

“Money Mining”

Whittle Consulting – Mining & Mineral Processing Optimisation ~ Short Course ~

“Increase enterprise value by enhancing planning effectiveness through a complete framework of optimisation principles and methods”

3rd & 4th October 2011, Pan Pacific Perth, WA

(before Eighth International Heavy Minerals Conference 2011)

Gain the Latest Insights in Business Planning

- **Releasing value through better planning decisions – better asset management**
- **Exploring the latest developments in optimisation for the mining industry**
- **Simultaneously optimising the whole value chain: mining, mineral processing, logistics, production and capital**
- **Planning and optimisation with geological uncertainty and volatile metal markets**
- **Operational and cost modelling techniques for optimisation**
- **“Bust the myths” that organisations pursue which limit their economic performance**
- **Implementing an effective planning process**

Increase the value of your mining business by 5% to 35% or more

About your expert trainer:

Gerald has more than 30 years of experience in business planning, analysis and change management in a range of industries in Australia and internationally. As Managing Director of Whittle Consulting (specialists in business optimisation for the mining industry) for the last 12 years, Gerald handles optimisation project management, optimisation strategies and model design, business analysis and management reporting/presentations. Some major clients include Xstrata, Vale/Inco, BHPBilliton, Minara, Lihir, Newcrest, AngloGold Ashanti and Gold Fields covering a range of commodities including Nickel, Copper, Gold, Lead, Zinc, Coal, Iron Ore and Bauxite.

Bringing together important lessons learnt in other industries, including activity based costing and the theory of constraints, Gerald brings new light to the peculiar challenges of business planning and optimisation for the minerals industry.



Gerald Whittle
BEcon, GradDipFin, MAusIMM
Managing Director,
Whittle Consulting Pty Ltd, Australia

RELATED SHORT COURSE NOT TO BE MISSED

~ Eighth International Heavy Minerals Conference 2011 ~
5-6 October 2011, Perth, Western Australia

The biennial International Heavy Minerals Conference provides a forum for members of the industry to share their experiences, gain insights into technological advances and meet their colleagues in an environment focused on the challenges and opportunities facing our industry.

The Conference will bring operators, planning personnel, equipment manufacturers and suppliers, government regulators, consultants and research and technology personnel together to explore their achievements' and build a better industry. Consistent with the aims of The AusIMM the Conference will allow members and the industry to keep abreast of views and opinions on technical aspects and provide a forum to air technical and factual information within the heavy minerals sector of the industry.

Conference Program includes:

- 2 days of Technical Presentations including the below themes
- Exciting Trade Exhibition with more room to grow!
- Social Functions
- 3 Post Conference Tours
 - South of Perth, Mining, Processing, Rehabilitation and Community Issues
 - Mineral Processing Perth Region Tour
 - Mine, Dry Plant and Synthetic Rutile Plant Tour
- Networking Opportunities!

For further information please visit
www.ausimm.com.au/heavyminerals2011

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Previous attendees' comments:

"I have been putting what I learnt at the course into practice and as a result we have added a significant amount to the NPV in our recent business plan"

"There were lots of new insights and ideas presented which can change the way we have done our planning in the past."

"Every serious mining professional should attend Gerald's Mining and mineral processing optimisation seminar. In 2 days he changed 25 years of traditional mining thinking and principles. Beware, this dynamic and inventive thinking will change everything ever believed to be the norm in optimisation and mine planning. No feasibility study should be done without these principles."

"Well organised, relevant and challenging existing paradigms."

"Certainly opened my mind to new and different approaches to business optimisation."

"Very useful, opens my eyes on the potential that exists in my current operations."

"This is the future of mining."

Increasing the value of your mining business by 5% - 35% or more!

