

MINE 480: MULTIDISCIPLINARY TEAM PROJECT

A Required Course for Mining Engineering B.S. Program

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Credit Hours: 1 hr Lecture

Lecture Hours: Wednesday 6:00 – 6:50

Location: MRB 107

Office Hours: Open door policy

Textbook: No specific textbook is required however the relevant notes, papers and reference materials will be provided through Google Sites.

Course Objectives: The objectives of this course are to introduce the need to seek input from other professionals in solving mining engineering problems, to incorporate the constraints imposed by other disciplines in solving mining engineering design problems, and working with other professionals in a multidisciplinary team. Detailed problem-solving session will supplement the materials covered in the lecture part of the course. Completion of a design project is required.

Schedule:

Weeks 1 - 5	Lectures on coalbed methane reserve and characteristics of US coal fields, recovery potential, recovery techniques and systems, cost and economic analysis techniques.
Week 6	Lecture by petroleum professor. Organization of the multi-disciplinary teams.
Week 7	Seminar on coalbed methane recovery by guest expert speaker (maybe)
Weeks 8 – 11	Work on the project
Week 12	Team presentation of the project

Expected Learning Outcomes: Upon successful completion of this course:

1. Students will have gained the knowledge on the reserve and characteristics of the coalbed methane in various US coal fields.
2. Student will learn various available coalbed methane recovery techniques.
3. Students will have gained the ability to formulate solutions to mining and petroleum and natural gas engineering problems in cooperation with other professionals.
4. Students will be able to recognize the need to incorporate the constraints imposed by other disciplines in solving mining and petroleum and natural gas engineering problems.
5. Students will have gained experience in working within a multidisciplinary team.
6. Students will have gained experience in project planning, cost and economic analysis
7. Students will increase their proficiency in oral and written communication as well as computer skills.

Team Work: During this course, the students are expected to work in a group of 3 to 4, teamed with the students from the Department of Petroleum and Natural Gas Engineering, to solve a de-

sign problem. Weekly progress reports will be required. Weekly progress reports and peer evaluation surveys will be used to determine the performance.

Design Project: Each design group is to work out a methane control program for a piece of property that is to be longwall mined. The benefits of this program are: (1) increased mine safety and reduced mine ventilation requirements and costs to the mining company, (2) reduced “green-house” gas released to the environment, and (3) increased recovery of natural gas reserve for the natural gas company. A written final design report from each group will be required. In this report, the following basic information, but not limited, should be included:

- The geological information relating to the coalbed methane reserve
- The rationale for selecting a coalbed methane recovery method among the others
- Layout of the degasification holes
- Design information of the degas holes
- Construction and production schedules for the degas holes
- Expected methane recovery rate and timing
- Expected reductions in ventilation requirements
- Cost analysis
- Conclusions and recommendations

Grading:

50%	Completeness and correctness of calculations
30%	Clarity of writing
15%	Professional appearance of the report
5%	Class attendance and timeliness of report submission
±20%	Activeness in participating in the project works (individual adjustment)

Grade Scale:

A	90 or above
B	80 – 89
C	70 – 79
D	60 – 69
F	< 60

Attendance Policy:

Consistent with WVU guidelines, you should make every effort to attend classes. If you are unable to attend a class or classes for legitimate, please inform me via phone call.

Social Justice Statement:

West Virginia is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. 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. Please advise me and make appropriate arrangement with Disability Services (293-6700).