 ___ 3___
ENGL 102 ■ ___ 3___
ENGL 230, 231, *or* 232 ___ 3___
ENGL 322 ___ 3___
Proficiency ___

■ ***MUST*** show proficiency

⊥ ***MUST*** make a minimum grade of "C" in all major courses

☼ **Students must schedule their professional electives with the approval of their advisor. Professional electives are to be selected from the following two groups and at least ONE course must be from Group I.**

Group I - OSHE Courses
311, 322, 323, 441, 451

Group II - Other Courses
IT 264, IT 322, ACCT 200, CJ 312, CJ 411, GBIO 377, HS 360, HS 362

⊥ ***Industrial Technology (6 hrs)***
⊥ IT 242 ___ 3___
⊥ IT 391 or 492 ___ 3___

⊥ ***Occupational Safety, Health, and Environment (42 hrs)***
⊥ OSHE 111 ___ 3___
⊥ OSHE 112 ___ 3___
⊥ OSHE 121 ___ 3___
⊥ OSHE 141 [241] ___ 3___
⊥ OSHE 231 ___ 3___
⊥ OSHE 242 ___ 3___
⊥ OSHE 251 ___ 3___
⊥ OSHE 261 ___ 3___
⊥ OSHE 341 ___ 3___
⊥ OSHE 381 [281] ___ 3___
⊥ OSHE 382 [282] ___ 3___
⊥ OSHE 421 [321] ___ 3___
⊥ OSHE 424 [324] ___ 3___
⊥ OSHE 471 [371] ___ 3___

⊥ ***☼Professional Electives (9 hrs)***
⊥ _____ ___ 3___
⊥ _____ ___ 3___
⊥ _____ ___ 3___

NO 100-LEVEL COURSE WILL BE ACCEPTED AS A PROFESSIONAL ELECTIVE WITHOUT APPROVAL OF THE DEPARTMENT HEAD.

APPROVED: _____

MATHEMATICS (9 hrs)
MATH 161 ■ ___ 3___
MATH 162 ___ 3___
MATH 241 ___ 3___
Proficiency ___

NATURAL SCIENCE (23 hrs)
GBIO 151 ___ 3___
BIOL 152 ___ 1___
CHEM 101 ___ 3___
CLAB 103 ___ 1___
PHYS 191 ___ 3___
PLAB 193 ___ 1___
CHEM 102 ___ 3___
CLAB 104 ___ 1___
ZOO 241 ___ 4___
CHEM 261 ___ 3___

OTHER (12-15 hrs)
SE 101 ___0-3___
PSYC 101 ___ 3___
COMM 211 ___ 3___
HIST 101, 102, 201, *or* 202 ___ 3___
ART, DNCE, MUS, *or* THEA ___ 3___

(T) = Course Taking this Semester
*** ( ) = Transfer Credits**

TOTAL SEMESTER HOURS: 122-125
TOTAL MAJOR HOURS: 57
(NOTE: ½ of all major hours **must** be taken at SLU.)

4-YEAR BACHELOR OF SCIENCE IN OCCUPATIONAL SAFETY, HEALTH, AND ENVIRONMENT (OSH&E)

Required OSHE Courses

111. Introduction to Occupational Safety and Health. Credit 3 hours. This course introduces general safety and health concepts. Major topics include: occupational safety and health terms, historical developments, program concepts and terms, legislative overview, including worker's compensation law, problem identification, hazard recognition, evaluation and control concepts, and an introduction to measurement and evaluation.

112. Design of Hazard Controls. Credit 3 hours. Prerequisites: Current enrollment or prior credit for OSHE 111. This course studies the application of scientific and engineering principles and methods to achieve optimum safety and health conditions through the analysis and design of process, equipment, products, facilities, operations, and environments. Major topics include product design, plant layout, construction, maintenance, pressure vessels and piping, mechanical systems, materials handling and storage, ventilation, power tools, electrical equipment, and transportation vehicles and systems.

121. Safety and Health Program Management and Administration. Credit 3 hours. Prerequisite: Enrollment in or prior credit for OSHE 111. This course studies the application of proven management principles and techniques to the management of safety and health and loss control programs. Major topics will include; planning, organizing, budgeting, resourcing, operating, implementing, and evaluating safety functions.

141. [241]. Principles of Industrial Hygiene & Toxicology. Credit 3 hours. This course introduces the basic industrial hygiene principles of anticipation, recognition, evaluation, and control of workplace conditions as they relate to occupational health. Major topics include: a variety of occupational hazards including air contaminants, chemical hazards, biological hazards, and physical hazards.