OVERVIEW: Effective long term planning can enhance the value of a minerals business by 5% - 35% or significantly more. This course details an optimisation methodology that involves 10 distinct mechanisms, which when applied simultaneously can produce counter intuitive results that challenge conventional thinking on how to run a mining and mineral processing business. Covering the latest developments in optimisation methods, the subjects span mine design and scheduling, cut-off grades and stockpiling, plant configuration, product specification, logistics and capital scaling, a comprehensive approach to managing risk and uncertainty, strategic optimisation and modelling techniques, theory of constraints as it applied to a minerals business, advanced cost modelling, and implementation/change-management. The result is a comprehensive approach to asset management.



This course will change forever the way you look at your mining business!

WHO SHOULD ATTEND:

This course is designed for decision makers including:

- senior executives
- directors
- department, divisional or project managers
- professionals who are currently, or will be, involved in the technical aspects of optimisation analysis
- investors and their advisors

IT IS RELEVANT TO:

- geologists
- mining engineers
- process engineers and metallurgists
- logistics managers
- marketing managers
- finance and HR managers

(This is not a software course.)



It shows how these disciplines can take the economic view of the business and coordinate their activities to extract value that is currently concealed between the organisational silos that the management structure creates.

It is also relevant to equity analysts, venture capitalists, fund managers and investment bankers who want to better understand the drivers of value in a minerals business, and **to be able to recognise where the full potential of a business has not yet been realised.**

The principles examined are applicable to Copper, Gold, Lead, Zinc, Iron ore, Coal, Diamonds, Bauxite, Manganese, Platinum and other commodities. Pit, underground and complex portfolios of assets are covered.

COURSE CERTIFICATE: A Certificate of Completion will be awarded to all participants completing 90% of the total course hours. This course counts 14 hours towards your Continuing Professional Development for AusIMM accreditation.

OUTCOMES OF THE WORKSHOP: By the end of this intensive two day program, you will take back to your organisation fresh views of how economic value can be generated. You will be able to recognise the real drivers of value, and how flexibility in all parts of the value chain can be harmonised and exploited to increase value and robustness of the business in the face of uncertain resources, technical challenges and volatile metal markets.

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Attention Business Leaders – Don’t make another business decision until you have considered these perspectives!

Zimi Meka, CEO of Ausenco Limited – “Whittle Consulting is recognised as the world leader in the field of optimisation for mining companies – this seminar is of relevance to all decision makers in the industry”

Cindy Tonkin, Technical Product Manager, Gemcom Software – “This seminar introduces the concepts of simultaneous optimisation – of significant value for mining and mineral process business planning”

COURSE OUTLINE DAY ONE

8:00	Coffee and Registration
8:25	Opening Remarks
8:30	1. INTRODUCTION
	<ul style="list-style-type: none"> • Introductions/Objectives/Agenda • The “Money Mining” concept • Why is it important? • Group discussion: pros and cons of NPV • Open Pit Case Study: Introduction
10:00	Coffee Break
10.15	2. OPTIMISATION MECHANISMS Steps 1 – 5
	0. Base Case life of mine plan 1. Pit optimisation: Lerchs-Grossman 2. Phase/pushback selection 3. Mine schedule 4. Cut-off grade 5. Stockpiles
12:00	Lunch
12:45	3. OPTIMISATION MECHANISMS Steps 6 - 10
	6. Simultaneous optimisation 7. Process plant calibration 8. Product specification 9. Logistics 10. Capital scaling <ul style="list-style-type: none"> • Summary of NPV “Waterfall” graph • Implications
14:30	Coffee Break
14.45	4. ASSET PORTFOLIO OPTIMISATION
	<ul style="list-style-type: none"> • Multiple pit operations • Mixed pit and underground mines • Multiple/alternative processing streams • Multiple/alternative products • A complex mine logistics example • Lessons learnt from optimising these cases • Managing the optimisation process
15:30	5. RISK AND UNCERTAINTY Step 11
	<ul style="list-style-type: none"> • Sources of uncertainty • Modelling and measuring the impact of uncertainty • Managing in changing circumstances • Optimising with uncertainty • Managing the Monte Carlo process • Implications for the planning process
16:15	DISCUSSION/QUESTIONS
16.30	End of Day 1

