

MINERAL PREPARATION ENGINEERING (MPR)

MPR F601 Froth Flotation

3 Credits

Offered Fall

Theory and application of bulk and differential froth flotation to metallic minerals, nonmetallic minerals and coal.

Prerequisites: Admission by arrangement.

Lecture + Lab + Other: 2 + 3 + 0

MPR F606 Plant Design

3 Credits

Offered Fall Odd-numbered Years

Selection and design of equipment for the operation of mineral and coal beneficiation plants for specific custom and milling problems.

Prerequisites: Admission by arrangement.

Lecture + Lab + Other: 1 + 6 + 0

MPR F611 Hydrometallurgy

3 Credits

Study of the theoretical and engineering aspects of the processes to recover metals from different types of ores and/or scraps, in which aqueous solutions play the predominate role.

Prerequisites: MATH F253X; CHEM F331.

Lecture + Lab + Other: 3 + 0 + 0

MPR F612 Solution Concentration and Purification

3 Credits

The physical chemistry of reaction encountered in solution concentration and purification processes. The types of reaction discussed are cementation, solvent extraction, ion exchange and carbon absorption which are studied in terms of solution chemistry, reaction kinetics and mass transfer effects.

Prerequisites: MATH F253X; CHEM F331.

Lecture + Lab + Other: 3 + 0 + 0

MPR F613 Waste Problems and Treatments

3 Credits

Waste problems and treatments encountered in mineral processing and metallurgical industries. Includes waste problems and treatments in gold, copper, zinc, iron and steelmaking, aluminum and non-metal industries as well as in electronic and electroplating industries.

Prerequisites: Graduate standing.

Lecture + Lab + Other: 3 + 0 + 0

MPR F684 Mineral Preparation Research

3 Credits

Basic research and its needs in the field of mineral beneficiation, including magnetic susceptibility, dielectric constants and electrical conductivity of minerals; chemical theory and mechanism of bubble contact in flotation; and the effect of ultrasonic vibration in unit processes.

Prerequisite: Admission by arrangement.

Lecture + Lab + Other: 1 + 6 + 0

MPR F688 Graduate Seminar I

1 Credit

Preparation and presentation of research outlines by graduate students and participation in regularly organized mineral engineering department seminars.

Prerequisites: Admission to graduate program.

Cross-listed with MIN F688.

Lecture + Lab + Other: 1 + 0 + 0

MPR F698 Non-thesis Research/Project

1-9 Credits

Lecture + Lab + Other: 1-9 + 0 + 0

MPR F699 Thesis

1-9 Credits

Lecture + Lab + Other: 0 + 0 + 0