

## Mandatory Disclosure of M.Tech Env. Sc. & Engg Programmes

I. Name of The Institution	Indian School of Mines, Dhanbad, 826 004, www. ismdhanbad.ac.in
II.	Prof T. Kumar
III.	Deemed University
IV. Governance	EB, GC, Academic Council

### PROGRAMMES

❖ Name of the Programme approved by the AICTE	M.Tech (Environmental Science and Engineering)
❖ Name of the Programmes accredited by the AICTE	M.Tech (Environmental Science and Engineering)
• Name	M.Tech (Environmental Science and Engineering)
• Number of Seats	General = 10; Sponsored = 05; Sc/ST = 03
• Duration	2 years (Four Semesters)
• Cutt off Marks/ rank for admission during the last three years	For 2005: 80 percentile For 2004: 83 percentile For 2003: 80 Percentile
• Fee	I-Sem Rs. 16,055 (including caution deposit of Rs. 5,000, which is refundable) II Sem Rs. 7905; III Sem 9735; IV Sem 8905 (Total Rs. 42,600).
• Placement facilities	Few companies generally take M.Tech (ESE) students, however majorities are got jobs on their own.
• Campus placement in last three years with min salary, max salary & average salary	No campus placement for M.Tech (Env Sc. & Engg) students.

- ❖ Collaboration with Foreign University – No
- ❖ Affiliated Programm- No

## VI. FACULTY

Permanent Faculty

Name and Designation	Specialisation
<b>Professor</b>	
Gurdeep Singh MSc (Delhi), Ph.D (ISM) <i>Head of the Centre</i>	Water & Air Pollution; Environmental Aspects of Solid Wastes Disposal Utilization; EIA
<b>Assistant Professor</b>	
M.K. Ghose MSc (Ducca), Ph.D (Jadavpur)	Air and Water Pollution, Reclamation Management, Tailings Management, Environmental Impact Assessment, EMP Reports
I.N. Sinha <i>(on lien)</i> BE (Cal), M.Tech. (IIT Kgp) DEA (Paris) PhD (ISM)	Mining Environment, Air Pollution, Environmental Impact Assessment, Environmental Modelling, Environmental Management.
Subodh Kumar Maiti MSc (Cal), MTech (Env. Science & Engg.I IT B), Ph.D (Env. Science & Engg. ISM)	Environmental Ecology & microbiology; Biological Reclamation; Biological Waste Water Treatment, Bioremediation of metaliferous mine wastes.
A.K. Pal AMIIIIE, MTech (ISM), Ph.D (ISM)	Air Pollution, Noise and Vibration, Ergonomics
Biswajit Paul B.Tech (Mining), Ph.D (Env. Sc. & Engg), FCC (coal)	Mining Environment, Underground Coal Mining, Shaft Sinking Mining Environment, Land Reclamation, U/g Support Design, Mine Legislation and Safety.
<b>Senior Lecturer</b>	
Sunil Kumar Gupta B.E. (Civil Engg.), M.E. (Env. Engg.), PhD (Env. Science & Engg. IIT B)	Water & Wastewater Engineering & Management

