

झारखण्ड सरकार  
विज्ञान एवं प्रावैधिकी विभाग  
नेपाल हाउस, डोरण्डा, राँची

पत्रांक:-वि0प्रा0/विविध-119/11 - 2273/राँची, दिनांक:- 3/12/11 a.m.  
प्रेषक, प्रो0 अरुण कुमार,  
निदेशक।  
for m. a. m.  
HOD, Civil Engg.

सेवा में,

कुलपति आई0एस0एम0 धनबाद/बी0आई0टी0 मेसरा।  
निदेशक, एन0आई0टी0 जमशेदपुर/निफ्ट राँची/बी0आई0टी0 सिन्दरी।  
सचिव, राज्य प्रावैधिक शिक्षा पर्षद झारखण्ड, राँची।  
कुल सचिव, राँची विश्वविद्यालय, राँची/विनोबा भावे विश्वविद्यालय,  
हजारीबाग/कोल्हान विश्वविद्यालय, चाईबासा/निलाम्बर-पिताम्बर  
विश्वविद्यालय, डालटेनगंज, पलामू।

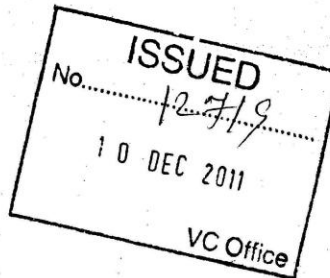
विषय :- राज्य के विश्वविद्यालयों/तकनीकी संस्थानों में कार्यरत भूकम्प निरोधी डिजाइन व तकनीक के विशेषज्ञों तथा इस विषयक Courses की सूची उपलब्ध कराने के संबंध में।

महाशय,

निदेशानुसार उपर्युक्त विषय के संबंध में कहना है कि माननीय मुख्यमंत्री को सम्बोधित श्री एम0श्रीधर रेड्डी, माननीय उपाध्यक्ष, राष्ट्रीय आपदा प्रबंधन प्राधिकार, भारत सरकार से प्राप्त अ0स0प्रे0सं0 Lt.No. 170/VC/NDMA/2011 दिनांक 05.10.2011 छाया प्रति संलग्न है, जिसमें राज्य के विश्वविद्यालयों/तकनीकी संस्थानों में कार्यरत भूकम्प निरोधी डिजाइन व तकनीक के विशेषज्ञों तथा इस विषयक Courses की सूची भेजने का उल्लेख किया गया है।

अतः अनुरोध है कि संलग्न पत्र में उल्लेखित बिन्दुओं के आलोक में नियमानुसार समुचित कार्रवाई करने की कृपा की जाय।

अनु0:- एक पृष्ठों में।



Dr. BRS

12.12.11

विश्वासभाजन  
क.कुमार  
(प्रो0 अरुण कुमार)  
निदेशक

Dr. A.K.  
Dr. S.S.  
Dr. R. Paul  
Dr. P. Kumar



*Sec. & Tech*

**M. Shashidhar Reddy**  
MS (USA)  
(MLA, Andhra Pradesh)  
Vice Chairman



(1554)

National Disaster Management Authority  
Government of India  
NDMA Bhawan  
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D.O. Lr.No.170/VC/NDMA/2011

05 Oct, 2011

*Dear Shri Arjun Munda ji,*

You are aware that India is faced with major threat of earthquakes with 58.6% land area in seismic zone III, IV and V in which 78% of population of country is residing. It is therefore, imperative that seismic engineering, earthquake resistant construction design and techniques be included in the curriculum of Civil Engineering and Architecture Courses of the technical colleges, universities, institutes in the country at the diploma, graduate and undergraduate levels. To plan this, it would be important to look at the current status of:-

- (a) Number of faculty members who are having the background of training on the subject of earthquake resistant construction design and techniques and,
- (b) The earthquake resistant design and construction related courses which is being taught as a part of mandatory curriculum of the undergraduate and diploma level academic programmes in universities/technical institutions.

