

Annual Report

2012-2013



INDIAN SCHOOL OF MINES

DHANBAD - 826004 (INDIA)

ANNUAL REPORT

2012-2013



INDIAN SCHOOL OF MINES

DHANBAD - 826004

CONTENTS

	Page No.
Foreword	i
Vision	ii
Mission	iii
Summary of Activities	iv
1. ABOUT ISM	1
2. ACADEMIC ACTIVITIES	3
2.1 Academic Programmes	3
2.2 Research Programmes	7
2.3 Annual Convocation	12
3. DEPARTMENTAL ACTIVITIES	13-256
3.1 Applied Chemistry	13
3.2 Applied Geology	26
3.3 Applied Geophysics	38
3.4 Applied Mathematics	47
3.5 Applied Physics	80
3.6 Chemical Engineering	101
3.7 Computer Science & Engineering	103
3.8 Electrical Engineering	121
3.9 Electronics Engineering	134
3.10 Environmental Science & Engineering	152
3.11 Fuel & Mineral Engineering	174
3.12 Humanities and Social Sciences	184
3.13 Management Studies	192
3.14 Mechanical Engineering & Mining Machinery Engineering	203
3.15 Mining Engineering	215
3.16 Petroleum Engineering	234
4. STUDENTS' ACTIVITIES	257
5. PLACEMENT OF STUDENTS	263
6. INSTITUTE-INDUSTRY INTERACTION	268
6.1 Consultancy Services	268
6.2 Professional Development Programmes	302
7. INFRASTRUCTURE FACILITIES	306
8. ACTIVITIES UNDER INTERNATIONAL RELATIONS AND ALUMNI AFFAIRS (IRAA)	317
9. PERSONNEL	322
10. MEMBERS OF GENERAL COUNCIL, EXECUTIVE BOARD AND FINANCE COMMITTEE	333
11. FINANCIAL STATEMENTS (Annexure I)	346
11. AUDIT REPORT (Annexure II)	398

Foreward

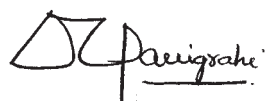
Indian School of Mines (ISM) was established in 1926 to address the need for trained manpower related to mining activities in the country with disciplines of Mining and Applied Geology. In 1967 it was granted the status of a Deemed to be University under Section 3 of UGC Act, 1956. ISM has evolved over the last eight decades and moves to emerge as a full-fledged higher technical education institute of national and international repute.

The present report contains the academic and related activities of the Institute (ISM) for the period 1st April 2012 to 31st March 2013. This year (i.e.), the last year of 11th five-year plan, was marked by very good progress by way of increase in student strength, number of research scholars, infrastructure development and external cash flow from industry and other funding agencies. The student strength increased from 3888 in 2011-12 to 4916 in 2012-13. The total student strength in the campus increased from 1697 to 4916 during the 11th plan period. This includes increase in research scholar strength from 94 to 593. With an increase in number of faculty members from 125 to 219, the number of academic programmes has gone up from 45 at the beginning of the plan period to 52 last year. The campus placement continued to remain high with increase in the highest and the average pay packages.

In recognition of the core competence of the Institute a number of State Governments have requested the Central Government to open new centers of ISM in their states. The special recognition of ISM was marked by receiving invitation from the Central Government to assist the Government of Afghanistan in setting up the Afghan Institute of Mining. It was a coincidence that five students from Afghanistan graduated from ISM during this year, and have gone back to serve their country. The Institute was involved in several executive training programmes and consultancy work for overseas organizations in addition to its role to cater to the need of Industries and organizations in the country.

The Institute is making foray into the newer areas of academic endeavours in tune with the changing times. During the year a Central Research Facility (CRF) was planned to be developed as a Centre of national importance in which the high-quality equipment with cutting edge technologies required to provide scientific and technical services for researchers would be made available. The year registered a 22% increase in cashflow from R&D and consultancy work, and 59% increase in the number of Ph.D. degree awarded compared to the previous year. These developments were the outcome of a number of innovative steps taken during the year.

I would like to express my deep appreciation and special thanks to the students, faculty members and all the employees of ISM for their commitment to achieve the target during the, last five-year plan. Their dedication and hard work would always pave the way for institute's journey towards emergence as a nationally and globally acclaimed premier institution of higher education.



(D. C. Panigrahi)
Director

Vision

To be a nationally and internationally acclaimed premier institution of higher technical and scientific education with social commitment having an ethos for intellectual excellence, where initiative is nurtured, where new ideas, research and scholarship flourish, where intellectual honesty is the norm and from which will emerge the leaders and innovators of tomorrow in the realm of technology. While serving as a catalyst in a developing society, its goal as one of the premier technology education institution in the country would be to intimately involve itself not just in the technological development of the Nation but indeed in its overall development.

Mission

- To educate and train manpower in various disciplines of engineering & technology, management, applied sciences and applied arts at the graduate, postgraduate and research levels,
- To foster the creation of new and relevant technologies in the areas of its core competency and to transfer them to industry for effective utilization,
- To participate directly in the planning and solving of engineering and managerial problems of relevance to Indian industry and to society at large,
- To develop and conduct continuing education programmes for practicing engineers and managers,
- To develop strong collaborative and cooperative links with private and public sector industries and government user departments,
- To develop comprehensive and intimate interaction with premier academic and research institutions within the country and abroad for mutual benefit,
- To develop programmes for faculty growth and development,
- To anticipate the technological needs of the Nation and to plan and prepare to cater to them,
- To interact with the community/society at large with a view to inculcate in them a feel for scientific and technological thought and endeavour, and
- To develop the region in which the Institute is located through community development programmes including training and education.

Summary of Activities

Innovation

The institute made rapid strides in its pursuit for academic and research excellence through the implementation of a number of innovative schemes and initiatives:

- Introduction of Online Students' feedback semester-wise and at exit level.
- Project mode learning of the students from 2nd year onwards.
- Goal-setting for faculty members and Departments in research and resource generation.
- Formation of Improvement Group to formulate policy framework for all round growth.
- Concept of Central Research Facility (CRF).
- Establishment of centre of excellence in safety, health hazard and disaster management.
- Self contained student amenities in the hostel complexes.
- Student Activity centre with Gymnasium, Professional Clubs, swimming pool, etc.

A Summary of the significant events and achievements of Indian School of Mines in Academic Activities, R&D Activities, Continuing Education, Institute-Industry Interaction and others for the period 1st April 2012 to 31st March 2013 are presented below:

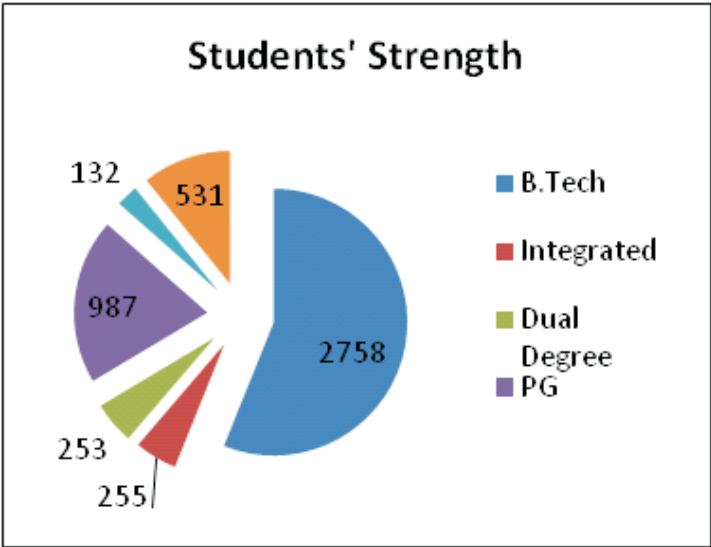
1. Academic Activities

(a) New Programmes/Courses

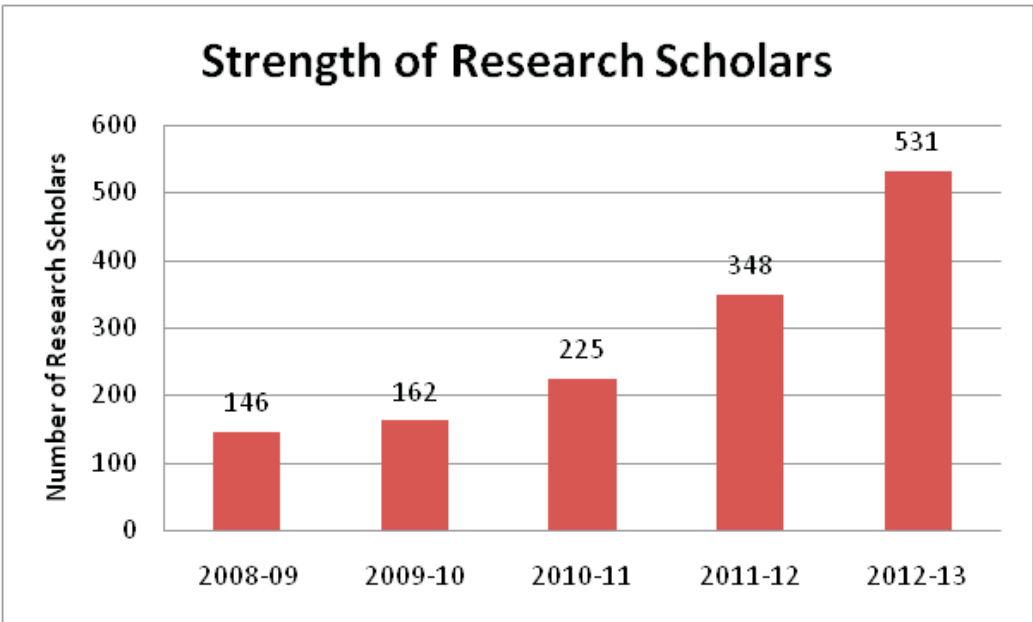
- The Department of Civil Engineering was established on 2013 and a four year B. Tech. Programme in Civil Engineering will start in academic session 2013-2014.
- Two M.Tech Programmes began in Electrical & Mechanical Engineering under TEQIP-II.

(b) Students' Strength

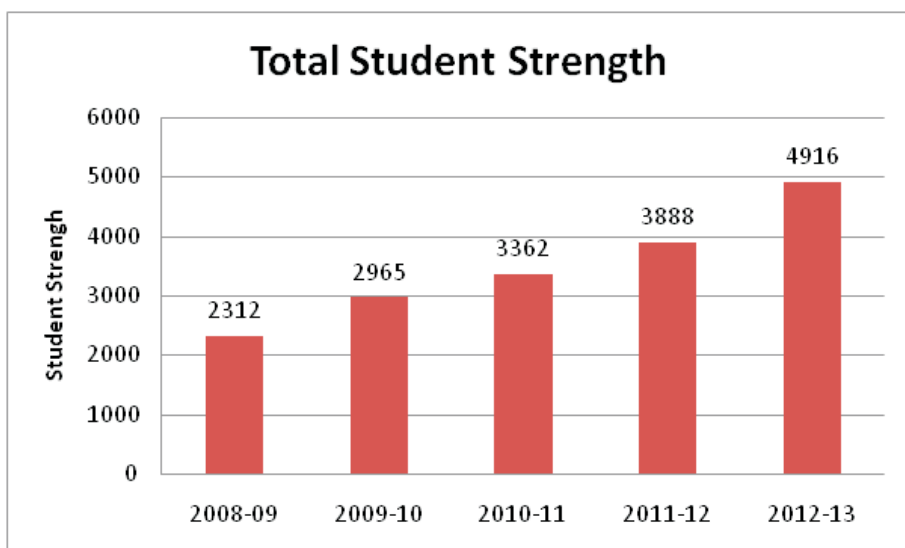
- The total student strength of under-graduate, post-graduate and research programmes was 4916. The break-up of students' strength in different programmes is shown below:



- The total Research Scholars were 531 in 2012-2013, showing about 52.59% increase compared to previous year (2011-12).



- The total student strength in the campus was increased to 4916. The comparison of student strength in the last five years is shown below:



(c) Faculty Strength

- 27 faculty members (02 Associate Professors & 25 Assistant Professors) were recruited during the year.
- The total faculty strength in the campus during the year was 219.

2. R&D Activities

(a) R&D Projects & Outlay

The Institute continued its growth in R&D activities with **71** major on-going R&D projects worth Rs. 1828.62 lakhs (approximately) during the year. There was a 24 % increase in the outlay for R&D projects. The comparison of the last five years in terms of number of projects and their outlay is presented.