<http://www.ismdhanbad.ac.in/depart/cme/faculty.htm>

X. Admission procedure: Though **GATE**

## XV. INFORMATION ON INFRASTRUCTURE

### LIST OF SOPHISTICATED MAJOR INSTRUMENTS

1. Atomic Absorption Spectrophotometer (AAS) (GBC 902, Australia)
2. AAS - GBC Avanta Australia including Graphite furnace GBC GF 3000; with the cathode lamps of Al, An, Ar, Ba, B, Cr, Ca, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Ag, Na, Sn, V, Zn.
3. TDS/Conductivity Meter (Cyber Scan 200, MERCK)
4. Spectrophotometer (Spectroquant, NOVA 60, MERCK)
5. Flame Photometer (Microprocessor based, Model 128)
6. Mercury Analyser (MA 5800E) – EC, Hyderabad
7. Leaf Area Meter (Systronics 2II)
- 8.. Micro Analytical Balance
10. Spectro-colorimeter
11. Spectrophotometer (Ultra-Violet, Visible & Infra-red) Shimadzu UV-256
12. COD Meter (Spectroquant, TR 320 MERCK) (148°C)
13. Specific Ion Meter with Micro-processor with the following, Ion selective electrode : (Mettler Toledo MA 235 pH/Ion analyser); Ammonia, Cyanide, Fluoride, Iodide, Nitrate, Sulphate, Redox
14. Automatic tritator (Mettler Toledo – DL 50) Microprocessor controlled analytical instrument
15. Total Carbon Monitor 480 (Carlo erba)
16. Turbidity Meter (MERC, Turbiquant 3000T; 0-1000 NTU)
17. Gas Chromatograph (GC 2000 A) Chromatograph & Ins. Co., India
18. Particle Size Analyser (CILAS/1064 liquid/dry), USA, laser based attached with on line image capturing facilities,
19. Microwave digestion system (O.I Analytical, USA)
20. TCLP apparatus (Millipore, France, Zero head space extractor, dispensing pressure vessels, Rotary Agitator & vacuum pressure pump.
21. Universal Trinocular Research Microscope (OLYMPUS, BX60, Japan) – Digital Camera with online image capturing & analysis Micro Image lite 4.0
22. Trinocular Stereozoom Microscope (LEICA, 56D, 6.3:1) – Cold light illumination system, leica CLS 150 X;
23. Millipore Membrane filtration for coliform testing – including suction pump (Millipore), filtration & incubator
24. Millipore water purification system (RIOS & Elix) – 120 L/hr
25. Millipore Vacuum filtration pump (100 bar) Assembly 230 v 50 Hz
26. Balance (one weighing upto 10 mg & other weighing upto 0.01 mg)
27. Immersion Thermostat (LAUDA, E100) - Bath/Circulation thermostats, upto 110°C (set point 450°C)

### Computing facilities

Particulars	Availability
Number & Configuration of Systems; P-II, P-III, P-IV	18
Total no of Systems connected with LAN	18
Total No of System connected with WAN	Nil
Internet Bandwidth	2 MBPS, 24 hours
System software	WINDOWS 98, ME, XP
Relevant legal Software packages available	PAL Model; Air Chief ; ISCTS; BLP; Visual Studio Ver 6.0 Microlite Image plus ver 4.0 Office 97; Acrobat Reader 6 Norton Antivirus 2004

### List of facilities available

The school has two large playground; badminton court & Volleyball court in each hostel; multigym; Canteen etc.

The department has 2 classrooms, one computer laboratory, one departmental library and 11 laboratories.

## LABORATORY FACILITIES EXCLUSIVE TO THE PG PROGRAMME

Name of the laboratory	Major facilities
Instrumentation lab- I (ground floor) (27.3 sq.m)	<ul style="list-style-type: none"> <li>• Spectrophotometer (Ultra-Violet, Visible &amp; Infra-red, Shimadzu UV-256).</li> <li>• Total Carbon Monitor 480 (Carlo erba, Italy).</li> <li>• Gas Chromatograph (GC 2000 A, Chromatograph &amp; Ins. Co., India).</li> <li>• Balance (one weighing upto 10 mg &amp; other weighing upto 0.01 mg) - 4 nos.</li> </ul>
Instrumentation Lab - II (AAS lab) (ground floor) 28.005 sq.m	<ul style="list-style-type: none"> <li>• AAS - GBC Avanta Australia including Graphite furnace GBC GF 3000; with the following cathode lamps (20 nos): Aluminium; Antimony; Arsenic; Barium; Boron; Chromium; Calcium; Cobalt; Copper; Iron; Lead; Magnesium, Manganese; Nickel; Potassium; Silver; Sodium; Tin; Vanadium; Zinc.</li> <li>• Specific Ion Meter with Micro-processor with the following Ion selective electrode : (Mettler Toledo MA 235 pH/Ion analyser); Ammonia, Cyanide, Fluoride, Iodide, Nitrate, Sulphate, Redox</li> <li>• Mercury Analyser (MA 5800E) – EC, Hydrabad</li> <li>• Millipore water purification system (RIOS &amp; Elix) – 120 L/hr</li> <li>• Automatic titrator (Mettler Toledo – DL 50) Microprocessor controlled analytical instrument</li> </ul>
Instrumentation-Lab - III (ground floor) 52.0 sq m.	<ul style="list-style-type: none"> <li>• Particle Size Analyser (CILAS/1064 liquid/dry), USA, laser based attached with on line image capturing facilities.</li> <li>• Microwave digestion system (O.I Analytical, USA)</li> <li>• TCLP apparatus (Millipore, France, Zero head space extractor, dispensing pressure vessels, Rotary Agitator &amp; vacuum pressure pump.</li> <li>• Test Master (Jar test); Bacteriological Incubator; Hot air oven; Centrifuge, Rotary shaker</li> </ul>
Biological reclamation lab (soil lab) 41.055 sq. m	<ul style="list-style-type: none"> <li>• Ammonia distillation assembly; Filtration Pumps (Vaccum); Muffle furnace;</li> <li>• Sieve shaker;</li> <li>• Analytical balance. Autoclave (big);</li> <li>• pH Meter</li> </ul>

