

Environmental Management Systems
ES 620
Fall 2008

COURSE NUMBER: ES 620

Credit Hours: 3

INSTRUCTOR: Mike Egnor

Office: (*****)

(*****)

Cell: (*****)

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* - Phone numbers and email addresses are provided for students but not listed on this website due to spam/telemarketer concerns.

Course Time: Monday 4:00 – 6:20 pm

Course Location: South Charleston GC134, Huntington Drinko Library, 3rd Floor

COURSE DESCRIPTION

This course will examine the role and responsibilities of the environmental manager. It covers the:

- principal objectives
- components
- and planning

of an effective management system (EMS), which is an integral part of an organization's management structure.

This course will cover relevant environmental issues to an environmental manager including:

- Process Safety
- Water
- Air
- Waste
- Toxicology
- Ecology

Additionally, this course will cover ISO 14000 and ISO 14001:2004 EMS Specifications and Standards such as:

- environmental auditing
- environmental performance evaluations
- life cycle assessments
- environmental labeling as well as environmental health and safety management aspects of the system.
- Development of an ISO 14000:2004 EMS

PREREQUISITES: Degree in Science or Engineering; or consent of the instructor

RATIONAL AND GOALS

The task of managing the environment has broad implications and numerous new challenges in modern times. The industrial environment in particular usually has to deal with both environmental and safety regulatory compliance issues as well as worker health issues, with increasing responsibilities and liabilities.

An effective environmental management system (EMS) enables an organization to achieve more than environmental compliance while minimizing potential risks and liabilities. An EMS is an integral part of an organization's structure that addresses the immediate and long-term beneficial and adverse impacts of a company's products, services, and activities. An EMS can be developed for any business entity: large or small, complex or simple, and should be planned, implemented and continually improved in manner consistent with the goals of sustainable development and industrial environmental stewardship.

Since the advent of ISO 14000 EMS standards in late 1996, industry, government and other entities around the world are becoming increasingly interested in adopting credible environmental management systems.

Recent government regulatory agencies and industry initiatives are promulgating EMS's as a mechanism to achieve continuous improvement in environmental protection by providing industry the flexibility to be innovative, use most appropriate and economical options and enhance "best management practices". These are efforts currently underway to develop international standards for safety and health management

Course Objectives and Competencies

1. Students are expected to be able to develop a plan for the implementation of an Environmental Management System (EMS), which is consistent with the guidelines set forth in ISO 14001:2004.
2. Students are expected to be able to demonstrate an understanding of the key environmental management, safety and health issues.
3. Students are expected to exhibit a familiarity with the key concepts of toxicity, including the cancer causing potential of chemicals and how we measure them as well as demonstrate an understanding of risk assessment, risk management, and risk communication.
4. Students are expected to be able to display knowledge of the basic concepts of ecology, the environment compartments (media), and transport of environmental contaminants.
5. Students are expected to be able to demonstrate an understanding of the roles, responsibilities and liabilities that are involved in being a responsible environmental manager.
6. Students are expected to be able to demonstrate a familiarity with some key health and ecological problems due to air emissions and water effluent discharges, hazardous materials, how the laws work, and which laws are designed to control wastes.

Class Schedule and Topic Outline

Class	Description
Class 1 8/25/08	Introduction and Class Set-up General discussions about class and topic expectations for Instructor/Student What is Environmental Management? What is an Environmental Management System (EMS)?
9/1/08	Labor Day (No class)
Class 2 9/8/08	Environmental Management Continued What is an Environmental Management Plan? Emphasis on History of Management, Challenges for an Environmental Manager, and

	Environmental Health and Regulations in the U.S.
Class 3 9/15/08	TBD
Class 4 9/22/08	Environmental Management Tasks for: Water and Wastewater, Emission and Control Technologies Emphasis on federal, state, and local agencies and responsibilities Clean Water Act, Safe Drinking Water Act, Legal / Liability Issues, Construction Assistance Mike Warwick DEP Water and Waste Resources
Class 5 9/29/08	Environmental Management in the Chemical Industry Controlling and Regulation of Hazardous Materials ... CERCLA, SARA, TSCA Exam #1
Class 6 10/6/08	Waste Generation, RCRA, US EPA. Tom Fisher DEP Water and Waste Resources
Class 7 10/13/08	Environmental Management Tasks for: Clean Air Act Emission Control Technologies, Equipment, Industrial Environment, Sampling, Permitting Mike Curry Bayer CropScience
Class 8 10/20/08	Safety and Health Management Issues OSHA's Process Safety Management, Risk Assessment, Risk Management, Toxicology, Health Effects of Hazardous Materials. Regulatory Framework, Health and Safety Regulations. Amy Mallory AEP Power Plant John Amos
Class 9 10/27/08	Ecology, Waste Minimization, Pollution Prevention, Recycling. Emphasis on local pollution prevention groups, organizations and agencies. John King DEP Public Information Office Exam #2
Class 10 11/3/08	ISO 14000 EMS Standards Emphasis on Local and State history, guidelines, and political action groups, remediation
Class 11 11/10/08	ISO 14000 Standards Series ISO 14001 Specifications (14004 guidelines) & Definitions Preparing for ISO 14000 EMS Randy Rutledge Marshall University
Class 12 11/17/08	Key Elements of ISO 14001:2004 (Continued) International standards for environmental management. ISO 14001:2004 (will be supplied) George Vickers Buffalo Toyota Plant
11/24/08	Thanksgiving Break (No Class)
Class 13	Student Project Development

12/1/08	
Class 14	
12/8/08	Student Project Presentations
Class 15	
12/15/08	Student Project Presentations (continued)

Required text: N/A
Suggested Resource: Jack Kanholm, 1998. ISO Requirements: 61 Requirements Checklist and Compliance Guide. AQA Co. Pasadena, CA

Class will consist of Lectures using PowerPoint Presentations, Guest Lecturers from Industry and Regulatory Agencies, Class Discussion, and Student PowerPoint Presentations.

Class Project:

In groups, you will be required to develop an Environmental Management System Outline (in ISO 14001:2004 format) and present this System to the class. Your group will be assigned a specific facility in the middle of the semester, and by the following criteria:

1. Your interest in a specific field.
2. Your group members do not work for this facility.

Information about the facilities and fields will be found online and through current Permits.

Your group will present your EMS system under the following guidelines:

1. A 60 minute PowerPoint presentation to the class.
2. 2 hard copies. One for the group, one for the instructor.

Attendance/Participation

Students are expected to attend and participate in class. Any unexcused absences after the first 2 will result in a 1.5% loss of the total overall grade.

Points:

A	90%-100%
B	80%-89%
C	70%-79%
D	60%-69%

Grades:

Class attendance/Participation	10%
Exam #1	30%
Exam #2	30%
Project	30%

Students with Disabilities

Students with disabilities who require special accommodations should see the following link:

<http://www.marshall.edu/disabled>

Academic Dishonesty

Students should see the applicable section of the Graduate Catalogue that explains academic dishonesty.

Nondiscrimination Policy

Students should see the applicable section of the Graduate Catalogue that explains the nondiscrimination policy.

University Computing Services Acceptable Use Policy

Students should see the following link regarding university computing services acceptable use policy:

<http://www.marshall.edu/ucs/CS/acceptuse.asp>

Inclement Weather Policy

Students should see the following link regarding inclement weather policy:

http://www.marshall.edu/www/policy/policy_07.html