231. Safety Laws, Regulations, and Standards. Credit 3 hours. This course studies the development processes, sources, and applications for minimum safety requirements established by laws, regulations, standards, and codes. Major topics will include OSHA General Industry and Construction Standards, the enforcement of safety standards, and the role of NIOSH and ACGIH in the safety movement.

242. Ergonomics. Credit 3 hours. Prerequisite: Enrollment in or prior credit for Mathematics 241 and OSHE 141[OSHE 241]. This course explores ergonomic design principles which involve the planning and adapting of equipment and tasks to promote the comfort and efficiency of workers. Major topics include: human characteristics, physiology, and anthropometry and the application of these principles to workstations, tool design, and material handling procedures.

251. Environmental Laws and Regulations. Credit 3 hours. This course is an introduction to federal and state environmental regulations which impact industry. Major topics include

hazardous waste management, disposal and cleanup, prevention of air, water, and soil contamination and environmental program management.

261. Fire Protection and Prevention. Credit 3 hours. This course introduces the basic principles of fire and fire prevention in the work place. Major topics include: evaluating existing and planned facilities from a fire and explosion standpoint, and applying the basic principles of hazard recognition, evaluation, and control when developing fire prevention and emergency response activities.

341. Field Methods of Industrial Hygiene and Toxicology. Credit 3 hours. Prerequisites: Mathematics 241 and OSHE 141[OSHE 241]. This course presents an examination of the methods used by the industrial hygienist for the identification and assessment of health hazards in the workplace. Major topics include: establishment and use of methodologies to sample and evaluate exposures to air contaminants (gases, vapors, aerosols, and particulates), microorganisms and allergens, noise, heat, and cold stress, electrical and magnetic radiation, and ionizing and ultraviolet radiation. The course also includes equipment use, maintenance, and calibration.

381. [281]. Safety in Chemical and Process Industries. Credit 3 hours. Prerequisites: Enrollment in or prior credit for Chemistry 101 and Physics 191. The course introduces the fundamentals of chemical and process industry safety. Major topics include: toxic, fire, and pressure hazards inherent in chemical plants and petroleum refineries, and the methods used to identify, assess, and eliminate those hazards. It also introduces students to federal safety regulations for proves safety management.

382. [282]. Construction Safety. Credit 3 hours. Prerequisites: Enrollment in or prior credit for OSHE 111 and OSHE 121. The course studies the application of management principles, communication and human relations factors, safety/health rules, industry and federal standards, accident investigation, and the job planning phases in the construction environment.

421. [321]. Measurement of Safety Performance and Accident Investigation and Analysis. Credit 3 hours. Prerequisite: Enrollment in or prior credit for Math 241. This course presents methods to objectively evaluate a company's safety progress. The course covers two distinct topics: (1) measuring safety performance, and (2) incident investigation and analysis. The first segment of the course addresses ways of measuring safety performance objectively and subjectively using safety audits, inspections, observations, performance appraisal systems, and injury/illness statistics. The second segment of the course addresses the causes of accidents, systematic ways of conducting investigations, documenting the findings, causes and other significant data, and drafting recommendations.

424. [324]. System Safety Methodologies. Credit 3 hours. Prerequisites: Mathematics 241, OSHE 111, and OSHE 121. The course presents the concepts of Risk Management and Loss Control through the use of systematic approaches to hazard anticipation, identification, evaluation and control. Major topics include: an introduction to qualitative methods of evaluating the hazards and risks associated with systems, processes, equipment, and other entities. It also includes a review of techniques for mitigating or managing identified risks.

471. [371]. Education and Training Methods for Occupational Safety and Health. Credit 3 hours. This course introduces the concepts of adult training and education with emphasis on occupational safety and health. Major topics include: instructional system design, including performing a training needs assessment tasks analysis, program design goals and objectives, performance evaluation, delivery methods and media; computer-based training methods; systems to manage costs; and record keeping.

Existing Professional Elective OSHE Courses

311. Safety & Health Program Development. Credit 3 hours. This course presents the key elements necessary to develop or to assess occupational safety and health programs. Major topics include management commitment and employee involvement; worksite analysis, hazard correction and control; training, and evaluation.

322. Behavioral Aspects of Safety. Credit 3 hours. Prerequisite: Psychology 101. This course will introduce students to the application of scientific research based principles and methods to bring about change in the work culture through attitude, behavior, and environmental conditions. Specific topics will include traditional approaches and philosophies for improving safety, environmental effects, incentives, developing and building cultural change, identifying critical behavior, developing checklists, giving and receiving recognition and measuring performance.