<p>Water chemistry laboratory (ground floor) 34.95 sq. m</p>	<ul style="list-style-type: none"> <li>• TDS/Conductivity Meter (Cyber Scan 200, MERCK);</li> <li>• Spectrophotometer (Spectroquant, NOVA 60, MERCK);</li> <li>• Flame Photometer (Microprocessor based, Model 128);</li> <li>• pH Meter with combined glass-calomel electrode (Portable and Table models) Cyber Scan 510 (MEPC);</li> <li>• COD Meter (Spectroquant, TR 320 MERCK) (148°C);</li> <li>• Turbidity Meter (MERC, Turbiquant 3000T; 0-1000 NTU);</li> <li>• Immersion Thermostat (LAUDA, E100) - Bath/Circulation thermostats, upto 110°C (set point 450°C);</li> <li>• BOD incubator; COD reflux unit; Double distillation unit.</li> </ul>
<p>Microbiology lab (ground floor) 35.25 sq. m</p>	<ul style="list-style-type: none"> <li>• Universal Trinocular Research Microscope (OLYMPUS, BX60, Japan) – Digital Camera with online image capturing &amp; analysis Micro Image lite 4.0;</li> <li>• Trinocular Stereozoom Microscope (LEICA, 56D, 6.3:1) – Cold light illumination system, leica CLS 150 X;</li> <li>• Millipore Membrane filtration for coliform testing – including suction pump (Millipore), filtration &amp; incubator;</li> <li>• Colony Counter (Electronic);</li> <li>• Laminar Flow chamber (horizontal);</li> <li>• Leaf area meter (Systronics);</li> <li>• pH Meter;</li> <li>• Research Centrifuge (REMI – R24);</li> </ul>
<p>Land use &amp; Hydrogeology lab (ground floor) 27.9 sq. m</p>	<ul style="list-style-type: none"> <li>• Stereoscopic Microscope; Ground truth Radioneter;</li> <li>• Optical Pentagraph with 5x mag;</li> <li>• Clinometer;</li> <li>• liquid Permeameter (Ruska Haustan, 1013-801, Texas);</li> <li>• Planimeter; Flow meter with recorder;</li> <li>• Rotameter; ;</li> <li>• Electronic digital planimeter.</li> </ul>

