

College of Business and Technology
School of HRD & Technology
Course Syllabus

TECH 3344.040 & .041
Dr. James F. Harbaugh – HPR 219
Office Hours: M-W 11 AM – 2 PM
T-R 9 AM – 12 PM

Industrial Safety
Spring 2009
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I. Course Description:

This is a 3 semester hour course oriented toward the undergraduate student in industrial safety management or related technology degree program. The course is a study of occupational safety & health (EH&S) as it relates to the business and industrial environment. Emphasis is placed on accident theory, safety programs, safety regulations, Texas Workers Compensation, hazard identification, and various OSHA safety and health compliance requirements. (90% Lecture/10% Lab)

II. Textbook:

Goetsch, David L. (2008). *Occupational safety and health for technologists, engineers, and managers*. (6th edition). New Jersey: Prentice-Hall.
ISBN: 0-13-113764-6

III. Course Objectives:

- A. To instill within the student a generic order of safety program development in the business and industrial environment.
- B. To cause the student to recognize and learn the priority compliance measures that must take place to meet state and federal safety laws.
- C. To realize the current safety program management trends in risk and accident analysis.
- D. To review the workers compensation commission insurance program.

IV. Statement of Learning Objectives:

By the end of this course, students should be able to:

- A. Qualify to receive an OSHA 10-hour general industry card.
- B. Identify major hazards found in the workplace.
- C. Suggest ways to minimize and/or eliminate hazards in the workplace.
- D. Develop a comprehensive safety program for the workplace.
- E. Complete OSHA record keeping requirements in the workplace.

V. Course Competencies:

- A. Computer-based skills-Each student will complete a term report about the current status of a particular topic directly related to industrial safety issues, formatted by word processing following APA format.
- B. Communication skills-A five minute oral safety briefing will be scheduled for each student to present in this class. Presentation format is specified by the instructor.
- C. Interpersonal skills-This competency will not be achieved in TECH 3344.
- D. Problem-solving-Students will be provided occupational hazard scenarios that they will resolve and provide a written summary.
Ethical Issues in Decision Making and Behavior-Students will make decisions about at-risk behaviors exhibited by employees in the work place and determine solutions based upon production and service priorities.
- E. Personal Accountability for Achievement-Each student will follow the designated suspense dates for course work as listed in the course syllabus.
- F. Competence in Basic Technology Principles-
 - 1. By the study of industrial safety students will develop a component foundation for comprehensive safety program management and its function in the workplace.
 - 2. Students may have the option to experience occupational internships related to environmental health and safety.

VI. Course Requirements:

- A. Assignments
 - 1. two topic summaries
 - 2. conduct an accident analysis
 - 3. “tailgate” safety briefing
 - 4. research project (specific to industrial safety)
 - 5. three (3) exams
 - 6. read assigned materials
 - 7. class attendance

- B. Weighted Grade Distributions*

Topic Summaries	05%
“Tailgate” safety briefing	05%
Accident Analysis	20%
Research Project	20%
Intraterm Exam #1	15%
Intraterm Exam #2	15%
Final Exam	20%
Total	100%

*Student course requirements will be graded by percentage equal to the number of times correct divided by total number of exam items. Other course requirements

will be graded by percentage as awarded by the instructor according to completeness and quality of work.

- C. Students are required to log on and use Blackboard Learning Management Software for their electronic gradebook and related course materials.
- D. Suspense Dates:

Class Start Date:	M, Jan 12, 2009
Class End Date:	W, May 06, 2009
Class Drop Date:	W, Mar 25, 2009
Class Period:	MWF, 10:00 AM – 10:50 AM
1. topic summary #1	W, Feb 4
2. topic summary #2	W, Mar 4
3. “Tailgate” safety briefing	as scheduled
4. accident analysis	W, Apr 8
5. research project	W, Apr 15
6. intraterm #1	F, Feb 13
7. intraterm #2	F, Mar 20
8. final exam (10:15 AM– 12:15 PM)	W, May 06, 2009
- E. Regular classroom attendance is expected to successfully complete this course. Any make up course work due to a student’s absence is considered on a case by case basis.

