

ACCOMMODATION

A limited number of rooms with shared /single accommodation are available in the Guest Houses of NIT, Rourkela at a very reasonable charge. A number of hotels are also available in the city with the tariff ranging from Rs. 750 to Rs. 3000 per day. Confirmed accommodation for the delegates/participants can be arranged either in NIT campus and/or in the Hotels on specific requests accompanied with advance.

REGISTRATION AND FEE PARTICULARS

The short term course is non-residential. Applications in prescribed format [can be photocopied] and the course fee in the form of cheque/demand draft drawn in favor of "Continuing Education, NIT Rourkela" must reach the coordinator on or before 9th Jan, 2017 or deposit at A/c. No.101389 51784 (IFSC code SBIN0002109) at SBI Branch, Rourkela. The participants will be informed by e-mail as well as a personal call. The sponsorship and participation fee is as below

Sponsorship

Category	Fee (Rs./US \$)	Facility
Principal Sponsor:	2,50,000.00/ \$3000	10 Delegate Free with advt. display
Associate Sponsor:	1,50,000.00/ \$2,000	6 Delegate Free with advt. display

Individual Participation Fee

Industry/Govt.	Rs 20,000.00/\$300
Academia/Research Lab/Boards	Rs 10,000.00/\$150
Research Scholars/Students	Rs 3,000.00/\$50

A SHORT-TERM COURSE

on

Rock Mechanics with Ground Control Applications

(Jan 17-19), 2017 at N.I.T. Rourkela

APPLICATION FORMAT

- Name: _____
- Designation: _____
- Mailing Address: _____
Telephone No: _____ Fax: _____
E-mail: _____
- Organization where employed: _____
- Academic Qualifications:
Experience (in Years):
Teaching:
Industrial:
- Registration Fee particulars:
Amount: Rs.
Cheque / DD No. and Date:
- Accommodation Required: Yes/No:

Date

Signature of the Applicant

Signature and seal of Sponsoring Authority

The filled in application and information should be mailed to:

COURSE COORDINATOR

Dr. Manoj Kumar Mishra,
Associate Professor and HOD
Department of Mining Engineering,
N.I.T., Rourkela -769008, India
Tel: 0661-2462602 (O), - 2463602 (R);
9437408039 (M)

Fax No: 0661-2462601, 2472926, 2462999

E-mail: mkmishra@nitrrkl.ac.in;
manojbf3@yahoo.com

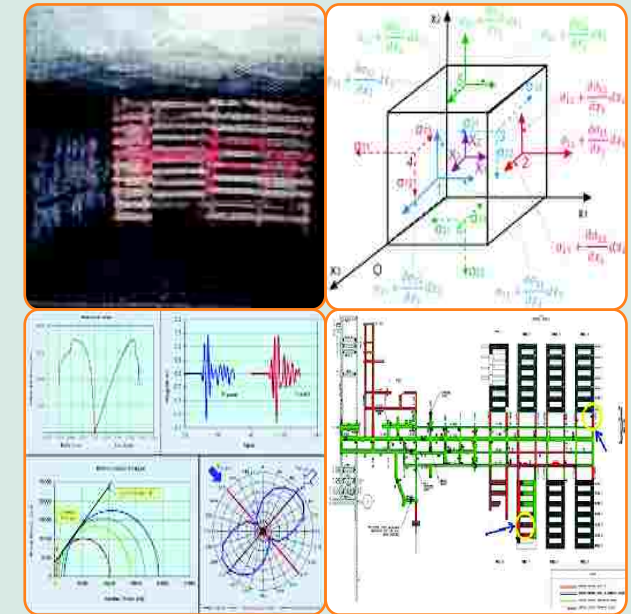
Website: www.nitrrkl.ac.in/shorttermcourse/mn

A Short-Term Course

on

Rock Mechanics with Ground Control Applications

(Jan 17- 19, 2017)



Organized by

Department of Mining Engineering
National Institute of Technology,
Rourkela, India



In association with

Department of Mining and Mineral
Resources Engineering, Southern Illinois
University Carbondale, Illinois, USA



INTRODUCTION and BACKGROUND

Designing excavations in rock mass with appropriate stability considerations in surface and underground mining is a challenge. It requires a good understanding of the principles of mechanics and rock mechanics. In last two decades mining and excavation activities in India have undergone major changes. India has an ambitious plan to produce 1.2 BT coal in the near future and hence sub-surface operations will dominate. Mining activities and civil construction excavations are being planned down to greater depths in weaker and complex rock masses. These pose tough challenges to engineers and geologists to design operations safely without compromising economics. Thus a sound knowledge of rock mechanics and ground/strata control is essential for understanding technical issues and engaging in appropriate design activities.

