**PMOSH Course 3**

**Special Topics: BCP 8823/6300:** Hazardous Materials Management

**Instructors:** Javier Irizarry, PhD; Paul Schulmper, CSP; Dana Atkinson, MBA

**Course Description:**

Emphasis will be on the control of hazardous materials through study and application of industry and construction hazardous materials standards; and consensus and proprietary standards relating to the use, storage and transportation of hazardous materials. The course will cover regulatory requirements and industry best practices regarding the use of flammable and combustible liquids, compressed gases, process safety and risk program management, classification of hazardous workplace environments and hazardous waste operations and emergency response.

# Prerequisites: BCP 8813/6200

# Textbooks:

# Hazardous Materials and Hazardous Waste Management – Woodside, Gayle (1999) 2nd edition, Wiley

# Hazardous Waste Operations and Emergency Response Regulations- 29 CFR 1910.119 and 1910.120

# Emergency Response Guidebook - U.S. Department of Transportation (most current edition)

# How to use The Hazardous Materials Regulations (CFR 40 Parts 100-185)- U.S.DOT online

# Case studies

# Course Objectives:

# This course is designed to provide a comprehensive overview of hazardous materials management. Emphasis will be placed on necessary safety precautions for hazardous operations, and hazardous waste operations and emergency response.

# Learning Outcomes:

By the conclusion of this course students should be able to:

1. Describe and implement methods for detecting unsafe storage conditions, be able to understand and apply the specifications regarding compliance with DOT shipping requirements and implement safe work practice methodologies regarding the management of hazardous materials in the workplace
2. Manage and quantify compliant electrical systems in industry utilizing standard codes and regulations regarding the classifications and specifications of intrinsically safe electrical instillations and equipment in hazardous atmospheres
3. Implement safe work practices regarding permit required confined spaces
4. Relate hazardous conditions and unsafe procedures to the appropriate OSHA/EPA/DOT standards for abatement and/or compliance
5. Put in practice the safe work practices regarding hazardous operations such as the dispensing of flammable or combustible liquids
6. Discuss compliance methods and regulations regarding process safety management, hazardous waste operations and hazardous materials emergency response

**Grading:**

Site Plan, Site Hazard Impact + ERG 15%

Environmental / PSM 15%

Mid-term Exam 20%

Quizzes 20%

Final Exam 30 %

**Learning Accommodations:**

If needed, we will make accommodations for students with documented disabilities. These accommodations must be arranged in advance and in accordance with the Office of Disability Services (http://disabilityservices.gatech.edu).

# Academic Integrity:

Students are encouraged to study together and collaborate on case studies, but each student must submit their own work unless the assignment is specifically structured as a group assignment/project. Any reference sources (including online sources) used to prepare written assignments must be paraphrased in your own words and cited. Students are to neither receive nor

provide help to others during exams. Any student suspected of behavior in violation of the Georgia Tech Honor Code will be referred to the Office of Student Integrity. The Georgia Tech Honor Code is available on the Office of Student Integrity website ([http://www.osi.gatech.edu](http://www.osi.gatech.edu/))

**Lectures:**

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| **Week** | **Topic** | **Assessments** |
| 1 | Hazardous Materials and Hazardous Waste Overview   * Defining Hazardous Material or Waste * Management Standards * Regulatory Overview   Woodside, Chapters 1-3 | Quiz 1- Multiple choice quiz related to information covered in unit 1 (5%) |
| 2 | Monitoring of Workplace Exposures   * Workplace and Personal Monitoring * Exposure Control * SDS’s, Exposure limits OSHA, ACGIH * Medical monitoring   Woodside, Chapters 4 -5 | Quiz 2- Multiple choice quiz related to information covered in unit 2 (5%) |
| 3 | Haz-Mat PPE and Workplace Safety   * PPE Chemical/Hazard Compatibility * NFPA Fire Protection Regulations * Uniform Fire Code, Life Safety Code, Uniform Building Code   Woodside, Chapters 6 - 7 | Quiz 3- Multiple choice quiz related to information covered in unit 3 (5%) |
| 4 | Administrative Requirements for Hazardous Materials Management   * Training * Labeling, GHS, DOT * Reporting and Recordkeeping   Woodside, Chapter 9 | Mid-term Exam (20%) |
| 5 | Incident and Emergency Management   * Process Safety Management * Risk Program Management * 29 CFR 1910.119   Woodside, Chapter 18 | Environmental / Process Safety Management Project  Students will be assigned relevant case studies that will require them to apply the week’s lectures. (15%) |
| 6 | Electrical equipment classifications for Combustibles and Flammables   * NEC article 505 * 29 CFR 1910.106 -107 * NFPA 33 * 29 CFR 1910.101 -.105   T Square Portal material | Quiz 4- Multiple choice quiz related to information covered in unit 5 and 6 (5%) |
| 7 | HAZWOPER Overview   * Emergency Planning and Response * EAP, ERP * Awareness, Operations and Tech competencies * 29 CFR 1910.120   T Square Portal material | ERG Exercise +  Emergency Response Exercise - Site Plan Site Plan, Site Hazard Impact Assessment (15%) |
| 8 | Hazardous Waste Site Activities   * Fire and explosion, Oxygen Deficiency * Ionizing Radiation, Biological Hazards * Stress, Cold Exposure, Noise   T Square Portal material | Final Exam (30%) |

Reading assignments will correspond to weekly lectures. Students will be expected to read texts and periodicals as assigned.