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## **Press-Release**

### **Prof. D. P. Mishra of IIT (ISM) Dhanbad wins twin national honours at CMPDI Hackathons on R&D and Carbon Capture Technology 2025**

Prof. **D. P. Mishra** from the Department of Mining Engineering, **IIT (ISM) Dhanbad**, has brought laurels to the institute by securing two prestigious national awards at the *Hackathon on R&D 2025* and *Hackathon on Carbon Capture Technology-2025*, both organized by **Central Mine Planning & Design Institute (CMPDI)**, under the aegis of the **Ministry of Coal, Government of India**.

Prof. Mishra, in collaboration with **TCS Research, Kolkata**, was declared the **1st Runner-Up** in the *Hackathon on R&D 2025* under the theme “*Indigenous Development of Multi-gas Detector for Underground Coal Mining for Continuous Monitoring.*” The collaborative team proposed an innovative solution titled “*AI-enabled Photoacoustic Spectroscopy-based Multi-gas Detector for Underground Coal Mines.*” The cutting-edge model aims to significantly enhance **safety and operational efficiency** in underground coal mining by facilitating **real-time, multi-gas detection and continuous monitoring** in deep mining environments.

The **TCS Research, Kolkata** team comprised **Dr. Abhijeet Gorey, Mr. Chirabrata Bhaumik, and Dr. Subhasri Chatterjee**, who worked closely with Prof. Mishra in developing this indigenous AI-driven system tailored to Indian mining conditions.

In another major achievement, Prof. Mishra secured the **2nd Runner-Up** position in the *Hackathon on Carbon Capture Technology-2025*, under the theme “*Geological Storage of Captured CO<sub>2</sub> in the Coal Bearing Regions of India.*” His project focused on assessing coal properties relevant to CO<sub>2</sub> sequestration, emphasizing **abandoned and unmineable coal seams in the Jharia Coalfield**, to promote **sustainable carbon capture and storage (CCS) solutions** aligned with India’s net-zero emission goals.

The awards were presented by **Shri G. Kishan Reddy**, Hon’ble **Union Minister of Coal and Mines**, and **Shri S. C. Dubey**, Hon’ble **Minister of State**, during a felicitation ceremony held at **Hotel Trident, Mumbai**, on **September 4, 2025**, in the presence of dignitaries from the Ministry of Coal, **Coal India Limited**, and **CMPDI**.

Prof. Mishra’s extensive body of research spans diverse areas such as **mine ventilation and environment, mine fires and explosions, spontaneous combustion of coal, computational fluid dynamics (CFD) applications, mine backfilling/stowing with fly ash, and radiological safety studies**. Over the years, he has successfully led several **sponsored research projects**, guided **multiple Ph.D. scholars**, and contributed significantly to enhancing safety and sustainability standards in the mining industry.

Consistently listed among the **World’s Top 2% Scientists** by **Stanford University** since **2021**, Prof. Mishra also serves on the **Editorial Board of the Journal of Sustainable Mining**. His contributions to academic leadership include serving as **Head of the Department of Mining Engineering** and **Chairman/Convener** of national and international events such as the *International Conference on Mine Ventilation and Environment for Green Mining (MVEGM-2024)* held at **Puri, Odisha**.

Prof. Mishra’s achievements reinforce **IIT (ISM) Dhanbad’s leadership in advancing research and innovation** in the field of mining and sustainable energy technologies, while fostering productive collaborations between academia, research institutions, and industry.

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