

## Two-weeks Short-term Course on Polluted Sites: Characterization and Remediation

*(Sponsored by Ministry of Human Resource Development (MHRD), Government of India, New Delhi under the program of 'Global Initiative of Academic Networks (GIAN)')*

25<sup>th</sup> July, 2016 – 5<sup>th</sup> August, 2016

### Course overview

Rapid industrialization causing increase in number of polluted sites across the globe despite best pollution preventive measures are being practiced. The polluted sites pose potential risks to public health and safety and to the environment. As such, remediation of contaminated sites is an urgent priority of environmental professionals. Proper characterization of polluted site and its subsequent remediation with viable and economical techniques is crucial in eliminating the environmental risk and converting the polluted site into usable land. This specialized course intends to impart essential knowledge on theoretical and practical aspects of polluted sites, state-of-the-art techniques of identifying polluted sites and their characterization, risk analysis, and sustainable remediation techniques. Both fundamental concepts and practical aspects will be covered with examples and case studies in this course.

All the lectures delivered enable him/her the competence to handle issues related to the characterization of contaminated sites and use of cost-effective and environmentally sustainable technologies necessary for the various categories of pollutants. Students working in the area of geotechnical and geoenvironmental engineering, hydrogeology and interdisciplinary areas will get benefitted by this course.

The course participants will learn the concepts of various topics through lectures and tutorials. Also case studies and assignments will be shared to stimulate the field applications and research motivation of participants.

### Course contents

- Fundamentals of geoenvironmental engineering and its scope
- Basic concepts related to soil pollution, sources of pollution
- Soil-Water-Contaminant interaction
- Alternative and non-destructive techniques of detecting contaminated sites
- Soil remediation by excavation, soil washing, stabilization/solidification, soil vapor extraction, electrokinetic remediation, thermal desorption, vitrification
- Bioremediation, phytoremediation, soil fracturing
- Groundwater remediation technologies: in-situ flushing, permeable reactive barriers, in-situ air sparging, monitored natural attenuation, bioremediation
- Case studies on polluted sites and issues related to environment.

### Who can attend?

- Faculty from academic/technical institutions and researchers from R&D centres.
- Practicing Civil, Mining, and Environmental Engineers, Geologists, Hydrogeologists
- Planners, policy makers and regulators from municipal solid and industrial waste management authorities
- Executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories.
- Senior B.Tech./B.E./B.Sc. Eng students, M.Tech. and Ph.D. candidates working in the areas of civil, mining, and environmental engineering from academic, technical and research institutions.

### Course period and venue

25<sup>th</sup> July-2016 to 5<sup>th</sup> August-2016

School of Infrastructure, Indian Institute of Technology Bhubaneswar  
Samantapuri, Bhubaneswar-751 013, Odisha, India

### Course fee

- Participants from industries: Rs. 4000
- Participants from academic/technical institutions and R&D units: Rs. 3000
- Students: Rs. 1500
- Participants from abroad : US \$100

The fee includes all instructional materials, computer use for tutorials and assignments, and laboratory equipment usage charges. The course fee does not include accommodation. However, the participants will be provided accommodation on the payment basis.

### Registration

Register for the course online at:

<http://www.gian.iitkgp.ac.in/GREGN/index>

The last date of registration is 20<sup>th</sup> July 2016.

Number of participants for the course is limited to 60.

### Course faculty



Dr. Krishna R. Reddy  
Professor  
Department of Civil and Environmental Engineering  
University of Illinois, Chicago, USA  
<http://www.cme.uic.edu/CME/ProfileReddy>

**Dr. Krishna R. Reddy** is a Professor of Civil and Environmental Engineering at the University of Illinois, Chicago, USA. His research interests include remediation of contaminated sites, waste containment systems, waste material characterization and reuse, and sustainable engineering. He has over 25 years of teaching, research and consulting experience within the broad field of Civil and Environmental engineering. He is the author of well-known book titled “Geoenvironmental Engineering: Site Remediation, Waste Containment, and Emerging Management Technologies”. He is the author of 155 journal papers and 9 book chapters. He serves as an Associate Editor or Editorial Board member of over 10 international journals.

### Course coordinator and address for correspondence



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**Dr. B. Hanumantha Rao** is an Assistant Professor at the School of Infrastructure, Indian Institute of Technology, Bhubaneswar. His areas of research interest include development of sensors for soil characterization, expansive soils, behaviour of unsaturated soils, geotechnics of waste and waste utilization, and electrical & thermal properties of soils.