

INTRODUCTION

In every coal mining company, STRATA/GROUND CONTROL CELL shall be established at corporate and area levels within one year as per recommendations of the 10th and 11th National Conference of Safety in Mines held at New Delhi 26-27th Nov, 2007, and 4-5th July 2013, respectively. Mining companies in collaboration with research institutions/equipment manufacturers shall initiate and fund for, suitable research initiatives for establishment of appropriate communication system for below ground mines including to locate the trapped miners. However, till now strata/ground control cell and appropriate communication system could not be established in all the mining areas as required. Strata control cell in coal mines can assist mine managers, for formulation of Systematic Support Rules, monitoring strata control measures in a scientific way to ensure efficacy of support system and, for procurement/supply of quality supporting materials.

Geotechnical instrumentation even though has been extensively used in the coal and metal mines, still there is no standard procedures for undertaking the investigation as well as type of instrumentation for monitoring of the ground behaviour. Although there is a scope of application of Wireless Sensor Networks (WSN) for mines, modern communication systems could not be utilized effectively for mines. Keeping this in view, short term courses were conducted at NIT-Rourkela on strata control techniques and instrumentation during July 28th-31st,2008, Nov 19-22, 2009, Nov 22-25,2013 etc. The Mining Engineering department of NIT-Rourkela also conducted Workshop/ Training programs in coalfield areas of M/s SCCL, SECL, WCL, MCL etc under the TEQIP sponsored by the World Bank through National Project Implementation Unit. Ground/Strata control technologies and WSN have undergone considerable change and it is pertinent that the field engineers must be trained in the state of the art instrumentation and communication system for effective implementation of the ground control measures in both the coal and metal mines including application of WSN.

SCOPE OF THE COURSE

The course has been structured to include the recent trends in geotechnical instrumentation and ground control technologies for application in mines. It is also aimed at updating and upgrading the conceptual and applied knowledge of the participants in the thrust area vis-à-vis 10th and 11th National Conference of Safety in Mines. In this course, special emphasis will be made on advanced instruments, Wireless Sensor network systems for underground and open cast mines, ground control

techniques besides case studies on typical ground control problems *in both the coal and metal mines*.

It is expected that the participants from coal and metal mining industries, academic institutions, R&D organizations, safety organizations as well as professional engineers will be highly benefited by the course.

COURSE CONTENTS

- Design of ground control system for coal and metal mines
- Application of modeling techniques to ground control problems
- Application of various techniques for design and monitoring of stability of slopes
- Geotechnical instrumentation and Evaluation of ground behaviour in coal and metal mines
- Wireless communication for underground mines
- Wireless Sensor network systems for underground and open cast mines
- Demonstration of geotechnical instrumentation and computer software's
- Organization of Strata/Ground control cell in mines.

FACULTY

The course will be offered by the faculty members of NIT Rourkela. Experts from other academic and Research institutions, Directorate General of Mines Safety, Dhanbad, etc will be invited to share their latest research findings and experiences with the participants.

REGISTRATION AND FEE PARTICULARS

Applications in prescribed format and the course fee in the form of a cheque/demand draft drawn in favor of "Continuing Education, NIT Rourkela" payable at any bank in Rourkela must reach the coordinator on or before **10th October , 2013**. The selected participants will be informed by **20th, October, 2013**.

COURSE FEE: Rs. 15000

BOARDING, LODGING AND TRAVELING

Participants are required to make their own arrangements for lodging, boarding and traveling. Accommodation at Guest houses of NIT, Rourkela may be arranged with prior request subject to availability.

SHORT TERM COURSE on

INSTRUMENTATION FOR EVALUATION OF GROUND CONTROL PROBLEMS AND WIRELESS SENSOR NETWORKS FOR MINES

Nov 27 - 30, 2013

APPLICATION FORMAT

1. Name:
2. Designation:
3. Mailing Address:
Telephone No.:
Fax:
E-mail:
4. Organization where employed:
5. Academic Qualification:
Experience (in years):
Teaching:
Industrial:
6. Registration Fee particulars:
Amount: Rs.
Cheque/DD No. and Date:
7. Accommodation Required: Yes/No.