VII. Course Discussion Outline:

Reading Assignments

- | | | |
|----|--|-----------------------|
| A. | Industrial Accident Trends & Definitions | pgs. 03 – 35, wk #1 |
| B. | Theories of Accident Causation | pgs. 40 – 61, wk #1 |
| C. | Role of Safety Personnel & Safety Organizations | pgs. 65 – 93, wk #2 |
| D. | The OSH Act, Standards, and Liability | pgs. 111-163, wk #2 |
| E. | Worker’s Compensation | pgs. 174 – 202, wk #3 |
| F. | Accident Investigation and Reporting | pgs. 211 – 222, wk #3 |
| G. | Product Safety and Liability | pgs. 232 - 246, wk #4 |
| H. | Ergonomics Hazards. MSD’s and CTD’s | pgs. 255 – 292, wk #4 |
| I. | Safety and Health Training
ANSI Z490.1 – 2001 | pgs. 311 – 347, wk #5 |
| J. | Violence in the Workplace | pgs. 352 – 378, wk #5 |

K.	Mechanical Hazards and Machine Safeguarding	pgs. 385 – 407, wk #6
L.	Falling, Impact, Accelerations, Lifting & Vision Hazards	pgs. 411 – 444, wk #7
M.	Hazards of Temperature Extremes	pgs. 452 – 465, wk #8
N.	Pressure Hazards	pgs. 470 – 482, wk #8
O.	MIDTERM EXAM	wk #8
P.	Electrical Hazards	pgs. 487 – 505, wk #9
Q.	Fire Hazards and Life Safety	pgs. 511 – 539, wk #10
R.	Industrial Hygiene Confined Spaces	pgs. 544 – 596, wk #11
S.	Radiation Hazards	pgs. 604 – 621, wk #12
T.	Noise and Vibration Hazards	pgs. 626 – 651, wk #12
U.	Robotics & Automation Safety	pgs. 659 – 675, wk #13
V.	Bloodborne Pathogen Hazards	pgs. 681 – 704, wk #14
W.	TSM: Safety Management in TQM	pgs. 861 – 874, wk #15
X.	FINAL EXAM	wk #16

VIII. IDEA Statement:

If you have a disability, including a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office so that the appropriate arrangements may be made. In accordance with the federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. For more information, call or visit the student Services Center located in the University Center, Room 282. The telephone number is 903.566.7079 (TDD 565-5579). Both audio and video will be recorded during interactive television classes. The recorded class information will be made available to ITV students in case of ITV transmission problems.

IX. Interactive Television Statement:

Both audio and video will be recorded during interactive television classes. The recorded class information will be made available to ITV students in case of ITV transmission problems.

X. Academic Honesty Statement:

“Academic dishonesty, such as unauthorized collusion, plagiarism and cheating, as outlined in the Handbook of Operating Procedures, University of Texas at Tyler, will not be tolerated”. University regulations require the instructor to report all suspect cases of academic dishonesty to the Dean of Students for Disciplinary action. In the event disciplinary measures are imposed on the student, it becomes part of the student’s official school records. Also, please note that the handbook obligates you to report all observed cases of academic dishonesty to the instructor.

XI. Grade Replacement:

If you are repeating this course for a grade replacement, you must file intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to file intent to use grade forgiveness will result in both the original and repeated grade used to calculate your overall grade point average. A student will receive grade forgiveness (grade replacement) for only three (undergraduate student) and two (graduate student) course repeats during his/her career at UT Tyler. (2006-08 Catalogue, p. 35)

XII. University Policies Regarding Academic Processes:

POLICIES THAT MUST APPEAR IN COURSE SYLLABUS

The following University policies must appear on each course syllabus or be provided as an informational sheet (web-links to these policies may be used in the print or electronic syllabus)
<http://www.uttyler.edu/academicaffairs/syllabuspolicies.pdf>

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/StudentRightsandResponsibilities.html>

Grade Replacement/Forgiveness

If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to do so will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates will receive grade forgiveness (grade replacement) for only three course repeats; graduates, for two course repeats during his/her career at UT Tyler.

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped

after the 12th day of class (See Schedule of Classes for the specific date).

Exceptions to the 6-drop rule include, but are not limited to, the following: totally withdrawing from the university; being administratively dropped from a course; dropping a course for a personal emergency; dropping a course for documented change of work schedule; or dropping a course for active duty service with the U.S. armed forces or Texas National Guard.

Petitions for exemptions must be submitted to the Registrar's Office and must be accompanied by documentation of the extenuating circumstance. Please contact the Registrar's Office if you have any questions.

Disability Services

In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. If you have a disability, including a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office in UC 282, or call (903) 566-7079.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement:

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

XIII. References List: books

Accident Prevention Manual for Business and Industry. (1995). Chicago, Ill.: National Safety Council.

