Program Review
Marshall University

Date: November 2, 2015

Program: Master of Science in Safety

Degree and Title

Date of Last Review: Academic Year 2010 – 2011

Recommendation
Marshall University is obligated to recommend continuance or discontinuance of a program and to provide a brief rationale for the recommendation.

Recommendation

1. Continuation of the program at the current level of activity; or

2. Continuation of the program at a reduced level of activity or with corrective action. Corrective action will apply to programs that have deficiencies that the program itself can address and correct. Progress report due by November 1 next academic year; or

3. Continuation of the program with identification of the program for resource development: Resource development will apply to already viable programs that require additional resources from the Administration to help achieve their full potential. This designation is considered an investment in a viable program as opposed to addressing issues of a weak program. Progress report due by November 1 next academic year; or

4. Development of a cooperative program with another institution, or sharing of courses, facilities, faculty, and the like, or

5. Discontinuation of the program

Rationale for Recommendation (Deans, please submit the rationale as a separate document. Beyond the College level, any office that disagrees with the previous recommendation must submit a separate rationale and append it to this document with appropriate signature.)

#1 Recommendation
J McIntosh
Signature of person preparing the report

#1 Recommendation
A Szewicki
Signature of Program Chair

#1 Recommendation
Signature of Academic Dean

Recommendation
Signature of Chair, Academic Planning Committee (Baccalaureate only)

Recommendation
Signature of Chair, Faculty Senate Chair, Graduate Council

Recommendation
Signature of Provost and Senior Vice President for Academic Affairs

Recommendation
Signature of the President

Recommendation
Signature of Chair, Board of Governors

Date: 11-3-15

Date: 11-6-15

Date: 2-15-16

Date: 4-9-16

Date: 4-13-16

Date: 4-13-16
College/School Dean’s Recommendation

Deans, please indicate your recommendation and submit the rationale.

Recommendation:

#1: Continuation of the program at the current level of activity

Rationale:
(If you recommend a program for resource development identify all areas for specific development)

The M.S Safety student’s performance in the program is continuously and effectively monitored. The students are provided with advice regarding the curriculum and career opportunities by experienced faculty and dedicated College and University. Effective interaction with and quality feedback from students, Advisory Board and employers are proving that the program’s educational objectives are very relevant to the occupational safety profession, and are being achieved. Of particular note is the Safety Technology Advisory Board’s significant investment in the program and interest in undertaking initiatives, such as organizing the Marshall Safety Conference on September 17, 2015.

In May 2015, the Division of Applied Science and Technology moved into the Weisberg Applied Engineering Complex (WAEC), a significant investment of about $36 million. The safety students will take classes in new high-tech classrooms and laboratories; funding of about $300,000 is being provided for new equipment. Students have immediate access to faculty, Division and College administrative offices. They also have access to new computers and software in convenient collaborative areas, outside faculty offices.

Enrollments have decreased over the past three years influenced by a pause in the mine safety graduate program, a third-party contact with the Mine Safety and Health Administration (MSHA), due to funding issues and a slow increase. Enrollments are expected to increase from 2015-2016. The new WAEC is a significant resource to attract new students in the M.S. Safety program. There continues to be significant employment opportunities available for graduates of the graduate safety program, a strength of the program.

Signature of the Dean

Date

1/03/2015
I. CONSISTENCY WITH UNIVERSITY MISSION

The MS in Safety technology degree program within the College of Information Technology and Engineering at Marshall University provides students with a comprehensive and broad-based preparatory experience, including rigorous and relevant coursework as well as real-world applications of skills for entry-level occupational safety and health positions with industrial, commercial, governmental and service organizations. The occupational safety and health profession is a career field concerned with the preservation of both human and material resources through the application of various principles drawn from such traditional disciplines as anatomy, biology, chemistry, communications, engineering, management, math, physics, physiology and psychology.

The mission of the Safety Technology program is to:

A. Provide students with a high quality graduate education leading to the development of well-prepared graduates with the academic, technical and social skills essential for successful employment in the occupational safety and health profession

B. Provide students with authentic experiential learning opportunities including internships, service learning, outreach activities, facility tours and field exercises as well as professional meetings and conferences that promote personal growth, professional collaboration, cultural diversity and a duty to serve and protect people, property and the environment, and

C. Provide research opportunities for faculty and students in areas consistent with the environmental health and safety needs and interests of the region.

The MS in Safety Technology educational objectives were developed in accordance with the mission of Marshall University, and in particular, these specific aspects the Marshall University Mission Statement played a major role in the Safety Technology program’s development.

• Provide affordable, high quality undergraduate and graduate education appropriate for the state and the region;
• Promote economic development through research, collaboration and technological innovations;
• Educate a citizenry capable of living and working effectively in a global environment.

The MS in Safety Technology Program’s Educational Objectives clearly reflect the College’s mission through their focus on practice-oriented teaching, applied research, life-long learning and technology enhanced instructional methods.

The MS in Safety Technology’s educational objectives describe the same career and professional competencies expected of students graduating with a Master of Science degree in Safety Technology. The curriculum, designed to achieve these objectives, prepares students for entry-level positions. The occupational safety and health profession is a career field concerned with the preservation of both human and material resources through the application of various principles drawn from such traditional disciplines as anatomy, biology, chemistry, communications, engineering, management, math, physics, physiology and psychology.

