International Virtual Short-Term Course on
Futuristic Prospects of Geoenvironmental and Geotechnical Issues of Coal Mine Overburden and Mine Tailings
15th to 18th March 2021

Sponsored by Scheme for Promotion of Academic and Research Collaboration (SPARC), Government of India

About the Course

India has a long history of coal mining covering nearly 220 years starting from 1774. India has the fourth-largest reserves of coal in the world. Commercial primary energy consumption in India has grown by about 700% in the last four decades and therefore coal is the most important and abundant fossil fuel in India, which accounts for 55% of the country's energy needs. The coal-based thermal power plants support approximately 80% of the total power requirement in India. The consequence of massive coal mining is the generation of mine overburden of quantity double the amount of coal mined. The requirement of usable or forest lands for storage, dust and plume gas from stockpiles, acid mine drainage, occasional landslides of dump slopes, and environmental hazard in terms of air, water and land contamination, are a few problems associated with mine overburden. Large heterogeneity in gradations and complex mineralogical compositions are major impeding factors for its utilization.

Aim of Course

This online course aims at research needs addressing a comprehensive solution to important Geoenvironmental and Geotechnical issues with a major focus on coal mine overburden and mine tailings.
It provides a premier interdisciplinary platform for researchers, practitioners, and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Geoenvironmental and Geotechnical Engineering.

Who can Participate ?

The course module is formulated with twelve lectures delivered by the eminent National and International Faculty and Industry experts via online covering a wide range of topics relevant to the course theme. The course will be highly beneficial for the academicians, scientists, practitioners, industry personnel, master students, and doctoral research scholars.

Registration FREE **http://bit.ly/SPARC-registration**

Certificate of Participation will be issued for the participants attending the full course. However, participants are free to select topics of their interest.

Organized by

Department of Civil Engineering, Indian Institute of Technology (ISM) Dhanbad, Jharkhand, India

Department of Civil, Materials, and Environmental Engineering, University of Illinois at Chicago, USA

Indian Convener

Prof. Sarat Kumar Das, Department of Civil Engineering, IIT(ISM) Dhanbad

Foreign Convener

Prof. Krishna R. Reddy, Department of Civil, Materials, & Environmental Engineering, UIC, USA

Coordinator

Prof. Lohitkumar Nainegali, Department of Civil Engineering, IIT(ISM) Dhanbad

To Register

International Virtual Short-Term Course on Futuristic Prospects of Geoenvironmental and Geotechnical Issues of Coal Mine Overburden and Mine Tailings, 15th to 18th March 2021

SPEAKERS AND TOPICS

DAY – 1: 15 March 2021

Time: 06:00 PM to 06:25 PM (IST)

Inaugural Address

Lecture 1 | **Time: 06:30 PM to 07:30 PM (IST)**

Speaker: Prof. Torsten Wichtmann, Head of Soil Mechanics, Foundation Engineering and Environmental Geotechnics at the Ruhr University, Bochum, Germany.

Topic: **Investigations on the seismic slope stability for planned residual lakes in opencast mines**

Lecture 2 | **Time: 07:35 PM to 08:35 PM (IST)**

Speaker: Dr. Jorge Macedo, Assistant Professor, Geosystems Engineering, School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, USA.

Topic: **Recent tailing dam failures and the role of mine tailings mechanical properties**

Lecture 3 | **Time: 08:40 PM to 09:40 PM (IST)**

Speaker: Dr. Katerina Ziotopoulou, Assistant Professor, Department of Civil & Environmental Engineering, University of California, Davis, CA, USA.

Topic: **Constitutive models for sands and low-plasticity silts and clays and their application in tailings**

DAY – 2: 16 March 2021

Lecture 1 | **Time: 10:30 AM to 11:30 AM (IST)**

Speaker: Prof. Krishna Reddy, Professor, University Scholar and Distinguished Researcher, Department of Civil, Materials, and Environmental Engineering, University of Illinois, Chicago, USA.

Topic: **Coal mine refuse and coal ash disposal sites: Groundwater management zones & remediation options**

Lecture 2 | **Time: 11:35 AM to 12:35 PM (IST)**

Speaker: Dr. Luis Alberto Torres Cruz, Senior Lecturer, School of Civil and Environmental Engineering, University of the Witwatersrand, Johannesburg, South Africa.

Topic: **Critical state line of non-plastic tailings**

Lecture 3 | **Time: 12:40 PM to 01:40 PM (IST)**

Speaker: Dr. Partha Narayan Mishra, Adjunct Lecturer, School of Civil Engineering, The University of Queensland, Australia.

Topic: **An overview on mine tailings and tailings storage facilities: Geotechnical properties, processes and challenges**

DAY – 3: 17 March 2021

Lecture 1 | **Time: 06:30 PM to 07:30 PM (IST)**

Speaker: Mr. Greg Smith, Carbon Footprint Disposal, Picton, Ontario, Canada.

Topic: **Electro kinetic application to bolster earthen tailings pond dams**

Lecture 2 | **Time: 07:35 PM to 08:35 PM (IST)**

Speaker: Dr. Robert Bachus, Senior Principal Engineer, Geosyntec Consultants, Inc., Georgia, USA.

Topic: **Geotechnical characterization and engineering properties of coal combustion residuals that influence design and construction**

Lecture 3 | **Time: 08:40 PM to 09:40 PM (IST)**

Speaker: Dr. Ranjiv Gupta, Chief Geotechnical Engineer (Tailings and Water), Freeport-McMoRan Inc., Phoenix, Arizona, USA.

Topic: **Tailings governance and management system: Owner's perspective**

DAY – 4: 18 March 2021

Lecture 1 | **Time: 09:30 AM to 10:30 AM (IST)**

Speaker: Dr. Mayu Tincopa, General Manager, Cone Tec, Peru, Lima Peru.

Topic: **The relevance of site investigation in tailings dam**

Lecture 2 | **Time: 10:35 AM to 11:35 AM (IST)**

Speaker: Prof. Devendra Narain Singh, Professor, Department of Civil Engineering, IIT Bombay, India.

Topic: **Mission IBPs: Valorisation of industrial byproducts**

Lecture 3 | **Time: 11:40 AM to 12:40 PM (IST)**

Speaker: Dr. Oznur Karaca, Associate Professor, Geological Engineering, Canakkale Onsekiz Mart University, Canakkale, Turkey.

Topic: **Environmental issues related to mining: Problems with mining sites, characterizations, and remediation options**

Time: 12:40 PM to 01:00 PM (IST)

Closing Remarks

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