Advanced Remote Sensing Techniques for Mine Environmental and Safety Monitoring

Overview

In light of increasing awareness for environmental stewardship; it has become vital to closely and frequently monitor the impact of mining on surrounding environment. Remote sensing technology on other hand is evolving very rapidly and has a great potential to complement and enhance conventional monitoring systems. The remote sensing sensors are day by day getting better to capture unprecedented details of the targets. The platforms to carry such sensors; i.e. satellites, aircraft, terrestrial and more recently Unmanned Aerial Vehicles (UAV) are also getting more robust and reliable. Furthermore, software and algorithms to analyse this data is also developing at a very high pace. This course provides an opportunity for the participants to get broad overview of almost all the sensor technologies and their specific applications for mining and geo-resource researchers. The course includes hands-on tutorial exercises and real-world examples from mine sites.

This course provides a detailed understanding on various aspects of remote sensing involving multispectral, hyperspectral, thermal, microwave and LiDAR sensors. Emphasis is given to their specific applications for mining industry citing numerous mining examples and hands-on tutorials. A particular focus is on environmental monitoring including mapping re-vegetation, detecting land cover and land use changes; tracing soil contamination, slope monitoring etc. Mine safety aspects including subsidence monitoring is also included to provide complete set of applications.

Modules	**A: Basics of Hyperspectral Remote Sensing Technology : December 3 – December 5** **B: Basics of Microwave and Lidar Technology : December 6 – December 7** **C: Applications in Environmental and Safety Monitoring : December 6 – December 7** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ you are an executive or engineer from mining industry or allied service sector ▪ you are in a government organisation including R&D laboratories dealing with mine environment and safety monitoring ▪ you are a student (BTech/MSc/MTech/PhD) or a faculty in Mining Engineering or Environmental Engineering interested in learning how to incorporate advance remote sensing for mining applications
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $500** **Industry/ Research Organizations: Rs 30000** **Academic Institutions: Rs 10000** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Dr. Simit Raval is a Deputy Director of undergraduate mining engineering programme at the University of New South Wales (UNSW) in Sydney, Australia. As the Co-director of the Laboratory for Imaging of the Mining Environment (LIME) at UNSW, he leads a group of researchers focused on using smart sensors to visualise, identify and monitor the environmental and safety aspects of mining.

Professor Debashish Chakravarty is with the department of Mining Engineering, IIT Kharagpur, India. His research interest include use of advanced technologies, like sensor integration, remote sensing, GPS, GIS, VR, automated rescue robot for mineral and mining industries. He has interest in technical investigation of slope stability issues. He is the Professor-in-charge of Mine Surveying, Remote Sensing & GIS Laboratories. Additionally, he is the Professor for the institute flagship program on Autonomous Ground Vehicles (AGV) Research for different types of robots in open cast and underground conditions. .

Course Co-ordinator

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