II. Adequacy of the Program

1. Curriculum: The MS Degree in Safety has two areas of emphasis that students can specialize in. The first area of emphasis is Occupational Safety & Health. The second area of emphasis is Mine Safety. Both areas of emphasis require the students to complete 36 Semester credit hours of course work following the MU graduate college which requires at least 18 hours of course work being in the 600 level and the other 18 hours done at the 500 level. The specific courses and electives are detailed in Appendix 1.

2. Faculty: The Safety Technology program has five full time faculty members teaching within the department. We generally use several adjunct faculty members in the Mine Safety Program and do not use teaching assistants within the program.

   Four faculty members hold doctoral degrees from accredited universities and the remaining one possesses a Master’s degree in Engineering along with significant industrial experience. One faculty member is a registered engineer, two hold Certified Safety Professional designations and one is also a Certified Industrial Hygienist.

   All faculty members attend both national and regional conferences and have presented five papers and have had articles printed in professional journals during the past five years.

   Appendix II Faculty Data Sheets have additional information

3. Students:
   a. Admissions Standards: Students admitted to the Graduate Program must meet General Admission Requirements of the following:
• Have an undergraduate GPA of 2.50 or above.
• If a prospective student has a mean undergraduate GPA < 2.50, he or she must
  o Score at the mean or above on the verbal GRE and
  o Score at the mean or above on quantitative GRE and
  o Score at the mean or above on the analytical GRE or
  o Score at the mean or above on Miller Analogy Test

Safety Emphasis: Math 130 or equivalent; Physics 101 and 101Lab or equivalent and Chemistry 203 or equivalent.

Mine Safety Emphasis: Same admission requirements are required.

b. Entrance Scholastic requirements: Most students admitted to the MS degree program have had GPA’s above 2.50 so they did not have to take the GRE. Overall, we have had only two (2) students have to take the GRE. The summary of the students Entrance Abilities is located in Appendix III.
c. Exit Scholastic performance: Students graduating from the MS program generally have excellent GPA’s at graduation. The exit abilities are listed in Appendix IV.

4. Resources:
a. Financial: Over the past five years, the budget allocation for this program has been satisfactory. In the last two years the university has provided the Division of Applied Science & Technology with adequate funding. A breakdown of the funding is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$68,300.00</td>
</tr>
<tr>
<td>2009</td>
<td>$50,866.00</td>
</tr>
<tr>
<td>2008</td>
<td>$50,866.00</td>
</tr>
<tr>
<td>2007</td>
<td>$15,957.00   (budget reduction)</td>
</tr>
<tr>
<td>2006</td>
<td>$16,000.00</td>
</tr>
<tr>
<td>2005</td>
<td>$19,456.00</td>
</tr>
</tbody>
</table>

In 2007, the state required all programs to undergo a budget reduction; that is the reason for the figure. Additionally, the program did not have that large of a budget to start with. The large increases noted for the following years are due to better resource allocation by the college for all programs.

What would happen if this program were terminated? Both the university and state would lose one of two graduate programs in the State of West Virginia. The graduate program in Occupational Safety was started in 1970 and has continuously catered to graduates for over 40 years. The MS in Mine Safety is one of only several programs in the United States and the only one in West Virginia. The Mine Safety Program is a joint venture between Marshall and the Mine Safety and Health Academy in Beckley, WV. Four faculty members would have to be terminated or reassigned; and over thirty to forty students would have to be accommodated; a secretary and a graduate assistantship would also be lost. The university, state and community would lose a vital resource
reference in the field of Occupational Safety and Health in addition to the monetary loss this would bring to the area from losing all these resources.

b. **Facilities:** Each faculty member has a dedicated office, in that office is a university computer for the use of the faculty member. Located within the Weisberg Advanced Engineering Complex (WAEC) are huddle stations and other computer laboratories available for student use. Students also have access to computer labs across the university located in major buildings. The university library provides a limited amount of funding to purchase new library holdings. Additionally, faculty members have been able to make major purchases of a variety of ergonomic or industrial hygiene equipment from the upgraded budget. And, the program has had some generous donations to further purchase equipment made by Marathon Ashland Oil and ICL-IP over the past several years. Laboratory space is provided by the college in the WAEC. Laboratories include an Industrial Hygiene/Ergonomics laboratory and a fire protection laboratory.

5. **Assessment Information:**

   a. Please refer to Appendix V for a summary of our program’s assessment of student learning.

   b. **Other Learning and Service Activities**
      There are no learning or service activities at the present time.

   c. **Plans for Program Improvement:** Based on assessment data, the program needs to improve on closing the feedback loop for all assessment points. The timeline for detailed assessment activity is located in Appendix IV.

   d. **Graduate Satisfaction:** Most information acquired has come from anecdotal and personal contacts with students at conferences, or former students stopping by the office to talk when they visit. A better understanding of where our students are working after they graduate needs to be developed so contact can be made with them.

   e. Please refer to Appendix IX for letters from the Office of Assessment providing feedback regarding the program’s assessment of student learning.