COURSE OUTLINE DAY TWO

8:00	Coffee
8:30	Comments/observations from day 1
9:00	6. UNDERGROUND CASE STUDY
	<ul style="list-style-type: none"> • Grade tonnage curves • Slope design criteria • Mine scheduling • Cut-off grade strategies • Maximising value • Implications
10:00	Coffee Break
10.15	7. COSTING MODELLING
	<ul style="list-style-type: none"> • Types of cost accounting • Fixed/variable/capital costs • Activity Based Costing • Attributable/period/capital costs • Identifying period/time/fixed costs • Frontline/support/backline activities • Identifying activity cost drivers • Sustaining capital • Group exercise
12:00	Lunch
12:45	8. CONSTRAINTS AND BOTTLENECKS
	<ul style="list-style-type: none"> • The production line • Impact of bottlenecks – Theory of Constraints • Mining case study • Implication 1: Defining limits • Implication 2: Treatment of period costs • Implication 3: Grade control methodology • Case Study
14:30	Coffee Break
14.45	9. OTHER CASES
	<ul style="list-style-type: none"> • Other commodities • Pits versus underground • Effect of changes in metal prices
15:15	10. DEVELOPING A “MONEY MINING” CAPABILITY
	<ul style="list-style-type: none"> • Technical barriers – data, software • Organisational barriers • The ideal planning process • Implementation strategies • Change management • Personal action plan
16:15	Closing
	<ul style="list-style-type: none"> • Summary • Possible next steps • Feedback questionnaire • Certificates
16:30	End of Course

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REGISTRATION FORM

Please fax or mail your completed registration form to Course Organisers:

Tara Hicks, Coordinator, Conferences & Events

The AusIMM, PO BOX 660, Carlton South, Victoria, Australia 3053

Email: thicks@ausimm.com.au Facsimile: (03) 9662 3662 Telephone: (03) 9658 6127 ABN: 59 836 002 494

Or Register Online:

<http://www.ausimm.com.au/Content/Default.aspx?ID=365>

Personal Details

Title: Given Name: Surname:

Name (as wanted on name badge, if different from above):

AusIMM member number (if applicable):

Position Title: Division:

Organisation:

Address:

Suburb: State: Postcode:

Business Phone: Mobile Phone:

Fax: Email:

Dietary requirements:

Other special requirements (i.e. mobility):

Course Registration & Fees

Perth, 3rd & 4th October 2011 – AusIMM Member Registration (number required above)

☐ \$1760 inclusive of GST

Perth, 3rd & 4th October 2011 – Non Member Registration

☐ \$1980 inclusive of GST

☐ Special Registration Discount: When two or more participants register from the same company, any additional participants from that company will receive a 50% reduction in course fees. Please tick the box if the special registration discount applies to your registration.

☐ Student Registration Offer: Whittle Consulting will grant 2 complimentary student registrations per course. If you wish to apply for a student place, please complete this registration form, indicate your course of interest and mark the student offer tick box. A brief summary on why you are interested in attending the course is required along with your application. Applicants will be notified approximately 2 weeks prior to the course commencement date.

Payment Details

Full payment must accompany your registration. This document is a TAX INVOICE once payment has been received.

Please indicate method of payment:

1/ ☐ CREDIT: ☐ VISA ☐ MASTERCARD ☐ AMERICAN EXPRESS ☐ DINERS

Card Number: Name on Card:

Expiry Date: Total Payment Amount:

Signature

2/ ☐ CHEQUE: Please make Cheque payable to: The Australian Institute of Mining and Metallurgy

All cancellations must be received in writing to the course managers. Any cancellations received 4 weeks prior to your course will be refunded 75% of the registration fees paid. Cancellations received 2 weeks prior to your course will be refunded 50% of the registration fees paid. Any cancellation received within 2 weeks of your course will not receive a refund of fees - name changes are allowed.

A Confirmation Letter confirming your registration will be emailed to you. This email will include any further advice and important information pertaining to your course prior to your arrival.