

## Mine Optimization Workshop 2023

# OPTIMIZING THE STRATEGIC MINE PLAN: UNLOCKING INTRINSIC VALUE

- Geovia Whittle Software with 30-day Evaluation License for Educational Purposes
- OptimalSlope Software with 30-day Evaluation License for Educational Purposes
- OptiSim is an Educational Partner of Dassault Systemes, OptimalSlope & WAIMM
- Course is Available for Onsite and Online Delivery upon Request



Learn More @ <https://optisimmining.ca/>  
Learn More @ <https://optimalslope.com/>

## OBJECTIVES & WHO SHOULD ATTEND

### ***Learn how to improve your mine planning techniques***

- Understanding the principal concepts of strategic mine planning and improving economic performance such as revenue and cost
- Exploring practical stochastic pit-limit optimization, pushback designs and mine-life estimation
- Determining optimal profiles for slopes and pitwalls
- Learning the principles and concepts of mathematical programming and its applications to integrated mine planning and waste management
- Knowing about open pit/underground mining options optimization
- Understanding mine production scheduling and its financial risk management
- Discovering practical techniques in mine planning for grade, tonnage and metal uncertainty
- Exploring cut-off grades, stockpiling and waste management strategies
- Participating in hands-on computer labs on the applications of new optimization concepts
- Useful for mining, operations, project and exploration managers, mine planners, mine engineers, geotechnical engineers, geoscientists, geostatisticians, geologists, metallurgists, financial analysts, and directors

## IN-PERSON (Canada)

**Date:** July 10 - 14, 2023

**Time:** 8:30am - 5:00pm EST

**Location:** Laurentian University Campus

### Course fee in CAD

- Regular \$3,200 (Before June 26<sup>th</sup>, 2023)
- Early Bird \$3,000 (Before June 12<sup>th</sup>, 2023)
- Multi-person ( $\geq 2$ ) \$3,000 (Before June 12<sup>th</sup>, 2023)
- Course fee includes catering for lunch and coffee breaks

Registration Deadline

June 26, 2023

## IN-PERSON (Ghana)

**Date:** August 7 - 11, 2023

**Time:** 8:30am - 5:00pm GMT

**Location:** Busua Beach Resort

### Course fee in USD

- Regular \$3,200 (Before July 17<sup>th</sup>, 2023)
- Early Bird \$3,000 (Before July 3<sup>rd</sup>, 2023)
- Multi-person ( $\geq 2$ ) \$3,000 (Before July 3<sup>rd</sup>, 2023)
- Course fee includes hotel accommodation and all meals

Registration Deadline

July 17, 2023

## COURSE OUTLINE

### ***Principal and fundamental concepts in open-pit limit optimization***

- Strategic mine planning and economic performance
- Mining revenues and costs
- Pushbacks (phases) and ultimate pit limit optimization
- Practical pushback design with minimum mining width
- Optimal profiles for slopes and pitwalls (online guest lecture)

### ***Principal and fundamental concepts in strategic mine planning optimization***

- Life-of-mine production planning/scheduling
- Mine-life estimation
- Cut-off grade optimization and Lane's theory
- Stockpiling strategy
- Directional mining control
- Simultaneous optimization of mining value chain
- Multi-mine multi-process production scheduling
- Mine-to-mill production planning
- Blending and non-linear recovery in processing streams
- Mine planning considerations for contract mining

# Strategic mining options optimization, and integrated mine planning and waste management

- Characterization of mineralized mine waste as future resource
- Integrated production and waste disposal scheduling
- Strategic mining options optimization: open-pit mining, underground mining or both
- Open-pit / underground mining transition optimization

## Risk-based mine planning

- Mine production risk management and integrated optimization
- Stochastic pit limit optimization and pushback design
- Stochastic mine planning optimization methods
- An approach to mine planning with grade, tonnage and metal uncertainty

## Computer Labs with GEOVIA WHITTLE and OptimalSlope Software

- Case Studies: Oil Sands, Gold, Copper and Iron Ore Deposits
- Eleven detailed step-by-step hands-on computer application labs
- Additional special lab for determining optimal slope profiles for pitwalls
- Participants will need a laptop for lab exercises
- Software and printed copy of lectures and lab instructions will be provided
- Continuous online lab support beyond course end date

### ABOUT THE INSTRUCTOR

**Eugene Ben-Awuah** is an Associate Professor of Mining Engineering at the Bharti School of Engineering, Laurentian University, Sudbury, Canada. He is also the IAMGOLD Research Fellow in Open Pit Mining. Eugene is a registered professional mining engineer and has extensive operational, consulting and research experience from Ghana, Canada and Australia in mine design and optimization, and mine production management.



He teaches and conducts research in strategic mining options optimization, integrated mine planning and waste management optimization, simulation of intelligent and autonomous mining systems, and modelling and optimization for sustainable resource development. He is a member of the West African Institute of Mining, Metallurgy and Petroleum (WAIMM) and the Canadian Institute of Mining, Metallurgy and Petroleum (CIM). He is Principal Mining Consultant for [OptiSim Mining Solutions](#).

### REGISTRATION/ENQUIRIES

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### GUEST INSTRUCTOR

**Stefano Utili** is a Professor of Geotechnical Engineering at Newcastle University (UK), a Chartered Engineer, and a Fellow of the Institution of Civil Engineering. He is the CEO of [Optimal Slope Software](#).