6. **Previous Reviews:** The last program review recommended that the program be continued at the present level. The following gives some insights to the strengths and weaknesses we have identified. For the most part, the program is writing good behavioral objectives and trying to close the feedback loop and develop a plan on evaluation of the courses. With the ABET visit we feel we will be able to get a better understanding of undergraduate assessment and that will strengthen our graduate assessment since a lot of the courses are dually numbered.

7. **Identify weaknesses and deficiencies** noted in the last program review and provide information regarding the status of improvements implemented or accomplished.
In its last program review, submitted in academic year 2010 – 2011, the Master of Science in Safety Technology identified the following weaknesses. These are transcribed from that report.

**Weaknesses**

“While graduate safety student enrollment has fallen from past years, which is most likely related to the changes in the economy, present enrollment seems to be steady. According to the Office of Institutional Research the program has approximately 42 declared majors within the department. It has been noted that student enrollment increases in poor economic times and decreases in good economic times. Individuals do not seek job retraining when they have good paying positions. However, there is always a need for safety professionals. Better advertisement of what the program can offer needs to be done. The other major weakness in the program is still the low faculty salaries compared two other universities with similar programs. It is important to provide competitive salaries to keep productive faculty. Salaries are nothing the program can do anything about.”

**Current status:** A large contributing factor to the recent decline in enrollment was the temporary halt to the Mine Safety and Health Administration (MSHA) agreement with Marshall University. This resulted in no new enrollments of MSHA personnel. Current enrollment is 47.

To highlight the safety programs, the Marshall safety conference was established in September 2015 and will be repeated this year (2016).

8. **Current Strengths:** As emphasized by the various surveys sent out by the university and the anecdotal feedback the program has received, the safety technology program is an asset to West Virginia and the region because of the wide variety of classes offered at convenient times, and presents highly relevant materials by knowledgeable instructors. The delivery is presented in a challenging manner to high quality students having considerable work experience. The program has been responsive to local needs and has received compliments from both graduates and local employers on its benefits to both individuals and to West Virginia. This is a significant strength. The task of keeping up with advances and professional practices is increasingly challenging. The full-time faculty is focused on teaching core courses and implementing research findings into the course content. This benefits the students through exposure to expertise and real world issues. Students are also exposed to research through application of theory to investigate and solve real-world problems in the community. The program tries to keep the courses as up to date as possible through professional readings, attendance at national conferences, and adding new courses when needed. Keeping current and up-to-date is a major emphasis of the program. The program receives more position vacancy
notifications and requests for internships from employers than the program can provide students. The future prognosis for continued safety positions remains strong. This is a major strength.

III. Viability of the Program:

1. Articulation Agreements: The MS in Occupational Safety & Health has no articulation agreements. MS in Mine Safety has an articulation agreement with the Mine Safety and Health Academy.

2. Off-Campus Classes: The MS degree in Mine Safety offers courses through the Mine Academy in Beckley, WV.

3. Online Courses: The Mine Academy offers the MS degree in Mine Safety through online courses. This information is found in Appendix VI.

4. Service Courses: The Master of Science degree has no service courses for other programs or departments. (Appendix VI.)

5. Program Course Enrollment: The program course enrollment is adequate for the purpose of sustaining this program. The data are provided in Appendix VI.

6. Program Enrollment: The program enrollment has declined. This information is summarized in Appendix VII. The trend lines for program enrollment and graduates is also provided in Figure 1.

7. Enrollment Projections: The need for this program is expected to continue for the immediate future. The program has been in continued operation for forty years and as long as there are accidents there will be a need for a program to turn out qualified safety professionals. The knowledge offered by this program will continue to be vital to the health and safety of workers throughout the United States. With the modernization of many third world countries and the continued environmental clean-up of work sites throughout the world, continued cooperation between environmental science and safety will progress. There has been a recent increase in enrollment due to N2 initiatives. Employment opportunities will arise around the world as United States industries help third world countries develop. As the Department of Labor, Occupational Safety and Health Administration develops new standards to protect American workers, courses and workshops will need to be offered to meet these needs. Therefore, we continue to see a need for the program and enrollment numbers will hold steady and/or increase.

Additionally, we plan to stimulate enrollment with a planned annual safety conference/ alumni meeting, marketing of graduate internship programs, applying
for graduate student funded research through NIOSH and additional emphasis on funded due to our location in the Weisberg Advanced engineering laboratory.

IV. **Necessity of the Program:**

1. **Advisory Committee:** The interests of alumni and employers are uniquely represented by the Safety Technology Advisory Board. The Advisory Board is a consultative panel which:

   - Helps establish Safety Technology Program objectives, learning outcomes and provides input into the planning process.
   - Assists in assessing program effectiveness and suggests mechanisms for continuous program improvement.
   - Facilitates acquisition and enhancement of the resources required to maintain an effective Safety Technology program.
   - Links the Safety Technology Program to its external constituencies: The Board of Advisors and safety program faculty are organizing a safety conference on the Marshall University campus, September 17, 2015.

