



# Indian School of Mines

## A STEP TOWARDS SKILL INDIA PROGRAMME

Indian School of Mines, Dhanbad has 18 departments and 6 Centres of Excellence offering:

- Thirteen B.Tech programmes,
- Five 5-year Dual Degree programmes,
- Three 5-year Integrated M.Sc/M.Sc.Tech/M.Tech programmes,
- Two 3-year M.Sc.Tech programmes,
- Three 2-year M.Sc programmes,
- Twenty One M.Tech programmes,
- Four 1-year M.Phil programmes,
- One MBA programme,
- One Executive MBA programme, and
- Ph.D (Part-time & Full-time) programmes.

The Thrust areas of the various Departments of the institution in which Research and Industry Extension programmes and activities are being carried out are presented, department-wise. Interested industries can visit respective departmental link to contact heads of the department for collaboration.

<b>Department</b>	<b>Thrust Areas</b>
<a href="#">Mining Engineering</a>	Mine Ventilation, Sub-surface Environmental Engineering, Rock Mechanics and Ground Control, Rock Excavation Engineering, Mine Surveying and Geomatics, Surface Mining, Numerical Model and Simulation in Mines, Longwall Mines, Underground Coal Mining technology, Coal Bed Methane and Underground Coal Gasification
<a href="#">Fuel &amp; Mineral Engineering</a>	Iron Ore Processing and Agglomeration, Non-ferrous Materials - Processing and Extraction Coal Combustion technology, Coal Combustion and Power Plant Engineering, Clean Coal Energy Technology, Coal Preparation and Utilization, Industrial Mineral Processing
<a href="#">Environmental Science &amp; Engineering</a>	Air, Water and Noise Pollution Studies, Land use in soil studies, Environmental Geo-technology, Micro Biology, Hydro Geology, Remote Sensing and GIS
<a href="#">Petroleum Engineering</a>	Enhance Oil Recovery, Drilling Mud and Fluid Engineering, Drilling Technology, Oil & Gas Production Technology, Gas Hydrates, Coal Bed Methane Exploration and Recovery, Numerical Modelling and Simulation

<a href="#">Mining Machinery Engineering</a>	Material Handling, Hydraulics Engineering, Mine Electrical Engineering, Automobile Engineering
<a href="#">Applied Geology</a>	Mineral and Coal Exploration, Coal Geology, CO <sub>2</sub> Sequestration, Geo-Statistics, Hydrogeology and Water Resource Engineering, Geo-Chemistry, Geochronology, Isotope Geology, Economic Geology
<a href="#">Applied Geophysics</a>	Mathematical and Electrical Anomaly, Geophysical Exploration techniques, Remote Sensing and GIS, Earthquake Engineering, Disaster Management
<a href="#">Management Studies</a>	Project Management, Financial Management, Human Resource Development, Industrial Engineering and Management, Business and Marketing Management, Quality Management
<a href="#">Chemical Engineering</a>	Chemical Reaction Engineering, Fluidization technology, Clean Coal Energy Technology, Polymer and Catalysis Engineering
<a href="#">Civil Engineering</a>	Geo technology Engineering, Structural Engineering, Water Resource Engineering, Road and Building Life Assessment
<a href="#">Computer Science &amp; Engineering</a>	Cryptography & Network Security, Ubiquitous Computing, Image and Video Processing, Machine Learning and Pattern Recognition, Software Testing and Reliability, Soft Computing, Data Mining
<a href="#">Electrical Engineering</a>	Conditioning and Monitoring of Electrical Drives, Power System Operation and Control, Power Electronics and Drives, Process Control, Instrumentation
<a href="#">Electronics Engineering</a>	Photonics, Microwave and Antenna, Communication and Signal Processing, VSLI Design, Microelectronics, Instrumentation and Process Control
<a href="#">Mechanical Engineering</a>	Fluid Mechanics and Hydrology, Air Conditioning and Refrigeration, Thermal Engineering, IC Engine and Mass Heating Transfer, Materials Science & Engineering, Vibration Studies, CAD-CAM
<a href="#">Applied Chemistry</a>	Surface Chemistry, Spectroscopy, Corrosion Science & Technology, Electro Chemistry, Polymer Science & Technology, Catalysis Science and Application, Drug Delivery, Thermal Analysis
<a href="#">Applied Mathematics</a>	Theoretical Seismology, Numerical Methods and applications, Fluid Technique concepts and applications, Statistics and Statistical quality control, Computing and Soft Computing
<a href="#">Applied Physics</a>	Thin Film Studies, Structural Characterization of Materials, Optical Characterization, Dry Electrical and Electrical Characterization, Fibre Physics, Bio-Medical Physics
<a href="#">Humanities &amp; Social Sciences</a>	Business & Scientific Ethics, English for Special Purpose, English Language and Teaching, Psychology

### **Adjunct Faculty & Industry Professionals (Chair Professors)**

Indian School of Mines, Dhanbad has been conscious of imparting additional inputs on the modern concepts, technologies and innovative practices adopted in the industries to its students besides the regular curriculum through the Adjunct Faculties named as Adjunct Professors. The expertise and experience of the industry professionals, senior research managers/scientists and reputed professors of eminence are availed in this scheme and most of the departments have Adjunct Professors & Chair Professors providing the new dimension of the processes and practices to the students and research scholars.