<p>Noise pollution lab (ground floor) 142.76 sq. m</p>	<ul style="list-style-type: none"> <li>• Modular Precision Sound Level Meter (Type 2231) with octave filter set (Type 1625) (Bruel &amp; Kjaer, Denmark) - 1 no;</li> <li>• Sound Level Meter (CRL-703A, Cirrus Research PLC, UK)-1 no;</li> <li>• Modular Sound Analyzer (Type 2260, Bruel &amp; Kjaer, Denmark) - 1 no;</li> <li>• Noise Dose Meter (Type 4428, Bruel &amp; Kjaer, Denmark);</li> <li>• Dosimeter (CEL 420, CEL Instruments, UK);</li> <li>• Audiometer (AP 251, Alfred Peters Ltd., UK);</li> <li>• Noise source (Type: 4224, Bruel &amp; Kjaer, Denmark)</li> <li>• Environmental growth chamber</li> </ul>
<p>Air pollution lab (2<sup>nd</sup> floor) 97.35 sq. m</p>	<ul style="list-style-type: none"> <li>• High Volume air sampler (Envirotech APM-410) - 5 nos;</li> <li>• Respirable dust sampler (RDS) - 10 nos;</li> <li>• Real Time Aerosol Monitor (RAM-I) with size classifier - 2 nos;</li> <li>• Gravimetric dust sampler, (UK) - 1 no;</li> <li>• Cascade Impacter (Sera Anderson, USA )- 2 nos;</li> <li>• Fume hood chamber;</li> <li>• Personal dust sampler (Environtech)- 2nos;</li> <li>• Stack monitoring kit (Envirotech)- 1 nos;</li> <li>• HVS calibration kit (Envirotech) - 1 no;</li> <li>• Green house Gas monitor (Teledyne, USA)- online CO, CH<sub>4</sub>, N<sub>2</sub>O and CO<sub>2</sub> gas monitoring;</li> <li>• Spectrophotometer (Spectrochem);</li> <li>• Portable CO monitor.</li> <li>• Auto exhaust monitor (CO &amp; HC) for diesel vehicle</li> <li>• Auto exhaust monitor (CO &amp; HC) for petrol vehicle</li> <li>• Microbiological air sampler – 2 nos (Millipore)</li> </ul>
<p>Micrometeorological lab (2<sup>nd</sup> floor) 22.995 sq. m</p>	<ul style="list-style-type: none"> <li>• Continuous Weather monitoring station (Envirotech WM-300) - 1 no;</li> <li>• Mechanical wind recorder (Wilh Lambercht Gmbtt Gottingen Type-1482) - 3 nos; Raingauge.</li> </ul>
<p>Wastewater Engg Lab (2<sup>nd</sup> floor) 51.8 sq. m</p>	<ul style="list-style-type: none"> <li>• AAS - (GBC 902, Australia); including Graphite furnace GBC 2000; with the following cathode lamps (20 nos): Aluminium; Antimony; Arsenic; Barium; Boron; Chromium; Calcium; Cobalt; Copper; Iron; Lead; Magnesium, Manganese; Nickel; Potassium; Silver; Sodium; Tin; Vanadium; Zinc.</li> <li>• Soxhlet extraction assembly (250 ml capacity)- 2 no;</li> <li>• Model SBR reactor; Magnetic stirrer; model UASB reactor; Remi- stirrer;</li> </ul>

## RESEARCH FOCUS

The Centre has been carrying out research to monitor, assess and solve the environmental problems of the mining industry .The Centre has completed a large no. of Research Projects. A Select list of some of the Completed Projects is given below:

1. Investigation into the Noise Status of some selected Non Coal Mining Complexes with a view to Developing Abatement & Control Measures. [DMST Project: MOC(4)/2002-2003/143/CME].
2. Studies on Green Belt Regarding its Noise Attenuation & Dust Arresting Capacity in Coal Mining Areas [MT/S&T/EEI2/94][Coal S&T grant of Dept of Coal].
3. Development of an Expert System Prototype for Environment Impact Assessment of Opencast Coal Mining Projects [20-13/97/TS-1,MHRD dt 20.03.98 Rs.6.00 Lakh Project No. MHRD(16)/98-99/87.
4. Carrying Capacity of Damodar River Basin (in association with CMRI, NEERI, Univ. of Delhi, etc.)(J155011/5/92-IA dt.5.02.93).
5. Environmental Evaluation of Coal Combustion Residues [MOEF / 96-97]
6. Socio-economic Aspects, vis-a-vis, Quality of Life of Mining Complexes.
7. Land Reclamation around Raniganj, Raniganj Coalfield, Eastern India, with Special Stress on Its Water Potentialities and its Management.
8. Investigation on Air Quality Assessment in Some Coal Mining Areas of Raniganj Coalfield of India.
9. Studies on Characterisation and Abatement of Coke-Oven Liquid Effluents.
10. Studies on Water Quality Deterioration in Coal Mining Areas of Some Indian Coalfields.
11. Studies on the Shelf Life of Topsoil In Coal Mining Areas.
12. Some Experimental Studies on Ecological Aspects of Reclamation in Jharia Coalfield.
13. Characterisation and Control of Haul Road Dust in Opencast Mines.
14. Studies on the Environmental Impacts of Limestone Mining and Slope Instability using Remotely Sensed and Ancillary Data: Case Studies from Southern Himachal Pradesh.
15. Characterisation and Treatment of Spent Pot liner for Environmental Compliance.
16. Characterisation and Clarification of Coal Washery Liquid Effluents through Coagulation/ Flocculation.
17. Changes in Vegetation Index and Soil Moisture in India.
18. Vegetational Succession on Coal Mining Overburden Dumps for Sustainable Ecological Development.
19. Integrated Strategy for Development and Exploitation of Natural Mineral Resources of the Ecologically Fragile Area.
20. Environmental Impact Assessment Studies of Tailings from Iron Ore Mines and their Management.
21. A Study on the Appropriate Environmental Impact Assessment Methodology for Mining Projects.
22. Microbial and Biotechnological Approaches for Bio Sorption and Bioaccumulation of Heavy Metal Contaminants.
23. Vegetational Succession on Coal Mining Overburden Dumps for Sustainable Ecological Development.