| **Table 2.1: Safety Technology Program Advisory Board Members, 2014-2015** |
|-------------------|----------------------------------------------------------------------------------|
| **Clark McCoy, CSP** | Columbia Gas Transmission HSE Program Manager                                   |
| **Aaron Price**     | Patriot Coal Safety Manager                                                      |
| **Dave Stacy**      | USI                                                                               |
| **Alicia L Cunningham** | Brickstreet Insurance Safety & Loss Control Specialist                          |
| **Michael S. Alley** | Catlettsburg Refining, LLC Marathon Petroleum Company Environmental, Safety & Security Manager |
| **Randy Keller**    | Dow Chemical PSM Subject Expert                                                  |
| **David Casto, CSHM, MS, ARM** | BrickStreet Insurance Business Director, Coal Accounts                          |
| **Jered Hill**      | Pickering and Associates, Principal                                             |
| **H. Toney Stroud, Esq. (Chair)** | Brickstreet Insurance Counsel                                                   |
2. **Grades**: The economy of the past year has decreased the number of professional positions available for our students to apply for. Students pursuing graduate work sometimes are already employed in field. There are four graduates working for Brick Street Insurance; some have gotten positions with Patriot Coal Company and others. This information is located in Appendix VIII. A better tracking system will be developed to keep track of MS graduates.

3. **Job Placement**: Graduates readily find employment in the field. The department has met with the staff of the Career Services to explore ways to get students in both the BS and MS program more access to the services career planning provides.

V. **RESOURCE DEVELOPMENT (If applicable)**

N/A
## Appendix I

### Required/Elective Course Work in the Program

Degree Program: MS Safety OSHA  
Person responsible for the report: James D McIntosh

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours 27</th>
<th>Elective Credit Required by the Major</th>
<th>Elective Hours 9</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFT 599 Occupational Safety Program</td>
<td>3</td>
<td>SFT 558 Hospital Safety</td>
<td>3</td>
<td></td>
<td>36</td>
</tr>
<tr>
<td>SFT 610 Philosophical &amp; Psycho Concepts</td>
<td>3</td>
<td>SFT 553 International Safety</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFT 630 Current Literature &amp; Research</td>
<td>3</td>
<td>SFT 565 Incident Investigation</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFT 540 Industrial Fire Prevention</td>
<td>3</td>
<td>SFT 589 Process Safety Mgmt</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFT 554 Industrial Hygiene 1</td>
<td>3</td>
<td>SFT 647 Industrial Hygiene 2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFT 597 Occ. Safety Program Develop.</td>
<td>3</td>
<td>SFT 647 LAB IH Lab</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFT 645 Safety Engineering &amp; Equip</td>
<td>3</td>
<td>SFT 650 Safety Internship</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFT 660 Applied Ergonomics/ Human Factors</td>
<td>3</td>
<td>SFT 651 Toxicology &amp; Epidemiology</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td>ES 660 Environmental Law 1</td>
<td>3</td>
<td>SFT 679 Problem Report</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFT 681 Thesis</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Student is to choose nine hours with advisor approval. One 600 level course is required.
Appendix I
Required/Elective Course Work in the Program

Degree Program: **Mine Safety**  
Person responsible for the report: **Allan Stern**

<table>
<thead>
<tr>
<th>Courses Required in Major (By Course Number and Title)</th>
<th>Total Required Hours 15</th>
<th>Elective Credit Required by the Major as chosen with advisors approval</th>
<th>Elective Hours 21</th>
<th>Related Fields Courses Required</th>
<th>Total Related Hours 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSF 510 Survey of Mining</td>
<td>3</td>
<td>MSF 580 Special Topics</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MSF 511 Mine Safety Program Analy</td>
<td>3</td>
<td>MSF 592 Work Shop</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MSF 512 Mine Safety Legislation</td>
<td>3</td>
<td>MSF 621 System Safety in Mining</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MSF 514 Hazard Control in Mining</td>
<td>3</td>
<td>MSF 622 Accident Prev. in Mining</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MSF 626 Safety &amp; Health Research</td>
<td>3</td>
<td>MSF 624 Mine Haulage</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>MSF 625 Philosophical Concepts</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MSF 626 St &amp; Health Research</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MSF 627 Health Hazards</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MSF 631 Mine Accident Invest.</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21</td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>
Appendix II
Faculty Data Sheet

Name: ______ Clair J. Roudebush ________________  Rank: _____ Associate Professor_____

Status (Check one):  Full-time  X  Adjunct ______  Current MU Faculty:  Yes  X  No ____

Highest Degree Earned:  _____ PhD ___________  Date Degree Received:  _____1987_____

Conferring Institution:  _____ Texas A&M University _____________________________

Area of Degree Specialization: _____ Engineering Technology/Safety Education _________

Professional Registration/Licensure:  _____ CSP ____________________________

Field of Registration /Licensure:  _____ Safety _____________________________

Agency: ______________ BCSP ________________________________

Number of years at Marshall (can be in either teaching or administration)  ___13.5___

