MINE 471: Mine and Safety Management
Fall Semester, 2014

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Class Hours:	MW: 2:00p – 3:15p	**Class Location:**	205 MRB
Office Hours:	MTWThF 3:30p – 5:00p or by appointment	**Office Hour Location:**	233 MRB

INTRODUCTION

This course provides a solid foundation in the fundamental skills needed for mining engineering students to successfully prepare for the challenges of mine management, with a special emphasis on occupational health and safety. The course enables mining-engineering students to develop their understanding of the leadership characteristics necessary for modern mine management, develop written and verbal communication capabilities, enhance problem solving and human-relations skills, and expand their knowledge to effectively manage legal, health and safety, and environmental considerations.

PREREQUISITES

MINE 205, MINE 206, and STAT 211 or 215.

REQUIRED TEXTS

Karmis, M. (Editor). Mine Health and Safety Management. SME. Littleton, CO. 472 pp. ©2001.

Supplements for MINE 471, Pearson Learning Solutions, ESource.

Additional Texts for reading and oral presentation assignments, notes (as provided), and websites will be provided.

TOPICS COVERED

1. Fundamentals of Management and Leadership Theories
2. Mine Production Planning
3. Federal Mine Health and Safety Regulations
4. Quality and Loss Control
5. Labor Contracts and Agreements
6. Engineering and Professional Ethics
7. Mine Maintenance Management

STUDENT LEARNING OUTCOMES AND COURSE COMPETENCIES

Students successfully completing this course will be able to:

- understand the roles of federal enforcement agencies with regard to mine regulations,
- develop mine management and leadership skills, on an individual and group basis, while analyzing problems focusing on labor relations, occupational health and safety, ethics, and environmental considerations,
- apply mathematics and statistics to solve technical assignments using Microsoft Word, and Microsoft Excel,
- analyze accident and injury statistics, and
- prepare oral presentations, using Microsoft PowerPoint.

ASSESSMENT/GRADING

Grades are based upon student performance on examinations, unannounced quizzes, and a project. Each assessment tool is weighed as follows:

Two Examinations	60%
Final Oral Presentation	20%
Quizzes and Graded Homework	20%

Letter grades are assigned according to the following scale:

A	90% – 100%
B	80% – 89%
C	70% – 79%
D	60% – 69%
F	Below 60%

Homework requiring calculations will be neatly submitted on Engineer's Paper (See the attached for an example). Homework requiring written analysis will be typed.

You will make two oral presentations. The first (ungraded) presentation will be as part of a team to provide an overview of one of the <u>Mine Health and Safety Management</u> textbook chapters; your presentation will be video recorded, for you to view and critique at a later date as a learning experience. The second (graded) presentation will be as an independent presentation, the topic of which will be either 1) a training session based upon a mine accident, 2) a summary of a book you have read concerning management or leadership, or 3) an explanation of a current event which impacts the mining industry.

ATTENDANCE POLICY

Attendance is mandatory unless excused by the instructor. The basis for an excused absence will follow University policy. Students who are absent from class for any reason are responsible for all missed work. Students who miss a quiz will not be permitted to make it up. Missed exams, due to a documented family or other legitimate emergency or situation, will be made up according to arrangements made with the instructor. Any other exceptions will be considered only at the sole discretion of the instructor.

ACADEMIC INTEGRITY

In taking this course, it is assumed that you aspire to a professional career in which you will lead people and manage resources. As a result, your personal integrity is an integral component. Therefore, I will require that you adhere to the academic guidelines as specified in the following Web Site:

<p style="text-align:center">http://www.arc.wvu.edu/admissions/integrity.html</p>

If you have any questions, please do not hesitate to contact me.

CLASSROOM CONDUCT

Since you are all professionals in training, I expect you to conduct yourself in a professional manner in this class. For instance, while the class is in progress, I expect everyone to remove their hats, put away the newspaper, refrain from eating and drinking, etc. Please do not force me to have to remind you that you should behave in a professional manner.

CLASS CANCELLATIONS FOR WEATHER AND OTHER EMERGENCIES

We will experience some of West Virginia's most beautiful weather as classes begin and through the autumn months. It is not unusual, though, to experience some winter weather the closer we move to the end of the term. Besides bad weather, we are becoming more cognizant of other emergencies (human or health originated) that may lead to a cancellation of classes. If the University decides to close, cancel, or delay classes, an announcement is posted immediately on various websites, including www.wvu.edu and MIX.

STATEMENT ON SOCIAL JUSTICE

West Virginia University is committed to social justice. I concur with that commitment. I expect to foster a nurturing learning environment that is based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, you must

make appropriate arrangements through Disability Services (293-6700). They will identify the nature of the accommodation your disability requires.

PROFESSIONAL REGISTRATION

As part of the academic and professional development of young mining engineers, the Department of Mining Engineering strongly encourages each student to take the Fundamentals of Engineering (FE) exam and to then follow this by becoming registered as a Professional Engineer (PE). Various topics covered in this course play an important role in both examinations.

DAYS OF SPECIAL CONCERN

WVU recognizes the diversity of its students and the needs of those who wish to be absent from class to participate in Days of Special Concern, which are listed in the Schedule of Courses. Students should notify their instructors by the end of the second week of classes or prior to the first Day of Special Concern, whichever is earlier, regarding Day of Special Concern observances that will affect their attendance. Further, students must abide by the attendance policy of their instructors as stated on their syllabi. Faculty will make reasonable accommodation for tests or field trips that a student misses as a result of observing a Day of Special Concern.

ENGINEER'S PAPER PROBLEM SOLUTION EXAMPLE

MH 81-12	SEPT 18, 1972	ASGT. NO. 10	SMITH, J.C.	2 5

PROBLEM NO. 8-2 — Date due   Number of this sheet
Course & number   Number of sheets
                                                              in this assignment   **DATA**

B
600 lb → P

A
1000 lb

30° $\mu = 0.20$ for all surfaces

Determine magnitude of force P to prevent block A   **REQ'D**
from sliding down the plane.

SOL'N

FREE BODIES ON LEFT ⌐   ⌐ CALCULATIONS ON RIGHT

Show all steps
in solution

$\Sigma F_y = 0$

$N_A - 1000 \cos 30° = 0$
$N_A = 866$ lb

$F_A = \mu N_A = 0.20 (866) = 173.2$ lb
$\Sigma F_x = 0$
$T - 1000 \sin 30° + 173.2 = 0$
$T = 500 - 173.2 = 326.8$ lb

y
A   30°   T
F_A
N_A
1000 lb

---

y
600 lb
B
T ← → P → x
F_B
N_B

$\Sigma F_y = 0$
$N_B - 600 = 0$
$N_B = 600$ lb

$F_B = \mu N_B = 0.20(600) = 120$ lb
$\Sigma F_x = 0$
$P + F_B - T = 0$
$P + 120 - 326.8 = 0$
$\underline{\underline{P = 206.8 \text{ lb}}}$ → ← P

Double underline answers,   Show direction of
and state units   vector quantities

Index answer ⌐

(If two or more problems can be placed on one sheet, draw a double
line between adjacent problems. Do not begin a new problem when
it is obvious that it cannot be completed on the same sheet.)