Credits and contact hours: 10 UC credits / 10 hours (3 h. Lectures and 7 h. Independent learning experiences)

Instructor’s name: Álvaro Videla

Course coordinator’s name: Álvaro Videla


Course Catalog Description: This course is an introduction to mineral processing topics. It covers aspects of particle liberation and comminution, solid-solid separation of fine particles and solid-liquid separation, among others. Critical variables affecting the concentration process are identified as well as performance indicators. To this end, physical and chemical aspects controlling interactions of each process unit are studied and such understanding of the process is deepens in order to analyze practical design and operation aspects in the context of copper and gold extraction plants

Prerequisite Courses: IMM2003: Mining geology or ICE2623: Introduction to physical geology

Co-requisite Courses: None

Status in the Curriculum: Required

Course Learning Outcomes: 1. Describe and analyze the processes of crushing, grinding, classification, flotation, water recovery and mineral transport.
2. Identify the advantages and disadvantages of the available technologies for the various stages involved in the mineral concentration.
3. Understand the effects of sampling error, the relationship between laboratory testing and results scaling.
4. Recognize and select commonly used mathematical models to interpret the operation of most relevant processes identifying the controlling parameters and the important variables.
5. Dimension the main industrial equipment for a mineral concentration
plant performing mass balances and recovery estimates.

**Relation of Course to ABET Criteria:**

a. Knowledge of mathematics, science and engineering
b. Design and conduct experiments: analyze and interpret data
c. Design a system, component, or process
d. Multidisciplinary teams
e. Identify, formulate, and solve engineering problems
h. Broad education necessary for global, economic, environmental and societal context
j. Knowledge of contemporary issues
k. Techniques, skills, and modern tools for engineering practice.

**Topics covered:**

1. Introduction: Context, main flow process in plants of copper, gold and other metals.