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 Spring</td>
<td>SFT645</td>
<td>Safety Equipment Design</td>
<td>5</td>
</tr>
<tr>
<td>2015 Spring</td>
<td>SFT498</td>
<td>Envir Safety &amp; Health Legis</td>
<td>15</td>
</tr>
<tr>
<td>2015 Spring</td>
<td>SFT599</td>
<td>Occup Safety Prog Mgmt</td>
<td>16</td>
</tr>
<tr>
<td>2014 Fall</td>
<td>SFT 645</td>
<td>Safety Equipment Design</td>
<td>9</td>
</tr>
<tr>
<td>2014 Fall</td>
<td>SFT540</td>
<td>Indus Fire Prevent</td>
<td>10</td>
</tr>
<tr>
<td>2014 Fall</td>
<td>SFT597</td>
<td>Occup Safety &amp; Health Prog</td>
<td>12</td>
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<tr>
<td>2014 Spring</td>
<td>SFT 645</td>
<td>Safety Equipment Design</td>
<td>3</td>
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<tr>
<td>2014 Spring</td>
<td>SFT599</td>
<td>Occup Safety Prog Mgmt</td>
<td>8</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>SFT540</td>
<td>Indus Fire Prevent</td>
<td>4</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>SFT597</td>
<td>Occup Safety &amp; Health Prog</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.
1) Scholarship/Research

2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet

Name: __Anthony Szwilski___________________ Rank: ___Professor________________

Status (Check one):  Full-time__X__ Adjunct _____ Current MU Faculty:  Yes __X__ No ___

Highest Degree Earned: ___PhD_____________ Date Degree Received: ___1975____

Conferring Institution: University of Nottingham, England________________________

Area of Degree Specialization: Geomechanics____________________________________

Professional Registration/Licensure: P.E., C.Eng., Eur Ing._________________________

Field of Registration /Licensure: Engineering____________________________________

Agency: _______________________________________________________________________

Number of years at Marshall (can be in either teaching or administration)  _____21____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 Spring</td>
<td>SFT235</td>
<td>Introduction to Safety</td>
<td>30</td>
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<tr>
<td>2015 Spring</td>
<td>SFT482</td>
<td>SpTp: Intro to Mine Safety</td>
<td>5</td>
</tr>
<tr>
<td>2014 Fall</td>
<td>SFT235</td>
<td>Introduction to Safety</td>
<td>25</td>
</tr>
<tr>
<td>2014 Fall</td>
<td>SFT490</td>
<td>Safety Internship</td>
<td>2</td>
</tr>
<tr>
<td>2014 Spring</td>
<td>SFT235</td>
<td>Introduction to Safety</td>
<td>16</td>
</tr>
</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
2009 – 2012: Co-Principal Investigator, Cyberinfrastructure for Transformational Scientific Discovery, $1.35 million, EPSCoR-NSF.
2009-2012: Principal Investigator, Facilitate and Manage the Development of a State of West Virginia Land Stewardship Trust Fund Program, $128,000, West Virginia State Department of Environmental Protection.

2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II  
Faculty Data Sheet

Name: _____James McIntosh_____________  Rank: ___Associate Professor_____

Status (Check one): Full-time__X__ Adjunct _____  Current MU Faculty: Yes __X__ No ___

Highest Degree Earned: _____MSE________ Date Degree Received: ______1987___

Conferring Institution: ________WVU______________________________

Area of Degree Specialization: ____IE/Occupational Health&Safety_______________________

Professional Registration/Licensure: _____CIH, CSP _________________________

Field of Registration /Licensure: ___Industrial Hygiene, Safety_________________________

Agency: _________________BCSP___________________________________________

Number of years at Marshall (can be in either teaching or administration) ______11____

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015 Spring</td>
<td>SFT 630</td>
<td>Current Lit &amp; Research</td>
<td>13</td>
</tr>
<tr>
<td>2015 Spring</td>
<td>SFT565</td>
<td>Incident Investigation Tech</td>
<td>6</td>
</tr>
<tr>
<td>2015 Spring</td>
<td>SFT650</td>
<td>Safety Internship</td>
<td>2</td>
</tr>
<tr>
<td>2015 Spring</td>
<td>SFT 647L</td>
<td>IH Lab II</td>
<td>4</td>
</tr>
<tr>
<td>2014 Fall</td>
<td>SFT 554</td>
<td>Industrial Hygiene I</td>
<td>10</td>
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<tr>
<td>2014 Fall</td>
<td>SFT650</td>
<td>Safety Internship</td>
<td>1</td>
</tr>
<tr>
<td>2014 Spring</td>
<td>SFT 610</td>
<td>Phil &amp; Psychological Concepts</td>
<td>9</td>
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<tr>
<td>2014 Spring</td>
<td>SFT 630</td>
<td>Current Lit &amp; Research</td>
<td>8</td>
</tr>
<tr>
<td>2014 Spring</td>
<td>SFT 647L</td>
<td>IH Lab II</td>
<td>1</td>
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<td>2014 Spring</td>
<td>SFT650</td>
<td>Safety Internship</td>
<td>2</td>
</tr>
<tr>
<td>2013 Fall</td>
<td>SFT 554</td>
<td>Industrial Hygiene I</td>
<td>3</td>
</tr>
<tr>
<td>2013 Fall</td>
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<td>Safety Internship</td>
<td>3</td>
</tr>
<tr>
<td>2013 Spring</td>
<td>SFT 681</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

For each of the following sections, list only events during the period of this review and begin with the most recent activities.
1) Scholarship/Research


- Jefferies, R and McIntosh, JD WV “Current OSHA Issues in Cemeteries and Funeral Homes”. Cemeteries and Funeral Directors Association, Huntington, WV.


- 2013 - Present: Develop Site safety initiatives for BrickStreet Insurance. Bucks for Brains Research Grant, $300,000.