Year	Number of On-going R&D Project	R&D Project's Outlay (Rs. in Lakhs)
2012-13	71	1828.62
2011-12	62	1478.25
2010-11	81	1211.42
2009-10	62	991.12
2008-09	50	975.28

(b) Research Publications & Books Contribution

- The outcome of research resulted in publication of the research work in International & National Journals, and International & National Conferences. The comparison of last five years is given below:

Year	Publications during last five years				Total Publications
	International Journal	National Journal	International Conference	National Conference	
2012-13	406	71	245	147	869
2011-12	312	42	256	177	787
2010-11	206	52	177	128	563
2009-10	179	72	93	159	503
2008-09	87	39	164	80	370

- The faculty members were also involved in book writing/book reviews/contribution of chapters to books, etc. Their contributions in this field were 56 this year as compared to 70 in the previous year. The comparison of last five years is presented below:

Year	2008-09	2009-10	2010-11	2011-12	2012-13
Book writing / book reviews/ contribution of chapters to books, etc	46	52	67	70	56

(c) Ph.D. Awarded

The faculty members were also involved in research guidance resulting in award of 43 Ph.D. this year, the highest so far. The comparison of last four years is presented below:

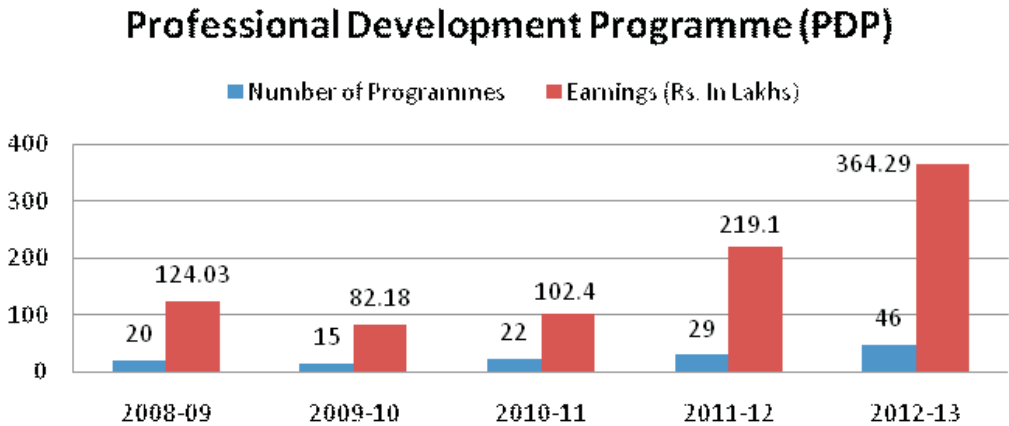
Year	2009-10	2010-11	2011-12	2012-13
Number of PhD Awarded	20	22	27	43

3. Institute-Industry Interaction

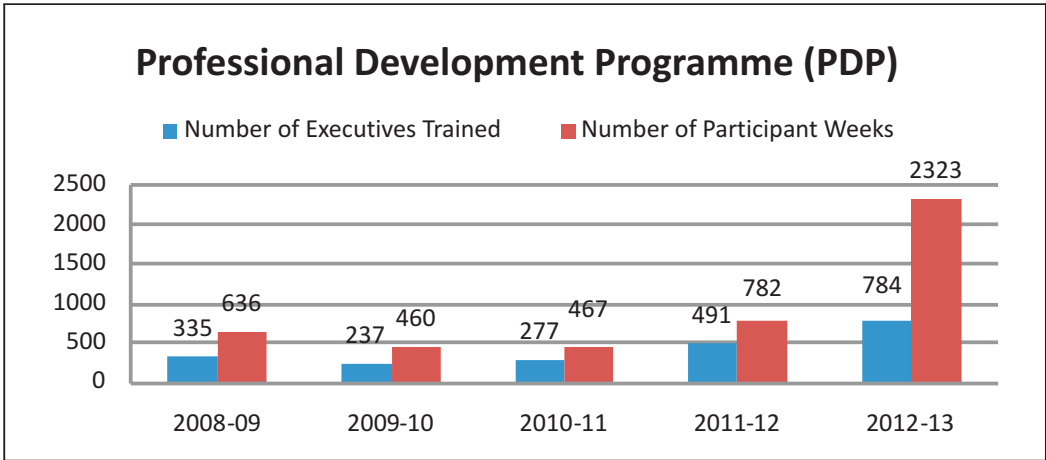
The total external cash flow from Professional Development Programmes and Consultancy projects was Rs. 926.39 lakhs for 2012-2013 as compared to Rs. 784.09 lakhs in the year 2011-2012, with 18.15% increase. The comparison of last five years is presented below:

Year	Number of Professional Development Programme	Number of Consultancy Projects	Total Funding (Rs. in Lakhs)
2012-13	39	336	926.39
2011-12	29	373	784.09
2010-11	22	324	606.84
2009-10	15	255	426.83
2008-09	20	317	460.17

The expertise of the faculty was sought by many Indian Public & Private Sector organizations, and Institutions/Organizations of other countries, viz. Afghanistan, Mozambique, Nigeria etc. by way of short-term and long-term Professional Development and Training Programmes. The comparative data of last five years is presented below:



The number of executives trained during year 2012-13 was 784 and the participant weeks were 2323. The comparative data of last five years is presented below:



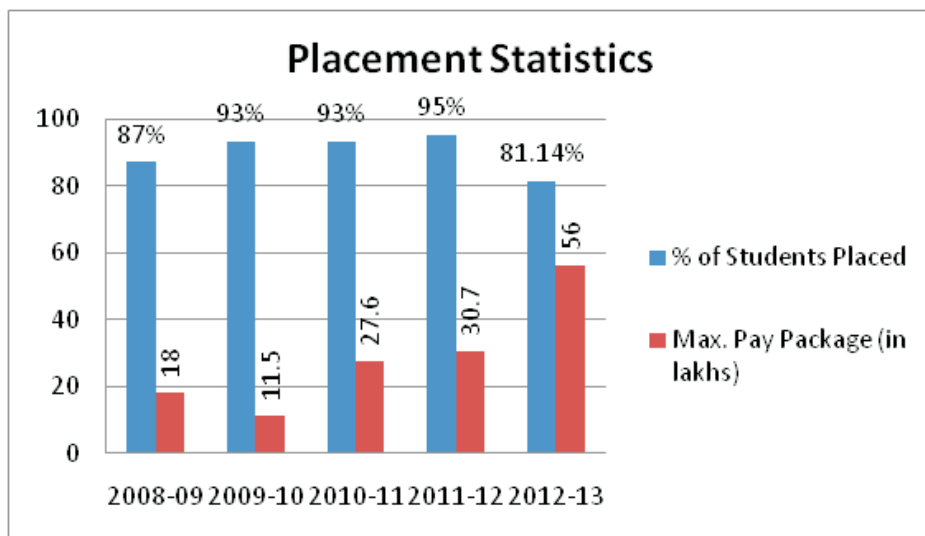
4. Students' Activities

- The institute organized various co-curricular activities such as NCC, NSS, NSO, Yoga, etc. Special welfare measures were taken to help academically weak SC/ST students by arranging special classes beyond academic hours and special counseling by teachers.
- The students were involved in organization of Technical, Cultural & Sports events.

- Students were encouraged to manage their campus affairs through the Students' Society in a democratic manner.

5. Campus Placement

The Training and Placement Section maintains active association and excellent rapport with the industry and corporate sector. The students are properly trained and assisted in securing employment through in-campus and off-campus interviews. The percentage placement of students admitted through IIT-JEE over the last five years is presented below:



6. International Collaboration

Indian School of Mines, Dhanbad has been selected for funding under Erasmus Mundus Project submitted under India 4EUII Framework based on the proposal submitted by Department of Mining Engineering in the month of April 2012. The project is being coordinated by Politecnico di Torino, Italy and co-coordinated by Amrita University, India. The programme envisages mobilities (student and staff outflows) for higher education and research to ten partners' universities in Europe. In this project, 27 post-graduate students and research scholars have been selected to pursue research at 09 leading European universities.

7. Infrastructure Facilities

- The Central Library is an automated library in terms of records management, information retrieval and service delivery. Over the years the library has developed several databases of books, journals, theses/dissertations, reference books, conference proceedings, Indian standards, etc. The inventory of the learning resources of the library is as follows:

Books	107990
Bound Volumes of Journals	35371
Current Journals	320
Theses & Dissertations	8,500
CD/DVD collection (comprising books, abstracts, journals, teaching aids)	1,600
Access to online journals with full text-image articles available through 15 agencies	4903

All documentation jobs and processes of journal subscription at the Journal Section were through Libsys Library Management Software.

The library renewed the subscription to Science Direct Freedom Collection journal database for the year 2012. With coverage across all subjects the database continued to facilitate research and academic activities of ISM. The links to online journals and databases were available through library's website.

During this academic period, 7122 books were added. All documents have been bar-coded. In addition, Central Library has started attaching magnetic tapes and RFID tags to library books to put in place enhanced document security, and for faster circulation of books and records management.

- b) **The Computer Centre** provides Internet services 24 hours a day and round the year. It supports campus wide fibre optic LAN (4800 nodes) that connects all the academic departments/centres, the Central library, the hostels, the administrative section, and the residences of faculty members and officers. Internet access of dedicated bandwidth 2 Gbps is provided to all the users through the link provided by BSNL under the project NMEICT of Government of India.
- c) **The Central Workshop** has a wide range of manufacturing facilities with sophisticated equipment and has been imparting practical training to undergraduate and postgraduate students as well as research scholars.
- d) **The ISM Health Centre** provides medical care to students, teachers, officers and staffs including their dependant family members. From the year 2000, retired employees with their spouses have also been included for medical treatment. In addition to the SMO and the LMO, several specialists also visit the ISM Health Centre from time to time. Patients are also referred to different hospitals within Dhanbad and to the other well-known hospitals of the country.

- e) **The Sports and Physical Education Centre** facilitates the students with several sports activities. The ISM Annual Sports Meet is one of the major events organized by the centre.
- f) The Institute has established a **Women Empowerment Cell** in the campus to empower girl students and women employees, to enhance understanding of issues related to women and to make the campus a safe & equal opportunity place for women.
- g) **The SC/ST Cell** of the institute functions to effectively implement the reservation policy of the Government of India. A liaison officer of the rank of Assistant Registrar is looking after the activities of the Cell.
- h) **The Hindi Cell** has been playing a vital role in ensuring the progressive use of Hindi in day-to-day official work. It organizes meetings of Official Language Implementation Committee, Hindi Workshops, etc.

8. Financial Outlay

(a) Non-Plan Fund

The total income was Rs.7008.23 lakhs, which includes irrevocable Non-Plan grant-in-aid of Rs.5395.00 lakhs from Government of India, MHRD, New Delhi. The total Non-Plan expenditure was Rs.7032.85 lakhs. A deficit of Rs.24.62 lakhs was carried forwarded to the Next Financial year.

b) Plan Fund

The total Plan income was Rs. 13609.55 lakhs, including opening balance of Rs.8.88 lakhs and irrevocable Plan grant-in-aid of Rs.13500.00 lakhs from GOI MHRD, New Delhi. The total plan expenditure was Rs.4404.05 lakhs including adjustment / advances to supplier and depreciation on fixed assets under Plan. Net addition to Advances to suppliers/contractor was Rs.9205.26 lakhs under Plan during the year, leaving a surplus of Rs.0.24 lakhs.

1.0 About ISM.

The Indian School of Mines was formally opened by His Excellency the Viceroy Lord Irwin on the 9th December 1926 and the general work of the University commenced on the 10th December 1926 in its premises at Dhanbad with Dr. D. Penman as its first principal. On the completion of the first 25 years of its existence the Silver Jubilee celebrations were inaugurated by Dr. Rajendra Prasad, the then President of India, which gave a fresh fillip to this Institution. The University celebrated Golden Jubilee in 1976, Diamond Jubilee in 1986 and Platinum Jubilee in 2001.

The Institute is located at Dhanbad to facilitate the mining education in proximity with the mining industry. For training in Earth Sciences, the province of Jharkhand and its surroundings are unrivalled in their variety of geological formations, in the multiplicity of structural and field characteristics and also in the diversity and richness of the metallic and non-metallic mineral resources. The locational advantage of ISM is that it is situated at the core of the industrial base of the region which hosts a number of coal mines, steel plants, fertilizer plants, refractory industries, and heavy machine building plant. It has 88-hectare residential campus of its own consisting of graceful blend of old and new style buildings. The serene campus comprises academic buildings, students' hostels, faculty and staff quarters, health centre, workshop, canteen and other infrastructural facilities for a cosmopolitan community. The Institute is about three kilometers to the north of Dhanbad railway station; the altitude of the place is 212 m above MSL; the average rainfall is around 148 cm; and the maximum and minimum temperatures are around 40° and 7°C respectively.

Present scenario

ISM caters to the human resource needs of the nation in the areas of mining, petroleum, mining machinery, mineral engineering and earth sciences besides developing manpower in the related disciplines of management, electronics engineering, electrical engineering, environmental sciences and engineering, computer science and engineering, mechanical engineering, applied sciences, and humanities and social sciences. In due recognition of its vital role in the service of the nation, ISM was granted autonomy by the Government of India. It has a general council, members to which are drawn from various industrial and governmental institutes, the parliament and the academia.

The Institute has seventeen departments and 219 faculty members as on 31-03-2013. A list of the departments is stated below:

Department	Year of establishment
Department of Applied Geology	1926
Department of Mining Engineering	1926
Department of Humanities and Social Sciences	1926
Department of Applied Geophysics	1957
Department of Petroleum Engineering	1957
Department of Mechanical Engineering and Mining Machinery Engineering	1975
Department of Fuel and Mineral Engineering	1976
Department of Management Studies (Erstwhile Industrial Engineering and Management)	1976
Department of Electronics Engineering	1977
Department of Applied Chemistry	1989
Department of Applied Physics	1989
Department of Applied Mathematics	1989
Department of Computer Science and Engineering	1997
Department of Electrical Engineering	2005
Department of Environmental Science and Engineering	2007
Department of Chemical Engineering	2010
Department of Civil Engineering	2013

2.0 ACADEMIC ACTIVITIES

2.1 Academic Programmes

ISM offers ten 4-years B.Tech. programmes in Chemical Engineering, Computer Science & Engineering, Electrical Engineering, Electronics & Communication Engineering, Environmental Engineering, Mechanical Engineering, Mineral Engineering, Mining Machinery Engineering, Mining Engineering, and Petroleum Engineering; five 5-years Dual Degree programmes in B.Tech (Mining Engineering) with MBA, B.Tech (Mineral Engineering) with M.Tech (Materials Technology), B.Tech (Mineral Engineering) with M.Tech (Mineral Resource Management), B.Tech (Mining Engineering) with M.Tech (Mining Engineering) and B.Tech (Petroleum Engineering) with M.Tech (Petroleum Management); three 5-years integrated M.Sc. in Applied Physics, Applied Chemistry, Mathematics & Computing; and two 5-years integrated M.Sc.(Tech) in Applied Geology and Applied Geophysics. Admission to these B.Tech., Dual Degree, and Integrated courses is through IIT-JEE.

