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**PROFESSIONAL DEVELOPMENT TRAINING COURSES**

1-day Introductory Training Courses: Perth & Brisbane 2010

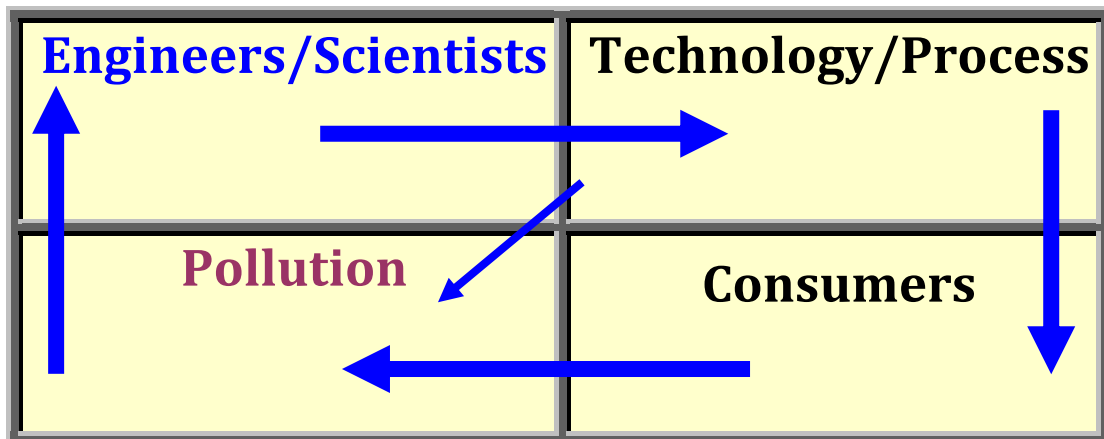
**Environmental Awareness for Non-Specialists in Mining and Metallurgical Industries**  
**Geology for Non-Geologists - Mining for Non-Miners - Metallurgy for Non-Metallurgists**

Training course	Location	Date
Environmental Awareness for Non-Specialists in Mining and Metallurgical Industries	Perth	25 May
		17 August
		7 December
Geology for Non-Geologists	Perth	26 May
		18 August
		8 December
	Brisbane	11 May
		19 August
		14 October
		8 December
Mining for Non-Miners	Perth	27 May
		19 August
		9 December
	Brisbane	12 May 2010
		20 August
		15 October
		9 December
		9 December
Metallurgy for Non-Metallurgists	Perth	28 May 2010
		20 August
		10 December

**Course Content: ENVIRONMENTAL AWARENESS FOR NON-SPECIALISTS IN MINING & METALLURGICAL INDUSTRIES** \*NEW COURSE

Causes, consequences and responsibilities facing the mining and metallurgical industry and ways to manage these environmental issues effectively.

This course has been specifically designed for non-environmental specialists who are either working in or are associated with the mining industry (decision makers). This course raises awareness of the need for us to find environmentally responsible solutions to important engineering problems that face the global mining industry. The aim is for responsible engineers/scientist/managers to create/manage enviro-friendly technologies/ processes and for responsible consumers to use/manage these enviro-friendly technologies/ processes. The course will also discuss the use of technologies to clean up the problems created by non-enviro-friendly technologies/processes.





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## Course Content: GEOLOGY FOR NON-GEOLOGISTS

This one-day introductory course has been designed for non-geologists involved in, associated with or investing in the mining industry. Key geology and resource concepts are explained, along with rock specimens and activities. You will learn how a company progresses a project from early-stage exploration through to a mining reserve. See examples of how to interpret mineral resource and exploration results in stock exchange company announcements. Find out or refresh your knowledge on what is involved behind the scenes, and learn about the key risks to be managed using geological data.

The key concepts covered are:

### **Geology**

An introduction to major rock types and major commodities

How ore types are formed - key concepts geologists use to explore for new deposits

### **Examples of major ore types**

Samples of key mineral and rock specimens

Chief physical and chemical characteristics of major commodities

### **Drilling and resource estimation**

Simple explanations of major drilling and sampling methods and when they are used

What is behind a resource or reserve estimate, and where the principle risks lie

### **Stock Exchange reporting of resources and reserves**

Key requirements of the code, and what should be reported on the stock exchange

Definitions of exploration results, minerals resources and ore reserves

How to extract and interpret key geological information from stock exchange reports

How to spot non-compliance, including a simple checklist you can take with you

### **Other relevant reporting codes**

Other international codes

Core differences

### **Key geology and mining terms**

Common technical terms used in reporting

Where to find more information when you need it

### **Mineral analysis and quality assurance**

Major types of mineral and chemical laboratory analysis

Key risks in sampling and important sampling checks.



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## Course Content: MINING FOR NON-MINERS

This one-day course has been especially designed for non-miners, and is aimed at providing participants who are new to the mining industry, with knowledge of the fundamentals, operating and technical components of mining.