2) Service

- Marshall University: Budget and Academic Policy Committees (chair in 2012)
- NASA Consortium Fellowship Committee,
- CITE Personnel committee (chair in 2015)
- Manage BrickStreet Safety Technology Scholarship.
- Manage Safety Technology Internship Program.
- ANSI standards (Z9.9, Z590, A10, and Respiratory Protection- sub committees).

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet

Name: ______ Jian Liu _______________ Rank: _______ Associate Professor ______

Status (Check one): Full-time__X__ Adjunct _____ Current MU Faculty: Yes __X__ No _____

Highest Degree Earned: ______PhD__________ Date Degree Received: _____2008_____

Conferring Institution: _______Virginia Tech____________________________

Area of Degree Specialization: ___Industrial Engineering__________________________

Professional Registration/Licensure: ______CPE____________________________

Field of Registration/Licensure: ______Ergonomics______________________________

Agency: ____Board of Certification in Professional Ergonomics _____________________

Number of years at Marshall (can be in either teaching or administration) _______2.5___

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
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<td>SFT660</td>
<td>Appl Ergonomics &amp; Hum Factors</td>
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<td>Appl Ergonomics &amp; Hum Factors</td>
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<td>Appl Ergonomics &amp; Hum Factors</td>
<td>2</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research

• Liu, J., Lockhart, T., & Kim, S. (2014). Reaction moment at the L5/S1 joint during simulated forward slipping with a handheld load. *International Journal of Occupational Safety and Ergonomics*, 20(3), 429-


• Summer Research Award, MU ($2,000) Liu, J. (PI, 100%) 2014

• Summer Research Award, MU ($2,000) Liu, J. (PI, 100%) 2013

2) Service

• CITE Website Committee. (2013 - Present).

• MU NASA WV Space Grant Consortium Advisory Committee (2013 - Present).

• CITE Chair Search Committee for Division of Applied Science and Technology (2014).

• CITE Curriculum Committee (2014 - Present).

• MU Distinguished Artists and Scholars Award (DASA) Committee (2014 - Present).

• Executive Council: Member at Large, International Society for Occupational Ergonomics and Safety (ISOES), 2012 – 2013

• Invited to review a book proposal titled "Chaffin's Occupational Biomechanics 5th edition" for
• Invited to serve as Review Panelist for 2015 NSF Graduate Research Fellowship Program (December, 2014 – February, 2015)
• Invited to serve as International Grant Reviewer for the Tier 1 Grant Call at National Technological University, Singapore (August, 2013)
• Session Chair (Biomechanics Session) of 2013 Industrial and Systems Engineering Research Conference (ISERC 2013), Human Factor and Ergonomics track, San Juan, Puerto Rico, 5/18-5/21, 2013
• Session Chair (Session 1: Biomechanics and Injury Risk; Session 2: Occupational Ergonomics) of 2014 Industrial and Systems Engineering Research Conference (ISERC 2014), Human Factors and Ergonomics Track, Montreal, Canada, 5/31-6/4, 2014

Editorial Board Member
The Open Occupational Health and Safety Journal
Clinical Research on Foot & Ankle

3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
   Senior Member of Institute of Industrial Engineers
   Professional Member of American Society of Safety Engineers
   Member of Human Factors and Ergonomics Society

4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet

Name: ________ Tony Stroud ____________ Rank: ________ Instructor ________

Status (Check one): Full-time_____ Adjunct __ X__ Current MU Faculty: Yes ___ Y__ No ___

Highest Degree Earned: __________________________ Date Degree Received: __________________

Conferring Institution: _______________________________________________________________________

Area of Degree Specialization: ______ Worker’s compensation _________________________________

Professional Registration/Licensure: _______________________________________________________________________

Field of Registration /Licensure: _______________________________________________________________________

Agency: ______________________________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) ______

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

<table>
<thead>
<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
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<tr>
<td>2014 Spring</td>
<td>SFT483</td>
<td>Special Topic: Worker’s Compensation</td>
<td>1</td>
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NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
Appendix II
Faculty Data Sheet

Name: __________ Mike Alley ____________ Rank: ______ Instructor ______

Status (Check one): Full-time _____ Adjunct _____ X _____ Current MU Faculty: Yes ____ Y ____ No ____

Highest Degree Earned: __________________________ Date Degree Received: __________________

Conferring Institution: ____________________________

Area of Degree Specialization: _______ Process Safety Management __________________________

Professional Registration/Licensure: ____________________________

Field of Registration /Licensure: ____________________________

Agency: ____________________________________________________________________________

Number of years at Marshall (can be in either teaching or administration) ________

List courses you taught during the final two years of this review. If you participated in a team-taught course, indicate each of them and what percentage of the course you taught. For each course include the year and semester taught (summer through spring), course number, course title and enrollment. (Expand the table as necessary)

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<tr>
<th>Year/Semester</th>
<th>Alpha Des. &amp; No.</th>
<th>Title</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 Fall</td>
<td>SFT589</td>
<td>Process Safety Management</td>
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<tr>
<td>2013 Fall</td>
<td>SFT589</td>
<td>Process Safety Management</td>
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</tbody>
</table>

NOTE: Part-time adjunct faculty do not need to fill in the remainder of this document.