323. Product Safety and Liability. Credit 3 hours. This course examines the importance of considering the safety of a product in its ultimate use. Major topics include: aspects of product design, intended and improper use, and potential injury mechanisms. It uses classic product liability case studies to provide practical application of the principles learned. It also studies manufacturer liabilities through injury tort actions.

441. Industrial Toxicology. Credit 3 hours. Prerequisites: General Biology 151, Zoology 241, and OSHE 141[OSHE 241]. This course examines the effects of industrial toxicants on the human body. Major topics include: the discipline of toxicology, acute and chronic exposures and effects, routes and characteristics of exposures, target organs and systems, dose and response, and carcinogenesis. It also discusses the toxic characteristics of various classes of toxic materials.

451. Hazardous Materials Management. Credit 3 hours. Prerequisite: OSHE 251. This course examines acceptable policies, procedures, and methods for the handling of oil and hazardous wastes produced by industry. Major topics include: advanced aspects of risk assessment, applicable environmental legislation, waste characterization and site assessment, waste minimization and recovery, chemical, physical, and biological waste treatment, thermal waste treatment, landfill disposal and injection well disposal. It also includes a section on the transportation of hazardous wastes.

Additional Professional Electives

INDUSTRIAL TECHNOLOGY (IT)

264. Industrial Fluid Power. Credit 3 hours. Theory and practice of hydraulic and pneumatic power for industrial production. Functional examination of units: pumps, valves, boosters, etc. Simulated systems used to emphasize design and other industrial materials. Two hours of lecture and two hours of laboratory per week. Laboratory fee: $45.00.

322. Materials Science and Metallurgy. Credit 3 hours. Prerequisite: Industrial Technology 242. Study of the major materials used in industrial engineering, considering structure and properties, testing methods (destructive and nondestructive), and microscopic examination. Two hours of lecture and two hours of laboratory a week. Laboratory fee: $45.00.

ACCOUNTING (ACCT)

200. Introduction to Financial Accounting. Credit 3 hours. Prerequisite: Sophomore standing. An introduction to corporate financial accounting systems including preparing, interpreting, and using financial statements.

CRIMINAL JUSTICE (CJ)

312. Private and Public Sector Security. Credit 3 hours. Prerequisites: Completion of CJ 101, 201, 202, 204, and 205 or permission of Department Head. This course provides an overview of the vulnerability of business, industrial and government sectors to criminal infiltration and compromise from both internal and external sources, with special emphasis on threats to cyber-security, and protection of physical assets and employees/agents.

411. International Crime and Terrorism. Credit 3 hours. Prerequisites: Completion of CJ 101, 201, 202, 204, and 205 and junior/senior standing, or permission of Department Head. This course provides an overview of threats to internal security including organized criminal enterprises, and state and non-state terror activities.

HEALTH STUDIES (HS)

360. Introduction to Epidemiology. Credit 3 hours. Prerequisites: HS 132 or 133, MATH 160 or 161, Math 241, and junior standing or permission of department head. An introduction to the study of distribution of health events in human populations. Methods of assessing health states in populations by the use of morbidity and mortality data. Includes disease tracking and control methods for use in health care decisions. Major types of epidemiological investigations are also studied.

362. Promoting Health in the Worksite. Credit 3 hours. Prerequisites: HS 132 or 133, 162 or 251 or 252, junior standing or permission of department head. Introduction to the design and

implementation of health programs in a variety of worksite settings. Attention to concerns of administrative and staff support, recidivism, specific interventions, and policy.