Date

Signature of the Applicant

SPONSORSHIP CERTIFICATE

Dr./Mr./Ms.....
is an employee of our institute/organization and his/her application is hereby sponsored. The applicant will be permitted to attend the short-term course at NIT, Rourkela during 27-30 Nov, 2013 if selected.

**Signature with Date & Seal
of Sponsoring Authority**

The duly sponsored application should be mailed to:

Dr. S. Jayanthu, Professor
Department of Mining Engineering,
NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008
ORISSA
Tel: 0661-2462600-01-11 (O), 9938303259(M)
Fax No. 0661-2472926, 2462999
E-mail:
sjayanthu@nitrkl.ac.in, sjayanthu@yahoo.com
gunthakarhik424@gmail.com

Website: www.nitrkl.ac.in/continuingeducation/mn

ABOUT NIT, ROURKELA, ORISSA

National Institute of Technology (NIT), Rourkela was founded as Regional Engineering College, Rourkela in 1961. It is a prestigious Institute with a reputation for excellence at both undergraduate and postgraduate levels, fostering the spirit of national integration among the students, a close interaction with industry and a strong emphasis on research, both basic and applied

The city of Rourkela is a bustling industrial town, cosmopolitan by nature and is well connected to all parts of the country by road and rail. It is en-route Howrah-Mumbai main line of South-Eastern Railway. Nesting amidst greenery on all sides, NIT campus is approximately 7km from Rourkela railway station. Rourkela is also connected by Air via Ranchi and Kolkata.

DEPARTMENT OF MINING ENGINEERING

The Department has well qualified staff dedicated to applied research in the field of coal mining technology, mine environment, safety engineering and geomechanics. Laboratories are equipped with modern and sophisticated instruments in the areas of Rock Mechanics, Mine Surveying, Mine Environment, Mining Machinery, Mine Safety Engineering and Mining Geology / Geophysics coupled with adequate computing facilities with the state-of-the-art softwares e.g. SURPAC, FLAC-2D, 3D, UDEC, GALENA, LABVIEW etc. An all round development of student is aimed at with emphasis on the applied aspects of Mining Engineering through practical training, project, seminars, camps and field work. About 30 Research Scholars are pursuing PhD and MTech (Res) on various aspects of thrust areas of mining research including application of sensor networks in the mining industry.

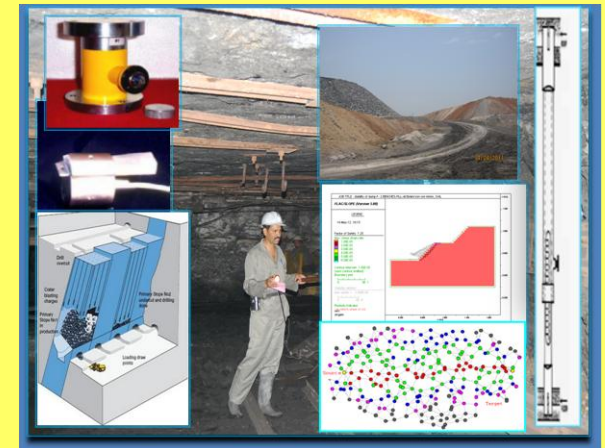
COURSE COORDINATORS:

Dr. S. Jayanthu, Professor
Department of Mining Engineering,
NIT, Rourkela -769008.

SHORT TERM COURSE
on

INSTRUMENTATION FOR EVALUATION OF GROUND CONTROL PROBLEMS AND WIRELESS SENSOR NETWORKS FOR MINES

Nov 27 - 30, 2013



COORDINATOR
Dr. S. Jayanthu



Department of Mining Engineering
National Institute of Technology
Rourkela