For each of the following sections, list only events during the period of this review and begin with the most recent activities.

1) Scholarship/Research
2) Service
3) Professional development activities, including professional organizations to which you belong and state, regional, national, and international conferences attended. List any panels on which you chaired or participated. List any offices you hold in professional organizations.
4) Awards/honors (including invitations to speak in your area of expertise) or special recognition.
# Appendix Ila

**Teaching Assistant Data Sheet**

<table>
<thead>
<tr>
<th>GTA Name</th>
<th>Course No. (e.g. 101)</th>
<th>Course Name</th>
<th>Year 1 2010-2011</th>
<th>Year 2 2011-2012</th>
<th>Year 3 2012-2013</th>
<th>Year 4 2013-2014</th>
<th>Year 5 2014-2015</th>
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</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td>Su</td>
<td>Fa</td>
<td>Sp</td>
<td>Su</td>
<td>Fa</td>
</tr>
</tbody>
</table>

Complete graduate teaching assistant’s name; course number and course name taught; indicate enrollment in the semesters taught.
## Appendix III
### Entrance Abilities of Past Five Years of Graduates: MS in Safety Technology

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Mean Undergraduate GPA</th>
<th>Mean GRE Verbal</th>
<th>Mean GRE Quantitative</th>
<th>Mean GRE Analytical Writing</th>
<th>GMAT Verbal</th>
<th>GMAT Quantitative</th>
<th>Miller Analogies (New)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-2011</td>
<td>13</td>
<td>3.39</td>
<td>590.0 (n = 1)</td>
<td>590.0 (n = 1)</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>395.0 (n = 1)</td>
</tr>
<tr>
<td>2011-2012</td>
<td>14</td>
<td>2.90</td>
<td>377.5 (n = 4)</td>
<td>417.5 (n = 4)</td>
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<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>2012-2013</td>
<td>10</td>
<td>3.36</td>
<td>360.0 (n = 2)</td>
<td>520.0 (n = 2)</td>
<td>3.50 (n = 2)</td>
<td>----</td>
<td>----</td>
<td>----</td>
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<tr>
<td>2013-2014</td>
<td>11</td>
<td>3.23</td>
<td>----</td>
<td>----</td>
<td>28.0 (n = 1)</td>
<td>22.0 (n = 1)</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>2014-2015</td>
<td>4</td>
<td>2.82</td>
<td>480.0 (n = 1)</td>
<td>590.0 (n = 1)</td>
<td>3.50 (n = 1)</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>
## Appendix IV
### Exit Abilities of Past Five Years of Graduates: MS in Safety Technology

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Mean GPA</th>
<th>Licensure Exam Results</th>
<th>Certification Test Results</th>
<th>Other Standardized Exam Results</th>
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</thead>
<tbody>
<tr>
<td>2010-2011</td>
<td>13</td>
<td>3.84</td>
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<tr>
<td>2011-2012</td>
<td>14</td>
<td>3.81</td>
<td>----</td>
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<td>2012-2013</td>
<td>10</td>
<td>3.84</td>
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<td>2013-2014</td>
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<td>3.78</td>
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<tr>
<td>2014-2015</td>
<td>4</td>
<td>3.65</td>
<td>----</td>
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</tr>
</tbody>
</table>
# Appendix V: Assessment Summary
## Assessment Summary

## Component Area/Program/Discipline: MS in Safety Technology

<table>
<thead>
<tr>
<th>Program's Student Learning Outcomes</th>
<th>Assessment Measures (Tools)</th>
<th>Standards/Benchmark</th>
<th>Results/Analysis</th>
<th>Action Taken to improve the program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will analyze data.</td>
<td>Assessment Point 1: SFT 599 (Written paper)</td>
<td>Capstone</td>
<td>Student achievement for this outcome, in this course, will be measured by conducting an injury/illness analysis utilizing records provided in the Simulation Game and Identifying trends and/or areas on improvements in the recommendation section of the simulation game.</td>
<td>No Action Required - Student achievement in this area was achieved with a 92% rate</td>
</tr>
<tr>
<td></td>
<td>Assessment Point 2: SFT 540 (Knowledge of codes and regulations)</td>
<td>Advanced</td>
<td>The student will be able to inspect a building for life safety code principles and develop a Fire Inspection Report detailing this evaluation</td>
<td></td>
</tr>
</tbody>
</table>


| Students will effectively communicate both orally and in writing. | Assessment Point 1: SFT 599 (Written paper) | Capstone | Student achievement for this outcome, in this course, will be measured by conducting an injury/illness analysis utilizing records provided in the Simulation Game and identifying trends and/or areas on improvements in the recommendation section of the simulation game. | No Action Required - Student achievement in this area was achieved with a 94% rate |
| Students will design and evaluate safety programs. | Assessment Point 1: SFT 599 (Written paper) | Capstone | Student achievement for this outcome, in this course, will be measured by analyzing the “recommendation section” of each student report regarding Safety Management Errors. | No Action Required - Student achievement in this area was achieved with a 91% rate |
## Program Learning Outcome 1: Students will analyze data.

