Welcome to the *MinClos*: **RSGIS-13**Training Brochure 2012

In the today's competitive world, it goes without saying that keeping up to date and continuing learning throughout one's career are indispensible. We at the Department of Mining Engineering, IIT Kharagpur are committed to contribute to Continuing Professional Development in the mining industry.

With a team of highly qualified people with expertise in diverse fields, we are leading provider of higher education and research in mining and allied fields. We are also provider of quality training to practicing mining professionals.

The present course on REMOTE SENSING & GIS APPLICATIONS FOR ENVIRONMENTAL MANAGEMENT AND MINE CLOSURE PLANNING is designed to suit all levels of ability in mining, whether you are a mining engineer carrying out field operations, a civil engineer in charge of roads and facilities, a mechanical/electrical engineer responsible for mining assets or an environmental engineer to ensure environmental conservation and restoration. Mine closure planning involves inputs from all departments and knowledge of an integrating technology like GIS and Remote Sensing could be of tremendous benefits.

Specialist trainers will deliver this training course, and the number of delegates is kept limited to ensure that everyone receives individual attention and achieves their learning goals. Registration will be on the **First Come First Serve basis**. The course is open to all, companies willing to send more than five participants enjoy preferential reduced rates.

New for *MinClos*: **RSGIS-13**

We have included a new Topic for MinClos: RSGIS-13.It is case studies of *application of Vetiver System Technology for spoil dump management and for Catchment Area Treatment (CAT)* around surface mining projects. We expect the participants will be able to prepare a list of required initiatives for their mine site restoration program.

Developing your team

We can offer attractive discounts for booking more delegates onto a course and can also create bespoke training courses, tailored to your organization and delivered at your place.

Other than this course you can contact the undersigned for the following courses that are regularly organized:

1. Surface Mining Safety and Productivity: *Next Course in September 2013*
2. Vetiver System Technology for CSR and EMP integration: *Next course in March 2013*
3. Mining Machinery: Maintenance and Capacity Utilization: *Next course in May 2013*
4. Bulk Material handling in mines, plants and ports: *Next Course in July 2013*
5. Mineral Economics and Mining Finance: what the mine managers must know: Next Course in February 2013

Dr. Khanindra Pathak
Course Co-ordinator
Professor, Department of Mining Engineering

Continuing Professional Development (CPD) is undoubtedly one of the essentials to the growth of efficiency and deliverance of results by professionals in industry. This can be achieved through an ongoing, structured process designed to update knowledge, and maintain and enhance professional competence and personal effectiveness. A CPD programme therefore attempts to incorporate new learning that can leave durable impressions in mind and induce subtle impacts that result in increased effectiveness of people.

The participating professional in the course must identify their competencies and the required competencies of their work place and continuously thrive by reducing the gaps. The training programme will assist to achieve this.

Monitoring Objectives

The nominees for this course will be asked to record their objectives. Following the course, delegates should consider whether they have met their objectives and to consider any further development opportunities arising. This is proven to aid the learning process and reflects our policy – to plan, undertake and reflect upon professional development activity.

Through the deliveries in the course we try to expose standards, theory and methodologies, specific knowledge areas, interpersonal skills and latest tools and techniques with special attention to their applicability in specific mining environment.

The participants will be encouraged to continue their exposure to the learning environment at the Department of Mining Engineering at IIT Kharagpur for their professional development using various online resources and contacts.

The benefits

Meeting the experts

The faculty members delivering lectures in the course are highly qualified in their areas and posses wealth of national and international exposure and experience. Many of them share their experience through case studies and can offer hand on experience in using decision-making tools. The participants get an opportunity to discuss their specific problems with them.

Cost effective

The participants from different companies share the cost of the course. Conducting the course for training few participants of your company alone would be very costly. Thus your company saves money.

Flexibility

Should you require something more tailored to your exact training requirements, we can also develop a course to suit your specific needs.

Building Relationship

The course participants get opportunity to meet their peer groups in different companies. Sharing the experience of best practices of relevant fields results in long term relationship in solving industry problems.

MinClos: RSGIS-13: REMOTE SENSING & GIS APPLICATIONS FOR ENVIRONMENTAL MANAGEMENT AND MINE CLOSURE PLANNING, Short Term Course By Prof . K. Pathak, IIT Kharagpur

The purpose of this Four-days course is to enable the participants to comprehend the basic principles of Remote Sensing and GIS and to enable them to engage in self-learning for handling the necessary software. The principles and procedures of mine closure planning will be covered and case studies related to post closure land use plans would be discussed. Spoil dump management and Catchment Area Treatment issues with use of vetiver system technology would also be highlighted in this course. Hand on exercise with RS-GIS software is also kept as practical class during the course.

Who should attend?

