

**MNGE 460**  
**SENIOR DESIGN**  
**Spring Semester 2017**

**Instructor:** Dr. Joseph C. Hirschi  
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Office Hours: Monday and Wednesday 8:00-11:00am  
Tuesday and Thursday 8:00-9:30am

**Lecture Schedule:** Monday and Wednesday at 11:00-11:50am in ENGR A29

**Lab Schedule:** Tuesday, Thursday, and/or Friday at 11:00-11:50am in ENGR D33/35

**Course Objectives:**

1. Provide capstone academic experience where the student's full undergraduate education can be applied in completion of a typical mining engineering project. Each project will include components that require applying knowledge gained in other mining engineering courses (*e.g.*, materials handling, rock mechanics, ventilation, mineral processing).
2. Provide an opportunity for students to gain experience using one or more commercially available mine planning software.
3. Simulate a professional engineering office environment where students will be able to:
  - a. Develop and improve leadership and teamwork skills.
  - b. Learn the importance of deadlines and develop or improve time management skills required to meet deadlines.
  - c. Strengthen written and oral communication skills.
4. Facilitate professional networking through workshops, guest lectures, and field trips.

**Text:** None required. Students should become familiar with and utilize applicable software user manuals. SME Mining Engineering Handbook is recommended.

**Grading:**

1. Midterm Presentations → 3 @ 5% per presentation = 15% of grade.
2. Midterm Reports → 3 @ 7.5% per report = 22.5% of grade.
3. Final Project Presentation → 22.5% of grade.
4. Final Project Report → 25% of grade.
5. Leadership/Teamwork Performance Assessment from Instructor → 15% of grade.
6. Peer evaluations from class members make up half of presentation scores.
7. Extra Credit available at Instructor's discretion for related Saluki Miner activities.
8. Grading scale is shown in the following table. A grading curve will not be used.

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

**Course Outline:**

<b>Week</b>	<b>Topics</b>	<b>Graded Work</b>
1	1/18 Lecture – Introductions, Syllabus, and Pre-requisites Informal Lab – Inventory Mine Design Software Packages	
2	1/23 – “Interviews” to Determine Team Assignments 1/25 Lecture – Checkpoint Requirements/Deadlines Informal Lab – Project Data Files	
3	1/30 Lecture – Feasibility Studies 1/31 Lab – Vulcan Webinar 11:00am-3:00pm 2/1 Lecture – Net Present Value, Other Investment Criteria	
4	2/6-9 Lab – MineSight Webinars 11:00am-1:00pm daily	
5	2/13-15 Lab – Carlson Webinars 11:00am-1:00pm daily	
6	No Lectures or Labs – Attend SME Annual Meeting	
7	2/27 – Coal Team 1 <sup>st</sup> Midterm Presentation 2/28 – Copper Team 1 <sup>st</sup> Midterm Presentation 3/1 – Gold Team 1 <sup>st</sup> Midterm Presentation 3/2 – Quarry Team 1 <sup>st</sup> Midterm Presentation	<b>Feasibility Study</b> Presentations in A29 at 11am Reports Due 3/3 by Noon
8	Lectures – Mine Permitting Labs – Mine Layouts and Mine Permits	
9	Spring Break – No Lectures or Labs	
10	Lectures – Regulatory Requirements: Roof Control and Slope Stability Plans, Ventilation Plans and Air Permits Labs – Mine Layouts and Mine Permits	
11	3/27 – Copper Team 2 <sup>nd</sup> Midterm Presentation 3/28 – Gold Team 2 <sup>nd</sup> Midterm Presentation 3/29 – Quarry Team 2 <sup>nd</sup> Midterm Presentation 3/30 – Coal Team 2 <sup>nd</sup> Midterm Presentation	<b>Regulatory Permits/Plans</b> Presentations in A29 at 11am Reports Due 3/31 by Noon
12	Lectures – Production Scheduling, Mine Design Labs – Mine Layouts and Production Schedules	
13	Lectures – Equipment Selection, Manpower Scheduling Labs – Mine Layouts and Production Schedules	
14	4/17 – Gold Team 3 <sup>rd</sup> Midterm Presentation 4/18 – Quarry Team 3 <sup>rd</sup> Midterm Presentation 4/19 – Coal Team 3 <sup>rd</sup> Midterm Presentation 4/20 – Copper Team 3 <sup>rd</sup> Midterm Presentation 4/20 – All Teams 15-minute Presentation at Joint SIU/IMI/SME St. Louis Chapter Meeting	<b>Production Schedule</b> Presentations in A29 at 11am Reports Due 4/21 by Noon
15	Lectures – Reclamation/Closure Plans Lab – Final Presentations/Reports	
16	5/1 – Quarry Team Final Presentation 5/2 – Coal Team Final Presentation 5/3 – Copper Team Final Presentation 5/4 – Gold Team Final Presentation	<b>Complete Mine Plan</b> Presentations in A29 at 11am
<b>Finals</b>	Labs – Final Project Reports	<b>Complete Mine Plan</b> Reports Due 5/12 by Noon

*For important dates, policies, and practices, please see the campus-wide Syllabus Attachment at: [http://pvcaa.siu.edu/\\_common/documents/syllabus-attachments/syllabus-attachment-spring-2017.pdf](http://pvcaa.siu.edu/_common/documents/syllabus-attachments/syllabus-attachment-spring-2017.pdf).*