2. Since there are large number of Universities and technical institutions teaching civil engineering at diploma, undergraduate and postgraduate level academic courses, it may be a difficult task for NDMA to collate the information as sought above from them. Therefore, I would request you to ask the State Higher Education Department to gather and furnish this information to NDMA as early as possible. After receiving the inputs, we will convene a brain storming meeting of experts to discuss the concerns and challenges towards introducing these subjects in the curricula.

*With best regards*

Yours sincerely,

(M. Shashidhar Reddy)

**Shri Arjun Munda**  
Hon'ble Chief Minister of Jharkhand  
Govt of Jharkhand  
Ranchi

*1. Health paper  
2. all subject check in prof/old  
state plan to plan*

**Relevance/importance of CE 8005 ‘Rock Mechanics and Applications of Civil Engineering to Surface Mining’ ( 8<sup>th</sup> semester, 2011 syllabus) in the regional context:**

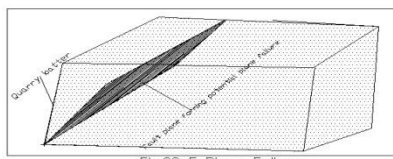
Jharkhand is one of the richest mineral zones in the world and boasts of 40 per cent and 29 per cent of India's mineral and coal reserves respectively. Due to its large mineral reserves, mining and mineral extraction are the major industries in the state. Value of mineral production (excluding fuel minerals) during 2017-18 (up to February 2018) stood at Rs 1,866.25 crore (US\$ 289.57 million).

Main contribution of mining is largely due to rapid increase in contribution from opencast coal mines (presently 94% of total coal production of India). Coal produced from opencast coal mines is responsible for 80% of electricity generation in India which is associated with waste rock production of 1100 million m<sup>3</sup>.

But the main challenge in maintaining such huge coal production is

- 1) To minimize amount of waste rock/soil in exposing coal/lignite by keeping steep slope of highwall / quarry batter.
- 2) To accommodate amount of waste rock within de-coaled area ( rock expands in volume by more than 30% after excavation.) as much as possible (internal dump). This operation becomes difficult due to steep inclination of coal seam i.e. de-coaled area.
- 3) Rest amount has to be dumped outside the quarry in limited available space (external dump).

**Regarding problem no.1,** the stability of highwall depends position and orientation of fault plane .



The problem in most of the operating mines facing such type of failure will be discussed. In all the cases, geological report does not mention exact location of fault planes with respect to highwall.

Four case studies will be discussed

- Umrer ( involving 2 persons) in which there was wedge failure due to three faults.
- Rajmahal ocp ( involving 23 persons),
- Juna-Kunada & Kusmunda ( no fatal accident due to warning prior to failure)



Major landslide in Rajmahal opencast mine Jharkhand



**Exposed fault plane in Failure of Jhingurdah ocp (Singrauli coalfield)**

Simultaneous failure of dump and highwall failure of Rajmahal ocp slided volume 23 million cu.m



**Juna-Kunada Failure in which there is no fatality due to pre-failure warning (0.1 m. cu.m)**

**For problems regarding problem no.2, two failure are shown in following figures**



**Failure at Jayant ocp causing 5 fatalities ( 0.14 m. cu.m)**



**Fatalities at Sasti ocp 2 fatalities ( 0.20 m. cu.m)**

**For problem no.3**



**External dump failure in a lignite mine**

**For problem no. 1,**

Position of fault plane can be detected from rock quality designation and shear strength properties of fractured rock determined by point load test and intact rock by tri-axial test apparatus.

**For problem nos. 2 & 3,** There are three types of dump material

- dump material for both internal & external dump,
- interface material at the base of internal dump material
- foundation at the base of external dump.

50 kg of material is tested in large box shear test apparatus.



*This tested geo-technical parameters are again re-checked by back analysis of existing dump which is considered to be standing at limiting equilibrium.*

Following geo-engineering parameters are considered for dump material:- .

H- Overall height of dump with respect to horizontal plane passing through dump toe (m)

L- Overall slope angle with respect to horizontal plane passing through dump toe ( $^{\circ}$ ) .

FS – Factor of safety

$C_2$  - Cohesion of dump material.

