

**Mine 206**  
**SURFACE MINING SYSTEMS**  
Spring 2011

**Catalog Data:**

Surface mining methods, surface mining equipment, explosives and blasting design, and operational analysis.

Prerequisite: Geol 101

**References (not mandatory):**

H.L.Hartman (Senior Editor), SME Mining Engineering Handbook, 2<sup>nd</sup> Edition, SME, 1992

B.A.Kennedy (Editor), Surface Mining, 2<sup>nd</sup> Edition, SME, 1990

CAT Performance Handbook, Edition #40, 2010.

Software tutorials; CD-ROMs, video tapes, specifications and data sheets from mining industry and equipment suppliers.

Note: All MS Power Point slides (converted to PDFs) containing course lectures will be available to students through the WVU e-campus system.

**Instructor:**

Dr. Vladislav J. Kecojevic, Associate Professor of Mining Engineering

359C Mineral Resources Building

e-mail: [Vlad.Kecojevic@mail.wvu.edu](mailto:Vlad.Kecojevic@mail.wvu.edu)

phone: 304-293-3859

**Objective:**

The objective of this course is to provide students in mining engineering with the necessary knowledge to design safe, efficient and environmentally responsible surface mining operations.

**Topics:**

1. INTRODUCTION
2. AN OVERVIEW OF SURFACE MINING OPERATIONS
3. SURFACE MINING METHODS
4. SURFACE MINING UNIT OPERATIONS
  - 4.1 Drilling and Blasting
  - 4.2 Digging and Loading
  - 4.3 Haulage
  - 4.4 Dragline Operations
  - 4.5 Crushing
  - 4.6 Auxiliary Equipment
5. GEOLOGICAL MODELING AND SURFACE MINE DESIGN
6. ENVIRONMENTAL, HEALTH AND SAFETY CONSIDERATIONS IN SURFACE MINING

**Exams and Projects:**

Quiz I - Surface mining methods and key elements of surface mines (5%)

Project I - Drilling and Blasting (20 %)

Project II - Shovel/Loader - Trucks System (20 %)

Project III – Dragline operations (5%)

Project IV – Crushing (10 %)

Project V - Auxiliary Operations (10 %)

In-class Review Paper on Managing Surface Mining Operations (5 %)

Project VI –Geological Modeling and Mine Design (20 %)

Quiz II – Environmental Impact, and Health and Safety in Surface Mining (5 %)

## Evaluation:

Grade	%
A+	$\geq 98$
A	$\geq 94$ and $< 98$
A-	$\geq 90$ and $< 94$
B+	$\geq 85$ and $< 90$
B	$\geq 80$ and $< 85$
B-	$\geq 75$ and $< 80$
C+	$\geq 70$ and $< 75$
C	$\geq 60$ and $< 70$
D	$\geq 50$ and $< 60$
F	$< 50$

## COURSE RULES:

**Missed Exams and Late Project Submission:** The only acceptable excuses for missed exams and late projects submission are (i) a serious illness which requires medical attention (for which the students must supply proof or inform the professor **before** the scheduled exam and due date for project submission, respectively) and (ii) a conflict with another legitimate academic activity. Late project submission will result in 20% grade reduction for that specific project.

**Classroom Behavior:** no reading newspaper, no sleeping, no cellular phones, no text messaging, no talking to other students unless the professor asks to do so as part of class proceedings.

**Academic Dishonesty** - Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Students who engage in academic dishonesty will receive F as a final grade.

West Virginia University is committed to social justice. I concur with that commitment and expect to foster a nurturing learning environment 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 suggestion 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 disability and anticipate any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with disability services (304-293-6700).

Prepared by: Vladislav J. Kecojevic

Date: January 2011