Office of the Provost: <http://pvcaa.siu.edu/>

**IMPORTANT DATES \***

<u>Semester Class Begins:</u> .....	01/17/2017
<u>Last day to add full-term course (without Dean's signature):</u> .....	01/22/2017
<u>Last day to withdraw from the University with a full refund:</u> .....	01/27/2017
<u>Last day to drop a full-term course for a credit/refund:</u> .....	01/29/2017
<u>Deadline to apply to graduate at the end of this term:</u> .....	04/2/2017
<u>Final examinations:</u> .....	5/8-5/12/2017
<u>Commencement:</u> .....	5/13/2017

Note: For more detailed information on the above deadlines, please visit <http://registrar.siu.edu/calendars>. For add/drop dates that apply to shorter-than-full-term courses, please look at the [Schedule of Classes search results at http://registrar.siu.edu/schedclass/index.php](http://registrar.siu.edu/schedclass/index.php)

**SPRING SEMESTER HOLIDAYS**

Martin Luther King Jr.'s Birthday Holiday 01/16/2017  
Spring Break 3/11-3/19/2017

**WITHDRAWAL POLICY ~ Undergraduate only**

Students who officially register for a session must officially withdraw from that registration in a timely manner to avoid being charged as well as receiving a failing grade for those classes. An official withdrawal must be initiated by the student, or on behalf of the student through the academic unit, and be processed by the Registrar's office. For the proper procedures to follow when dropping courses and when withdrawing from SIU visit: <http://registrar.siu.edu/students/withdrawal.php>

**INCOMPLETE POLICY~ Undergraduate only**

An INC grade may be assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments for the course. An INC must be changed to a completed grade within one full semester (undergraduates), and one full year (graduate students), from the close of the term in which the course was taken or graduation, whichever occurs first. Should the student fail to complete the remaining course requirements within the time period designated, the incomplete will be converted to a grade of F and such grade will be computed in the student's grade point average. For more information visit: <http://registrar.siu.edu/grades/incomplete.php>

**REPEAT POLICY**

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit more than once. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Effective for courses taken Summer 2013 or later, only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned.

This policy will be applied to all transferrable credit in that only the last grade will be used to calculate grade point average. Only those courses taken at the same institution are considered repeats under this policy. See full policy at <http://registrar.siu.edu/students/repeatclasses.php>

**GRADUATE POLICIES**

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please refer to the graduate catalog at <http://gradschool.siu.edu/about-us/grad-catalog/>

**DISABILITY POLICY**

Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must contact DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. <http://disabilityservices.siu.edu/>

**PLAGIARISM**

Student Conduct Code <http://srr.siu.edu/student-conduct-code/>  
Guidelines for Faculty <http://pvcaa.siu.edu/common/documents/Plagiarism/Guide%20to%20Preventing%20Plagiarism.pdf>

**SAFETY AWARENESS FACTS AND EDUCATION**

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

<http://safe.siu.edu>

**SALUKI CARES**

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: call(618) 453-1492, email [siucares@siu.edu](mailto:siucares@siu.edu), or <http://salukicares.siu.edu/>

**SIU'S EARLY WARNING INTERVENTION PROGRAM (EWIP)**

Students enrolled in courses participating in SIU's Early Warning Intervention Program might be contacted by University staff during a semester. More information can be found at the Core Curriculum's Overview webpage: <http://corecurriculum.siu.edu/program-overview/>

**EMERGENCY PROCEDURES**

We ask that you become familiar with **Emergency Preparedness @ SIU**. Emergency response information is available on posters in buildings on campus, on the Emergency Preparedness @ SIU website, and through text and email alerts. To register for alerts visit: <http://emergency.siu.edu/>

**STUDENT MULTICULTURAL RESOURCE CENTER**

The Student Multicultural Resource Center serves as a catalyst for inclusion, diversity and innovation. As the Center continues its work, we are here to ensure that you think, grow and succeed. We encourage you to stop by the Center, located in Grinnell Commons, to see the resources available and discover ways you can get involved on the campus. Visit us at <http://inclusivexcellence.siu.edu/>

**LEARNING AND SUPPORT SERVICES**

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:

Tutoring : <http://tutoring.siu.edu/>

Math Labs <http://math.siu.edu/courses/course-help.php>

**WRITING CENTER**

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit:

<http://write.siu.edu/>

**AFFIRMATIVE ACTION & EQUAL OPPORTUNITY**

Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: <http://diversity.siu.edu/#>

**MILITARY COMMUNITY**

There are complexities of being a member of the military community and also a student. Drill schedules, calls to active duty, complications with GI Bill disbursement, and other unforeseen military and veteran related developments can complicate academic life. If you are a member of the military community and in need of accommodations please visit Veterans Services at <http://veterans.siu.edu/>

Additional Resources:

ADVISEMENT: <http://advisement.siu.edu/>

SIU ONLINE: <https://online.siu.edu/>

SALUKI SOLUTION FINDER: <http://solutionfinder.siu.edu/>

MORRIS LIBRARY HOURS: <http://libguides.lib.siu.edu/hours>