Delegates will gain a sound understanding for the stages in the life of the mine, differing mining methods, mining process of surface and underground operations, types of mining studies, mine planning parameters and terminology used within the industry.

This course will provide a sound foundation for those involved in or associated with the mining industry, who would like to improve their communication skills and gain a better understanding of the essentials of mining.

### The course covers:

#### Introduction

#### Stages in the Life of a Mine

Prospecting,  
Exploration,  
Development,  
Exploitation

#### Surface Mining Methods

#### Functions of Open Pit Mining

Design,  
Drill and Blast,  
Load and Haul,  
Equipment

#### Underground Mining Methods

#### Functions of Underground Mining

Development,  
Production,  
Ground Support,  
Load and Haul,  
Ventilation

#### Types of Mining Studies

Scoping Level,  
Pre-feasibility,  
Feasibility

#### Planning Parameters

#### Terminology



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## **Course Content: METALLURGY FOR NON-METALLURGISTS**

This one-day course has been especially designed for engineers, geologists, mineralogists, environmental scientists, plant operators, marketers, financial advisors and anyone who either deals with mineral processing (extractive metallurgy) or would like to have a better understanding of the principles of extractive metallurgy.

The focus of the course is to look at the science of mineral processing from a non-metallurgist's point of view. It explores principles of geology, mineralogy, chemistry, mineral processing and economics as they apply to mineral processing unit operations and explains in simple terms, from how metal is geologically detected, extracted from various rocks and minerals to the final metal product.

The course provides an overview of extractive metallurgical principles in the design and operation of process plants but also discusses issues such as metallurgical testwork, metallurgical accounting, environmental management and other common aspects of practical extractive metallurgy.

**The course covers:**

**Introduction into Mineral Processing**

**Evaluation of New Resources**

**Unit Operations - Discussion/Examples and Animations**

Ore Processing

Particle Technology

Mineral Beneficiation and Extraction

Purification and Recovery Processes

Environmental Management

**Plant Optimisation**

**Process Economy**

**Typical processes for major commodities**

**Final Products (Metals and Minerals)**

**Marketing of product? What can you sell and value add in continued processing?**



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## Delegate feedback

Snowden prides itself on the standard of its courses and on the quality of its presenters. Feedback from our previous course participants includes the following:

### Geology for Non-Geologists

"The activities participated in were good in proving a hands-on application of the knowledge obtained" "The content covered in a condensed 1 day program was excellent"

"The presenter had excellent knowledge of the subject which made it easier to relate to the material they were presenting - not just reading slides"

"I found that the practical activities made the sampling and drilling a lot easier to understand. The presenter was very easy to understand and motivated about the subjects"

"The presenter's enthusiasm for the subject helped to keep the content interesting"

### Mining for Non-Miners

"Good material (manual) to take away"

"The course was all extremely interesting and very valuable for me and I enjoyed all the parts - thanks"

"The videos shown demonstrated the methods very well"

"The mining methods section was extremely helpful"

### Metallurgy for Non-Metallurgists

"The summary notes are great and will allow me to go back for guidance"

"Good use of examples and experience stories"

"The sections on scoping, feasibility and leaching methods were great"

"The most valuable part was learning about basic processes, terminology and reference to specific commodities"

## Presenters

The course presenters will be chosen from Snowden's most experienced consultants.

### Dr Leon Lorenzen - Executive Consultant

*PhD in Engineering Stellenbosch University MScEng (Metallurgical Engineering) Stellenbosch University BEng (Chemical Engineering) Stellenbosch University Post Graduate Diploma - Executive Development Programme, Stellenbosch University, Business School*



Dr Leon Lorenzen has in-depth experience in mineral processing, electrochemistry, reactive systems, hydrometallurgy, waste treatment and biofuels particularly with regard to application of these technologies in the process industries. This includes the petrochemical industry, agricultural industries as well as the metallurgical and mineral processing industries where he spent most of his early career as mineral processing engineer and more recently as Innovation Project Manager, Research Manager and Metallurgical Manager. Apart from his practical experience he has published widely in the chemical engineering and metallurgical engineering literature. Leon is a developer and presenter of Snowden's professional development training courses.

### Lynn Olssen - Principal Consultant - Applied Geosciences

*BSc (Geology), University of Western Australia; (CP) MAusIMM.*



Lynn has more than 16 years experience in the mining industry. Prior to commencing work with Snowden she worked in resource evaluation and mining geology roles in Western Australia gold and copper deposits. Lynn joined Snowden in April 2002 with skills in resource estimation, reconciliation, geostatistical analysis, database quality assurance and quality control, and grade control. Since joining Snowden Lynn has worked on resource estimation projects and reviews for gold, copper, nickel, iron ore, base metals, mineral sands and platinum reef deposits around the world. Lynn also provides resource estimation mentoring to the mining industry and is a developer and presenter of our professional development courses.

