Mi Eng 5742 Environmental Aspects of Mining [3.0]
Mining Engineering

Required or Elective Course
Required

Catalog Description
Permitting: the legal environment of reclamation and environmental impact assessment; post-mining land-use selection and mine planning for optimum reclamation of all mines: metal, nonmetal, and coal; unit operations of reclamation: drainage, backfill, soil replacement, revegetation, maintenance, etc.

Co-Requisites
Mi Eng 4933 or Env Eng 5619 or Geo Eng 5441.

Textbook/Course Material
1. Awuah-Offei, K. (2016), Course Notes on MI ENG 4742 (Environmental Aspects of Mining); Blackboard (http://blackboard.mst.edu/webapps/login/), Missouri S&T, Rolla, MO

Course Objectives
At the end of the course the student should be able to:
1. Evaluate the sustainable development impacts of a given mining project or business
2. Incorporate sustainability into the design and operation of mines

Topics Covered
1. Overview: Mining & sustainability
2. Part 1: Pre-mining activities
   i. Review of legal environment for mine permitting
   ii. Impact Assessment
   iii. Post-mining land use selection & reclamation planning
   iv. Mine Design & Planning
3. Part 2: Operational issues
   i. Environmental management systems & compliance
   ii. Sustainability reporting
   iii. Acid Mine Drainage
4. Part 3: Post-mining activities
   i. Material placement and habitat restoration
   ii. Drainage and stream restoration

Schedule
Lecture Class: Two 75 minute lectures per week.

Relationship of Course to Meeting Requirements of Criterion 5:
Mi Eng 4742 is an important course for meeting the requirements in (i) core mining engineering subjects; (ii) mine design; (iii) communication skills; (iv) professional engineering ethics; and (v) professional development via field trips.

**Relationship of Course to Program Outcomes:**
Mi Eng 4742 supports Program Outcomes #3, #4, #6, #7, #9, #10, #11, #12, #14, #15, #16, #17 and #18.

**Assessment**
Each student will be assessed on the elements listed in the table below. The course project report will be due on **May 10, 2016**. Due dates for Assignments will be given with the assignments. *Students taking the course for graduate credit may do different assessment tasks than those taking it for undergraduate credit.*

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent of Grade</th>
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<tbody>
<tr>
<td>Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Class workshops &amp; seminars</td>
<td>20%</td>
</tr>
<tr>
<td>Test 1</td>
<td>20%</td>
</tr>
<tr>
<td>Test 2</td>
<td>20%</td>
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<tr>
<td>Project</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Grading Policy**
Homework assignments are due by 5:00pm Central Time on the due date. Due dates will be announced when the assignment is given out. Points will be taken off for late submissions according to the schedule below. Once assignment grades have been entered on Blackboard, one week will be allowed for complaints. *All grades showing on Blackboard 1 week after they are entered will be taken to be final.* No make-up tasks/assignments will be given in this class unless express permission is sought before the due date for the assignment. The only exception is for medical emergencies.

<table>
<thead>
<tr>
<th>Late period</th>
<th>Points Taken Off</th>
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<tbody>
<tr>
<td>0 – 1 day</td>
<td>10%</td>
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<tr>
<td>1 – 2 days</td>
<td>20%</td>
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<tr>
<td>2 – 3 days</td>
<td>30%</td>
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<tr>
<td>3 – 4 days</td>
<td>40%</td>
</tr>
<tr>
<td>5 – 7 days</td>
<td>50%</td>
</tr>
<tr>
<td>Over 7 days</td>
<td>100%</td>
</tr>
</tbody>
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Your homework should be a professionally prepared document - this is a good habit to develop. Such an approach should include the following:

1. State given information and any assumptions you are making;
2. Outline CLEARLY your logical steps through the solution;
3. Define CLEARLY any variables or notation you introduce.
In keeping with a professional approach: Use legible handwriting and staple your pages (without ragged edges). Note that this approach will not only help prepare you for the “real world,” but will also help to maximize your homework points!

**Grades**
The grades *may* be adjusted to fit the prevailing grade distribution in the Department.

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100%</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>80 - 89%</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>70 - 79%</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>60 – 69%</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td>&lt; 60%</td>
<td>F</td>
<td>F</td>
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**Disability**
If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services (204 Norwood Hall, Phone: 341-4211, E-mail: dss@mst.edu) staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation.

**Academic Dishonesty**
Page 30 of the Student Academic Regulations handbook (http://registrar.mst.edu/academicregs/index.html) describes the student standard of conduct relative to the System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism or sabotage. Ethical behavior in this course will guarantee success.

**Classroom Egress Maps**
Please familiarize yourselves with the classroom egress maps posted on-line at: http://registrar.mst.edu/links/egress.html.

**Title IX Statement**
Missouri University of Science and Technology is committed to the safety and well-being of all members of its community. US Federal Law Title IX states that no member of the university community shall, on the basis of sex, be excluded from participation in, or be denied benefits of, or be subjected to discrimination under any education program or activity. Furthermore, in accordance with Title IX guidelines from the US Office of Civil Rights, Missouri S&T requires that all faculty and staff members report, to the Missouri S&T Title IX Coordinator, any notice of sexual harassment, abuse, and/or violence (including personal relational abuse, relational/domestic violence, and stalking) disclosed through communication including but not limited to direct conversation, email, social media, classroom papers and homework exercises.
Missouri S&T’s Title IX Coordinator is Vice Chancellor Shenethia Manuel. Contact her directly (manuels@mst.edu; (573) 341-4920; 113 Centennial Hall) to report Title IX violations. To learn more about Title IX resources and reporting options (confidential and non-confidential) available to Missouri S&T students, staff, and faculty, please visit http://titleix.mst.edu.

**LEAD Learning Assistance**
http://lead.mst.edu

**The Burns & McDonnell Student Success Center**
http://studentsuccess.mst.edu/