

COURSE SYLLABUS
Spring Semester 2018

EXP/MIN ENG 5922 – Advanced Tunneling and Underground Construction Techniques
Department of Mining and Nuclear Engineering
Missouri University of Science and Technology

Number of Credit Hours: 3 Hours
Meeting time: 4:00 - 5:50 Wednesday - Lecture
Meeting time: TBA - Lab
Meeting location: Experimental Mine – Lecture
Meeting location: Experimental Mine - Lab

Instructor: Dr. Kyle A. Perry, P.E.
Office: 107 KEM / B55 McNutt
Phone: 573-341-4549
Email: kperry@mst.edu

Course Description: Advanced topics in mechanical and conventional excavation techniques in underground tunneling and construction. Topics include tunneling layouts design, equipment and performance modeling, ground control systems including support, drainage, and structural integrity. Construction specifications, advance rate and contractual and cost estimation. Students will complete a research paper or project report.

Prerequisites: Min Eng 4922 or Consent of Instructor

Course Goals: Upon conclusion of this course, students will be knowledgeable in various tunneling techniques. They will know proper equipment selection and proper execution of the equipment for the specified technique. They will also know the proper means of ground control in the tunnel.

Textbook: None. Notes distributed throughout semester.

References: Tunnel Engineering Handbook. Bickel, J.O., T.R. Kuesel, and E.H. King, Chapman and Hall Publishing Co. 1996.
Introduction to Tunnel Construction. Chapman, Metje, & Stark.

Course Topics: Introduction and Review of Mechanical Excavation
Shaft Sinking Methods
Drill and Blast Concepts used in Tunnel Excavation
Moving Material from the Face
Ground Control Methods

Course Homeworks: Homeworks will be assigned throughout the semester. Homework grades will be reduced 20% for each day they are late. Each homework will be due at the beginning of the class period on the specified date.

Course Projects: A research paper is required of all students on a tunnel related topic with corresponding presentation.

Course Grading:

Grade Components		Grade Scale	
Homework	20%	90 - 100 %	A
Quizzes	20%	80 - 89.9%	B
Research Paper	20%	70 - 79.9%	C
Mid-Term Exam	20%	60 - 69.9%	D
Final Exam	20%	< 60%	F

Attendance Policy: Attendance is strongly encouraged.

Office Hours: Contact instructor via email to make an appointment.

Final Exam: Time and Place to be determined.

Student Regulations: Missouri S&T's "Student Academic Regulations" is available at this website. <http://registrar.mst.edu/academicregs/> All students are encouraged to review the sections

Disability Support: 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 staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation. <http://dss.mst.edu/>

Academic Dishonesty: This includes cheating, plagiarism, or sabotage. If you have any questions regarding these issues, please contact Dr. Jeff Cawlfeld, Vice Provost, Office of Academic Support, at jdc@mst.edu.

Finally: Since this is an upper level class and many of you are nearing graduation or already in graduate school, I expect you to act as a professional. I expect you to have high academic integrity. Cheating and plagiarism will not be tolerated.