

PROFESSIONAL DEVELOPMENT SHORT COURSE

Extractive Metallurgy in Mineral Processing and Recycling

Please type or print legibly

Name _____

Designation _____

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Institution/ Company _____

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COURSE FEES & PAYMENT

Contact us for a group discounts of minimum 3 attendees from the same organization

Early bird participant (before 17th March 2010).....RM 900

Participant (after 17th March 2010).....RM 1000

Students.....RM 800

International participants.....USD 400

The fees include a set of course notes and all teas / lunches.

Payment can be made by cheque, PO/LO, money order or TT

payable to "USAINS Holding Sdn Bhd".

Account No: 0709-0006708-05-7

Bank: CIMB Bank Berhad (USM Branch), Universiti Sains Malaysia, 11800

Penang.

MAIL or FAX completed form to:

Dr Zaimawati Zainol/Dr Samayamutthirian Palaniandy
School of Materials and Mineral Resources Engineering,
Engineering Campus USM, 14300 Nibong Tebal,
Penang, Malaysia. **Fax No : 04-5941011** or

En. Khairol Anuar Mohammed
USAINS Holding Sdn Bhd, Ground Floor,
Kompleks EUREKA
11800 USM, Penang. **Fax No: 04-6572210**

For further information, please contact:

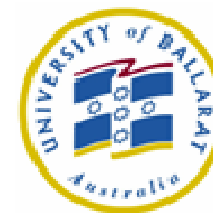
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UNIVERSITI SAINS MALAYSIA



Professional Development Course

Supporting our industries and advancing your career

Extractive Metallurgy in Mineral Processing and Recycling

Advancing extractive metallurgy for a sustainable tomorrow



7th - 8th April 2010

Mineral Resources Engineering, Universiti Sains Malaysia
and
Extractive Metallurgy, University of Ballarat, Australia

*Metallurgy, Mining and Geology at the
University of Ballarat – Part of the
Xstrata Zinc Institute of Minerals Industry Education*

Course Outline

This course will provide an understanding of the physical and chemical principles behind mineral processing and metal recycling. Participants will gain an understanding of the fundamental principles underpinning unit processes including comminution, physical separation, leaching, solution purification and metal recovery. The course will follow a typical flowsheet of physical preparation and separation, chemical leaching, separation and recovery. In addition, the participants also will gain awareness in problem solving, plant optimization and performance enhancement. The course will be presented at postgraduate level and a knowledge of chemical and physical principles is assumed. The course is aimed to be of wide interest, if there are any specific aspects that you wish to be covered by way of examples please contact the organizers. The course provides the opportunity for group discussion regarding aspects of the various unit operations and processes. If you wish to have more detailed, or confidential, discussions regarding plant specific matters with the presenters please contact the organizers ahead of the course so appointments can be made.

Who Should Attend?

- Managers and engineers from the minerals industry and chemical recycling operations
- Managers and engineers from engineering companies who design such plants
- Chemists or engineers interested in the application of science to metals processing and recycling
- Academics and researchers in extractive metallurgy, recycling and environmental
- Laboratory and Unit coordinators
- Postgraduate students (Masters and PhD)

Presenters

Associate Professor Dr Nicholas J Welham

After attaining his undergraduate degree in Minerals Engineering at the University of Leeds. He then undertook his PhD on the recovery of gold from pyrite at the Royal School of Mines, Imperial College, London. After a year as a postdoctoral researcher in London, Nick joined the Parker Centre in Perth, Australia for a year before moving to the Australian National University in Canberra. Seven years later Nick returned to Perth as the MCA Senior Lecturer in Hydrometallurgy at Murdoch University. Two years ago, Nick was appointed as the Xstrata Zinc Alliance Associate Professor of Extractive Metallurgy and Head of Department. Nick has also been Editor-in-Chief of the international journal Hydrometallurgy for the past five years. In addition to more than seventy refereed publications, Nick is the inventor of the patented AmmLeach and HyperLeach processes. His research interests are widespread but primarily concern the use of hydrometallurgical techniques in minerals and materials processing.

Dr Zaimawati Zainol

Zaima obtained her doctorate from Murdoch University, Western Australia in the year 2005 in the area of Hydrometallurgy. One of her achievement is developing a RIP process to recover nickel and cobalt from laterite leach tailings in Western Australia mines. She was also involved with an electrolytic manganese and cobalt purification pilot plant prior to joining USM in 2007 as a Senior Lecturer in the Mineral Resources Engineering Program. Currently, her research is engaged in leaching and waste water treatment focusing on absorption of heavy metals using ion exchange resin, natural materials and agricultural wastes.

Dr Samayamutthirian Palaniandy

Sam obtained all his degrees from Universiti Sains Malaysia in the area of Mineral Resources Engineering. He started his carrier in USM as a tutor and currently he is a Senior Lecturer in the Mineral Resources Engineering Program. He started working on comminution in 1999, mainly focusing on the fine grinding of industrial minerals. In addition, he has been involved in several other projects such as in building materials such as production of high quality aggregates, manufactured sand and optimization of cement raw materials. Since 2007, he has been involved in optimization of drill and blasting operations in mines and quarries to optimise comminution and classification processes. He also has industrial experience in cement, gold and aggregates.

Course Content

7th April 2010

Time	Program
8.30	Registration
8.45	Session 1
	Introduction: safety briefing, presenters, course outline and content
9.00	Session 2
	Characterization: mineralogy, methods, ore texture, liberation and e-waste examples
10.00	Morning break
10.30	Session 3
	Preparation: crushing, screening, grinding and classification
11.45	Session 4
	Physical separation: gravity methods, flotation and sorting
12.45	Lunch
2.15	Session 5
	Leaching: chemistry, kinetics and application
4.15	Discussion
4.45	Afternoon tea / End of day one

8th April 2010

Time	Program
9.00	Session 6
	Solvent extraction : principles and practices
10.30	Morning break
11.00	Session 7
	Ion exchange : principles and practices
12.30	Lunch
2.15	Session 8
	Metal recovery : precipitation, reduction and electrowinning
3.30	Session 9
	Test work and flowsheet design
4.30	Discussion
5.00	Afternoon tea and Closing ceremony