### Richard Sulway - Principal Consultant - Applied Geosciences

*MAppSC University of New South Wales, 1995 BAppSC (Hons) (Geology) University of Technology Sydney, 1990 Member, Australasian Institute of Mining & Metallurgy (MAusIMM) The Geological Society of Australia.*



Richard is a geologist with more than 19 years experience in exploration, mining and resource estimation. Before joining Snowden in 2004, Richard worked as resource modelling consultant for Datamine mining software. Since joining Snowden, Richard has been involved in resource estimates, audits, technical documentation and training. Richard has worked on both exploration and mining projects. Richard has an extensive knowledge in the use of Datamine and Surpac software and has presented public training courses in the use of both packages. Specific work with Snowden comprises resource estimation and reviews for a number of deposit types including gold (Australia, Mali, Malaysia and Indonesia), iron ore (Australia and India), copper (Australia, Philippines) nickel sulphide (Australia) nickel laterite (Turkey, Macedonia, Kosovo, Albania), PGE (Philippines, South Africa) and mineral sands (Australia). Richard develops and presents our professional development courses.



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**Michael Andrew - Divisional Manager - Applied Geosciences Perth**

*BSc, Australian National University; Postgraduate Certificate in Geostatistics, Edith Cowan University; MAusIMM*



Michael has more than 20 years experience in the mining industry working in roles in exploration and mining throughout Australia and overseas. Prior to joining Snowden Mining in November 2003, he was employed by Newmont Australia (previously Normandy Mining) as a senior resource geologist involved in the resource estimation and optimisation of a range of commodities and deposit styles. Michael has specific experience in geostatistical resource estimation, optimisation of both open-cut and underground resources, grade control and risk assessment. Since joining Snowden, Michael has been involved in simulation risk studies, resource estimates, resource review and audits, mine valuation studies and technical training.

**Jeremy Peters - Principal Consultant - Mining**

*BSc (ANU) BEng (WASM) Currently studying - MEng (Mining Management, UNSW), First Class mine managers' Certificate (WA), Unrestricted Mine Manager's Certificate (NT), Restricted Shotfirer (WA)*



Jeremy has more than 19 years experience as an Engineer and Geologist, with a background in open pit and underground gold, iron ore and base metal and nickel mines. He also has exploration and mine geology experience in Iron Ore, Gold, Base Metals, Nickel and industrial minerals in the Pilbara, Yilgarn, the NT and Far North Queensland of Australia. He has consulted as a mining engineer and geologist in Papua New Guinea, the Mediterranean, Russia and North Africa internationally. Jeremy develops and presents our professional development courses.

**Julian Broomfield - Senior Consultant - Mining**

*BEng (Mining), First Class Manager's Certificate of Competency, Diploma of Business, Front Line Management*



Julian is a mining engineer with 13 years of varied production and mine planning experience. His specialties include Life of Mine strategic planning and feasibility assessments, in addition to front line management, situational leadership, contracts management and occupational health and safety management. He has had exposure to environmental management systems and is experienced with quality control systems. Julian is proficient in the use of mine design packages including Datamine, Mine 2-4D, Surpac and Mine Works Planner. Julian develops and presents our professional development courses.

**David Arnott - Principal Consultant - Applied Geosciences and Coal**

*BAppSc (Geol), University of Technology, Sydney*



David has more than 20 years experience in the mineral resources sector, having commenced his career in exploration then moving through to roles in production, supply and consulting. Developing high-end Vulcan software skills throughout the better part of his career has seen David highly sought after to determine best practice workflows and methodologies, providing detailed end-user documentation to enable others to operate the workflow, in addition to technical documentation on the mechanics of the process. He has experience in modelling and resource estimation in a variety of commodity types including, but not limited to, coal, epithermal Au, base metals, manganese, oil shale, refractory clay, and construction materials. David has worked in terrains throughout Australia and abroad such as Japan, Indonesia, New Zealand, Poland, Jordan, and the United Kingdom. A member of the AusIMM he has Chartered Practising status and is deemed a Competent Person with regard to the reporting of coal, epithermal gold and base metal resources. David develops and presents our professional development courses.

**Peter Myers - Group General Manager - Mining**

*BE(Min)(Hons) University of Melbourne, MAusIMM, Qld First Class Mine Manager's Certificate of Competency, WA First Class Mine Manager's Certificate of Competency, Tas Metalliferous Mine Manager's Certificate of Competency*



Peter is a mining engineer with more than 25 years experience in underground, open pit and dredge mining operations. He has held senior operational and technical roles including those with departmental and site management responsibility, including environmental management responsibility. He has managed or participated in a number of feasibility studies, major site capital projects, business improvement projects, short, long term and life of mine plans, and mining development and production contracts. Peter's experience includes operational and consulting roles at gold, copper, nickel, zinc, lead and mineral sands operations employing underground narrow, selective and bulk methods, hard rock open pit methods, and dry and dredge alluvial methods. Peter develops and presents our professional development courses.