Apart from these, the institute also offers 3-years Masters programmes leading to M.Sc. (Tech.) degree in Applied Geology and Applied Geophysics and 2-years M.Sc. degree programmes in Applied Chemistry, Applied Physics, and Mathematics & Computing. Admission to all these programmes is through all-India competitive examination. Seats in these courses are reserved for Scheduled Caste, Scheduled Tribe, OBC, and physically handicapped candidates, and wards of Jammu and Kashmir migrants and Defence Personnel as per GOI norms.

Admissions to a number of post-graduation courses leading to award of M. Tech., MBA, Executive MBA, M. Phil., and Ph.D. degrees are conducted through all-India level examinations and personal interviews.

Total Student Strength in B.Tech Programme during 2012-2013

S No.	Discipline	Sanctioned Strength	I Sem.	III Sem.	V Sem.	VII Sem.	Prep.	Total
1	Chemical Engineering	22	21	17	0	0	-	38
2	Computer Science & Engineering	94	93	110	78	69	-	350
3	Electrical Engineering	92	91	95	106	65	-	357
4	Electronics & Communication Engineering	94	94	97	89	66	-	346
5	Environmental Engineering	62	60	48	29	25	-	162
6	Mechanical Engineering	103	102	107	101	78	-	388
7	Mineral Engineering	60	58	38	42	29	-	167
8	Mining Machinery Engineering	39	40	30	21	13	-	104
9	Mining Engineering	120	120	121	96	79	-	416
10	Petroleum Engineering	103	103	104	112	87	-	406
11	TOTAL	789	782	767	674	511	-	2734
12	SC	116	116	172	52	29	-	
13	ST	61	66	64	29	23	07	
14	OBC	213	217	127	95	20	-	
15	Girl	-	72	43	43	53	-	211

Total Student Strength in Dual Degree Programme during 2012-2013

Sl No.	Discipline	Sanctioned Strength	Ist	IIIrd	Vth	VIIth	IXth	Total	SC	ST	OBC	Girl
1.	B.Tech (Mineral Engineering) with. M.Tech (Materials Technology)	18	18	03	11	10	07	49	07	03	09	08
2.	B.Tech (Mining Engineering) with MBA	18	18	02	12	10	08	50	13	04	12	04
3.	B.Tech (Mineral Engineering) with M.Tech (Mineral Resource Management)	18	10	03	08	05	08	34	08	03	08	06
4.	B.Tech (Mining Engineering) with M.Tech. (Mining Engineering)	18	18	05	09	10	06	48	11	02	07	0
5.	B.Tech (Petroleum Engineering) with M.Tech (Petroleum Management)	18	18	14	16	15	11	74	09	04	16	08
	Total	90	82	27	56	50	41	255	48	16	52	26

Total Student Strength in Integrated Programme during 2012-2013

Sl No.	Discipline	Sanctioned Strength	Ist	Illrd	Vth	VIIth	IXth	Total	SC	ST	OBC	Girl
1.	M.Sc. - Applied Physics	31	-	02	05	10	08	25	04	00	00	03
2.	M.Sc. - Chemistry	31	-	01	12	07	08	28	04	00	00	04
3.	M.Tech (Mathematics & Computing)	31	24	09	13	08	10	64	08	00	10	09
4.	M.Sc Mathematics & Computing	31	-	09	13	08	10	40	04	00	02	02
5.	M.Sc. (Tech.) - Applied Geology	31	22	12	21	11	14	80	12	02	09	12
	M.Sc. (Tech.) - Applied Geophysics	31	12	06	15	11	10	54	11	00	05	04
	Total	186	58	39	80	55	60	291	43	02	26	34

Total Student Strength in M.Sc./M.Sc. (Tech.) Programme during 2012-2013

Sl No.	Discipline	Sanctioned Strength	Ist	Illrd	Vth	Total	SC	ST	OBC	Girl
1.	M.Sc. - Applied Physics	27	24	19	00	43	08	03	11	22
2.	M.Sc. - Chemistry	44	44	33	00	77	15	08	17	36
3.	M.Sc. - Mathematics & Computing	44	43	35	00	78	14	04	24	44
4.	M.Sc. (Tech.) - Applied Geology	44	44	41	45	130	33	14	55	65
5.	M.Sc. (Tech.) - Applied Geophysics	62	62	61	57	180	17	05	19	21
	Total	221	217	189	102	508	87	34	126	188

Total Student Strength in M.B.A. Programme during 2012-2013

Semester	Sanctioned Strength	Total	SC	ST	OBC	Girl
I	62	62	09	05	17	21
III	62	55	07	04	16	21
Total		117	16	09	33	42

Total Student Strength in M.Tech./M.Phil. Programme during 2012-2013

Discipline	Sanctioned Strength	I Semester						III Semester					
		Total	SC	ST	OBC	Girl	Spons.	Total	SC	ST	OBC	Girl	Spons.
Computer Sc. & Engineering	41	41	04	02	09	07	01	30	04	00	05	05	04
Petroleum Engineering	20	18	03	00	05	01	00	12	02	01	03	01	00
Industrial Engg & Management	20	20	03	02	05	00	00	18	01	01	04	00	01
Environmental Sc. & Engg	26	24	04	00	07	07	00	22	03	00	05	05	00
Petroleum Exploration	26	04	00	00	00	01	00	04	01	01	01	01	00
Mineral Exploration	14	04	00	01	00	01	00	10	00	02	02	01	05
Maintenance Engg & Tribology	20	15	00	00	05	01	00	10	01	00	03	02	00
Electronics & Comm. Engg.	22	22	04	01	06	04	01	12	02	01	02	01	03
Mineral Engineering	20	18	00	03	05	01	00	12	00	02	03	00	00
Fuel Engineering	11	10	02	00	03	01	00	10	02	00	02	01	00
Mining Machinery Engineering	20	18	03	00	05	00	00	15	02	00	04	00	00
Mining Engineering	11	02	00	01	01	00	00	00	00	00	00	00	00
Electrical Engineering	22	21	04	01	06	08	00	00	00	00	00	00	00
Mechanical Engineering	22	21	04	01	06	01	00	00	00	00	00	00	00
Underground Space Technology	11	06	00	01	00	00	00	09	02	00	03	00	00
Geomatics	11	11	02	01	03	00	00	07	00	00	01	00	01
Engineering Geology	14	05	00	00	00	00	00	04	00	00	01	00	00
M.Phil. (Applied Math)	11	11	02	01	03	01	00	00	00	00	00	00	00
M.Phil. (Applied Physics)	11	11	00	00	01	00	00	00	00	00	00	00	00
M.Phil. (Applied Chemistry)	11	11	00	00	00	01	00	00	00	00	00	00	00
M.Phil. (English)	22	14	00	02	03	10	00	00	00	00	00	00	00
Total	386	307	35	17	73	45	02	175	20	08	39	17	14

Total Student Strength in Ph.D. Programme during 2012-2013

	Total	SC	ST	OBC	Girl
PhD (Full Time)	324	46	24	94	108
PhD (Part Time)	269	00	00	00	39
Total	593	46	24	94	147

2.2 Research Programmes

ISM continues to support increasing level of research activities in regular academic curricula leading to the award of research degree, the feature being external registration of Ph.D. scholars through approved research centres. Under the research programme 43 Ph.D. degrees were awarded during 2012-13. The following list provides a detailed account of the research degrees awarded during 2012-13:

Sl. No.	Faculty & Name of the Candidate	Title of the Thesis	Guide

Applied Chemistry

1.	Amiya Shekhar	Synthesis and Characterization of Mo(II) Complexes and Selected Organic Transformations Catalyzed by Inorganic Compounds	Prof D. D. Pathak
2.	Himanshu Shekhar Shukla	Synergistic Effect of Some Organic Compounds and Inorganic Anions on the Inhibition of Mild Steel Corrosion in Acid Medium	Prof G. Udayabhanu
3.	Baisali Sengupta	The Performance of a Cross-Linked Polymer Gel System for EOR in a Laboratory Simulated Reservoir	Prof V. P. Sharma Prof G. Udayabhanu
4.	Usha Sharma	Studies on Corrosion Inhibition of N80 Steel in Hydrochloric Acid by Some Organic Compounds	Dr MahendraYadav

Applied Geophysics

5.	Saroj Kumar Mondal	Evaluation of largest Earthquake Potential in Kumaun Himalaya and its adjacent fault zone using GPS Strain and Seismicity analysis	Dr P N Singha Roy
6.	Saurabh Datta Gupta	Well Log Analysis and Rock Physics Modeling in Reservoir Characterization, Cambay Basin, India	Dr (Mrs) Rima Chatterjee Mr M Y Farooqui
7.	Suman Paul	Analysis of Well Logs and In-situ Stress for CBM Exploration in Jharia Coalfield, India	Dr (Mrs) Rima Chatterjee

Applied Mathematics

8.	Shakti Prasad	Some Estimation Procedures in Sample Surveys Using Auxiliary Information at Estimation stage	Prof G N Singh

9.	Bijay Kumar Mandal	The Study of Mathematical Models Based on Gravitational Lensing Phenomena	Prof (Mrs) Bani Mukherjee
10.	Dinesh Kumar Majhi	Propagation of Seismic Waves in Heterogeneous and Anisotropic Layered Medium	Prof S Gupta Prof Shalivahan
11.	Banti Sen	Theoretical Study of Generation and Propagation of Seismic Waves in Layered Media	Prof P C Pal
12.	Jitendra Kumar Singh	Theoretical Study of the Problems of Magneto- hydrodynamic Flow in a Rotating Channel	Prof G S Seth
13.	Sharada Nandan Raw	Complex Dynamics of Ecological Systems: Models and Methods	Prof R K Upadhyay
14.	Nilesh Kumar Thakur	Modelling the Dynamic Nature of Ecological Complexity in Spatial Aquatic Systems	Prof R K Upadhyay
15.	Jeetendra Bahadur Singh	Prediction and Analysis of Software Reliability Using Various Mathematical Approaches	Dr S Chatterjee
16.	Shobhit Nigam	Data-Driven and Probabilistic Aspects of Software Reliability Modeling	Dr S Chatterjee
17.	Nav Kumar Mahato	Study of Solute Transport Modeling Along Unsteady Groundwater Flow in Aquifer	Dr M K Singh
18.	Ashutosh Mahato	The Fractional Wavelet Transforms on some Function Spaces	Dr Akhilesh Prasad

Applied Statistics

19.	Rohini Yadav	Some Efficient Class of Estimators for Population Parameters in Sample Surveys	Prof L N Upadhyay (Retd) Dr S Chatterjee

Applied Physics

20.	Anjani Choubey	Structural and Luminescence Studies of Undoped and Doped Mixed Sulphate Phosphors	Dr S K Sharma
21.	Atul Kumar	Assessment of Strata Behaviours and Support Performance in Longwall Panels of Indian Coal Mines Using Automated System.	Prof P S Gupta Dr Dheeraj Kumar

22.	Nanda Shakti	Synthesis, Characterization and Probable Applications of Nanostructured Zinc Oxide Thin Films	Prof P S Gupta

Computer Science

23.	Mou Dasgupta	Study and Solution of Multi-Objective Computer Network Design Problems Through the Application of Mathematical Programming Techniques	Prof. G P Biswas Prof. ChandanBhar

Electrical Engineering

24.	Dola Sinha	Some Studies on Energy Efficient Induction Heater	Prof. P K Sadhu Dr Nitai Pal

Electronics Engineering

25.	Abhishek Kumar Shrivastava	Studies of Dielectric and Thermal Properties of Some Semiconductors	Prof. V Kumar
26.	Mahesh D Goudar	Studies on Dynamic Maximum Power Point Tracker For Photovoltaic System	Prof. V Kumar Prof B P Patil (Ext)

English

27.	Ram Kulesh Thakur	MahaNand Sharma and I.K. Sharma: A Study in Poetic Communication	Prof. R K Singh
28.	Jayshree Goswami	Keki N. Daruwalla and P.C.K. Prem: A Comparative Study in Literary Communication	Dr Mojibur Rahman Dr Rajni Singh

Environmental Science

29.	Arvind Kumar Rai	Investigation Into Backfill Design of Opencast Mines with reference to Jharia Coalfields, Eastern India	Dr Biswajit Paul
30.	Sangeeta Mukhopadhyay	Study of Soil Quality Indicator Parameters to Assess the Health of Reclaimed Coal Mine Degraded Land	Prof S K Maiti
30.	Shibam Mitra	Biodegradation of Chlorinated Ethenes in Anaerobic Hybrid Reactor	Dr S K Gupta

32.	Sanjoy Kumar	Study of Reclamation Capabilities of Thick Alluvial Cover in Eastern Part of Raniganj Coalfield.	Prof S K Maiti Prof Subrata Chaudhuri
33.	Dipanwita Bhakat	Groundwater Resource Evaluation and its Qualitative Assessment in Jharia Coalfield Region, Jharkhand	Dr P K Singh Prof. Gurdeep Singh
34.	Arpita Das	Environmental Evaluation of Coal and Lignite Fly Ash from Various Thermal Power Plants in India	Dr M K Jain Prof. Gurdeep Singh
35.	Bhawna Dubey	An Investigation into Air Quality Status of Jharia Coalfield, Eastern India	Prof. A K Pal Prof. Gurdeep Singh

