

Missouri S&T
Department of Mining & Nuclear Engineering

Min Eng 415
Advanced Mine Health and Safety Design
SP Semester 2011
3 Credit Hours

Instructor: R. Larry Grayson
Meeting hours: Self-paced, web/CD-based

Description of Interactions

PowerPoint presentations will be mailed to you on a CD. You may progress through this course as quickly as you wish, provided I can keep up with you.

There will be one quiz for each five or six topics covered, taken and administered via email. There will be two exams, each covering approximately one-half of the topics, and each will be taken and administered via email.

As a design project, you need to do a complete safety analysis for one of the significant (or planned) subsystems of your mine or plant, incorporating a risk management process and development of procedures to ensure safe, efficient, and cost-effective operation/production.

Quizzes will be weighted as 25% of your final grade, exams will comprise 40%, and your design project will account for the remaining 35%. Final grades will be based on a straight scale:

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

Textbook

2001, *Mine Health and Safety Management*, Michael Karmis ed., SME, Littleton, CO, 452 pp.

Topics to be Covered

1. Effective Mine Health and Safety Management
2. Historical Accidents, Injuries and Illnesses in the U.S. Mining Industry
3. Future Challenges and How to Meet Them
4. Downloading and Preparing MSHA Databases for Analyses
5. Analyzing Accident, Injury, Illness and Production-Employment Data
6. Risk Assessment Process
7. Loss Control, Quality Control, and Continuous Improvement
8. The Rulemaking Process
9. Discussion of Recent Mining Regulations
10. Discussion of Current MSHA Regulatory Agenda
11. Workers' Compensation and Product Liability Issues
12. Hazard Identification, Analysis, and Control
13. Personal Protective Equipment
14. Required Inspections
15. Accident Investigations
16. System Safety Analysis
17. Human Behavior and Safe Performances
18. Ergonomic Issues
19. Materials Handling Issues
20. Construction, Maintenance and Repair Safety
21. Issues on Slips and Falls; Sprains and Strains
22. Training Tools and Effectiveness of Training

23. Training Needs Assessment
24. Emergency Preparedness and Response
25. Ventilation Rules – Coal
26. Coal Mine Ventilation
27. Metal/Nonmetal Mine Ventilation
28. Dust Control
29. Gas Control
30. Ground Control Problems Underground
31. Ground Control I
32. Ground Control II
33. Slope Stability – Rock
34. Slope Stability – Soil
35. Haulage Safety
36. Noise Exposure and Control
37. DPM Exposure and Control
38. Equipment Safety
39. Chemical Hazards and HazCom