**Cindy-Lee Cox - Senior Consultant - Applied Geosciences**

*GradDip (MEng), BAppSc (Geol), MSoc MME, ASMB, MAusIMM.*



Cindy-Lee has more than 25 years of experience working in the resource industry. Commencing her career as an exploration geologist she has worked within a number of operations in coal, gold and base metals, in positions up to Senior Mine Geologist. Some of the tasks she was involved with included database administration and preparation, performance analysis, ore reserve calculations and QAQC. She has also held positions lecturing at the University of Ballarat. Cindy-Lee has extensive knowledge and application skills in Vulcan, Surpac, Whittle, Datamine and other mine planning packages. Cindy develops and presents our professional development courses.



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## Fees

Payment required at time of registration

Each course costs \$1,430 + GST per person.

This fee includes comprehensive course notes, refreshments and lunch.

PLEASE NOTE:

- A 10% discount is offered for booking on 3 or more courses.  
PLUS
- A 5% discount is offered if paying by credit card.

## Mentoring - Learn while working on your own data or project.

Snowden provides one-on-one technical mentoring to help develop your knowledge, skills and experience. Our consultants will guide you to use due process *while you work on your own data or project*.

Take advantage of Snowden's 23 year knowledge and skills base to help fast-track your technical knowledge.

## On-site customised courses

All our courses can be customised to suit your specific training requirements and presented either on-site or at a venue of your choice. Please contact Diana Titren, Training Manager, on +61 8 9211 8670 or [training@snowdengroup.com](mailto:training@snowdengroup.com) for further information.

## Contact and registration

For more information on Snowden's Training and Mentoring programmes, please contact Diana Titren, Training Division Manager, on +61 8 9213 9670 or [training@snowdengroup.com](mailto:training@snowdengroup.com)

To register, please complete the following form and either fax it to Shannon Aitken, Training Coordinator, on fax +61 8 9322 2576 or email to [training@snowdengroup.com](mailto:training@snowdengroup.com)

Please visit [www.snowdengroup.com](http://www.snowdengroup.com) for more information about our training courses

### Snowden Office Contact Details

PERTH +61 8 9213 9213 BRISBANE +61 7 3231 3800 JOHANNESBURG +27 11 782 2379  
VANCOUVER +1 604 683 7645 BELO HORIZONTE +55 (31) 3222-6286 LONDON +44 1932 26870



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**REGISTRATION FORM**

To: Snowden Mining Industry Consultants, PO Box 77, West Perth, WA 6872 Tel: +61 8 9211 8670  
Fax: +61 8 9322 2576 Email: training@snowdengroup.com

Please tick which course, city and date you would like to attend

<input type="checkbox"/> Environmental Awareness for Non-Specialists in Mining and Metallurgical Industries	<input type="checkbox"/> Perth	<input type="checkbox"/> 25 May	AU\$1,430 + GST = \$1,573	
		<input type="checkbox"/> 17 August		
		<input type="checkbox"/> 7 December		
<input type="checkbox"/> Geology for Non-Geologists	<input type="checkbox"/> Perth	<input type="checkbox"/> 26 May	AU\$1,430 + GST = \$1,573	
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			<input type="checkbox"/> 20 August	
<input type="checkbox"/> 10 Dec				

Total, less 10% discount for booking on 3 or more courses AU\$ \_\_\_\_\_

Total, less 5% discount if paying by credit card\* AU\$ \_\_\_\_\_

TOTAL including GST AU\$ \_\_\_\_\_

Delegate Name	Position (in company)	
Company Name		
Address		
Tel	Fax	Email

**PAYMENT OPTIONS**

Payment required at time of registration - payment confirms your registration. A tax invoice will be issued on receipt of payment.

Please tick your payment option.

- Cheque** - Please enclose a cheque made payable to Snowden Mining Industry Consultants
- Electronic transfer** - ANZ Bank, Corner Hay and Outram Street, West Perth, WA 6005  
Branch: 016498 Account: 8376 99407 Swift Code: ANZBAU3M
- Credit card: 5% discount offered for credit card payments**  Visa card  Master card  AMEX

Please note: Snowden DOES NOT charge a surcharge for credit card payments.

Card no:

Cardholder's name: \_\_\_\_\_

Expiry date:   /   Signature: \_\_\_\_\_

**PLEASE NOTE:** No refunds for cancellations made within 2 weeks of the course or for 'no shows'. Delegates can be substituted. If the minimum number of delegates is not achieved, delegates will be notified 1 week prior to course start date and fees will be refunded.