COURSE DESCRIPTION

CHH603 – Mining and Mineral Processing

Course goal
The goal of this course is to provide an overview on mineral resources, mining techniques and mineral processing.

Main learning objectives
The participants will be able to:
- Understand in a general way the methods of prospecting and exploring mineral resources, their time and cost efforts
- Better understand the extraction conditions and technologies of exemplarily selected minerals
- Have a deeper insight into the metal markets, trade, demand and supply, applications and trends
- Evaluate mining technologies and ecological issues correlated to them
- Understand the basics on beneficiation and comminution of ores, especially separation techniques, and waste management
- Better understand customers' requirements and they will have a holistic view of the process chain and the cost drivers and correlated risks
- Recognize advantages and disadvantages of different applied technologies
- Evaluate metal markets from the demand and supply sight and they will have a differentiated understanding of price building, risks and chances

Participant profile
This training is targeted to participants with commercial as well as engineering background as an introduction for further in-depth training.

Prerequisites
No special knowhow is requested. Basic physical and mathematical understanding is sufficient, an affinity to technological questions is welcome.

Topics
- Geochemical formation of mineral deposits
- Prospecting and exploration methods
- Geological deposits of copper, bauxite, iron, gold and platinum
- Surface and underground mining
- Chemical and biochemical leaching
- Deep-sea mining
- Ecological issues
- Mining politics and markets
- Supply and demand situation, major branches and application trends, price influencing factors, investment policies
- Presentation of methods and equipment along the process chain
  - Mining
  - Crushing
  - Grinding
  - Milling
  - Classification
  - Screening
  - Different separation methods, i.e. gravity
  - Dense medium
  - Magnetic separation
  - Froth flotation
  - Dewatering
  - Pelletizing
  - Tailings disposal

Course type and methods
This is an instructor-led course with multimedia presentations and situative problem solving exercises.

Duration
The duration is 2 days.

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Course map

	DAY 1	DAY 2
Topics	Welcome, personnel introduction	Review day 1
	Course introduction	Introduction into mineral processing
	Exploration and prospecting	Crushing Techniques and machineries
	Resources, reserves and deposits	Classification processes
	Copper and bauxite belt	Screening and jigging
	Iron ores	Gravity and magnetic separation
	Gold and platinum group	Grinding and milling
	Demand and supply situation	Froth flotation
	Markets and branch trends	Dense medium separation
	Politics and price finding	Dewatering
	Surface and underground mining	Pelletizing
	Leaching and bio-leaching technologies	Tailings disposal
	Deep-sea mining	Questions and answers
	Ecological issues	Evaluation
		Course close
Time	9:00 am – 5:00 pm	9:00 am – 5:00 pm

Typical course layout (time or sequence may change)

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