Course Syllabus – CNST 3210
Safety for Industrial Projects

Course Description:
The course introduces the student to the Zero Injury Leadership Concept for achieving a zero-injury daily outcome on industrial construction projects. The course will include Construction Industry Institute research safety best practices, OSHA CFR elements, interactive activities involving safety culture, leadership techniques; behavior-based safety, industrial hygiene, environmental concerns as well as industrial safety analysis techniques. Each student will develop a Construction Project Safety Plan.

Course Prerequisites:
CNST 3301

Textbook:
The Employer Safety Guidebook to Zero Employee Injury, Third Edition, Nelson Consulting Inc., Houston, TX ; ISBN- 978-0-9791685-4-3

Course Learning Outcomes:
Upon the completion of the course students will demonstrate the ability to:
1. Create a construction project safety plan
2. Differentiate between corporate policy and job-specific safety requirements
3. Demonstrate knowledge of OSHA requirements
4. Develop a Job Hazard Analysis
5. Develop a plan for training and hazard awareness

Student Learning Outcomes:
3. Create a construction project safety plan

Course and Student Learning Outcome Mapping:

Student Learning Outcome	Course Learning Outcome
3	1,2,3,4,5

Student Learning Assessments and Assessment Target:

Assessment	SLO#3	Assessment Target
Assess (A)	X	At least 70% of students receive a grade of 70 or better

Class Grading:

Safety Topic (OSHA 29-CFR)	5%
Construction Project Safety Plan	70%
Exam/Test (CII, OSHA & JHA)	25%

Grading allocation above is subject to change based on instructor's discretion)

Grading Scale:

Letter Grade	Score
A	93-100%
A-	90-92%
B+	86-89%
B	83-85%
B-	80-82%
C+	76-79%
C	73-75%
C-	70-73%
D+	65-69%
D	60-64%
F	<60

Class Schedule:

Week #	Safety Moment, Lecture Topic & Lecture Activity Note: Safety Moments to begin each lecture will be student led based on OSHA CFR assignment.	Reading Assignment(s)/Lecture Participation Activities
Lecture 1	Construction Safety Management: Zero Employee Injury Introduction and course summary and concepts. Lecture: Chapter 1 The Search for Zero Injury Chapter 2 Redefining Safety Commitment Chapter 3 Defining Zero Injury Lecture Activity – Introductions and discussion what are the elements of a safety culture (Policy vs. Regulation)	Participation Assignment: Each student will be assigned an OSHA CFR 1926 Regulation Element to be summarized and discussed at the begging of each Lecture Session (worksheet on blackboard). **OSHA Regulation Summary** **Safety & Health Regulations for Construction (Standard Number 1926):** Build OSHA CFR Element to be summarized and discussed at each Lecture Session (Worksheet on Blackboard) Read Chapters 1-5 Participation Assignment: Search for an Industrial Construction or Petro/Chemical company mission statement and bring to Lecture (re-type). Prepare a short industrial project safety topic (plan to present during semester when called upon).
Lecture 2	Lecture: Chapter 4 The Zero Injury Logic Chapter 5 The Zero Injury Research Lecture Activity – Review matrix factors improving safety culture utilizing 10 critical leadership techniques and 5 key CII techniques **Introduction of key elements in an Industrial Construction Project Safety Plan.**	Read Chapter 6 & 7 Participation Assignment: Describe 4 elements of the safety cultural environment at your place of employment, home life or college campus. Write a safety mission statement for an industrial construction company.

Lecture 3	Lecture: Chapter 6 Corporate Leadership Is Required Chapter 7 Injury Rates and The Cost of Injury Lecture Activity – develop safety leadership diagram/model and injury rate calculations **Key elements in an Industrial Construction Project Safety Plan.** **Review Industrial Construction Safety Plan Format and contents.**	Read Chapter 8 &9 Participation Assignment: Describe 5 elements that you would engage to improve safety culture at your workplace, home or college campus. Define leadership and how it influences a safety culture. Review Construction Safety Plan on the internet. Format and contents **Generate Industrial Construction Safety Plan Draft (Index)**
Lecture 4	Lecture: Chapter 8 Zero Injury Return on Investment Lecture Activity – define corporate leadership and how does it relate to the organization's safety culture. **Review Industrial Construction Safety Plan Format and Contents**	Read Chapters 10 Participation Assignment: Define how a company achieves a positive ROI. Describe 3 safety culture elements that will improve ROI. **Generate Industrial Construction Safety Plan Draft (Identify CII Elements)**
Lecture 5	Lecture: Chapter 9 CII 1993 Research- In Detail **Review Industrial Construction Safety Plan Format and Contents**	Reading Chapter 11,12 **Generate Industrial Construction Safety Plan Draft (Full Draft)**
Lecture 6	Chapter 10 CII 2001/2002 Research- In Detail **Review Industrial Construction Safety Plan Format and Contents**	Participation Assignment: Review BP Texas City Refinery Explosion, March 23, 2005: Identify and list 5 culture findings/observations and 5 equipment findings/observations. Generate one-two paragraph to describe how the findings relate to the company safety culture at that time and identify three CII elements that would have had a positive influence to improve the safety culture to prevent this occurrence. **Prepare to submit Construction Project Safety Plan**
Lecture 7	**<u>Lecture:</u>** Chapter 11 Near Miss Reporting and Introducing the Employment Safety Improvement CARD Chapter 12 Demonstrating Care	Read Chapters 13

