Marshall University

College of Information Technology & Engineering
Safety Technology Department

Spring 2009

INCIDENT INVESTIGATION TECHNIQUES
SFT 565

LOCATION: Harris Hall, Room 130, Huntington Campus

TIME: Wednesdays, 4:00pm-6:20pm

INSTRUCTOR:
J. Patrick Conlon, CSP
Safety Technology Department
Communications Bldg., Room 212-I
Huntington Campus
Office Phone – 304.696.3067
Department Fax – 304.696.3070
Email – **conlonj@marshall.edu**

OFFICE HOURS:
Mondays – 5:00pm-6:00pm - Office
Tuesdays – 1:00pm to 3:00pm - Office,
7:00pm-9:00pm - FYR Hall South
Wednesdays – 1:00pm to 3:00pm - Office,
7:00pm-9:00pm – FYR Hall North
Thursday – 10:00am to Noon - Office
Other times by appointment

DESCRIPTION: This 3 credit course introduces incident investigation techniques designed to provide insight into the recognition and collection of evidence, collecting and recording relevant data, determination of incident causation, and the development of recommendations to prevent recurrence of similar incidents. Students will explore root cause analysis including cause and effect principles, effective problem solving, and the use of proprietary incident investigation software. Various system safety applications will be introduced as risk assessment tools and techniques used by safety professionals.

TEXTBOOK: ***Basic Guide to Accident Investigation and Loss Control***
Vincoli, Jeffery, W., CSP
1st Edition, John Wiley & Sons, 1994, ISBN: 0-471-28630-3

OUTCOMES: Successful completion of the course will enable the student to:

- Describe the basic principles and responsibilities essential to successful incident investigations;
- Identify the management systems necessary to support timely and high quality incident investigations;
- Identify the process for planning and conducting incident investigations including investigative tools, techniques, and methodologies for determining root causes;
- Use the findings of an investigation to make effective recommendations that can reduce the likelihood of recurrence, or mitigate the consequences of similar incidents;
- Develop an effective system for documenting, communicating, and resolving investigation findings and recommendations including a method to track closure of incident recommendations; and
- Describe system safety applications and their use as incident investigation or risk assessment methodologies.

EVALUATION: Exams/100 points each – three per semester, each will include a combination of multiple choice, true/false, fill in the blank, and essay questions based on the textbook assignments and classroom activities.

Class Participation/200 points – complete in-class projects, both individual and in groups, including reading assignments, writing assignments, discussions, quizzes, case studies, etc.

Research project/100 points – each student will review a published incident investigation report assigned by the instructor; prepare a written executive summary, an event and causal factors chart, and a PowerPoint presentation suitable for a fifteen minute employee safety meeting. Students will present their work products to the class at the end of the semester. PowerPoint presentation will be a minimum of thirty slides following a prescribed format and rubric. Final report, chart and presentation must be submitted by email, compact disk or a portable data storage device.

Total Possible Points = 600
Note: Late completion of exams must be approved in advance by the instructor.

GRADING: Grades will be awarded according to the following scale:

- 90% - 100% = A
- 80% - 89% = B
- 70% - 79% = C
- 60% - 69% = D
- 59% or lower = F

SCHEDULE OF ASSIGNMENTS & ACTIVITIES:

1. 1/14/09:
   Student Data Sheets, Introductions, Course Overview, Syllabus Review
   Multimedia: Winter Subfreezing Weather Chemical Plant Accidents
   Out of class activities: Part 1 Introduction, Chapters 1 & 2

2. 1/21/09:
   Review: Part 1 Introduction, Chapters 1 & 2
   Multimedia: Exxon Valdez, Senior Road Tower, Lake Peigneur, and Buffalo Creek Dam incidents
   Out of class activity: Chapter 3

3. 1/28/09:
   Review: Chapter 3
   Multimedia: Accident Investigation Module 1
   Case Study 1: Fork Truck Accident, Part 1
   Out of class activities: Chapter 4 (pages 65-99),

4. 2/4/09:
   Review: Chapter 4 (pages 65-99)
   Multimedia: Accident Investigation Module 2
   Case Study 1: Fork Truck Accident, Part 2
   Out of class activities: Chapter 4 (pages 99-116)