Management Studies

36.	Shri Prakash Singh	CRM Practices in Software Industries - A Case Study	Dr (Mrs) Saumya Singh
37.	Manish Kumar Jha	Development of a Conceptual Framework for Integrated Micro Finance System in India: A Study of Select Districts in Uttar Pradesh	Prof J K Pattanayak
38.	Balram Choubey	A Study for Curriculum Development on Environmental Accounting in Indian Management Education	Prof J K Pattanayak Mitali Sen Co-guide

Mechanical Engineering

39.	Sanjeev Kumar	Developing Green Supply Chain System for Indian Small and Medium Enterprises	Dr Somnath Chattopadhyay

Mineral Engineering

40.	Kshin Mastika Kumar Sinha	Studies on Gasification Behaviour of Raw and Clean Non Coking Coal for Iron and Steel Industries	Prof. T Sharma
41.	Srinivas Dwarapudi	Studies on Pelletizing of Noamundi Iron Ore Fines	Prof. R Venugopal Dr Debashish Bhattacharjee (Ext)

Mining Engineering

42.	R Sundar Singh	Development of Planning Strategies for Mine Closure with Special Reference to Ecologically Fragile Iron Ore Mines	Prof. V M S R Murthy Prof. Gurdeep Singh
43.	Ritesh D Lokhande	An Investigation into the Causes of Pot-Hole Subsidence and its Prediction in Underground Coal Mining	Prof. V M S R Murthy Dr Venkatleswarlu

2.3 Annual Convocation

XXXV Annual Convocation of Indian School of Mines was held on 23rd February 2013. The convocation was presided over by Shri Prateep Kumar Lahiri, IAS (Retd), Chairman General Council & Executive Board of the School. Shri Montek Singh Ahluwalia, Deputy Chairman, Planning Commission was the Chief Guest on this occasion.

Shri Montek Singh Ahluwalia in his Convocation address delved upon growing Indian economy which promises a bright future for the youth of today.

Chairman, Shri P K Lahiri in his address congratulated graduating students and advised them to step into the wide world outside the portals of the Institute to carve out their own space in a manner that befits the quality of education they received at the Institute.

Prof D C Panigrahi, Director, Indian School of Mines presented a brief report on academic & other activities of the School during the year 2012-13 highlighting various on-going expansion works.

During the convocation, D.Sc. (Honoris Causa) was also conferred to Shri Montek Singh Ahluwalia. Total 833 students were awarded degrees, which includes, 43 Ph.D., 129 M.Tech, 10 M.Phil, 59 MBA, 82 M.Sc.Tech, 78 M.Sc., 21 M.Sc.Tech (Integrated), 15 M.Sc.(Integrated), 35 Dual Degree and 361 B.Tech.

ISM Gold Medals and Silver Medals were given to 37 & 7 students respectively. Besides, 17 students were given sponsored and other medals/awards. Shri Nitesh Agrawal, student of B Tech (Petroleum Engineering) was awarded Best Student Shield of the Institute. Three new awards were also introduced during this period viz. Late Mrs Poonam (Khanna) Singh Memorial Cash Award, SBI Award for Best Student, SBI Best Researcher Award for faculty.

3.0 DEPARTMENTAL ACTIVITIES

3.1 Department of Applied Chemistry

The Department of Applied Chemistry was established as a separate Department in the year 1989. The Chemistry Section existed prior to that as a part of the Department of Chemistry, Fuel and Metallurgy / Chemistry, Fuel and Mineral Engineering / Applied Sciences since 1926.

The Department offers four academic programmes: 5-years integrated M.Sc. Chemistry, 2-years M.Sc. Chemistry, M.Phil. Applied Chemistry and Ph.D.

3.1.1 Brief list of on-going R&D projects (project value Rs.5,00,000/-and above)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value (lakhs)	Date of Commencement	Date of Completion	Objective	Status	Findings
Development of Organic -----rearrangement reaction.	UGC, New Delhi	Dr. B. Chowdhury	₹ 5.92	01.02.2011	31.01.2014	To develop organic-inorganic hybrid nanocomposite	Ongoing	Development of the nanocomposite is going on.
Synthesis, characterization---- molecular recognition and catalysis	DST, New Delhi	Dr R. P. John	₹ 22.97	18.02.11	17.02.14	To develop dipodal and tripodal ligands	Ongoing	Synthesis in progress.
Polycrylamide grafted flocculant and viscosifier	DST, New Delhi	Dr Sagar Pal	₹ 17.75	21.09.10	20.09.13	To develop novel polymeric flocculant and viscosifier	Ongoing	Synthesis in progress.
Amphoteric xanthan-- industrial wastewater	DST, New Delhi	Dr Sagar Pal	₹ 15.45	10.10.10	09.10.13	To develop amphoteric xanthan gum	Ongoing	Synthesis in progress.
Molecular Recognition and Applications of Fluorescence Sensors in Host-Guest Chemistry	DST, New Delhi	Dr Swapan Dey	₹ 19.90	01.04.10	31.03.13	To develop Fluorescence sensors	Ongoing	Synthesis in progress.
Photochemical Synthesis Organic Synthesis	DST, New Delhi	Dr. Somnath Yadav	Rs. 27 Lakhs	August, 2012	July, 2013	Nanocatalys-is	Ongoing	Work under progress
Synthesis of Triplexalen-based metal-organic frameworks (MOFs)and investigation on their functional applicability.	DST, New Delhi	Dr. H. P. Noyek	Rs. 25.4 Lakhs	25.07.2012	24.07.2015	To develop Metal-organic -frameworks	Ongoing	Synthesis is going on.

3.1.2 Important Collaborative Works

Organisation/laboratory	Nature of Interaction
KEK Photon Factory, Tsukuba, JAPAN	Collaborative work for X-ray Absorption Fine Structure Characterization of nanoparticle catalyst

3.1.3 Important New Equipment acquisitioned (above Rs.5,00,000/-):

Name of Equipment	Purpose	Date of Purchase	Value (₹)
Binary GPC-HPLC Model: 2414 Make: Waters(I) Pvt. Ltd; USA	For research	September '2012	22.00 Lakhs
Surface Area and Porosity Analyzer Model: Nova 3200e Make: Quantachrome, USA	For research	March '2013	19.00 Lakhs
Electrochemical Impedance and corrosion analysis Model: 660 D Make: CH instruments; USA	For research	April '2013	10.00 Lakhs

3.1.4 Research Publication

3.1.4.1 Books reviews/contribution of chapters in a book:

A. K. Mahanta and **D. D. Pathak** contributed Chapter 11 in Book Polyurethane, “**HTPB Polyurethane: A Versatile Fuel Binder For Composite Solid Propellant**” ISBN 979-953 307 642-2, edited by **Dr. Fahmina Zafar**, OpenAccess publisher,11,229-262, **2012**.

3.1.4.2 Papers published in International Journals:

SL.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	A. Sarkar, H. Banichul	2013	Mesoporous Material from Fly ash as a Catalyst for Stereoselective Reduction of Substituted Cyclohexanone.	Energy Resources, Part A, Recovery, Utilization and Environmental Effects	35	pp. 352-363
2.	A. Sarkar, H. Banichul and S. Saha	2012	High Carbon Ash from Stoker Fired Boiler of a Thermal Power Station as Support in the Reduction of ketones: A Novel Application	Energy Resources, Part A, Recovery, Utilization and Environmental Effects	34:5	pp. 465-477
3.	A. Sarkar, S. Vishwakarma, H. Banichul, K. K. Mishra & S. S. Roy	2012	A Comprehensive Analysis of the Particle Size and Shape of Fly ash from Different fields of ESP of a Super Thermal Power Plant	Energy Resources, Part A, Recovery, Utilization and Environmental Effects	34:5	pp. 385-395
4.	A. Samanta, K. Ojha, A. Sarkar and A. Mandal	2013	Mobility Control and Enhanced Oil Recovery using Partially Hydrolyzed Polyacrylamide (PHPA)	Int. J. Oil, Gas and Coal Technology	6, No.3	---
5.	M. Sharma, C. Guria, A. Sarkar, A. K. Pathak	2012	Recycle of Waste Fly ash, A Rheological Investigation	Int. Journal of Science, Environment and Technology	1; No. 4	pp. 285-301
6.	P. Dutta, R. N. Senapati, A. Sarkar, S. K. Roy	2013	Oxidative coupling of methane over aerogel catalysts	Int. J. Emerging Tech. in Computational and Appl. Sci		pp. 195-200
7.	V. B. Ugale, K. K. Singh, N. M. Mishra, P. Kumar	2013	Experimental studies on thin sandwich panels under impact and static loading	Journal of Reinforced Plastics and Composites	Vol 32, No. 06	pp. 420-434

8.	P. Kumar, P. S. Mukherjee, N. M. Mishra	2013	Cement and current status of wear debris analysis for machine condition on monitoring A review	Industrial Lubrication & Tribology	Vol No. 1	pp. 3-11,
9.	V. K. Saw, I. Ahmad, A. Mandal, G.Udayabhanu S, Laik	2012	Methane hydrate formation and dissociation in synthetic seawater	Journal of Natural Gas Chemistry	21	pp. 625-632
10.	Neetha V Thampi, Keka Ojha, G Udayabhanu	2012	An Overview of Recent Advances in Viscoelastic Surfactant based Fracturing Fluid Technology	Journal of Petroleum Engineering and Technology	2	pp. 1 -14
11.	B. Sengupta, V. P. Sharma, G Udayabhanu	2012	A study of the effect of concentration of constituents on the characteristics of a Crosslinked polyacrylamide gel	Petroleum Science & Tech	30	pp. 1865-1881
12.	Baisali Sengupta, V.P.Sharma and G Udayabhanu	2012	Gelation studies of an organically cross-linked polyacrylamide water shut-off gel system at different temperatures and pH	J. of Petroleum Science & Engineering	81	pp. 145-150
13.	K.M.P. Singh, G. Udayabhanu T. Gouricharan	2012	Sedimentation studies on some industrial flocculates on Indian non coking coal fines	CPSI Journal	Vol. 4, No. 10	pp. 6-10
14.	N. Halder, H. S. Shukla, G. Udayabhanu	2012	Anisidine isomers as corrosion inhibitor for oil well casing steel in hydrochloric acid	Indian J. Chem. tech	Vol. 19	pp. 173-179
15.	J. R. Gerald Joe., D. D. Pathak, P. N. Kapoor	2012	Chloro(h ³ allyl) dicarbonylmolybdenum (II) Complexes of Some Chiral and Achiral Ditertiaryphosphines	Cent. Eur.J	Chem. 10 (1)	pp. 165-171
16.	M. Yadav & D. Sharma	2012	Synthesis, Characterization, and Biological Activity of Some 3d-Metal Complexes	Synth. React. Inorg. Met.- Org. Nano-Met	Chem 42	pp. 463-469

17.	M. Yadav & U. Sharma	2012	Corrosion Protection of N80 Steel in Hydrochloric Acid by Imidazolines	J. Mater.	Metall. Eng. 2	pp. 12-24
18.	M. Yadav & U. Sharma	2012	Substituted Thiosemicarbazides as Corrosion Inhibitors for N80 Steel in Hydrochloric Acid	J. Modern Chem	Chemical Technology, 3	pp. 25-35
19.	M. Yadav & U. Sharma	2012	Development of Corrosion Inhibitors Used in Acidization of Petroleum Oil Well	Der Chemica Sinica	3(1)	pp. 262-268
20.	M. Yadav & U. Sharma	2012	Synthesis and Characterization of Molybdenum and Tungsten Complexes of N-Nicotinoyl-N'-2-Thiophenethiocarbohydrazide	Asian J. Research Chem	5	pp. 79-88
21.	M.Yadav. Synthesis	2012	Characterization and Biological Activity of Transition Metal Complexes of N-Benzoyl-N'-2-Thiophenethiocarbohydrazide	Int. J. Inorg. Chem, 2013	Article ID 269497	pp. 1-8
22.	M.Yadav & D. Behera	2013	Synthesis, Characterization, and Biological Activity of Mn(II), Fe(II), Co(II), Ni(II), Cu(II), Zn(II), and Cd(II) Complexes of N-Thiophenoyl-N'-Phenylthiocarbohydrazide	Journal of Chemistry	Article ID 721397	pp. 1-8
23.	M. Yadav & U. Sharma	2013	Corrosion Protection of N80 Steel in Hydrochloric Acid by Substituted Amino Acids	Corros. Eng. Sci. Technol	48	pp. 19-27
24.	M. Yadav & S. Kumar	2013	Development of eco-friendly corrosion inhibitors for application in acidization of petroleum oil well	Journal of Chemistry	Article ID 618684	pp. 1-9