The positions of adjunct professor and chair professor have been adorned by eminent industry leaders, researchers, scientists & academicians who have achieved laurels for their significant contribution in their chosen fields of activity. To mention a few – (a) Discovery of K-G Basin, (b) S&T Development in Earth Sciences (c) Formulation of Ground Water Resource Modelling, (d) Steering of Coal India into a Maharatna Company, (e) Innovative leadership in Mine Planning & Design, (f) Dissemination of Knowledge and Information to Industries in India & Abroad, etc.

### **Adjunct Professors**

The Adjunct Professor Scheme has been approved by the Executive Board of ISM, Dhanbad during its meeting held in 2011. The appointment of Adjunct Professors is generally made for a period of one year. However, that a person appointed in one year will be eligible for re-appointment in subsequent year(s).

An Adjunct Professor shall be expected to deliver a minimum of 10-15 advanced level lectures/seminars in his area of specialization and interact with students, research scholars and faculty in every semester. There is no age limit for appointment of Adjunct Professor in ISM.

### **List of Adjunct Professors as on 30.09.2014 is shown below**

Sl. No.	Name of the Adjunct Professor	Dept.	Period of Engagement		Position held prior to Appointment
			From	To	
1.	Padmashree Prof. Rabi Bastia	Applied Geology	01.01.2012	31.12.2012	Sr. Vice-President, Reliance Industries Ltd.
			01.01.2013	31.12.2013	
			01.01.2014	31.12.2014	
2.	Padmashree Prof. V. P. Dimri	Applied Geophysics	01.07.2014	30.06.2015	Director, NGRI

3.	Dr. S. C. Dhiman	Applied Geology	01.01.2012	31.12.2012	Chairman, Central Ground Water Board
			01.01.2014	31.12.2014	
4.	Shri N. K. Mitra	Petroleum Engg.	01.07.2012	30.06.2013	Director (Offshore), ONGC Ltd.
			01.01.2014	31.12.2014	
5.	Prof. D. D. Pathak	Management Studies	01.07.2011	30.06.2012	Chief (HR&IR) Tata Steel Ltd
			01.07.2012	30.06.2013	
			01.03.2014	28.02.2015	
6.	Prof. V. K. Gupta	Fuel & Mineral Engg.	01.07.2012	30.06.2013	General Manager, SAIL
			02.07.2014	30.06.2015	
7.	Prof. B. P. Pandey	Petroleum Engg.	01.01.2012	31.12.2012	Ex-Professor, ISM Dhanbad
			22.08.2014	30.06.2015	
8.	Prof. A. K. Ghose	Mining Engg.	01.07.2013	30.06.2014	Ex-Director, ISM Dhanbad
			22.08.2014	30.06.2015	
9.	Prof. Ashok Khanna	Chemical Engg.	01.03.2014	28.02.2015	Ex-Professor, IIT Kanpur
10.	Shri P. K. Hazra	Applied Geophysics	01.01.2014	31.12.2014	General Manager, CMPDIL, Ranchi
11.	Dr. Hrusikesh Mishra	Fuel & Mineral Engg.	01.02.2014	31.01.2015	Director (Project), CMPDIL Ranchi
12.	Prof. S. P. Banerjee	Env. Sc. & Engg.	01.01.2014	31.12.2014	Ex-Director, ISM Dhanbad
13.	Prof. P. K. Basudhar	Civil Engg.	01.02.2014	31.01.2015	Ex-Professor, IIT Kanpur
14.	Prof. R. L. Malhotra	Petroleum Engg.	01.01.2014	31.12.2014	Ex-General Manager (Operations), ONGC Ltd.
15.	Prof. K. D. P. Nigam	Chemical Engg.	10.02.2014	09.02.2015	Ex-Professor, IIT Delhi
16.	Prof. U. K. Chaudhary	Civil Engg.	22.08.2014	21.08.2015	Ex-Professor, IIT(BHU)

### Chair Professors

ISM's contribution & capabilities in the areas of its expertise has been recognized by the user industries, by way of establishing endowment chairs. The Endowment Chair Professors are appointed to undertake teaching & research in the area of interest to the industry while

developing relationship between academia & industry. Technological improvement in existing operation, new process/product development, adoption and retrofitting of modern technologies for the technical, economical, environmental & social benefits to the user industries is a core area of activity of the Chair Professor. The Chair Professor Scheme has been approved by the Executive Board of ISM, Dhanbad and the initial appointment is for a period of two years and extendable upto the age of 70 (seventy) years.

