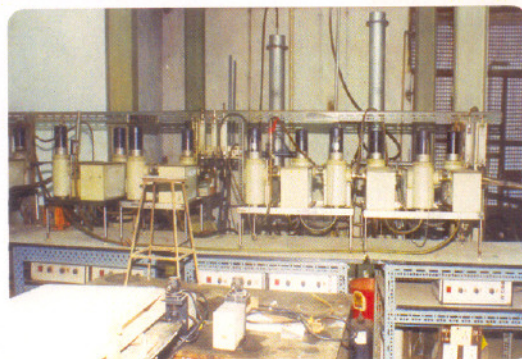
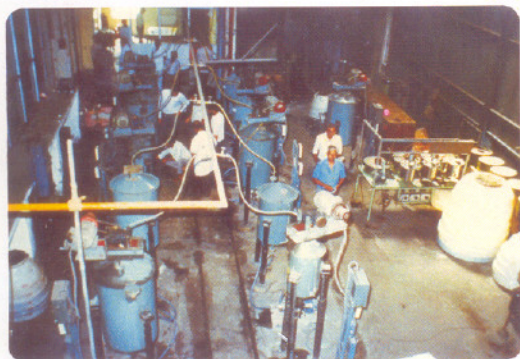
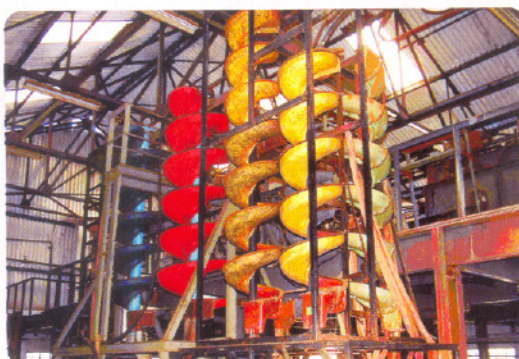


*Training Course*  
*on*

**MINERAL PROCESSING  
AND  
NONFERROUS EXTRACTIVE METALLURGY**



**JUNE 30 - JULY 5, 2008**



**NATIONAL METALLURGICAL LABORATORY  
JAMSHEDPUR - 831 007**



**Training Course**

**ABHILASHA**

Scientist

MEF Division

National Metallurgical Laboratory (CSIR)  
Jamshedpur-831007, India

on

**MINERAL PROCESSING  
AND  
NONFERROUS  
EXTRACTIVE METALLURGY**

**(For Management Trainees of UCIL)**

**JUNE 30 – JULY 5, 2008**

*Compiled & Edited by*

❖ A. Das ❖ Ratnakar Singh ❖ K. K. Sahu  
❖ Abhilash ❖ N. G. Goswami



**NATIONAL METALLURGICAL LABORATORY  
JAMSHEDPUR - 831 007**



**30th June 2008****[Venue: - Old Conference Hall]**

9:30 AM - Registration

9:45 AM - Welcome and Briefing about the Training Programme

10:00 AM - About CSIR (VIDEO SHOW)

10:30 AM - Tea

**◆ Technical Sessions Starts from 11:00AM onwards**

Sl.No.	Lecture (L)/Demonstration(D)		Time	
L-1	Mineralogical Characterization	Dr. B. Nayak Dr. M. K. Mohanta	11:00am	12:00pm
L-2	Chemical Characterization	Shri. K. K. Gupta Dr. S. Chakraborty	12:00pm	12:35pm
L-3	Communion and Classification- Theory & Practises	Dr. A. Das	12:30pm	1:30pm
<b>LUNCH BREAK [1:30PM - 2:00PM]</b>			<b>Venue: - MNP Pilot Plant</b>	
D-1	Optical Microscopy	Dr. B. Nayak Dr. M. K. Mohanta Ms. Mamta Sharma	2:00pm	2:30pm
D-2	Spiralling	Dr. Vinod Kumar Mr. Srinivas Rao	2:30pm	3:15pm
<b>TEA BREAK [15 min]</b>				
D-3	Hydrocycloning	Dr. Ratnakar Singh Dr. R. K. Rath	3:30pm	4:15pm
D-4	Jigging	Dr. R. K. Rath Dr. Ratnakar Singh	4:15pm	5:00pm
<b>1st July 2008</b>			<b>[Venue: Lecture Hall]</b>	
L-4	Gravity Concentration- Recent Trends	Dr. Ratnakar Singh	10:00am	11:00am
<b>TEA BREAK [15 min]</b>				
L-5	Magnetic and Electrostatic Separation in Beneficiation of Low Grade Ores & Minerals	Dr. A. Das	11:15am	12:15pm
L-6	Dewatering	Dr. R. P. Bhagat	12:15pm	1:15pm
<b>LUNCH BREAK [1:15PM - 2:00PM]</b>			<b>Venue: - NML Auditorium Foyer</b>	
D-5	Iron Ore Washing Circuit	Mr. K. K. Bhattacharya Dr. Vinod Kumar	2:00pm	2:45pm
D-6	Magnetic Separation	Dr. K. V. Rao Dr. A. Vidhyadhar	2:45pm	3:15pm