25.	B. Chowdhury , K. K. Bando, J. J. B. Suarez, S. Tsubota and M. Haruta	2012	Activity of Silylated Titanosilicate Supported Gold Nanoparticles towards Direct Propylene Epoxidation Reaction in the presence of Trimethylamine	Journal of Molecular Catalysis	Vol. 359	pp. 21-27
26.	O. O. James, B. Chowdhury , M.A. Mesubi, S. Maity	2012	Reflections on Chemistry of Fischer-Tropsch Synthesis	RSC Advances (Royal Society of Chemistry)	Vol. 2	pp. 7347-7366
27.	S. Mandal, K. K. Bando, C. Santra, S. Maity O. O. James, D. Mehta and B. Chowdhury	2013	Sm-CeO ₂ Supported Gold Nanoparticle Catalyst for Benzyl Alcohol Oxidation using Molecular O ₂	Applied Catalysis	Vol. 452	pp. 94-104
28.	C. Santra, S. Rahman, S. Bojja S. Maity, D. Sen, S. James, A. K. Mohanty, S. Mazumder and B. Chowdhury	2013	Barium, Calcium and Magnesium doped Mesoporous Ceria Supported Gold Nanoparticle for Benzyl Alcohol Oxidation using Molecular O ₂	Catalysis Science & Technology (Royal Society of Chemistry)	Vol. 3	pp. 360-370
29.	S.L. Ashok Kumar, M. S. Kumar, R.P. John , P. Thomas Muthiah, A. Sreekanth	2013	1, 5-Bis (2-hydroxyacetophenone) thiocarbohydrazide: A novel colorimetric and fluorescent dual-mode chemosensor for the recognition of fluoride	Materials Sci. Engg. Cy)	Vol. 33	pp. 2519-2525
30.	Sagar Pal *, G. Sen, S. Ghosh, R. P. Singh	2012	High performance polymeric flocculants based on modified polysaccharides microwave assisted synthesis.	Carbohydrate Polymers (Elsevier)	Vol. 87	pp. 336-342
31.	A. Giri, T. Ghosh, A. B. Panda, Sagar Pal	2012	A. Bandyopadhyay. Tailoring carboxymethyl guar gum hydrogel with nano silica for sustained transdermal release of diclofenac sodium	Carbohydrate Polymers (Elsevier)	Vol. 87	pp. 1532-1538

32.	R. Das, A. B. Panda, Sagar Pal	2012	Synthesis, characterization of a novel polymeric hydrogel based on hydroxypropyl methyl cellulose grafted with polyacrylamide	Cellulose (Springer)	Vol. 19	pp. 933-945
33.	Sagar Pal *, A. Pal	2012	Synthesis and characterizing a novel polymeric flocculant based on amylopectin-graft-polyacrylamide-graft-polyacrylic acid [(AP-g-PAM)-g-PAA]	Polymer Bulletin (Springer)	Vol. 99	pp. 545-560
34.	S. Ghorai, A. Sinhamahapatra, A. Sarkar, A. B. Panda, Sagar Pal *	2012	Novel biodegradable nanocomposite based on XG-g-PAM/SiO ₂ : application of an efficient adsorbent for Pb ²⁺ ions from aqueous solution	Bioresource Technology (Elsevier)	Vol. 119	pp. 181-190
35.	Sagar Pal , S. Ghorai, C. Das, S. Samrat, A. B. Panda	2012	Carboxymethyl tamarind-graft-poly (acrylamide)/silica: A novel nanocomposite for adsorption of methylene blue dye, Industrial Engg	Chem. Res. (ACS)	Vol. 51	pp. 15546-15556
36.	R. P. Singh, Sagar Pal *, V. Rana, S. Ghorai	2012	Amphoteric amylopectin: A novel polymeric flocculant	Carbohydrate Polymers (Elsevier)	Vol. 91	pp. 294-299
37.	A. Giri, T. Bhunia, S. Mishra, L. Goswami, A. B. Panda, Sagar Pal , A. Bandyopadhyay	2013	Acrylic acid grafted guar gum-nanosilica membranes for transdermal diclofenac delivery	Carbohydrate Polymers (Elsevier),	Vol. 91	pp. 492-301
38.	R. K. Kottalanka, K. Naktode, S. Anga, H. P. Nayek , T. K. Panda	2013	Heavier Alkaline Earth Metal Complexes with Phosphinoselenic Amides: Evidence of Direct M-Se Contact (M = Ca, Sr, Ba)	Dalton Transactions	Vol. 42	pp. 4947-4956

39.	G. C. Nayak, S. Sahoo, R. Rajasekar, C.K. Das	2012	Novel approach for the selective dispersion of MWCNTs in the Nylon/SAN blend system	Composites Part A: Applied Science and Manufacturing	Vol. 43, Issue 8	pp. 1242-125
40.	Md. Elias Uddin, Tapas Kuila, G.C. Nayak, Nam Hoon Kim, Bon-Cheol Ku, Joong Hee Lee	2013	Effects of various surfactants on the dispersion stability and electrical conductivity of surface modified graphene	Journal of Alloys and Compounds	562	pp. 134-142
41.	B. Sahoo, S. K. Sahu, D. Dhara, P. Pramanik	2012	A novel approach for efficient immobilization and stabilization of papain on magnetic gold nanocomposites	Colloids and Surfaces B: Biointerfaces	101	pp. 280-289
42.	B. Sahoo, S. K. Sahu, S. Nayak, D. Dhara, P. Pramanik	2012	Fabrication of magnetic mesoporous manganese ferrite nanocomposites as efficient catalyst for degradation of dye pollutants	Catalysis science and technology	2	pp. 1367-1374
43.	B. B. Prasad, D. Kumar, R. Madhuri, M. P. Tiwari	2012	Nonhydrolytic solgel derived imprinted polymer multiwalled carbon nanotubes composite fiber sensors for electrochemical sensing of uracil and 5-fluorouracil	Electrochimica Acta	71	pp. 106-115
43.	B. B. Prasad, A. Prasad, M. P. Tiwari, R. Madhuri	2013	Multiwalled carbon nanotubes bearing 'terminal monomeric unit' for the fabrication of epinephrine imprinted polymer-based electrochemical sensor	Biosensors and Bioelectronics	45	pp. 114-122

3.1.4.3 Paper presented/published in International Seminars/Conferences:

1. Prof. A. Sarkar, Invited Lecture, "Characterization and utilization of fly-ash A holistic approach at the International Conference on "Utilization of Fly Ash - Exploring New Frontiers, January 10-11, 2013, Kolkata
2. Prof. A. Sarkar presented two (02) papers in the IVth International Symposium on Energy from Biomass and Waste, 12-15 November '2012, San Servalo, Venice, Italy.
3. Prof. D. D. Pathak. "Perspective of Ru (II) Complexes as New Inorganic Materials in Organic Synthesis" in International Conference on Chemistry and Materials: Prospects and Perspectives-2012 (ICCMPP-2012), held at Babasaheb Bhimrao Ambedkar University, Lucknow, December 14-16, 2012.
4. Prof. D. D. Pathak. "Synthesis, Characterization and Crystal Structure Determination of Rare Examples of Iodoethane Ruthenium (II) Complex $[\text{Ru}(\eta^5\text{-C}_5\text{H}_5)(\text{dppe})(\text{ICH}_2\text{CH}_3)]^+\text{CF}_3\text{SO}_3^-[\text{dppe}=\text{Ph}_2\text{PCH}_2\text{CH}_2\text{PPh}_2]$ " in SNIC-RSC Joint symposium on Inorganic Chemistry, held at Institute of Materials Research and Engineering, A*STAR, Singapore, January 7-8, 2013.
5. Prof. D. D. Pathak. "Template Synthesis of Cyclic Phosphines and Phosphorus Macrocycles" in International Conference on Emerging Trends in Chemical Sciences (ICETCS 2013), Gandhinagar, Gujrat, March 14-15, 2013.
6. M. Yadav. "Imidazoline derivatives as eco-friendly oil field corrosion inhibitors". Proceeding of 1st National Congress on Corrosion Control Electrochemists (1st NCCI2012) held at Kolkata, August 23-25 2012.
7. M. Yadav. "Amino acid compounds as eco-friendly oil field corrosion inhibitor". Proceeding of CORCON 2012 held at Goa September 26-29 2012.
8. M. Yadav. "Electrochemical characterization of composite film of polypyrrole and nanosized MnCo_2O_4 for electrocatalytic reduction of oxygen in fuel cell". Proceeding of 4th International Conference on Recent Advances in Composite Materials, (ICRACM 2013) held at Goa, February 18-21, 2013.
9. B. Chowdhury, Sandip Mandal and Chiranjit Santra. "Ceria based mesoporous mixed oxide supported gold nanoparticle for alcohol oxidation reaction using molecular O_2 " in the International Conference on Nanoscience and Nanotechnology held at Zurich, Switzerland, 2012.

10. Sumbul Rahman and B. Chowdhury. "Vapor phase Beckmann Rearrangement reaction over Nb-KIT-6 Catalyst" in International Conference on Interface between Chemistry and Environment (ICICE-2012).
11. Chiranjit Santra, Sandip Mandal, Udayabhanu Gopaikrishnan Nair, Biswajit Chowdhury. "Gold supported on alkali metal-doped ceria catalysts for the liquid phase selective oxidation of benzyl alcohol using molecular O₂" in 6th International Symposium on Macro and Supramolecular Architectures and Materials (MAM-12).
12. Soumitra Ghorai, Sagar Pal. "Xanthan gum-g-poly (acrylamide)/silica hybrid nanocomposite: application as efficient adsorbent for removal of Congo red dye" in International Conference ICETCS-2013 at Gandhinagar, during 14th 15th March 2013.
13. Dipankar Das, Sagar Pal. "Modified dextrin based semi-IPN hydrogel: A novel matrix for colon targeted drug delivery" in International Conference ICETCS-2013 at Gandhinagar, during 14th 15th March 2013.
14. Abhijit Pal, Sagar Pal. "Synthesis of novel flocculant polyacrylamide and polyacrylic acid grafted amylopectin and its application as an iron ore flocculant" for POSTER presentation for the National Rubber-2012 at Kolkata, during 14th 15th December 2012.
15. Soumitra Ghorai, A. Sarkar, A. B. Panda, Sagar Pal. "Xanthan gum grafted polyacrylamide/silica: An efficient adsorbent for removal of lead (II) from aqueous solution" for POSTER presentation for the National Conference PRC-2012 at Centre for Research in Nanoscience & Nanotechnology, University of Calcutta, during 12th 13th October 2012.
16. Raghunath Das, Sagar Pal. "Hydroxypropyl methyl cellulose grafted with polyacrylamide (HPMC-g-PAM): Application in controlled release of 5-amino salicylic acid" for POSTER presentation for the National Conference PRC-2012 at Centre for Research in Nanoscience & Nanotechnology, University of Calcutta, during 12th 13th October 2012.

3.1.4.4 Papers presented/published in National Seminars/Conferences:

1. Prof. D. D. Pathak, "Synthesis of Cyclic Phosphines and Phosphorus Macrocycles: A Challenge to Inorganic Chemists" in XXXI Annual Conference of Indian Council of Chemists, held at Department of Chemistry, Saurashtra University, Rajkot, Gujrat, December 26-28, 2012

2. Prof. D. D. Pathak, "Development of Enantioselective Alkylating Reagents for Asymmetric Catalysis" in 21st National Symposium on Catalysis, held at the Indian Institute of Chemical Technology, Hyderabad, February 11-13, 2013.
3. M. Yadav, "Spectroscopic and Electrochemical studies of 4[N-(benzalidene) amino]antipyrinethiosemicarbazone(BAAPS) on the corrosion inhibition of Mild steel in hydrochloric acid solution. Proceeding of National Conference on Advances in Laser and Spectroscopy (ALS 2012), 1st Nov. to 3rd Nov. 2012, held at ISMDhanbad.

3.1.5 MAJOR ACADEMIC CONTRIBUTIONS:

- Dr. Sagar Pal received DAAD Fellowship (Research Stay) for doing collaborative research work with Prof. Holger Schonherr, University of Siegen, Germany.

3.1.6 PARTICIPATION OF FACULTY/STAFF IN SEMINARS/CONFERENCES ETC

Prof. A. Sarkar	International Conference on "Utilization of Fly Ash - Exploring New Frontiers	January 10-11, 2013	Kolkata
Prof. A. Sarkar	IV th International Symposium on Energy from Biomass and Waste,	12-15 November '2012	San Servalo, Venice, Italy
Prof. N. M. Mishra	Workshop on Theoretical Chemistry	19-22 February '2013	Mariapfarr, Salzburg, Austria
Prof. N. M. Mishra	Workshop on Theoretical Chemistry	19-22 February '2013	Mariapfarr, Salzburg, Austria
Prof. D. D. Pathak	International Conference on Chemistry and Materials: Prospects and Perspectives-2012	December 14-16, 2012	Lucknow
Prof. D. D. Pathak	SNIC-RSC Joint symposium on Inorganic Chemistry, held at Institute of Materials Research and Engineering	January 7-8, 2013.	Singapore
Prof. D. D. Pathak	International Conference on Emerging Trends in Chemical Sciences	March 14-15, 2013	Gandhinagar, Gujarat
Prof. D. D. Pathak	XXXI Annual Conference of Indian Council of Chemists	December 26-28, 2012	Rajkot

Prof. D. D. Pathak	21 st National Symposium on Catalysis, held at the Indian Institute of Chemical Technology,	February 11-13, 2013	Hyderabad
M. Yadav	16 th National Congress on Corrosion Control Electrochemists	August 23 - 25 2012	Kolkata
M. Yadav	CORCON 2012	September 26 - 29 2012	Goa
M. Yadav	4 TH International Conference on Recent Advances in Composite Materials, (ICRACM 2013)	February 18 - 21, 2013.	Goa
B. Chowdhury	International Conference on Nanoscience and Nanotechnology	2012	Zurich, Switzerland

3.1.7 Visits of faculty members abroad:

- Prof. A. Sarkar visited Venice, Italy and presented two papers in the IVth International Symposia on Energy from Biomass and Waste during 12-15th November 2012.
- Prof. N. M. Misra attended the Workshop on Theoretical Chemistry during Feb. 19-22, 2013, Mariapfarr, Salzburg, Austria.
- Prof. N. M. Mishra visited Kabul, Afganistan during 22-26th June 2012 in relation with the Govt. of India's (MEA) proposal to set-up Afganistan Institute of Mining.
- Prof. D. D. Pathak presented a technical paper in SNIC-RSC Joint symposium on Inorganic Chemistry during 7-8th January '2013 held at Institute of Materials Research and Engineering, Singapore.
- Dr. B. Chowdhury presented a technical paper in an International Conference on Nanoscience and Nanotechnology at Zurich, Switzerland, during July 2012
- Dr. S. Pal visited University of Siegen, Germany during May July 2012 for doing collaborative research work with Prof. Holger Schonherr through DAAD Fellowship (Research Stay).