[\[http://www.ismdhanbad.ac.in/depart/cme/research.htm\]](http://www.ismdhanbad.ac.in/depart/cme/research.htm)

❖ List of Research Project (M.Tech Students)

SL.No	TITLE	SCHOLAR	GUIDE
<b>Session 2002 - 2004</b>			
1	Development of Appropriate Generic Models for the Dispersion and Emission of Air Pollutants	Smriti Srivastava	Dr. I.N.Sinha
2.	Study of Settling Curve and Design of Settling Tank for Coal Washery Effluent using Synthetic and Natural Coagulant/ Flocculants	Poonam Sharma	Dr. S.K.Maiti and Dr. N. C. Karmakar
3.	Land Use Planning for Mining Areas: - A GIS Oriented Approach	M.R.S Mallick	Dr. I.N. Sinha
4.	Risk Assessment of Coal Washery Project on Air Environment	Anjay Kumar	Prof. Gurdeep Singh and Dr. M.K. Ghose
5.	Investigation into the air quality status and its impact on social spectrum in the Industrial belt of Korba, Chhattisgarh.	Sarang Khati	Prof. Gurdeep Singh and Dr A K Pal
6.	Studies on the ambient air quality status in the Industrial belt of Korba Coalfield, Chhattisgarh.	Joel Samuel	Prof. Gurdeep Singh and Dr A K Pal
7.	Environmental Aspects of Chlor alkali Plant : Case study of Bihar Caustic Chemicals Limited	Nitin Singh	Prof. Gurdeep Singh
8.	Assessment Of The Impact On The Air Environment Due To The Highway Project	Sampurna Nand	Prof. Gurdeep Singh and Dr. M.K. Ghose
<b>Session 2003 - 2005</b>			
1.	Water Quality and Quantity Assessment in a Part of Jharia Coalfield	Anita Jagnania	Prof. Gurdeep Singh
2.	Assessment and characterisation of traffic noise status in Dhanbad, an industrial township within the coal belt.	Suman Maity	Dr. A .K Pal
<b>Session 2004 – 2006 (Continuing)</b>			
1.	Study oh heavy metals in industrial sludge, their removal kinetics and effects on plant growth	Kamal Jain	Dr SK Maiti
2.	Catalytic biodegradation and mathematical modeling of suspended growth bioreactor for the treatment of textile wastewater	Vikash Umrao	DR SK Gupta
3.	Exposure assessment of lead through dietary and inhalation routes & modelling of blood lead level in coal mining areas	Naveen Kumar	DR AK Pal
4.	Baseline data generation for EIA of Kurasia Opencast project, SECL, Chirimiri area	Parag S Khujanre	Prof Gurdeep Singh
5.	Studies on characteristics of Bio-medical liquid waste & their treatment forsaf disposal	Arati Jena	DR MK Ghose
6.	Studies on Bio-medical solid waste handling & treatment	S. Kamal Basha	DR KM Ghose
7.	Plume behavior of an industrial stack- a mathetical approach	Ratti Rajshekar	DR AK Pal
8.	Bioremediation of fly ash lagoons and fly ash filled opencast mine pits with special emphasis on metal accumulation pattern in naturally growing vegetation	Shishir Jaiswal	DR SK Maiti
9.	Baseline data generation for EIA of NCPH underground project, SECL, Chirimiri area	Abhilash Rao	PROF Gurdeep Singh
10.	Investigation into hydraulic characteristics and leachates of mine fill material.	Devendra Yadav	Dr B. Paul
11.	Ambient air quality modeling for particulate matter of an Indian Opencast coal mining area	Surajit Sengupta	PROF Gurdeep Singh