$\Phi_2$  - Angle of internal friction of dump material.

$C_3, \Phi_3$  - Cohesion and Angle of internal friction of interface material.

[ A layer of crushed coal, crushed rock mixed with water lies at the mine floor - this layer is called interface material]

$\Gamma_2$  - Bulk unit weight of dump material

I- Mine floor inclination

D- Height of water table at 60 -100m behind toe of the dump.

$C_4, \Phi_4$  - Cohesive and Frictional resistance between coal rib and its floor

$A_g$  - Ground acceleration generated in dump mass in case of earthquake.



Fig 1: Geological cross-section of an opencast mine



Figure 2: Deployment of dragline and shovel-dumper at different strata

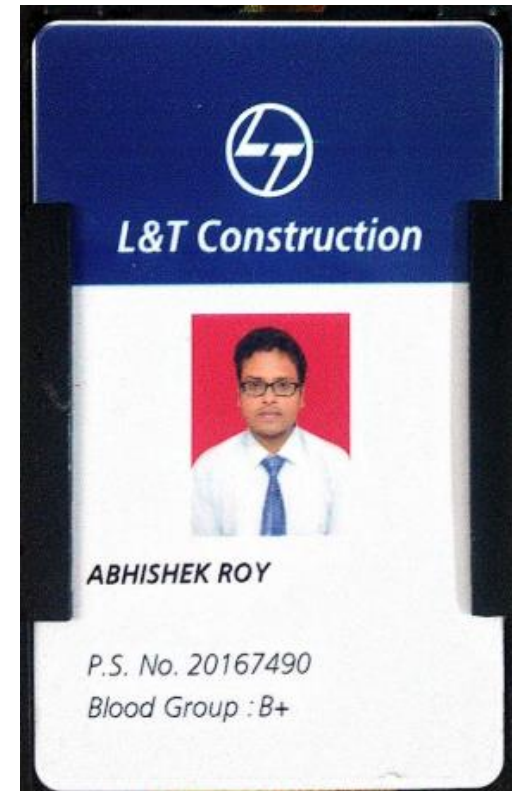




**Fatal accident in Umrer ocp (Maharashtra) due to presence of three fault planes forming potent wedge block**



**Exposed fault plane in opencast mines**



Few of our BE Civil UG 2K13 batch students working on core construction L& T



# SPARSH ENGINEERING COMPANY (P) LIMITED

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Ref. ....

SP/HR/2018/S\_0121/01

Date .....

04/07/2018

To,  
Gyaneshwar Kumar  
Vill.-Imamganj, P.S.-Shosarai,  
Dist. Nalanda, Bihar Sharif  
Mobile: 7294157026  
Email: gyaneshwarkumar.kumar14@gmail.com

**PRIVATE & CONFIDENTIAL**

**Sub: Job Offer for the Post of "Assistant Engineer"**

Dear Mr. Gyaneshwar

With reference to your job application and subsequent interview conducted at our Office, the Management is pleased to offer you the position of "Assistant Engineer".

You will be governed by the rules and regulations, standing orders of the Company either in existence or which might come in force from time to time.

You will be paid gross emoluments as mutually agreed during the interview along with other terms & conditions. A detail appointment letter will be issued to you at the time of joining. You are required to submit the following documents at the time of joining:


1. Academic Certificate(s).
2. Experience Certificate (s).
3. Two passport size Photographs.
4. Copy of Pan Card.
5. Address Proof
6. Copy of Aadhar Card

You are required to join on or before 9<sup>th</sup> July, 2018. This offer letter shall be valid up to 9<sup>th</sup> July, 2018.

Please sign and return copy of this letter in token of your acceptance.

We wish you all the best for a mutually beneficial association with us.

For Sparsh Engineering Company (P) Ltd.

  
(Sudhir Kumar )  
Director

ENGINEER

CONSULTANT

ARCHITECT

PLANNER

Regd. Office : Flat No. - 504, Midland Apartment (West), Anantpur, Near Overbridge, Doranda, Ranchi-834002, (Jharkhand)



An ISO Certified Company  
ISO 9001 : 2015 Certified Company