3.1.8 Testing Services: Mine-Air analysis of different mines of BCCL & CCL.

3.2 Department of Applied Geology

The Department of Applied Geology is the pioneering centre of teaching, training and advanced research in Applied Geology in India. This is one of the oldest Departments of the Institute, established in 1926 that offers 5-Years Integrated M.Sc.Tech. programme, 3-Years M.Sc.Tech programme, M.Tech. and Ph.D. programmes.

3.2.1 FIELD VISITS/ EXCURSIONS/ TRG. PROGRAMMES UNDERTAKEN BY STUDENTS PARTICULARS OF FIELD VISIT/ EXCURSIONS/ BATCH OF STUDENTS PLACE OF VISIT TRAINING PROGRAMMES.

Particulars	Batch of students	Place of visit	Period of visit
Local geological field excursion.	IV Sem Int. M.Sc. Tech (AGL), VI Int. M.Sc. Tech (AGP) and II M.Sc. (AGP)	Areas in the vicinity of Dhanbad(Bhuli- Bansjora Area)	10.12.2012 to 24.12.2012
Sedimentary Terrain Mapping Training	II M. Sc. Tech. (AGL) & VI Integrated M. Sc. Tech. (AGL)	Kuju Area & Dudhinala Section, Jharkhand	10.12.2012 to 22.12.2012
Economic Geology Field Training	VI INT M.SC. Tech.AGL	Jharia Coal field, Parbatpur and Munidih CBM project, AMD Drilling Site, Balrampur, Purulia, West Bengal	24.12.12 to 03.01.13
Local Geological Field Excursion	II Semester M.Sc Tech. (AGP), VI Semester M.Sc. Tech (AGP) Integrated, III Semester M.Sc. Tech. (AGL) Integrated.	Around Dhanbad	10.12.2012 to 19.12. 2012
Geological Mapping in Deformed Metamorphic terrain	IV Sem. M.Sc Tech Applied Geology VIII Int. MSc Tech Applied Geology	Umra, Rajasthan	8.12.2012 to 21.12.2012

3.2.2 INTRODUCTION OF NEW PROGRAMMES, IF ANY (GIVE COURSE OUTLINE):

New courses on Power Plant Engineering and Non-conventional Engineering Technology have been incorporated in M Tech (Fuel Engineering). The purpose of introducing these courses is to acquaint students with the coal based power plant technologies and also the development in non-conventional energy technologies.

3.2.3 BRIEF LIST OF ONGOING R & D PROJECTS (PROJECT VALUE Rs. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement	Date of Completion	Objective	Status	Findings
Artificial Recharge and Rainwater Harvesting Structures within the compounds of Indian School of Mines, Dhanbad	CGWB	Prof. B. C. Sarkar	1.74,85,645	21.12.2011	31.12.2013	Recharge of ground water domain.	On going	Impact assessment reveals an increase in the water level in the recharge wells.
Preparation of Indian Stress Map for Analysis of Crustal Motion and Seismotectonics	Ministry of Earth Sciences, Government of India	Prof. S. Mohanty	Rs.8.83 Lakhs	1.4.202009	30.09.2012	Developing a database for tectonic stress patterns in the Indian plate from: a. Earthquake focal mechanisms, b. Bore well breakouts and drilling-induced fractures, in-situ stress measurements, c. Young geologic data (from fault-slip analysis) and d. GPS and Geodetic data	On going / Completed	a. Earthqu-ake b. focal mechanism data were compiled and analysed to determine the average orientations of principal stress axes. c. Bore well breakout and in-situ stress measurements data were also compiled. d. GPS and Geodetic data available in public domain were also compiled. e. Measurements of young faults were carried out in parts of the Satpura Mountains and the Kutch region.
Geological and Technological Controls for Underground Coal Gasification	CSIR	Prof. Atul K. Varma	Rs 91.60 Lakh	01.04.2012	31.03.2017	To provide geological and technical feasibility of coal seam for underground coal gasification	Going on	Work Plan finalised
Project Title CO ₂ Geological Storage: Research into monitoring and verification technology (CO ₂ ReMoVe	European Commission in the Netherlands	Prof. A K Varma Team Leader from India and Prof A S Venkatesh, Team Member from India	65000/- Euros	2009-2010	Contg.	Geological Sequest ration of Carbon dioxide	On going	Work is in progress; Understanding the Geological storage aspects of CO ₂ removal
Comprehensive Monitoring and Assessment of Drought in India: Implications for Process-Based Understanding of Drought Propagation.	Department of Science and Technology, Govt. of India	Dr. T. H. Syed	Rs. 17.16 lakhs	Oct., 2011	Sept., 2014	Understanding the processes that control the extent and recurrence of drought in India	On going	Terrestrial Water Storage as a key indicator of drought.

Petrology, geochemistry and age of granite-greenstone assemblages along Rayachoti-Kadiri tract, Andhra Pradesh: window into late Archaean evolution of eastern Dharwar craton and geodynamics	DST	S. Dey (PI) & M. K. Mukherjee (Co-PI.)	13.76 lakhs	September, 2011	August, 2014	To understand petrogenesis of granitoids and volcanic rocks of the Kadiri and Veligallu greenstone belts and their role in Archaean crustal evolution.	On going	The Kadiri greenstone belts contains three types of volcanic rocks viz. plume-related tholeiitic basalts, subduction related high-Mg# andesites and potassic adakites. Different suites of granitoids identified include sanukitoid, transitional TTG, anatectic biotite granite and A-type granite. A convergent orogenic setting characterised by assembly of diverse terranes, repeated slab-break-off and crustal reworking is proposed to interpret the association of various granitoids and volcanic rocks.
Stable isotope, geochemical and geochronological studies of Aijandhali and parts of Gadag gold prospects, Chitradurga Schist Belt, South India	DST	Dr. S. Sarangi	Rs. 18.225 lakhs	24.02.2012	24.02.2015	(i) to find out the source and origin of CO ₂ rich mineralizing fluid responsible for gold mineralization through a more detailed isotope, geochemical and geochronological studies	On going	Analysis is going on
Distribution and Carbon Isotopic Variations of Benthic Foraminifera from Gas Hydrate Rich Peru Offshore	DST	Dr. A. K. Bhaumik	Rs. 17.22 lakhs	16.11.2011	15.11.2014	To identify the group of benthic foraminifera showing relation to the methane rich environment	On going	Analysis is going on
"Facets of strain attributes.. in Central India"	UGC	R.K. Dubey	Rs. 11.42 Lakhs	1.07.2012	30.06.2014	Deformation behaviour of rocks in Central India	On going	Literature survey and primary field works are over
Structural Geometry, Kinematics of Deformation and Metamorphism of the Proterozoic Kaladgi Group, in the eastern parts of Kaladgi Basin, Bagalkot district, Karnataka: implication to basin tectonics	DST	Dr. M. K. Mukherjee	Rs. 17.44 Lakhs	1.1.2011	31.12.2013	To work out the deformation geometry and kinematics of the basin	On going	80% of the field work and data collection is over. Structural geometry worked out. Laboratory studies ongoing

3.2.4 BEST PRACTICES OF THE DEPARTMENT

- i. Imparted Two-week Training programme on 'Geostatistics' to the Officers of Atomic Minerals Directorate for Exploration and Research;
- ii. Consultancy on 'Hydrogeological Studies for Milupara Coalfields, Mand Raigarh, Chattisgarh' to Monnet Ispat and Energy Limited.

3.2.5 IMPORTANT COLLABORATIVE WORKS

Organisation /Lab.	Nature of Interaction
Centre of Studies for Resources Engineering, IIT Bombay	Geo-spatial modeling for mineral potential mapping
Geostatistical Characterization of Shale Gas Reservoirs Integrating Well Data and Seismic Attributes	OILMAX Energy, Mumbai
Central Institute of Mining and Fuel Research, Dhanbad	Adsorption of methane on various geological materials
Northern Carbon Research Laboratories, Newcastle upon Tyne, UK	CO ₂ adsorption on various geological materials
Hokkaido University, Japan	Kerogen Petrology
GSI, IIT-Kharagpur,	Research & Publication work
NGRI-Hyderabad,	Research & Publication work
GeoMysore (India) Pvt Ltd	Research & Publication work
PRL, Ahmedabad	Research & Publication work
Pondicherry University, Pondicherry	Trace elements and Sm-Nd, Rb-Sr whole rock isotopic systematics of the Malanjkhand Granitoids.
University of Science and Technology of China, Hefei, China	Amphibole chemistry of Malanjkhand granitoids.
Department of Earth Sciences, Johannes Gutenberg University, Mainz, Germany	Deformation microstructure and its implication in strain accommodation in deformed rocks.
AIRIE PROGRAM, COLORADO STATE UNIVERSITY, USA	Collaborative research work with Prof. S. Mohanty, sponsored by National Science Foundation (NSF), USA, to AIRIE for Re-Os geochronological work in the Central India.

3.2.6 RESEARCH PUBLICATIONS:

3.2.6.1 Book reviews/contribution of chapters in a book:

Mohanty, S., 2012. 'Determination of crustal strain from GPS velocity data: Application towards seismic hazard potentials of faults'. Modern Trends in Mine Surveying (Eds. Bahuguna, PP and Kumar, D). Department of Mining Engineering, ISM, Dhanbad, pp 125-131.

3.2.6.2 Papers Published in International Journals:

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Mohanty, S.	2012	Spatio-temporal evolution of the Satpura Mountain Belt of India: A comparison with the Capricorn orogen of Western Australia and implication for evolution of the supercontinent Columbia	Geoscience Frontiers	Vol. 3 (3)	pp. 241-267. doi:10.1016/j.gsf.2011.10.005
2.	Khan, P.K., Chakraborty, P.P., Tarafder, G., and Mohanty S.,	2012	Testing the intraplate origin of mega-earthquakes at subduction margins	Geoscience Frontiers	Vol. 3 (4)	pp. 473-481. doi:10.1016/j.gsf.2011.11.012
3.	Sinha, S. and Mohanty S.,	2012	Spatial variation of crustal strain in the Kachchh region, India: Implication on the Bhuj earthquake of 2001	Journal of Geodynamics	Vol. 61	pp. 1 11
4.	Sukanta Dey	2013	Evolution of Archaean crust in the Dharwar craton: The Nd isotope record	Precambrian Research (Elsevier),	227	pp. 227-246
5.	S. Sarangi, A. Sarkar, R. Srinivasan, S.C. Patel	2012	Carbon isotope studies of auriferous quartz carbonate veins from two orogenic gold deposits from the Neoarchean Chitradurga schist belt, Dharwar craton, India: Evidence for mantle/ magmatic source of auriferous fluid	Journal of Asian Earth Sciences	Vol.52	pp.111

6.	S. Sarangi R.Srinivasan, V. Balaram	2012	REE geochemistry of auriferous quartz carbonate veins of Neoproterozoic Ajjanahalli gold deposit, Chitradurga schist belt, Dharwar Craton, India	Geoscience Frontiers	Vol.4	pp.231- 239

3.2.6.3 Papers Published in National Journals:

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Bhargava, P, Venkatesh, A S and Mandre N R	2012	Beneficiation of Low-Grade Iron Ore by Flotation	SGAT Bulletin	Vol. 13, 2,	pp. 13-17.
2.	Sain, K., Gupta, H., Mazumder, A., Bhaumik, A. K., and Bhowmick, P. K.	2012	Geo-scientific Investigations of Gas-Hydrates in India	Proceedings of Indian National Science Academy	Vol. 78	pp. 503-511
3.	Pranab Das, Sridhar D. Iyer and Sugata Hazra	2012	Petrological characteristics and genesis of the Central Indian Ocean Basin basalts	Acta Geologica Sinica	Vol. 86	pp. 801-817
4.	Iyer SD, Mehta CM, Das P. and Kalangutkar NK	2012	Seamounts Characteristics, Formation, Mineral Deposits and Biodiversity	Geologica Acta	Vol. 10(3)	pp. 295-308
5.	Iyer, S.D., Das, P., Kalangutkar, N.G., Mehta, C.M.		Seamounts - windows of opportunities and the Indian scenario'	Current Science	Vol. 102(10)	pp. 1382-1391