5. 2/11/09:
   Review Chapter 4 (pages 99-116)
   Multimedia: Accident Investigation Module 3
   Case Study 1: Fork Truck Accident, Part 3
   Out of class activities: Prepare for exam 1 (Chapters 1, 2, 3, & 4)

6. 2/18/09:
   Exam 1 (Chapters 1, 2, 3, & 4)
   Multimedia: DOE - Interviewing Witnesses
   Out of class activities: Chapter 5, Part 2 Introduction, & Chapter 6

7. 2/25/09:
   Review: Exam 1, Chapter 5, Part 2 Introduction, & Chapter 6
   Multimedia: Columbia Countdown, Challenger Crash
   Case Study 2: Space Shuttle Accidents
   Out of class activities: Chapters 7 & 8,

8. 3/4/09:
   Review: Chapters 7 & 8
   Multimedia: Management of Compressed Gases
   Case Study 3: Pentaborane Explosion
   Out of class activities: Chapters 9 & 10

9. 3/11/09:
   Review: Chapters 9 & 10
   Multimedia: About the U.S. Chemical Safety & Hazard Investigation Board
   Case Study 4: Hazards of Hydroxylamine – Explosion at Concept Sciences
   Out of class activities: Prepare for exam 2 (Chapters 5, 6, 7, 8, 9, & 10)

10. 3/18/09:
    Exam 2
    Research Project: Team meetings and planning
    Out of class activities: Research project incident report review
    USCG Risk-based Decision-making Module 1

11. 3/25/09:
    SPRING BREAK – No Class

12. 4/1/09:
    Review: Exam 2, USCG Risk-based Decision-making Module 1
    Multimedia: Propane Explosion, Ghent, WV
    Case Study 5: Little General Store Propane Explosion
    Out of class activities: USCG Risk-based Decision-making Module 2
    Team investigation projects

13. 4/8/09:
    Review: USCG Risk-based Decision-making Module 2
    Multimedia: HC – The Crash of Flight 191
    Research Project: Project review and work time
    Out of class activities: USCG Risk-based Decision-making Module 3
    Team investigation projects

14. 4/15/09:
    Review: USCG Risk-based Decision-making Module 3
    Multimedia: NOVA – Crash of Flight 111
    Research Project: Project review and work time
    Out of class activities: USCG Risk-based Decision-making Module 4
    Team investigation projects
    Due next week: Research Project – report, chart, and PowerPoint

15. 4/22/09:
    Review: USCG Risk-based Decision-making Module 4
    Guest Speaker – TBD
    Multimedia: ASCO/Acetylene Gas Explosion
    Due Date: Research Project – report, chart, and PowerPoint
    Out of class activities: USCG Risk-based Decision-making Module 5
    Due next week: Research Project Presentations

16. 4/29/09:
    Review: USCG Risk-based Decision-making Module 5
    Research Project: Team Presentations
    Out of class activities: Prepare for exam 3:
    (USCG Risk-based Decision-making Modules 1, 2, 3, 4, & 5)

17. 5/6/09:
    Exam 3 (USCG Risk-based Decision-making Modules 1, 2, 3, 4, & 5)

ADDITIONAL NOTICES:

Plagiarism/Academic Honesty/Academic Integrity – cheating, fabrication/falsification, plagiarism, etc., shall be subject to University policy as described in the current Undergraduate and Graduate catalogs.

Student Disabilities – Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit http://www.marshall.edu/disabled or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271."

Academic Support Services – students interested in academic support services (advising, tutoring, and writing) are encouraged to contact the University College's Academic Advising Center for free programs and services to help them succeed in college courses (located in the Community and Technical College Building, lower level, 304-696-3169).

Weather-Related and/or Emergency Closings and Delays – students must adhere to the University policies for these events/conditions. Please contact the instructor by phone prior to class if you will miss class due to your local weather conditions if the University is still open. For information concerning the University status during inclement weather or emergencies will be available on local radio and television channels or call (304) 696-3170 or (304) 696-HELP.

Attendance – students are expected to attend all scheduled classes following the University policy for excused absence and weather related class cancellation as applicable. Students should notify the instructor of an absence prior to the class by voice mail or email. In the event of an excused absence class work can be made up within one week with scheduling and approval of the instructor.