Administration & Programs Volume #1

Engineering & Technology Volume #2

Environmental Management Volume #3

Hammer, Willie, (1989). *Occupational Safety Management and Engineering.* Englewood Cliffs., N.J.: Prentice-Hall Inc.

Heinrich, H.W., Dan Peterson, and Nester Roos. (1980). *Industrial Accident Prevention.* New York: McGraw-Hill Book Co.

periodicals

Compliance Magazine

Industrial Safety and Hygiene News

Occupational Health and Safety

Professional Safety, Journal of the American Society of Safety Engineers

Public Works

Safety and Health

Waste News

Well Servicing

web sites

www.OSHA.gov

www.CDC.gov

www.ASSE.org

XIV. Research Paper Guidelines:

A **research guideline** that presents the research project format will be handed out to each student. Suggested industrial safety research topics are listed below. A minimum of five references are required for the research paper and two those five must be bound publications found in the UT Tyler library.

1. product liability
2. behavioral safety
3. workers insurance
4. electrical hazards
5. eyesight protection
6. protective equipment
7. personal protective equipment
8. machine safety
9. medical and first aid treatment
10. accident investigation
11. means of egress
12. safety audits
13. safety in robotics & automation
14. state & federal safety regulations
15. safety administration & programs

XV. Safety Briefing:

Directions: One requirement of this course is for each student to prepare and deliver a safety briefing much like an industrial 1st line supervisor would do for his/her department on a regular basis. A safety topic will be selected at random during class. The student will be responsible for researching the safety topic and following the presentation (safety briefing format) outlined as shown below.

- A. Name
- B. Introduction
 1. Focus
 2. Objectives for training
- C. Delivery
 1. Style (delivery methods)
 2. Organization of Material Content
- D. Understanding
 1. Questions
 2. Discussion
- E. Closure (review of critical attributes)

XVI. Topic Summaries:

Directions: Write two article summaries. Examples of related topics listed below. These articles should be taken from recent periodicals, not handbooks or textbooks. Each summary shall be one (1) page in length. Each summary must come from a separate periodical of a different titled publication. The articles you choose to review must have relevance to principles of industrial safety and reflect current trends in the environmental safety and health movement. See course outline and course calendar for the suspense dates concerning the requirements above. An example of a topic summary is attached to this syllabus.

Confined spaces	Electrical safety
Fire safety	Emergency response
Hazard Communication	Security in the workplace
Machine safety	Workplace hazards
Material handling	Personal protective equipment
OSHA	EPA
Safety management	Incentive programs
Fall protection	Construction safety

XVII. Reading List books

Accident Prevention Manual for Business and Industry. (1995). Chicago, Ill.: National Safety Council.

Administration & Programs Volume #1

Engineering & Technology Volume #2

Environmental Management Volume #3

Hammer, Willie, (1989). *Occupational Safety Management and Engineering.* Englewood Cliffs., N.J.: Prentice-Hall Inc.

Heinrich, H.W., Dan Peterson, and Nester Roos. (1980). *Industrial Accident Prevention.* New York: McGraw-Hill Book Co.

periodicals

Compliance Magazine

Industrial Safety and Hygiene News

Occupational Health and Safety

Professional Safety, Journal of the American Society of Safety Engineers

Public Works

Safety and Health

Waste News

Well Servicing

web sites

www.OSHA.gov

www.CDC.gov

www.ASSE.org

Vehicular Systems

McCosh, Dan. (1986). No-springs, no-shocks. *Popular science*. 444 (6), 60-63.

The author believes active suspension will replace springs and shocks with a computer and high-speed hydraulics. The primary benefit of the system is to isolate one suspension characteristic from another. Essentially, MacPherson struts are replaced with hydraulic struts which can react within 3/1000 second, and can cycle up to 1500 times/minute. A computer responds to tiny changes in body and wheel movement by controlling double-acting struts. As well as sensing bumps, the system reads the forces acting on the car body preventing it from banking to the outside of a curve. The idea of active suspension is credited to Britain's great interest in its application. American auto manufacturers have characterized the system as expensive, noisy, and consuming power, however, it may appear on some "expensive" U.S. automobiles.

Reaction

This article had good appeal for automobile enthusiasts who want to keep abreast of the latest technology. The reporting of this innovative suspension system was very consistent and well documented through interviews. Several pictures of the system components were shown as well as a pictorial schematic of the complete suspension system. Upon reading this article, anyone would have a good working knowledge of the computer controlled suspension.

Note: Margins are to be set at the following dimensions:

Left	= 1.25"
Right	= 1.00"
Top	= 1.00"
Bottom	= 1.00"