COURSE STRUCTURE

A comprehensive short-term course on applications of rock mechanics to ground problems in mining activities has been developed to address the issues involved. It includes both fundamentals of rock mechanics and their applications to commonly encountered ground control problems. Major emphasis will be on sub-surface applications. In addition, lab experiments shall be carried out to reinforce the concepts. Each topic shall be followed by case study analysis with numerical for better understanding.

Overview

Importance and scope of the course (Shaft Pillars, Sizes of Openings and Pillars, Size of Supports, Open-pit Slope Stability, Surface and subsurface impacts)

Module 1

Foundations of Rock Mechanics: Concepts of forces and analysis of stresses, Analysis of strains and displacements, Pre- and post-excavation state of stress, Concept of stress concentration factor, Engineering properties of rocks/rock mass and concept of failure criterion, Open Discussion

Module 2

Rock Mass Classification Systems and their Applications: Rock Quality Designation (RQD), Rock Mass Rating (RMR), Coal Mine Roof Rating (CMRR), Geological strength Index

Module 3

Openings Design: Homogeneous rock mass, Stratified rock mass, Jointed rock mass, Open Discussion

Module 4

Pillar Design in Mining Systems: Tributary area theory, Design in partial extraction mining, Design in high extraction mining, Interaction between adjacent elements and ground control impacts

Module 5

Stability of slopes and dumps: Mechanics of slope stability, Approaches to slope stability analyses, Applications in open pit mining and dump stability

Module 6

Pre-mining Investigations for Ground Control: Planning for pre-mining investigations, Coring and core studies, Geotechnical studies on cores, Analysis of data from pre-mining investigations, Open Discussion

Module 7

Rock Mass Reinforcement Concepts: Bolting, Trusses, Standing supports, Open Discussion

Module 8

Strength properties and Index Properties, Confined compression and Direct Shear Tests, Schmidt Rebound Hammer Test, Dynamic Properties, Practice on GALENA or FLAC codes

VENUE

The course will be held at Mining Engineering Department, NIT Rourkela. NIT Rourkela, today is recognized among the best institutes of higher learning in the nation. With a faculty of 280 in 21 departments and 850 full-time PhD students on campus, it presents a truly scholastic climate in addition to a beautiful campus. Rourkela is well connected by air, rail and road service networks to the rest of the country. The climate during January remains pleasant with light warm clothing.

RESOURCE PERSONS

The course shall be covered by faculty members of Mining Engineering Dept, NIT Rourkela and Prof Y. P.Chugh, SIUC, USA, Laboratory experiments will be performed at the department.

DEPARTMENT OF MINING ENGINEERING, NIT ROURKELA

The Department offers undergraduate, post-graduate and doctoral programs with major focus in Geo-mechanics, Strata



Control, Mine Environment, and Clean Coal Technology. It has well equipped laboratories with modern and state of the art equipment as well as numerical modeling software. The faculties are active in sponsored research and consultancy funded by DST, MOM, MoC, CSIR, OMC, SECL, ESSEL, SCCL, WCL, SAIL, BLS, etc. About 30 research scholars are pursuing PhD and M. Tech (Res) in different thrust areas in mining such as remote sensing, wireless network communication, slope stability, coal characterization, etc.

DEPARTMENT OF MINING AND MINERAL RESOURCES ENGINEERING, SIUC, IL, USA

The Department is globally well known for its strong programs in mining engineering. Prof Y. Paul Chugh guided the department for about 16 years



as its Chairman, was former-Director of Coal Combustion byproduct Consortium, IL. Presently he is a Professor Emeritus and Visiting Professor in the Department. He is an authority on rock mechanics and ground control with more than 45 years of academic, research and professional experience.