	Texas City BP Explosion Discussion Lecture Activity – Draw an accident event pyramid and describe how it can be used. **Submit Safety Plan Assignment in Blackboard.**	
Lecture 8	Lecture: Chapter 13 Safety Question of the 21St Century Chapter 14 Safety is the Fiber Optic Thread Chapter 15 Author's (Mr. Emmitt J. Nelson) Recommendations Lecture Activity: BP Texas City Mishap Report Discussion & BP Findings Correlation Matrix	Reading Assignment - Chapter 14-15 Read - Chapter 16-18, Read & Study BP Texas City Mishap Report Participation Assignment: Define/Describe how Organizational Safety Fiber relates to the Safety Culture.
Lecture 9	Chapter 16 Taking Management Action Chapter 17 Evergreen Safety Progress Chapter 18 Safety Management System Lecture Activity: Develop safety fiber diagram.	Read Chapter 19-20 Participation Assignment: Describe what an evergreen safety culture is and how it can be implemented across an organization. What is a safety management system and how can it benefit an organization?
Lecture 10	Chapter 19 Safety Management Choices Chapter 20 The Safety Management System Lecture Activity – Develop organization charts for a construction company.	Read - Chapter 21 & 22 Participation Assignment: What are the factors that must be considered when implementing a safety management system?
Lecture 11	Chapter 21 Safety Teams Chapter 22 Managing the System Safety Teams Lecture Activity – Diagram elements of a management system.	Participation Assignment: Design an organization chart for a construction company. Locate and bring a sample of a Job Hazard Analysis (JHA) to the next Lecture. Describe 6 attributes of a JHA.
Lecture 12	Lecture: Job Hazard Analysis (JHA) Lecture Activity – Review elements of a JHA and generate a JHA for a task. Lecture Activity – Review incident analysis techniques. Develop RCA diagrams.	Participation Assignment: Identify and list 3 incident cause analyses techniques/tools. Identify and describe 4 attributes of the analysis tool and 5 techniques used when conducting the cause analysis assessment.
Lecture 13	The Incident/Accident Analysis Process, Techniques & Tools	Review Chapters 1-22 Prepare for Exam: CII, OSHA & JHA
Lecture 14	Final Exam Review (Chapters 1-22) CII, OSHA & JHA	Review Chapters 1-22 Prepare for Exam: CII, OSHA & JHA
Lecture 15	**Final Exam (Chapters 1-22)** CII, OSHA & JHA	Final exam (Chapters 1-22) Test on Black Board take during the week

Note: Syllabus is subject to change, students will receive verbal status/updates at each Lecture session.

Homework:

All assignments must be completed in a professional manner and in a Microsoft electronic format (Word and/or PowerPoint). Assignments will be graded based on technical content, clear organizational format and timeliness. All assignments must be available on scheduled date and submitted into Blackboard when applicable. Each student will generate and submit a Construction Project Safety Plan. Each student will be responsible to submit an OSHA CFR 1926 safety topic into Blackboard and present their assigned OSHA material during the lecture when called upon.

Exam Policy:

Exams will include material covered in Lecture discussions and assignment s. Exam make-up will be given only in the event of a verified emergency or doctor-verified sickness. Homework Assignment s turned in late will be counted off 20 percent per day (only exceptions listed previously). The student is responsible for all reading Homework Assignment s and Lecture handouts whether covered in Lecture or listed on the syllabus.

Academic Honesty:

The instructor reserves the right to adjust letter grades, upward only, based on individual attendance and lecture participation if numerical grade warrants such consideration. Each unexcused absence in excess of two during the semester will result in adjustment of the final grade downward by one letter grade. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced.

Students with Disabilities:

University of Houston provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Center for Students with Disabilities (713/743-5400) for more assistance.

Course/Instructor Evaluation:

A Start-Stop-Continue survey and a course/instructor evaluation will be conducted during the semester. Any suggestions you have on improving the course, however, are welcome throughout the semester.

For detailed information about Disabilities, Religious Holy Days, the Academic Calendar, and Academic Honesty, and other information, please visit the following website:

http://www.uh.edu/provost/stu/stu_syllabsuppl.html