**List of Chair Professors as on 30.09.2014 is shown below:**

<b>Sl. No.</b>	<b>Name of the Chair Professor</b>	<b>Sponsoring Industry</b>	<b>Specialization [Department]</b>
1.	Prof. S. Chaudhuri Ex-Chairman-cum-Managing Director, CMPDIL, Ranchi	CIL	CIL Chair in Underground Mining [Mining Engg.]
2.	Prof. N. C. Jha Ex-Chairman, Coal India Limited	SANDVIK	SANDVIK Chair in Rock Excavation [Mining Engg.]
3.	Prof. V. P. Sinha Ex-General Manager, Tata Steel Ltd.	NMDC	NMDC Chair in Open Cast Mining [Mining Engg.]
4.	Prof. A. K. Singh Ex-Chairman-cum-Managing Director, CMPDIL, Ranchi	CIL	Rajiv Gandhi Chair in Mine Environment [Env. Sc. & Engg.]
5.	Prof. S. Bhattacharya Professor, ISM Dhanbad	Tata Steel Ltd.	Tata Steel Chair in Coal Preparation [Fuel & Mineral Engg.]

## **Research Parks**

Indian School of Mines, Dhanbad have an excellent rapport with the industries relevant to the various departments and has been currently solving a number of real life problems of the industry and also conducting professional development/skill development programmes to different levels of officers and executives. Click on year for details: [2014-15](#) , [2013-14](#) , [2012-13](#) , [2011-12](#)

Besides the professional development programmes, different departments of the institute have been offering [Short Term & Certificate Courses](#) to desirous students, researchers of the institute and also to the faculty of other academic institutions of the eastern states.

## **Centres of Excellence**

As an outcome of above exercise, various Centre of Excellence in Frontier Areas of Science & Technology have been set up in the campus with the financial support from both the industries and Govt. of India Ministries:

1. Centre of Excellence in Mine Environment [Click here for details](#)
2. Centre of Excellence on Renewable Energy, worth Rs. 4.00 crores under the aegis of Ministry of Human Research Development, GoI under FAST scheme has been granted to ISM, wherein the Departments of Electronics Engineering, Applied Physics, Applied Chemistry & Mining Machinery Engineering are involved. [Click here for details](#)
3. Centre of Safety, Occupational Hazards & Disasters Management.
4. Centre of Rock Excavation Engineering.
5. Centre of Long Wall Mining Mechanization.
6. Centre of Advanced Studies in Mining Engineering.

The number of industry sponsored projects and the total outlay in cash flow generated in the last three years is shown at [Click on year for details] [2013-14](#), [2012-13](#), [2011-12](#)

## **Central Research Facility**

To strengthen research activities within the institute and outside educational institutions and also to provide technical support to the industry a seven storied centrally air conditioned [Central Research Facility](#) building is being created. The Central Research Facility at ISM,

Dhanbad will be a Centre of national importance at which the high-quality equipment with cutting edge technologies concentrated at a single location which will provide scientific and technical services for researchers. Such a facility is an important tool for strengthening the research-relevant infrastructure of science and, consequently, represents a key prerequisite for preserving and raising the efficiency of research. Sophisticated analytical instruments are vital for pursuing research in all areas of modern science and technology.

### **Industry Institute Interaction Facility, Kolkata**

This facility has been established for promoting closer interaction with the industries.

### **Technical Support to Foreign Executives/Officers**

ISM has provided technical inputs in various areas of science & technology to the government officials, industry executives of countries abroad viz. Afghanistan, Mozambique, Bangladesh, Australia, Italy, Canada through executive development programmes at ISM and in their respective organization.

## **Higher Education Programme for Industry Personnel**

Indian School of Mines, Dhanbad was offering the Executive M.Tech during the evening hours of working days and the weekends in the discipline of Industrial Engineering to industry executives, which was very popular among the industry personnel. A new programme has been launched as [Executive MBA programme](#) in keeping with the changing needs of the industry personnel.

A special industry-focused M.Tech programme addressing the requirements of DRDO, Govt. of India with the knowledge and infrastructure available at ISM departments has been finalized and it is expected to start from the Academic year 2015-16.

The Part-time M.Tech programme (By Research), where the practicing engineers and scientists are enrolled for M.Tech programme which they can complete while continuing to work in their organizations. The minimum time necessary for course work and practical and also the time required for writing the semester examination are the duration which they are expected to spend in the campus. Research topic was chosen based on the requirements of the industry so that the outcome of the research work is immediately relevant to the industry both technically and economically. The programme is under revision with restructuring and remodelling as necessary.

The Part-time registration for Ph.D programme by the industry executives, officers, faculty from other academic institutions and scientists & researchers from public and private sector R&D organizations/divisions has been a regular feature at ISM, Dhanbad over four decades and more [Click here for Ph.D Rules](#). At present 453 such scholars have registered for Ph.D. (part-time) in the institute.