

Advanced Course in Mineral Processing

Overview

The future of the commodities market relies on efficient and sustainable processing of the world's current ore bodies. Increasing efficiency in mineral or coal processing facilities often is the first step in making those processes sustainable. To make these operations efficient, mineral or coal processors must fully understand their respective operations. Having a detailed understanding of mineral processing fundamentals will allow mineral or coal processors to improve upon existing processing operations and design highly optimized plants in the future.

This course seeks to engage participants in critical thinking and understanding regarding the field of mineral and coal processing. Specific emphasis will be given to energy optimization, equipment selection, performance enhancement and reagent selection. Course participants will be able to take the tools that they have learned and apply them to their respective processes.

The course is designed with the following objectives:

1. Exposing participants to the fundamentals of mineral and coal processing
2. Enhancing the capability of the participants to solve design-related and process-related problems in the near future
3. Exposing the participants with the new developments and emerging areas in a comprehensive manner

Participants will learn those topics through lectures and tutorials. Case studies and assignments will be shared to stimulate research motivation of participants.

Modules	A: New Developments & Emerging Areas of Mineral Processing : <p style="text-align: right;">12th December – 17th December</p> Number of participants for the course will be limited to fifty.
You Should Attend If...	<ul style="list-style-type: none"> You are involved in equipment design, selection and in plant design in the area of processing of coal and mineral You are involved in technical sales of processing and handling equipment You operate processing plants including coal and mineral You are a teacher, student and researcher in the area of coal and mineral processing
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$500 Industry : 20000 Academic/Research Institutions: 10000 Students/Research scholars: 2000 The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Dr. S. Komar Kawatra is a Professor and the Chair of the Chemical Engineering at Michigan Technological University, USA. He is also the Director of the Advanced Sustainable Iron and Steel Center established by the National Science Foundation. He has received numerous National Awards such as Gaudin Award, Taggart Award, Aplan Award and the Richards Award. He is the author/Editor of 7 books. He has extensively conducted research in operating plants in the United States. He is the Editor-in-Chief of the Minerals, Metallurgical, Processing Journal and the Mineral Processing and Extractive Metallurgy Journal.



Prof. B. C. Meikap is a Professor of Chemical Engineering, Indian Institute of Technology, Kharagpur. He has 25 years teaching and research experience in the area of industrial pollution control, mineral and coal beneficiation, hazardous waste treatment & management and process safety. He is Member of many professional societies like AIChE, IChemE, RSC, IChE, SAChE & IE(I). He has published over 100 journal papers in international journals. He has received many research awards.

Course Co-ordinator

Prof. B. C. Meikap

Professor

Department of Chemical Engineering
Indian Institute of Technology, Kharagpur
Kharagpur 721 302

West Bengal, INDIA

Phone: +913222283958

Mobile: +919474624980

E-Mail: bcmeikap@che.iitkgp.ernet.in

bcmeikap@gmail.com

bcmeikap@yahoo.in

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<http://www.gian.iitkgp.ac.in>

Lecture Schedule:

12th December

Lecture 1: Methods for Calculating Energy Consumption in Laboratory and Industrial Comminution Operations

Lecture 2: Calculations

Lecture 3: Critical Analysis of Various Grinding Equipment used in Industry

13th December

Lecture 1: Flotation: Historical Background

Lecture 2: Flotation: Reagents

Lecture 3: Flotation Practices: Direct and Reverse

14th December

Lecture 1: Flotation Cells: Large and Column

Lecture 2: Fundamentals of Thickening and Dewatering: Case studies from an operating plant

Lecture 3: Industrial Practices of Magnetic Separation: Low Intensity Vs. High Intensity; Magnetic Separation VS Flotation

15th December

Lecture 1: Electrostatic Separation, Triboelectrification & Corona Discharge

Lecture 2: Pelletization: Fundamentals

Lecture 3: Pelletization: Binders, Industrial Practice

16th December

Lecture 1: Instrumentation: Density Gauge

Lecture 2: Composition Analysis: XRF, XRD, SEM, and TEM

Lecture 3: Examples from Industry

17th December

Lecture 1: Sustainability in Mining

Lecture 2: Strategies for Flowsheet Development

Lecture 3: US practice, New Developments and Emerging areas