3.2.6.4 Papers presented/published in International Seminars/Conferences:

1. Singh, S., Chandan, K K., Jha, V and Venkatesh, A S. (2013). Metallotectonic evolution and its implications on the exploration prospects of orogenic gold mineralization within north Singhbhum Mobile Belt, Singhbhum Craton, Eastern India. Abs. in IInd International Symposium on the Geological Resources in the Tethys Realm, held at Aswan University, Egypt, from 5-8 January, 2013, ed. El-Sayed A. A. Youssef, p. 25.
2. Varma, A. K., Khatun, M., Mendhe, V. A., Saxena, V. K., Singh, B. D., Dayal, A. M. and Hazra, B., 2012. Petrographic aspects of shale gas a case study from Raniganj Coal Basin. International Workshop on Exploration and Exploitation of Shale Gas, NGRI, Hyderabad, 19-20 December 2012, Abstracts 8p.
3. Panigrahi, D.C. and Varma, A. K., 2013. Petrographical and Technological Controls of Shale Gas and their Environmental Implications. World Petrocoal Congress 2013, 15-17 February, 2013, New Delhi. Keynote Presentation
4. Syed, T. H., J. S. Famiglietti, D. P. Chambers, J. K. Willis and K. Hilburn, Emerging trends and interannual variability of freshwater discharge into the world ocean, Abstract No. HS08-15A023, Asia Oceania Geosciences Society and American Geophysical Union Joint Assembly, Singapore, 13th - 17th August 2012.
5. Syed, T. H., Assessing interannual variability of evapotranspiration over Ganga river basin using water balance computations, International Humboldt Kolleg on Management of Water, Energy and Bio-resources in Changing Climate Regime: Emerging Issues and Environmental Challenges, Jawaharlal Nehru University, 8th-9th February, 2013.
6. Sukanta Dey (2012). Crustal evolution in the Dharwar craton and its link with the North China Craton: the Nd isotope perspective. Asia Oceania Geosciences Society (AOGS) - American Geophysical Union (AGU) Joint Assembly, Singapore, 13-17 August, 2012.
7. Singh, S., Chandan K. K., Jha V., and Venkatesh, A. S., 2013. Metallotectonic Evolution and its Implications on the Exploration Prospects of Orogenic Gold Mineralization within North Singhbhum Mobile Belt, Singhbhum Craton, Eastern India. Abstract Volume, Second Symposium on the Geological Resources in the Tethys Realm (5-8 January, 2013, Aswan, Egypt)

3.2.6.5 Papers presented/published in National Seminars/Conferences

1. Varma,A. K., Khatun, M., Mendhe, V. A., Saxena, V. K., and Hazra, B., and Banerjee,S.2013. Petrographic Characterisation For Shale Gas- A Case Study of Raniganj Coal Basin, Proc.100th Indian Science Congress Part IISection V: Earth System Sciences,pp 96-97, Kolkata.
2. Dubey, R.K.2013. Response of double elasticity and double viscosity material model under compression in incremental stress rate condition. Proc.Nat.Conf.Recent Advances in Mathematics and its Applications, pp. 247-254.
3. Apat A. and Mukherjee M. K. (2012): Characterizations of igneous plutons and their components within Chotonagpur Gneissic complex around Baliapur-sabaigarha, Dhanbad district, Jharkhand in Proceedings of National Workshop on Recent Advances in Geosciences in Bihar and Jharkhand, p 16

3.2.7 MAJOR ACADEMIC CONTRIBUTIONS

- Prof. B. C. Sarkar developed conditional simulation technique for coal resource modeling.
- A paper published by Prof. S. Mohanty in Gondwana Research (impact factor 5.5) in 2011 was reported in “VerticalNews” to be one of the new findings in Geoscience.
- Prof. S. Mohanty was invited by the Editor, Geoscience Frontiers (Elsevier publication) to contribute an article to be published under FOCUS section.
- Prof. S. Mohanty was invited by the Editor, Geoscience Frontiers to edit a special volume for the Journal.
- Prof. S. Mohanty reviewed two manuscripts for publication in “Geoscience Frontiers” (Elsevier publication).
- Prof. S. Mohanty reviewed two manuscripts for publication in “Journal of Asian Earth Sciences” (Elsevier publication).
- Prof. S. Mohanty reviewed one manuscript for publication in “Current Sciences” (Springer publication).

- Prof. S. Mohanty reviewed project proposals submitted to DST, Government of India.
- Prof. A. K. Varma carried out two days field work in Nubian Desert near Aswan Egypt during 8th and 9th Jan 2013.

3.2.8 PARTICIPATION OF FACULTY/OFFICER/STAFF IN SEMINAR/CONFERENCE ETC.

Name of the Participant	Title	Duration	Place
Prof. B. C. Sarkar	5 th Indian Mineral Congress & Exhibition	02 February 2013	Dhanbad
Prof. B. C. Sarkar	National Conference on Recent Advances in Mathematics and its Applications	14-16 February 2013	Dhanbad
Prof. Atul K. Varma	International Workshop on “Shale Gas”	19-20 December 2012	NGRI, Hyderabad
Dr Sukanta Dey	Asia Oceania Geosciences Society (AOGS) - American Geophysical Union (AGU) Joint Assembly	13-17 August, 2012	Singapore
Dr Sahendra Singh	Second Symposium on the Geological Resources in the Tethys Realm	5-8 January 2013	Aswan University, Aswan, Egypt

3.2.9 VISITS OF FACULTY MEMBERS ABROAD

- Dr. Sukanta Dey - Attended the Asia Oceania Geosciences Society (AOGS) - American Geophysical Union (AGU) Joint Assembly, Singapore, 13-17 August, 2012.
- Dr. S Singh - Visited Aswan University, Aswan, Egypt to participate and present a paper.
- Dr. M. K Mukherjee visited Department of Earth Sciences, Johannes Gutenberg University, Mainz, Germany to participate in course work on Microtectonics from 13.08.2012 to 23.8.2012.

3.2.10 TESTING SERVICES (LAB FACILITIES AVAILABLE FOR TESTING IN THE DEPARTMENT/CENTRE)

- Petrographic analyses of coal, kerogen, coke, hydrogenation residue, solvent residue, flyash, soil etc.

- Organo-petrographic evaluation for coal bed methane, shale gas, hydrocarbon generation, carbon dioxide sequestration.
- Ore Mineralogical characterization and mineralogical characterization of rocks for mineral exploration and environmental studies.
- Dr. M. K. Mukherjee offered Consultancy services to Monnet Ispat & Energy Ltd. related to prediction of Mine water inflow from Hydrogeological studies of the Rajgamar Dipside, south of Phulakdih Nala, Korba district, Chattisgarh, through fieldwork and laboratory analysis of Engineering Properties of Rocks in Petrology laboratory and Engineering Geology Laboratory

MISCELLANEOUS (ANY OTHER RELEVANT INFORMATION)

Prof. B. C. Sarkar:

1. Prof. B. C. Sarkar, Evaluator of Scheme For Promotional Projects funded by Ministry of Mines for Detailed Exploration of Mineral Prospects by Mineral Exploration Corporation Limited.
2. Prof. B. C. Sarkar, Evaluator of The XI Plan Schemes of Geological Survey of India continuing to XII Plan Period funded by Ministry of Mines, Govt. of India.
3. Prof. B. C. Sarkar, Member, Steering Committee on 18th Convention of Indian Geological Congress, Bhopal, 2013.
4. Prof. B. C. Sarkar, Member, Standing Committee on Earth Science Olympiad, Ministry of Earth Sciences, Govt. of India.
5. Prof. B. C. Sarkar, Member, SERB Task Force, DST, New Delhi.
6. Prof. B. C. Sarkar, Member, Evaluation Committee on SAP Projects, UGC, New Delhi.
7. Prof. B. C. Sarkar, Convener, IMC 2013.

Prof. A K Varma:

1. Participated in the Meeting of the Sub Committee on Energy Mineral (GrIII of CGPB) held on 15th December 2012 at Coal Wing, GSI, Kolkata.

2. Participated in CGPB Meeting chaired by the Director General, Geological Survey of India on 14.02.2013. The formal meeting was inaugurated by the Honourable Minister of Mines, Shri Dinsha Patel Ji. This meeting had discussed the Geological works of the country.
3. Participated in BIS Meeting chaired by Dr. R.P.Singh of ONGC Ahmedabad. It was first meeting convened on "Method and Equipment for UGC and Coal Bed Methane" on 26.07.2012 in New Delhi.
4. Participated in International Workshop on "Shale Gas" at NGRI, Hyderabad. Presented paper and chaired one of the sessions; Participated in Panel discussion as Panelist.
5. Participated in IBM Advisory Board Meeting chaired by Shri Vishwapati Trivedi, Chairman, IBM Advisory Board Meeting and Secretary, Ministry of Mines, Govt. of India
6. Participated in CGPB informal Meeting chaired by the Director General, Geological Survey of India. The formal meeting was inaugurated by the Honourable Minister of Mines, Shri Dinsha Patel Ji. This meeting discussed the Geological works of the country.
7. Participated in the 3rd World PetroCoal Congress (from 15.02.2013-17.02.2013), delivered keynote address.
8. Participated in high level meeting of Atomic Mineral Directorate Meeting on 17.10.2013
9. Member, Editorial Board, Journal of Geological Society of India.
10. Member, International Working Group on "Microscopy of Carbon Materials".
11. Member, Editorial Board of "Journal on Geological and Earth Sciences (JGES), Singapore

Prof. A S Venkatesh:

1. Member: Exploration and Research Advisory Committee (ERAC), Dept of Atomic Energy, Atomic Minerals Directorate and Exploration (AMD), Eastern Region, Jamshedpur.

2. Member National Working Group- International Geological Correlation Programme (IGCP-540) on Gold Deposits. Given invited lectures in the Geological Survey of India training facility at Chitradurga, Karnataka and attended field work shop in Dharwar gold belts.
3. Completed three consultancy studies, (one as CI and two as CO-CI).
4. Reviewer for the following International and national journals, namely,
 - i. International Journal of Geo Sciences (IJG), Review report sent on 26.06.2012.
 - ii. Journal of Earth System Science (JESS), Springer Verlag, on Platinum group elements, review completed in Feb, 2013
 - iii. Environmental Earth Science, Springer Verlag, (formerly Environmental Geology), Jan 2013.
4. Chairman, MSc/M Sc Tech Entrance Examination-2013
5. Resource Person for 4 courses.

Dr. M K Mukherjee:

Dr. M. K. Mukherjee on invitation by Geological Survey of India, Training Institute Hyderabad, imparted training on Refresher course in Structural Geology for the officers of Geological Survey of India from 22.9.2012 to 28.9.2012 with field mapping and documentation of structures in the Proterozoic Cuddapah Basin.

3.3 Department of Applied Geophysics

The Department of Applied Geophysics was established in 1957. The Department offers 5-Year integrated M. Sc. Tech., 3-Years M.Sc.Tech. programme, M.Tech. and Ph. D Programme.

3.3.1 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of Students	Faculty involved	Place of Visit	Period of visit
Winter Geophysical Field Training	4 th 3 year M. Sc. Tech. AGP and 8 th 5year Int. M. Sc. Tech. AGP (Total student: 58)	Rima Chatterjee, P. N. S. Roy and Sanjit Pal	Jaduguda	December 10-24 2013

3.3.2 BRIEF LIST OF ON-GOING R&D PROJECTS

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement	Date of Completion	Objective	Status	Findings
Geoelectrom-agnetism in Crustal investigation	UGC New Delhi	P.R. Mohanty, PI Shalivahan, Co-PI	Rs. 80 Lakhs	01.04.2012	31.03.2017	To create a Centre of Excellence in Geoelectr-omagnetism	Ongoing	---
Analysis of In-situ Stress for CBM Exploration in Jharia Coal Field	CIL R&D Board	Rima Chatterjee, PI V. K. Srivastava, Co- PI	Rs.42 Lakh	March 2009	Feb. 2013	Analysis and Interpretation of available & procured well logs data from the target area of Jharia basin	Completed on Feb. 2013	Result & Interpretation of log used for In-situ stress study for CBM was prepared.
Setting up, Operation and Maintenance of GPS station at Indian School of Mines, Dhanbad	Ministry of Earth Sciences, GOI, New Delhi	Dr. P. K. Khan	8.342	08.04.2011	07.04.2014	Setting up, Operation and Maintenance of GPS station at ISM	Continuing	Instruments installed and nicely operating
Wavelets-ANFIS conjunction method for Well logging data Analysis	ISM, Dhanbad	Dr. Upendra. K. Singh, PI	Rs. 6.85	31.03. 2011	31.03. 14	To develop the wavelet algorithm for the interpretation of geophysical time series data	Ongoing	Well logs datasets are collected from available sources and literature survey is still going on.
Estimation of Crustal Stress and Development of Geo-Mechanical earth Models for Few oil/gas Fields of Eastern India	MoES	Rima Chatterjee, PI Investigator	Rs. 22.80 Lakh	Nov. 2012	Nov. 2015	Estimation of in-situ stress magnitude from well log data from few oil/gas including coalbed Methane (CBM) fields subject to the permission of data from the sedimentary basins of India	Ongoing	a) Well log data are collected b) Stress magnitude are computed from 10 wells

3.3.3 IMPORTANT COLLABORATIVE WORKS

Organisation /Lab.	Nature of Interaction
CMPDIL, Ranchi	Collaborative R&D project sponsored by CIL.