## INDUSTRY LINKAGE

Title of the Projects		Sponsoring agency	Duration	Amount (Rs.)
1.	Preparation of Training Modules and Training of Environmental Personal under ESMP of CCL under IDA Credit	CIL	Jul 98-Jul 2000	43,26332 /-
2.	Working Below Forest Area at Rani Atari & Nawapara Mines of SECL	SECL	Feb 2000-Jun 2000	1 Lakh
3.	Working Below Forest Area of Rajendra & Dharam Mines of SECL	SECL	Feb 2000-Jun 2000	1 Lakh
4.	Working Below Forest Area of Rehar and Gayatri Mines of SECL	SECL	2000-2001	1 Lakh
5.	Environmental Management Capacity Building Technical Assistance Project: Mining Subcomponent IDA Credit 2930IN	MoEF, Govt. of India	Mar 99-June 2004	8,14,09,0000/- + US\$ 1,20,4451
6.	Studies on Feasibility of Extraction of Coal Seams Below Forest Areas at Nehariya Project	WCL	2000-2001	1.5 Lakh
7.	Feasibility of Extraction of Coal Seam Below Forest Land at KTK-1 and 1A Incline 5 and 5A Incline Mine	SCCL	2000-2001	1 Lakh
8.	Feasibility of Extraction of Coal Seam Below Forest Land at KTK-9 and 9A Incline and RK-7 and RK New Telephonic Mines	SCCL	2000-2001	1 Lakh
9.	Feasibility of Extraction of Coal Seam Below Forest Land Indaram Extension Block and RK-6 Incline Mine	SCCL	2000-2001	1 Lakh
10.	Feasibility of Extraction of Coal Seam Below Forest Land at SRP 2 and 2A Incline Mine	SCCL	2000-2001	50,000/-
11.	Investigation into the Feasibility of Extraction of Accomodate-III Top & Bottom and Accomodate-IIA Seams Below Forest Area of Bagdewa/ Amarpur Underground Project	SECL	2000-2001	1 Lakh
12.	Mining Below Forest Area of Shobhapur Mine	WCL	2000-2001	2.20 Lakhs
13.	Anticipation of Subsidence Movements and their Impacts on Forest Land and Suggestions	WCL	2000-2001	2.40 Lakhs
14.	Feasibility of Extraction of Coal Seams Below Forest land at Kathkona Colliery and Bhaskarpara Projects	SECL	2000-2001	1.5 Lakh
15.	Feasibility of Extraction of Upper and Lower Workable Seams Below Forest Land at Satpura-2 Mines	WCL	2000-2001	93,500/-

16.	Monitoring & Analysis of SPM for Lead & Silical Quartz and Analysis of Effluent Samples of TISCO	TISCO	2000-01	99,000/-
17.	Dust Sumerging at Jamtara Siding of ECL	Eastern Coalfields Ltd. (ECL)	August 2000	20,000/-
18.	Studies on Fesibility of Extraction of Coal Seams Below Forest Land at Nehariya Project of WCL	Western Coalfield Ltd. Pench Area, Chhindwane	Sept.-Dec. 2000	1.5 Lakh
19.	Feasibility of Extraction of Coal Seams Below Railway Line at Sijua Area Colliery of TISCO	TISCO	2001-2002	2.101 Lakhs
20.	Feasibility of Extraction of Coal Seam Below Forest Area at Jhama Nandan East Collieries	WCL Chindwara	2001-2002	2.1 Lakhs
21.	Implementation Assistance for Strengthening Environmental and Social Management Capability of CIL	World Bank Project, Coal India Ltd	2002-2003	2,54,625/-
22.	Preparation of Training Modules in Connection with Consultancy No.1670	World Bank Project, Coal India Ltd	2002-2003	2,12,219/-
23.	Preparation of Manuals in Connection with Consultancy No.1670	World Bank Project, Coal India Ltd	2002-2003	13,72,450/-
24.	Sampling and Analysis of Air and Water Quality along the Project Road, i.e. Govindpur-Dumka-Sahebganj	ICT (P) Ltd, New Delhi	2002-2003	50,000/-
25.	Feasibility of Extraction of Coal Seam Below Forest Area of Usha Underground Coal Mines Project	Jayaswals Necco Ltd	2002-2003	52,525/-
26.	Ambient Air Quality Monitoring & Analysis for SPM, RPM, NO <sub>x</sub> , SO <sub>2</sub> , CO and Ammonia (24 hr samples) at Different Units of TISCO	TISCO	Feb. - April, 2003	81,000/-
27.	Training of Trainers in Environmental Management	IPSHEM / ONGC Ltd.	Sept 14-19, 2003	1,58,513/-
28.	Monitoring of Environmental Parameters in respect of Sampling and Analysis of Air for Various Construction Plants like Stone Crusher, Hot Mix Plant, Stone Quarry Plant etc.	Mining and Environmental Consulting Services	March – May 2004	68,000/-