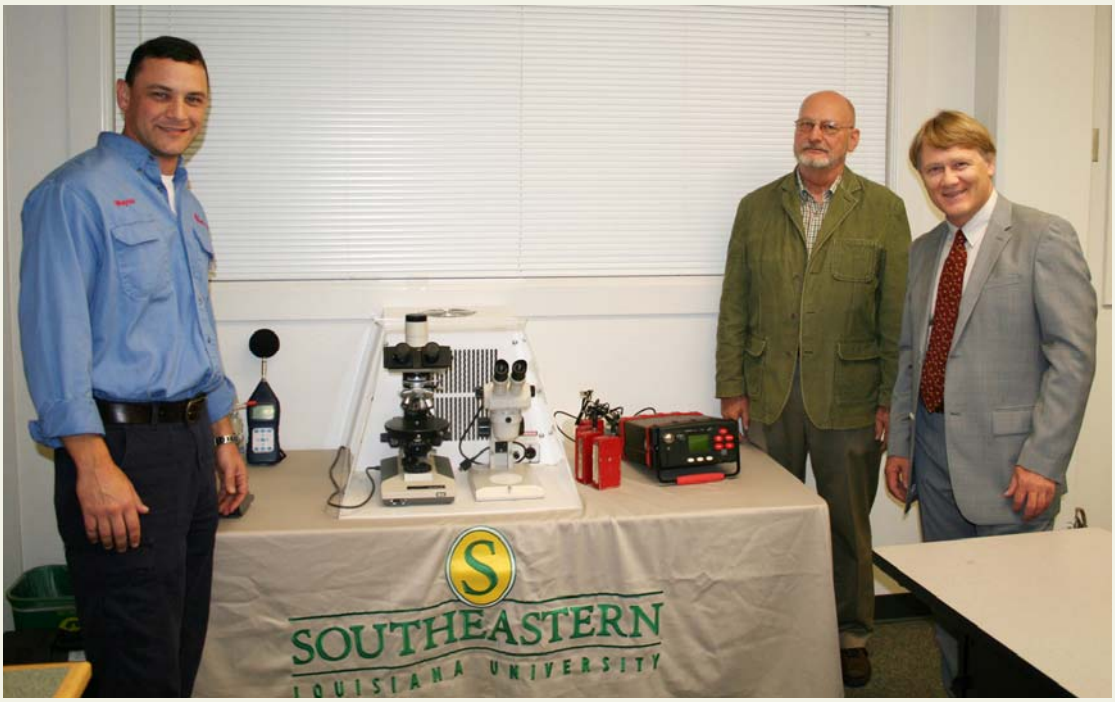
GENERAL BIOLOGY (GBIO & BIOL)

377. Applied Biostatistics. Credit 4 hours. Prerequisite: Mathematics 161 or consent of the Department Head. Basic concepts of biostatistics and sampling strategy; measures of central tendency and dispersion; Z, t, chi-square, and F distributions; test of hypothesis, error rates, and maximizing power; analysis of variance and regression. Strong emphasis on, and many examples of, field and laboratory oriented biological research problems. Three hours of lecture and two hours of laboratory per week.

Appendix H

Chalmette Refining donates equipment to Southeastern

Contact: Rene Abadie
10/22/09



CHALMETTE REFINING DONATES EQUIPMENT - Some of the equipment donated by Chalmette Refining to Southeastern Louisiana University is displayed at a recent class in the Occupational, Safety, Health and Environment program. From left are ExxonMobil industrial hygienist Wayne LaCombe, OSH&E coordinator Lawrence Mauerman, and Cris Koutsougeras, head of the Department of Computer Science and Industrial Technology.

HAMMOND – Chalmette Refining has donated monitoring equipment and instruments to Southeastern Louisiana University for use in the university's Occupational Safety, Health and Environment program.

The equipment, which includes microscopes for asbestos and fiber analysis, a gas chromatograph and other instruments for the collection and analysis of hazardous agents in the workplace and environment, has a current value of more than $40,000. It had been used at Chalmette Refining to assess potential exposure levels of noise, hazardous agents and toxic chemicals to the workforce and community.

Based in the city of Chalmette, the plant is operated by ExxonMobil Oil Corp.

"The equipment is in excellent condition and will provide our students with hands-on learning experiences using the same equipment that is in use in industrial plants," said Lawrence Mauerman, coordinator of OSH&E degree programs at Southeastern.

"The university truly appreciates the interest that our industrial partners have in our programs, as evidenced by this donation," said Cris Koutsougeras, head of the Department of Computer Science and Industrial Technology. "Our industrial partners serve on our advisory councils, helping us to keep our curricula current and up-to-date; they support our educational efforts in every way they can."

The equipment was presented to the university by Wayne M. LaCombe, industrial hygienist with ExxonMobil's Baton Rouge complex. He serves as an adjunct instructor at Southeastern and on the

university's OSH&E Advisory Council.

LaCombe said he felt it was important that the equipment continue to be used in a setting such as Southeastern, which is training future technologists for Louisiana's petrochemical industry and other industries.

Southeastern has offered its OSH&E degree program since 1996. Originally a two-year associate of applied science degree program, it was expanded to include a four-year bachelor of science degree program in 2005. It is the only four-year program of its type in the southeastern states.