EXPLOSIVES ENGINEERING (EXP ENG)

**EXP ENG 5000 Special Problems** (IND 1.0-3.0)
Problems or readings on specific subjects or projects in the department. Consent of instructor required.

**EXP ENG 5001 Special Topics** (LAB 2.0 and LEC 1.0)
This course is designed to give the department an opportunity to test a new course. Variable title.

**EXP ENG 5112 Explosives Handling and Safety** (LEC 3.0)
Basic handling & safety for explosives, explosive devices and ordnance related to laboratory handling, testing, manufacturing & storage, for both civil and defense applications. Classroom instruction only. Prerequisites: Junior Standing or above.

**EXP ENG 5512 Commercial Pyrotechnics Operations** (LAB 1.0 and LEC 2.0)
Provide participants with training preparing for Missouri Licensed Display Operator (Outdoor) License and advanced lead pyrotechnic operator training. Class work will be complemented by practical training in laboratory sessions, culminating in a full pyrotechnic show, from start to finish. Prerequisites: Both Chem 1310 and Chem 1319 or their equivalent; US Citizen or permanent resident, Successful background check, resident enrollment at Missouri S&T.

**EXP ENG 5513 Stage Pyrotechnics and Special Effects** (LAB 2.0 and LEC 1.0)
Use of energetic materials in close proximity to audiences. Provide participants with training preparing for Missouri Pyrotechnics Display Operators License. Covers: close proximity indoor and outdoor pyrotechnics and special effects. Working with stage crews and talent, safety and permitting. Prerequisites: Both Chem 1310 and Chem 1319 or their equivalent; US Citizen or permanent resident, Successful background check, resident enrollment at Missouri S&T.

**EXP ENG 5514 Display Fireworks Manufacturing** (LAB 2.0 and LEC 1.0)
Theory and practice of manufacturing display fireworks. Focusing on safety, chemical interaction, color development, basic theory, state and federal law. The lab will include hands on building of ball and canister shells and other pyrotechnic effects. Prerequisites: Chem 1310, Chem 1319, Chem 1100; one of Econ 1100, Econ 1200, Eng Mgt 1210; Successful background check.

**EXP ENG 5555 Computer Fired Pyrotechnic Show Design and Firing System Operation** (LAB 2.0 and LEC 1.0)
Students will learn to use music editing, electronic firing system operation and Fire One pyrotechnic choreography and simulation software to design their own pyromusical show programs. Creation of a musical sound track, selecting the fireworks and choreographing to the musical score. Create, setup, diagnose and fire a pyrotechnic show. Shooting of a choreographed display potentially may be off site. Prerequisites: Exp Eng 5512 or Exp Eng 5513 and successful background check.

**EXP ENG 5612 Principles Of Explosives Engineering** (LAB 1.0 and LEC 2.0)
Theory and application of explosives in the mining industry; explosives, initiating systems, characteristics of explosive reactions and rock breakage, fundamentals of blast design, drilling and blasting, regulatory and safety considerations. Prerequisites: Min Eng 2126; accompanied or preceded by Civ Eng 3715 or Geology 3310 or Geology 2611; Successful background check. (Co-listed with Min Eng 5612).

**EXP ENG 5622 Blasting Design And Technology** (LAB 1.0 and LEC 2.0)
Advanced theory and application of explosives in excavation; detailed underground blast design; specialized blasting including blast casting, construction and pre-splitting. Introduction to blasting research. Examination of field applications. Prerequisites: Min Eng 5612. Student must be at least 21 years of age. Successful background check. (Co-listed with Min Eng 5622).

**EXP ENG 5713 Demolition of Buildings and Structures** (LAB 1.0 and LEC 2.0)
Provide participants with basics and solid grounding in the equipment, techniques and processes required for the demolition and remediation of mine plant and processing equipment sites and non-mining structures such as buildings, factories, bridges, etc. Field trip required. Prerequisites: Preceded or accompanied by Civ Eng 2200 or Mech Eng 2340; US citizen or permanent resident; Successful background check.