For details [<http://www.ismdhanbad.ac.in/depart/cme/industrial.htm>]

❖ Publications out of research in last three years out of masters projects

1.	Nutrient Accumulation in Reclaimed Coalmine Overburden Dumps of Ramagundam OCP-I , SCCL , India	S.K.Maiti and M. Satyanarayan Reddy	National Seminar on "Status of Environmental Management in Mining Industry". BHU, p249-256 [2003].
2.	Development of a noise model with respect to sound propagation and its application to a mining complex	A.K. Pal, N.K.Mohalik & N.C.Saxena	Noise & Vibration Worldwide, 34(2): 8-16 [2003]
3.	Mineral Industries and their environmental aspects in Indian context	Mrinal K Ghose and Anjay Kumar	IJEMS, 11: 433 – 437 [2004].
4.	Study on settling behaviour of Coal washery effluent - A Case study	S. K. Maiti, N.C. Karmakar & Poonam Sharma	JIPHE, NSEEME, p 187-192: [2004].
5.	Genesis of domestic sewage – case study of a residential University Campus	S.Ganguly & S.K.Maiti	Jr. of Env. Sc. & Engg. 46(2):79-85 [2004].
6.	Assessment of air quality in Korba Coalfield, Chattisgarh,	Gurdeep Singh, Samuel Joel, Sarang Khati, Anurag Tiwari & A.K. Pal	JIPHE, NSEEME, p 67-77: [2004]
7.	Environmental impact studies of Chrome Rollers used by Cotton Roller Ginning Industries and Design and Development of Pollution Free Chromeless RCF Roller.	Gurdeep Singh & G. Vijayan Iyer	Environmental Monitoring and Assessment. (96): 163-181, [2004]
8.	Long-term leaching study of coal combustion residues from TISCO Fluidised Bed Combustion Plant at Jamadoba,	Ritesh Kumar & Gurdeep Singh	JIPHE, NSEEME, p 197-214: [2004].
9.	Assessment of Trace Element Contamination form Fly Ash of Fertilizer Corporation of India Ltd., Sindri in its Disposal Environment	Gurdeep Singh & Ritesh Kumar	Int.Conf. Env. & Dev org. by ISS Kolkata in coll.with Govt.of WB & GO I[abs] [2004].
10.	Environmental Impacts of Titanium Dioxide and its Management	Mrinal K Ghose and D.Vetriselvam	Jr IPHE ,India 1: 25-28, [2005].

## ❖ Admission Procedures

Through GATE score conducted by IIT.

Few seats are offered to Non-GATE candidates on the basis of written examination conducted by ISM, Dhanbad (*Note: GATE candidates always get preferences over Non-GATE candidates*).

## ❖ Syllabus for the written test on M.Tech (Environmental Sc. & Engg)

General ecology: Ecology & ecosystem, food chain, biomagnification; conservative pollutants and their impacts on environment; energy flow, ecological pyramids; biogeochemical cycles, conservation,

Biodiversity - definitions, indices, conservations, hot spots.

Air pollution: Green house effects, major green house gases; potential impacts of global warming; Stratospheric ozone layer; causes of destruction of stratospheric ozone layer; Acid rain and its impacts.