- ✓ This course will be suitable for those who have already had exposure to environmental management and mine closure planning and use computers for keeping records and preparing documents.
- ✓ The managers, executives and supervisory staff engaged operations and planning of surface mining.
- ✓ Surveyors, who are using Remote Sensing, GPS and GIS and working in surface mines, will also be benefitted.
- ✓ The course will be very helpful in discharging their duties particularly for the Environmental Managers and Mine Manager.

How will this course benefit you?

Upon completion you will be able to:

- Explain the basic principles of GIS, GPS and Remote sensing.
- Define the requirements for mine closure planning and analyze the planning inputs for development of mine closure plans
- Explain how to undertake post mining mine site restoration programme and how to initiate preparedness for these.
- Prepare an executable plan for CSR-EMP integration for post mining benefits

Fees
Rs. 20000.00 per participant.
Payable by demand draft :
in favor of "CEP-STC, IIT, Kharagpur"
at Kharagpur
Fee does not include boarding and lodging charges.

Please send the names of your nominees with their designations and addresses to the Course Coordinator before **20.01.2013.**

Course programme

During this interactive course the following topics will be covered:

- Integrated Mine Closure Planning
- Legal and Policy Issues of Mine Closure
- Environmental Management -Tools and Techniques
- Satellite Remote Sensing and GIS for environmental management - concepts, application and introductory hand-on exercise on geo-rectification, merging, subsetting, mosaicing, vectorisation etc. of satellite imagery
- Case studies of mine closure
- Highlights of Uses of RS GIS for:
  - Post closure monitoring and management of mining sites
  - Catchment Area Treatment near mining sites
  - Assessment of socio-economic impacts of mine closure
  - Safety analysis of abandoned mines
- Introduction of vetiver system: preparing proposal for system implementation

Pre-course work Before the course, the participants can contact us for preparing the participation materials and basic information relevant to the course. If necessary they will be provided pre-course study materials for specific purposes .

Duration   Four days

IIT Kharagpur is exempted from Income Tax and while sending the course fee no Tax should be deducted.
Companies sending more than 4 participants will avail the following reduced fee:
1. *For 5 participants: Rs 85,000/-*
2. *More than five participants: Rs. 16000/-*

Dates: **January 28-31, 2013 Venue: Mining Engineering Department, IIT Kharagpur**

Short Term Course

On

REMOTE SENSING & GIS APPLICATIONSFOR ENVIRONMENTAL MANAGEMENT AND MINE CLOSURE PLANNING

(During January 28-31, 2013 at Department of Mining Engineering, IIT Kharagpur)

Social License for mining depends on transparent and efficient mine closure planning to convince and ensure the society that mining could be environmentally benign. Remote Sensing and GIS along with GPS technology provide a unique platform for analyzing large number of spatio-temporal variables for developing appropriate decisions on resource utilization and developments. Mine closure and mine site restoration could be associated with number of critical, costly and time-consuming activities. Preparedness for number of certain and uncertain circumstances after mine closure could be effectively dealt through proper planning. Such planning needs advanced tools like RS-GIS and hence, it is essential that the mining industry pays proper attention to develop human resources to handle mine closure issues through the latest the development of science and technological tools.

We at the Department of Mining Engineering of Indian Institute of Technology, Kharagpur believe in continuous and lifelong learning and we design courses for the engineers in the mining Industry to train them in specific areas. The present course is one of such courses for the practicing engineers in Indian mining industry. This course aims at training the participants on mine closure issues, RS and GIS as well as highlights the legal and policy requirements for appropriate mine closure management and post mining site restoration.

Accommodation of Course Participants

Accommodation for the participants is booked at the Technology Guest House of IIT, Kharagpur on prior request. Alternatively there are local hotels available in the town. However, the accommodation in the campus is considered to be convenient.

Address for Communication

For any other information or sending nomination please write to:

Prof. Khanindra Pathak,
Course Coordinator
Department of Mining Engineering
IIT Kharagpur-721302
Phone: 03222283722   Mobile: 09800877877,   Fax: 03222282700/282282
E-mail: **khanindra@mining.iitkgp.ernet.in   / Khanindra.p@gmail.com**

Department of Mining Engineering, lIT Kharagpur

Set up in the year of 1956, this Department has steadily grown as one of the best mining education centre in the country. Besides offering undergraduate, postgraduate, and doctoral courses in Mining Engineering, it is actively involved in short term courses and research activities in the areas of Mining Machinery, Mine Safety and Reliability, Mine Fire and Explosions, Model Studies in Ventilation, Rock Mechanics and Ground Controls, Numerical Analysis of Mine Structures, Underground and Surface Environment, Geometrics and Remote Sensing, Mine Closure Planning and relevant computer applications. Short-term courses, consultancy, sponsored research programmes and postgraduate project works are part of the department's