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## **Understanding the Mining Industry: From A to Z 2012 COURSE OUTLINE**

presented by On the Ground Group (the international division of MineAfrica Inc.)

### **Day 1**

**0830 REGISTRATION AND WELCOME**

**0900 SESSION 1**

#### **Stages in the Life of a Mine**

- Prospecting
- Exploration
- Development
- Production/Processing
- Rehabilitation

#### **Exploration**

- Desktop Studies
- Investment
- Imagery (GIS)
- Geochemical and Geophysical Surveys
- Drilling
- Deposit Modelling
- Resource Modelling
- Commodity Variations and Interpretation

#### **Types of Mining Studies**

- Scoping Level
- Pre-feasibility
- Feasibility
- Planning Parameters

**[Case Study] Reserves** – you will create a basic block model and make basic calculations and recognize loss factors in the model.

**1030 REFRESHMENT BREAK**

**1045 SESSION 2**

**The Mining Process**

- Mining History
- Non-Technical
- Technical
- Mine Planning

**[Case Study] Design and Planning** – you will learn about the basic concepts of exploration program design and use spatial planning tools and various aspects of infrastructure and layout.

**Quantification and Interpretation**

- Methods of Data Gathering
- Quality Parameters
- Process of Reserves/ Resource Generation
- Mining Resources and Reserves - NI Policy 43-101 / JORC / SAMREC
- Terminology

**[Case Study] Interpretation** – you will gain an understanding of reserves through applying calculations on ore geometry and completing tasks on NI 43-101 terminology.

**1230 LUNCH BREAK**

**1330 SESSION 3**

**Extraction/Processing**

- Equipment Selection; Comparative Analysis
- Productivity Estimation Techniques
- Underground Versus Open Pit; Mine Processing Methods
- Surface Mining; ROM and Product Ore Recovery
- Mine Conveyers and Crushers; Process Design; Cut-off
- Grade Development

**1530 REFRESHMENT BREAK**

**1545 SESSION 4**

**Rehabilitation**

- Dewatering
- Tailings
- Site Services and Equipment
- Layout / Restoration / Rehabilitation
- Monitoring Reclamation

**[Case Study] Production Fleet Workshop** – you will be given the opportunity to calculate the size of fleet needed to deliver monthly production for a mine.

1715 END OF DAY 1 (total course hours day 1 – 6.75)

## Day 2

0900 SESSION 5

### **Operations into Economics**

- Justifying Exploration Expenditure
- Determine Capital Requirements for Mine Development
- Mining Equipment Options
- Explore the Financial Statements
- Economic Evaluation

1030 REFRESHMENT BREAK

1045 SESSION 6

### **Justifying Exploration Expenditure**

- Evaluate the Ore Body
- Simple Cost Ranking Techniques
- Incremental Cost Ranking

**[Case Study] Evaluation of exploration projects Workshop** – using methods discussed in the class your group will evaluate a number of different projects in order to determine an acquisition value and how much should be spent on improving the project value.

1230 LUNCH BREAK

1330 SESSION 7

### **Financial Modelling**

- Financial modelling as a decision making tool
- Discounted cash flows and the time value of money
- Discount rates
- Indicators of economic viability
- Cash flow modelling
- Investment decision: project evaluation and capital budgeting
- Caveat emptor*

**[Case Study] Model run-through** – you will review components found in a complex model and assess sensitivities.

1530 Refreshment Break

1545 SESSION 8

### **Economic Evaluation**

- Introduction
- Valuation of in-ground assets
- Evaluation of mineral projects
- Valuation of mining companies Risk versus Uncertainty

1715 END OF DAY 2 (total course hours day 2 – 6.75)

## **Day 3**

*Day three is a bridge between the financial and mining specific engineering skills. Understand the types of contracts and legal terminology when structuring a mining deal - and operating a mine. The day ends with a major negotiation role-play.*

### **0900 SESSION 9**

#### **Raising Funds**

Intro to Mining Contracts / Legalese  
Consideration; *Force Majeure*; Non-Disclosure (NDAs) & Exclusivity  
The mine life cycle, greenfields to closure & relevant contracts throughout  
Overview of mining contracts: Due diligence; Mining leases, Directors, Company history, project(s), Internal approvals (for each group of stakeholders)  
Applying a jurisdiction; Contractual dispute resolution, arbitration, mediation  
Confidentiality agreements; First right of refusal

**Raising Funds & financial instruments:** The S-curve; Debt/Equity; Derivatives for risk mitigation

**[Case Study]** - Due Diligence

#### **MOU (Memorandum of understanding)**

What is an MOU; MOU vs. HOA. Practical Comparisons

### **1030 REFRESHMENT BREAK**

### **1045 SESSION 10**

#### **Equity Investments**

Structure; Pricing. Combining equity investment with an off-take agreement  
Considerations, listing rules, future obligations to tie in with  
Options: As part of an acquisition strategy

#### **Debt, project finance, Private equity and funds-of-funds**

Project finance contracts in mining; Equity & Debt instrument contracts  
Leasing and off-take  
Point of investment in the mining life cycle; Maximizing value; Exit points

**Joint ventures:** Formation; Considerations; Unincorporated vs. Incorporated JVs; Optional JVs

### **1230 LUNCH BREAK**

### **1330 SESSION 11**

#### **Agreements of sale: Marketing & Off-take agreements**

Variations and incorporated with other contractual arrangements  
Pricing; Flexibility; Point of sale; Contract options; Form and measure: Examples;  
Logistics

**[Case Study]** - Mining Contractors: Equipment leases; Employees and Labour Law; Safety  
**Interpreting Technical Reports and Public Company Media Releases**

Understand how to read media releases and interpret drill results from technical reports issued by public companies; what they mean, what they are saying and what they are not saying

**[Case Study]** – Review of actual public company technical reports and media releases

**1530 REFRESHMENT BREAK**

**1545 SESSION 12**

**MINING NEGOTIATION ACADEMY ROLE-PLAY – the parties face off** (bankers, lawyers, client, investee)

Cross-cultural negotiations & stakeholders

Where does each party see value?

How is the market now and how do people behave under different market cycles?

Interest based negotiation; Positional negotiation

Goals: desired Best & Worst Alternatives to a Negotiated Agreement (*BATNAs* & *WATNAs*)

**1700 WRAP UP**

**1715 END OF DAY 3 AND COURSE (total course hours day 3 – 6.75; total course hours 20.25)**

## **About your presenter**

**Dr. Willem Smuts Pr.Sci.Nat.**

is Dr. Willem Smuts, a geologist with a Masters degree in sedimentology from the University of Port Elizabeth (1987) and a Ph.D. from Pretoria University (1998) on the origins of coal. He is a registered professional earth scientist and has authored and co-authored over 79 scientific and technical papers. Willem has 27 years of technical and management experience in the fields of research, exploration, mining and consulting. He is currently the CEO of a junior diamond explorer in Botswana. He has edited several leading mining magazines, independently consults on coal, gold and base metals exploration and has been delivering hands-on mining courses and workshops for companies and individuals around the globe.

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