Primary air pollutants and secondary air pollutants; Criteria air pollutants and hazardous air pollutants; SPM and PM<sub>10</sub>; CO; SO<sub>x</sub> and NO<sub>x</sub>; photochemical smog. Vehicular emissions; EURO-II and EURO-III.

Air pollution standards; air pollution indices.

Air pollution control - particulates & gaseous.

Noise pollution, Propagation of noise; Control measures of noise pollution.

Water pollution- objectives of water quality monitoring; Significance of the study of various water quality parameters like DO, BOD, COD and TOC;  $BOD_5^{20}$  and COD; Total solids (TS) and Total dissolved solids (TDS), Total suspended solids (TSS) and Total volatile solids (TVS); hard water and soft water;; removal of temporary hardness; Turbidity, oil and grease.

Coagulation and flocculation; disinfections;

Environmental legislation: Different acts / regulations related to the control and abatement of environmental pollution in India;

Environmental impact assessment (EIA); Environmental audit; EMS and ISO 14000 series.

### ❖ Placement Status

#### Limited opportunities for the campus placements.

S. No.	Year	Name the category/ industry/ teaching/ Research	No of students
1.	2005	Orissa Spong Iron Limited, Roukella; State Pollution Control Board	02
2.	2004	Govt. firm, Private consultancy firm, Own firm, CMRI.	06
3	2002	Govt. firm, Private consultancy firm, Own firm, CMRI, Univ of Baharin as faculty	07
4.	2001	Scientist at BARC, Trombay; Faculty member in BIT, JRF at Roorke, MCL Research Scholar at IIT.	08
5.	2000	Scientist at CMRI, Dhanbad; Consultancy firm at Goa, ITI at Bangalore, Army Engineer at Ramgarh Cantonment	07

**❖ FEE STRUCTURE**

**Indian School of Mines, Dhanbad – 826 004**

**Fee Structure of M.Tech (by course)/ M.Phil for the session 2005-2006**

S.N	Particulars	1 <sup>st</sup> Sem	2 <sup>nd</sup> Sem	3 <sup>rd</sup> Sem	4 <sup>th</sup> Sem
(A)	Payable only once at the time of Admission				
1.	Admission fee	200=00			
2.	Moderation fee	250=00			
3.	Hostel Admission fee	500=00			
4.	Sport Entry fee	40=00			
5.	Medical Examination fee	50=00			
6.	Welfare fund	50=00			
7.	Identity card charges	30=00			
8.	Alumines subscription	200=00			
9.	Caution Money (Refundable)	1500=00			
10.	Library Security (refundable)	1500=00			
11.	Hostel Security (refundable)	2000=00			
	<b>Total (A)</b>	<b>6320=00</b>			
(B)	Payable Annually				
12.	Annual fee	1200=00		1200=00	
13.	Semester Rule Book / diary	30=00		30=00	
14.	Basant	40=00		40=00	
15.	Mess Subsidy	25=00		25=00	
16.	Student Insurance Scheme	535=00		535=00	
	<b>Total (B)</b>	<b>1830=00</b>		<b>1830=00</b>	
(C)	Payable in every Semester				
17.	Tuition fee	6000=00	6000=00	6000=00	6000=00
18.	Hostel Seat Rent	1000=00	1000=00	1000=00	1000=00
19.	Medical fund	25=00	25=00	25=00	25=00
20.	Student Activity	50=00	50=00	50=00	50=00
21.	Sport subscription	50=00	50=00	50=00	50=00
22.	Semester Registration fee	100=00	100=00	100=00	100=00
23.	Examination fees	500=00	500=00	500=00	500=00
24.	Electricity Charges	150=00	150=00	150=00	150=00
25.	Telephone charges	30=00	30=00	30=00	30=00
26.	Dissertation charges	-----	-----	-----	1000=00
	<b>Total (C)</b>	<b>7905=00</b>	<b>7905=00</b>	<b>7905=00</b>	<b>8905=00</b>
	<b>Total (A) + (B) + (C)</b>	<b>16055</b>	<b>7905=00</b>	<b>9735=00</b>	<b>8905=00</b>

**❖ Hostel facilities: 100% availability, Full residential**

**Contact address of co-coordinator of the PG programme**

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