

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
COLLEGE OF ENGINEERING
DEPARTMENT OF MINING ENGINEERING
ABET COURSE SYLLABI

IMM2803 MINE SAFETY AND INDUSTRIAL HYGIENE

Credits and contact hours:	10 UC credits / 10 h
Instructor's name:	Marcos Lima Aravena
Course coordinator's name	José Botin
Textbook:	General & Applied Toxicology, BALLANTYNE,B., MARRS,T., TURNER, P., 1995
Course Catalog Description:	After completing this course, students will be able to understand the implications of safety legislation, learn techniques of risk assessment and prevention with a focus on mining. Also students will be able to understand the risk associated with industrial hygiene.
Prerequisite Courses:	IMM2043 Underground Mining and IMM2053 Metallurgical Processes
Co-requisite Courses:	None
Status in the Curriculum:	Elective
Course Learning Outcomes:	<ol style="list-style-type: none">1. Understand legislative implications for companies in terms of safety, particularly in issues regarding risk prevention.2. Learn evaluation and risk prevention techniques with focus in the mining field; mine safety legislation; safety impact matrix techniques; theoretical and practical aspects for a mining safety plan.3. Understand the effect of toxic substances and identify risks related to the presence of chemical agents.4. Understand risks associated to breathable dust, noise and vibration; control techniques.5. Identify protection equipment and its use and implementation.
Relation of Course to ABET Criteria:	<ol style="list-style-type: none">a. Knowledge of mathematics, science and engineeringb. Design and conduct experiments: analyze and interpret datac. Design a system, component, or processd. Multidisciplinary teamse. Identify, formulate, and solve engineering problemsf. Professional and ethical responsibilityg. Effective communication

Topics covered:

1. Mining safety
 - 1.1. Risk agents
 - 1.2. Legal framework in mining
 - 1.3. Productive organizations and safety; risk prevention.
 - 1.4. Labor risk evaluation.
 - 1.5. Safety and health plans.
 - 1.6. Management systems in mining safety.

2. Industrial hygiene
 - 2.1. Basics
 - 2.2. Labor toxicology
 - 2.3. Chemical agents: Introduction and evaluation criteria.
 - 2.4. Sampling, analysis and control of chemical agents.
 - 2.5. Physical agents: Dust.
 - 2.6. Noise, vibrations and thermal ambient.
 - 2.7. Individual protection equipment.