Short course .:. Designing SAG Circuits

Day 1 (4 h)

- Introduction (½ h)
  - course outline
  - flow sheet options for SAG circuits
  - particle size distributions
  - geological factors that influence grinding

- Motors & drives (1h)
  - definitions and electrical systems
  - gearless drives & gear drives
  - variable speed
  - electrical efficiency in electrical networks
  - three-phase power concepts
  - how to read a motor name-plate

- Mills, liners, lifters and pulp discharge (1h)
  - intent and concepts
  - face angles and ball trajectory
  - lifter wear and ball trajectory
  - prediction of wear rates
  - trading off liner life versus process performance

- Grindability test work (1h)
  - Sample selection
  - Composites versus variability
  - Laboratory tests
  - Operating work index

- Population balance modelling for grinding (½ h)
  - intent and objectives
  - types of population balance models (JK SimMet, MolyCop Tools)

Day 2 (4.5 h)

- Power models for grinding (3h)
  - intent and objectives
  - modelling of grinding by “power models”
  - using power models for prediction of throughput
  - calibrating models for an operating plant (grinding power and specific energy)

- Throughput forecasting, geostatistics (1½ h)
  - how to design a sampling program (variability and composites)
  - choosing a design basis for conceptual circuit design
  - power-based versus population balance