D-7	High Tension Separation	Dr. K. V. Rao Dr. A. Vidhyadhar	3:30pm	4:15pm
D-8	Froth Flotation	Dr. R. K. Rath Dr. Ratnakar Singh	4:15pm	5:00pm
<b>2nd July 2008</b>		<b>[Venue: Lecture Hall]</b>		
L-7	Principles of Extractive Metallurgy	Dr. Rakesh Kumar	10:00am	11:00am
<b>TEA BREAK [15 min]</b>				
L-8	Thermodynamic/Kinetic Considerations in Metal Extraction	Dr. S. Ranganathan	11:15am	12:15pm
L-9	Environmental Issues in Metal Extraction	Dr. A. Bandhopadhyay	12:15pm	1:15pm
<b>LUNCH BREAK [1:15PM - 2:00PM]</b>		<b>[ Venue: - NML Auditorium Foyer]</b>		
D-9	Biohydrometallurgy and Uranium Extraction) Demo on Uranium Extraction by Bacteria b) Biosorption of Metals	Dr. K. D. Mehta / Mr. Abhilash	2:00pm	3:45pm
<b>TEA BREAK [15 min]</b>				
D-10	a)Pressure Hydro-metallurgy b)Leaching of Metals from Sea Nodules and Redox Potential Monitoring	Dr. S. K. Sahu Dr. R. K. Jana Shri. T. B. Singh Shri. N. S. Randhawa	4:00pm	5:15pm
<b>3rd July 2008</b>		<b>[Venue: Lecture Hall]</b>		
L-10	Surface Chemistry Aspects of Mineral Processing	Dr. R. K. Rath	10:00am	11:00am
<b>TEA BREAK [11:00 - 11:15 AM]</b>				
L-11	Advances in Froth Flotation With a Particular Reference to Processing of Fines	Dr. Ratnakar Singh	11:15am	12:15pm
L-12	Agglomeration of Ore Fines	Shri. K. K. Bhattacharya	12:15pm	1:15pm
<b>LUNCH BREAK [1:15PM - 2:00PM]</b>		<b>[Venue: - NML Auditorium Foyer]</b>		
D-11	Jameson Flotation Cell	Dr. A. Das Mr. S. Chandrasekhar	2:00pm	2:45pm
D-12	Multi-Gravity Separator/ Floatex Density Separator	Mr. S. Chandrasekhar Dr. A. Das	2:45pm	3:15pm



D-13	Contact Angle / Zeta Potential	Dr. R. K. Rath Dr. A. Vidhyadhar	3:30pm	4:15pm
D-14	Tabling / Pelletization	Dr. K. V. Rao Dr. A. Vidhyadhar	4:15pm	5:00pm
<b>4th July 2008</b>		<b>[Venue: Lecture Hall]</b>		
L-13	Metallurgy of Light Metals	Dr. S. Ranganathan	10:00am	11:00am
<b>TEA BREAK [15 min]</b>				
L-14	Extraction of Base Metals (Cu, Ni & Co)	Dr. S. K.Sahu	11:15am	12:15pm
L-15	Separation Processes- Solvent Extraction/Ion Exchange for Metal Ions	Dr. V. Kumar	12:15pm	1:15pm
<b>LUNCH BREAK [1:15PM - 2:00PM]</b>		<b>[Venue: - NML Auditorium Foyer]</b>		
D-16	Smelting of Ocean Nodules Residue	Dr. R. K. Jana Shri.Sanjay Agrawal	2:00pm	3:30pm
<b>TEA BREAK [15 min]</b>				
D-17	Metal Separation: a) Cu/Ni by SX b) Metals by IX c) Electrowinning	Dr. Archana Agrawal Dr. Manoj Kumar Shri. D. Bagchi	3:45pm	5:15pm
<b>5th July 2008</b>		<b>[Venue: Lecture Hall]</b>		
L-16	Melting and Casting of Non-Ferrous Metals/ Alloys	Dr. K. L. Sahoo	10:00am	11:00am
<b>TEA BREAK [15 min]</b>				
L-17	Recycling of Metals from Secondary Resources-Treatment Options	Dr. K. K. Sahu	11:15am	12:15pm
L-18	Mechanical Activation of Solids in Extractive Metallurgy	Dr. Sanjay Kumar	12:15pm	1:15pm
<b>LUNCH BREAK [1:15PM - 2:00PM]</b>		<b>[Venue: - NML Auditorium Foyer]</b>		
D-18	Melting and Casting	Dr. K. L. Sahoo Dr. D. Mandal	2:00pm	3:15pm
<b>TEA BREAK [15 min]</b>				
D-19	Mechanochemical Activation	Dr. Sanjay Kumar Shri. T. C. Alex	3:15pm	4:15pm
VALEDICTORY SESSION (Lecture Hall)		Chaired by Director, NML	4:15pm	5:15pm





**NATIONAL METALLURGICAL LABORATORY JAMSHEDPUR - 831 007, INDIA**

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