<table>
<thead>
<tr>
<th>Traits</th>
<th>Introductory</th>
<th>Milestone</th>
<th>Capstone</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define a problem</td>
<td></td>
<td></td>
<td></td>
<td>Demonstrates the ability to construct a clear and insightful problem statement with evidence of all relevant contextual factors.</td>
</tr>
</tbody>
</table>

## Program Learning Outcome 2: Students will effectively communicate both orally and in writing.

<table>
<thead>
<tr>
<th>Traits</th>
<th>Introductory</th>
<th>Milestone</th>
<th>Capstone</th>
<th>Advanced</th>
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</thead>
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## Program Learning Outcome 3: Students will design and evaluate safety programs.

<table>
<thead>
<tr>
<th>Traits</th>
<th>Introductory</th>
<th>Milestone</th>
<th>Capstone</th>
<th>Advanced</th>
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</thead>
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### Appendix VI
Program Course Enrollment: MS in Safety Technology

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<tr>
<th>Subj</th>
<th>CRSE</th>
<th>TITLE</th>
<th>Camp</th>
<th>Cse Type</th>
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<th>Sem</th>
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<th>Ay1111</th>
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<th>Ay1114</th>
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<th>Ay1314</th>
<th>Ay1314</th>
<th>Ay1415</th>
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<tbody>
<tr>
<td>SFT</td>
<td>540</td>
<td>Indusr Fire Protection</td>
<td>Huntington</td>
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<td>SFT</td>
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<tr>
<td>SFT</td>
<td>554</td>
<td>Indusr Hygiene I</td>
<td>Huntington</td>
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<td>11</td>
<td>12</td>
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<tr>
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<td>SFT</td>
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<td>Online Course</td>
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<td>SFT</td>
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<td>SpTp: Oil and Gas Drilling</td>
<td>Huntington</td>
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<td>Independent Study</td>
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<td>587</td>
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## Appendix VII

### Program Enrollment: MS in Safety Technology

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<th>Students</th>
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Figure 1. Trend Line for Total Enrollment and Program Graduates: MS in Safety Technology
## Appendix VIII
Job and Graduate School Placement Rates: MS in Safety Technology

<table>
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<tr>
<th>Year</th>
<th># of graduates employed in major field</th>
<th># of graduates employed in related fields</th>
<th># of graduates employed outside field</th>
<th># of graduates accepted to Further Study</th>
<th># of graduates not accounted for</th>
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Appendix IX: Letters from the Assessment Office: MS in Safety Technology

Office of Assessment & Program Review

April 28, 2015

Dr. Tony Sawilski, Chair
Division of Applied Science and Technology
College of Information Technology and Engineering

Dear Tony:


Reports for academic year 2014 – 2015 are officially due on May 15. If you need additional time to complete data analysis or if you need help with any part of the report, please let me know. I ask that your final report be submitted no later than September 15.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds, Associate Vice President for Assessment and Quality Initiatives

C: Dr. Wael Zatar, Dean, CITE
Office of Assessment & Program Review

August 5, 2013

Dr. Allan Stern, Chair
Safety Technology
College of Information Technology and Engineering

Dear Allan:

The Graduate Council reviewers and I have completed our evaluations of the MS in Safety Technology's assessment of student learning for academic year 2012 – 2013, as submitted in the Open Pathways Project report last updated in May 2013. This letter will provide general comments and suggestions for improvement. Please refer to the attached assessment rubric for additional comments from reviewers. Please note that the reviewers' comments are based on the reports you submitted in February 2013, so may not be appropriate for your final report.

I'm not sure you have included all of your program's learning outcomes, but those you have included emphasize higher levels of learning. I'll work with you this fall, though, on correctly entering the outcomes into the template. Currently, you have three outcomes listed in the space for the first one. Then, you indicate that all three are being assessed in single courses (at assessment points 1 and 2) with the same measures. Is this correct? Also, please note that your benchmark should be at the "advanced" level for assessment point 2. You need to further develop your rubrics. I did not see results reported. I assume you will begin to collect data, analyze results and use the information to improve your program beginning in academic year 2013 – 2014.

During the academic year 2013 – 2014, programs will continue to report assessment results and plan actions using the online reporting form used last year. These reports will be due at the end of the academic year. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds, Associate Vice President
Assessment and Quality Initiatives

C: Dr. Wael Zatar, Dean, CITE
Dr. Allan Stern, Chair  
Safety Technology  
College of Information Technology and Engineering  

Dear Allan:

The Graduate Council and I have completed our evaluation of the MS in Safety Technology's assessment of student learning. This letter will provide general comments and suggestions for improvement. I have included the scoring rubric we used to evaluate your assessment report in a separate document.

Although not all of your program's learning outcomes are written in measurable terms, the majority do address higher levels of cognition. Your outcome/course mapping is well done, but I couldn't tell from your report how each program learning outcome was assessed, nor were appropriate benchmarks given. I expect that, with the work you have done as part of the Open Pathways Demonstration Project, these alignments will be better articulated moving forward.

During the coming academic year, it will be important that you follow the plan you developed as part of the first two activities of the Open Pathways Demonstration Project. The project's steering committee will provide more feedback regarding next steps in that project at summer's end. If you have questions or concerns, please let me know.

Sincerely,

Mary E. Reynolds

Mary E. Reynolds  
Director of Academic Assessment

C: Dr. Wael Zatar, Dean, CITE