3.3.4 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS.5,00,000/-)

Name of Equipment	Purpose	Procured by Faculty	Date of Purchase	Value (₹)
Permemeater	For core permeability measurement	Rima Chatterjee	September '2012	35.00 lakh (Approx)
Multi-electrode Resistivity Imaging	Teaching, Training and Research	Sanjit Kumar Pal	PO has been placed in Nov, 2012	32.00 lakh (Approx)

3.3.5 RESEARCH PUBLICATION

3.3.5.1 Papers published in International Journal

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Chatterjee, R. and Paul, S.,	2012	Application of Cross-Plotting Techniques for Delineation of Coal and Non-Coal Litho-Units from Well Logs	Geomaterials	2	pp. 94-104
2.	Chatterjee, R., Datta Gupta, S. and Farooqui, M. Y.,	2012	Application of Nuclear Magnetic Resonance Log for Evaluation of Low Resistivity reservoirs: A Case Study	Cambay Basin, India, Journal of Geophysics and Engineering	9	pp. 595-610
3.	Datta Gupta, S., Chatterjee, R. and Farooqui, M. Y.,	2012	Rock physics template (RPT) analysis of well logs and seismic data for lithology and fluid classification in Cambay basin	International Journal of Earth Sciences	101(5),	pp. 1407-1426

4.	Datta Gupta, S., Chatterjee, R. and Farooqui, M. Y.,	2012	Formation evaluation of fractured basement, Cambay basin, India	Journal of Geophysics and Engineering	9	pp. 162-175
5.	Roy, P. N. S. and Mondal S. K.,	2012	Identification of active seismicity by fractal analysis for understanding the recent Geodynamics of Central Himalaya	Journal of Geological Society of India	79	pp. 353-360
6.	Roy, P. N. S. and Mondal S. K.,	2012	Fractal and Multifractal study of earthquakes for analysis of stress pattern in Kumaun Himalaya and its surrounding region	Journal of Earth System Sciences	121(4),	pp. 1033-1047
7.	Roy, P. N. S. and Mondal S. K.,	2012	Seismic Hazards Assessment of Kumaun Himalaya and adjacent region	Natural Hazards	64	pp. 283-297
8.	Upendra K. Singh, R. K. Tiwari and S. B. Singh	2012	Neural Network Modeling and Prediction of Resistivity Structures using VES data over a Geothermal Area	Computer & Geosciences	52	pp. 246257
9.	K.K.K. Singh, Indresh Kumar, Upendra K. Singh	2012	Interpretation of voids or buried pipes using Ground Penetrating Radar modeling	Journal of Geological Society of India	81	pp. 397-404
10.	Majumdar , T. J., Pal, S. K., Bhattacharya, Amit K.,	2012	Generation of emissivity and land surface temperature maps using MODIS TIR data for lithological mapping over the Singhbhum-Orissa Craton, India	Journal of the Geological Society of India	80	pp. 685-699

3.3.5.2 Papers presented/published in International Seminars/Conferences

- (i) Chatterjee, R., 2012. CBM Exploration and Possibility for CO₂ sequestration in Jharia Coalfield, India, Invited Keynote Speech in Indo-Norwegian Conference, Nov. 26-28, NGRI, Hyderabad.

- (ii) Chatterjee, R. and Paul, S., 2012. Lithology identification of coal bearing formations from Well Logs and gas production performance evaluation of CBM Reservoir, Jharia Coalfield, India. Proceedings of 10th International Oil & Gas Conference and Exhibition (PETROTECH 2012), New Delhi, India, October 14-17, 2012 (Paper Id: 989).
- (iii) Roy, P. N. S. and Mondal S. K., 2012. Correlation fractal dimension approach for estimating temporal and spatial pattern of seismicity in the Himalayan region. (Abstract) Annual Meeting of Seismological Society of America held at Sandiego, California, USA during April 12-19, 2012.
- (iv) Deepak Gupta, Yogesh Arora, Upendra K. Singh, 2012. Recursive ant colony optimization for estimation of function parameter, Recent advances in Information Technology, ISM, Dhanbad, 547.
- (v) Upendra K. Singh, Deepak Gupta, Yogesh Arora, 2012. Inversion of Self Potential and VES Anomaly Using Particle Swarm Optimization Method - a Matlab Environment, SE96-A007, 8th Asia Oceania Geosciences Society Annual Meeting and Geosciences (AOGS), SE96-007.
- (vi) Gupta, D. K., Y. Arora, Upendra K. Singh and J. P. Gupta. Recursive Ant Colony Optimization: A new technique for estimation of parameters of a function, 1st International Conference RAIT-2012, Vol. 1, pp. 547-533.
- (vii) Pal, S. K. and Majumdar, T. J., 2012, Geological appraisal of the 85°E Ridge, Bay of Bengal using GRACE and GOCE anomaly, First International GOCE Solid Earth Workshop, University of Twente, Netherlands, 16-17 October 2012, 33-34.

3.3.5.3 Papers presented/published in National Seminars/Conferences

- (i) P.R. Mohanty, P. R. 2013. Seismic modelling of shallow subsurface cavities associated with abandoned coal workings, Proceeding of National Conference on Recent Advances in Mathematics and its Applications (RAMA-2013), Allied Publ. Ltd, 356-360.
- (ii) Chatterjee, R. and Paul, S., 2012. Quantitative Assessment of Coal Bed Methane Potentiality in Central Part of Jharia Coalfield, India - A Statistical Approach. Proceedings of 49th Annual Convention of Indian Geophysical Union (IGU) on Towards the Energy Security Exploration, Exploitation and New Strategies, PDPU Campus, Gandhinagar, Gujarat, India, October 29-31, 2012.

- (iii) Mandal, H. S., Khan, P.K., Shukla, A, K., 2013, Derivation of focal mechanism using waveform inversion of broadband seismic data over Central India Tectonic Zone (CITZ): tectonic implications, proceedings of the International Symposium on Advances in Earthquake Science AES-2013 during 1-2 February 2013 at Institute of Seismological Research, Gandhinagar, Gujarat, India, pp. 43.
- (iv) Mandal, H. S., Khan, P.K., Shukla, A, K., 2013, Deterministic Seismic Hazard Assessment along the SONATA Zone and its Surrounding Regions, proceedings of the National Conference on Recent Advances in Mathematics and its Applications (RAMA-2013), at Department of Applied Mathematics, Indian School of Mines, Dhanbad, pp. 296-313.
- (v) Upendra K. Singh, 2012. Geophysical expression of natural recharge in diversified geological terrains, National conference in SDGRIR, ISM, Dhanbad, 247.
- (vi) Upendra K. Singh, 2012. Integrated geophysical approach for ground water exploration, National conference in SDGRIR, ISM, Dhanbad, 248-249.
- (vii) Pal, S. K. and Vaish, J., 2013, Magnetic method of investigation for Coal fire mapping of East Basuria Colliery, a part of Jharia coal field, India, XIII convention of Mineralogical Society of India, 20th - 21st March 2013, University of Mysore, Department of Studies in Earth Science, Manasagangothri, Mysore, India.
- (viii) Pal, S. K. and Majumdar, T. J., 2012, Utilization of GRACE gravity data for geological interpretation over a part of the Singhbhum Shear Zone, 49th annual convention on "towards the energy security - exploration, exploitation and new strategies", Indian Geophysical Union, 29 - 31 October, 2012, Gandhinagar.
- (ix) Vaish, J., and S. K. Pal, 2012, Geological appraisal of Jharia coalfield using GRACE gravity data, 49th annual convention on "towards the energy security - exploration, exploitation and new strategies", Indian Geophysical Union, 29 - 31 October, 2012, PDPU Campus, Gandhinagar, Gujarat, India.
- (x) Vaish, J., and S. K. Pal, 2012, Geotechnical characterization of a part of Jharia coal field using Refraction Micro Tremor method, National workshop "Engineering Geophysics for civil engineering and Geo-Hazard" 22-23 November 2012, CSIR-CBRI, IIT Roorkee

3.3.6 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

All India Student Interaction Programme "Geoconfluence"	Rima Chatterjee	March 21-23, 2013

3.3.7 PARTICIPATION OF FACULTY IN SEMINARS/CONFERENCES

V. K. Srivastava	30 th Assembly of Committee on Space Research (COSPAR) held at INFOSYS Campus, Mysore, India and Chaired a Session on theme "Current and Future Satellite Missions	July 14-22, 2012	INFOSYS Campus, Mysore
P.R. Mohanty	National Conference on Recent Advances in Mathematics and its Applications (Rama-2013)	Feb. 14-16, 2013	ISM, Dhanbad
Rima Chatterjee	PETROTECH-2012	October 14-17, 2012	Vigyan Bhavan, New Delhi
Rima Chatterjee	49 th Annual Convention of Indian Geophysical Union	October 29-31, 2012	PDPU Campus, Gandhinagar
Rima Chatterjee	Indo-Norwegian Conference	November 26-28, 2012	National Geophysical Research Institute, Hyderabad
Sanjit Kumar Pal	2 nd Seminar on Drilling technology organised PETROTECH	April, 10-11, 2012	Institute of Drilling Technology ONGC, Kaulagarh Road, Dehradun
Sanjit Kumar Pal	49 th Annual Convention of Indian Geophysical Union	October 29-31, 2012	PDPU Campus, Gandhinagar
Sanjit Kumar Pal	XIII convention of Mineralogical Society of India	March, 20 21, 2013	University of Mysore, Department of Studies in Earth Science, Manasagangotri, Mysore, India

3.3.8 VISITS OF FACULTY MEMBERS ABROAD

- (i) Dr P N Singha Roy, presented a paper at 2012 Annual Meeting of Seismological Society of America, Sandiego, California, USA April 12-19, 2012.
- (ii) Dr. Upendra K. Singh, 2012. Inversion of Self Potential and VES Anomaly Using Particle Swarm Optimization Method - a Matlab Environment, SE96-A007, 8th Asia Oceania Geosciences Society Annual Meeting at Singapore.
- (iii) Prof. Shalivahan, Colarado School of Mines, USA, November 1, 2012 to December 31, 2012

3.3.9 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Prof. H. K. Gupta, Member, NDMA, Govt. of India	Guest Lecture on Feb. 4, 2013
Sri D. P. Sinha, SEG, USA	South-East Asia Honorary Lecture sponsored by SEG, USA
Sri P. K. Jain, ONGC	Guest lecturer on 22.3.2013 (All India Student Interaction Programme "Geoconfluence "organized by SEG, EAGE and SPG India student section)
Dr. Sahadev Hazra, ONGC	Guest lecturer on 22.3.2013 (All India Student Interaction Programme "Geoconfluence "organized by SEG, EAGE and SPG India student section)
Sri Pranaya Sangvai	Guest lecturer on 22.3.2013 (All India Student Interaction Programme "Geoconfluence "organized by SEG, EAGE and SPG India student section)
Prof R Ramesh	Guest Lecture for Applied Geophysics Students
Prof S S Rai	Guest Lecture for Applied Geophysics Students
Prof A D Singh	Guest Lecture for Applied Geophysics Students

3.3.10 MISCELLANEOUS

Dr. P. N. S. Roy, Participated industry academia interaction jointly organized by ONGC and PETROTECH society, 8th Proficiency Course on "Modern Practices in Petroleum Exploration" held during 3-7 September, 2012, at ONGC, Dehardun.

Dr. P. N. S. Roy, Awarded Junior Associate of The Abdus Salam International Centre of Theoretical Physics" (ICTP), Trieste, Italy since 2007 it was initially till 2012 but I got extension till 2014. (The awards allow visiting ICTP thrice for 42-90 days three times during 2007-2014 period with full support and return fare. ICTP Library donates book of 400 Euros every year (2007-2012) on placing the request).

Dr. Sanjit Kumar Pal, reviewed a paper entitled "High resolution satellite gravity over a part of the Sir Creek offshore on west northwest margin of the Indian subcontinent" of Indian Journal of Geo-Marine Sciences (IJMS), Council of Scientific & Industrial Research, New Delhi 110012

Dr. Sanjit Kumar Pal, reviewed a paper entitled "Detection and monitoring of offshore oil seeps using ERS/ENVISAT SAR/ ASAR data and seep-seismic studies in Krishna-Godavari offshore basin, India" of Geocarto International Journal, Taylor & Francis, UK

3.4 Department of Applied Mathematics

The Department of Physics and Mathematics was established since the inception of Indian School of Mines in 1926 and was given an independent status in 1989 as Department of Applied Mathematics. The Department provides an outstanding research environment complemented by excellent teaching for its students to flourish in different arena of academics and industry as well. The department offers academic programs leading to the award of M. Sc. (Mathematics and Computing), Integrated M. Tech. (Mathematics and Computing), M. Phil. (Applied Mathematics) and Ph. D. degree. The Department is well equipped with highly qualified faculty members and supportive advanced computational labs. Apart from this, the department takes care of Mathematical input to all undergraduate courses and post graduate courses of Engineering and Science currently running in ISM. It is also leading various sponsored project received by UGC, CSIR, NBHM, DST, ISRO etc. So far, the department has produced 71 Ph.D. In the current year 15 Ph.D have been produced.

3.4.1 Field Visits/Excursions/Training Programmes undertaken by students

Particulars	Batch of Students	Place of Visit	Period of Visit
Industrial Visit	2012-13	CIMFR	10.04.13 (one day)

3.4.2 INTRODUCTION OF NEW COURSES AND PROGRAMMES

The Department introduced a new academic programme leading to the award of Integrated M. Tech. (Mathematics and Computing) Degree from academic session 2012-13.

3.4.3 BRIEF LIST OF ON-GOING R&D PROJECTS

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement	Date of Completion	Objective	Status	Findings
Wave propagation in inhomogeneous and anisotropic media	UGC, New Delhi	Prof. P. C. Pal Prof. A. Chittopadhyay	Rs. 6.45 lakhs	1-2-2010	31-01-2013	To do some important research work related to theoretical seismology	Complete-d	4 papers related wave propagations were published in International Journal of repute
Development of estimation techniques and search of effective methods to minimize the effect of non-response in sample surveys	UGC, New Delhi	Prof. G. N. Singh	Rs. 5,12,800/-	01.07.2011	30.06.2014	To develop estimation procedures for various population parameters	On going	2 papers published related to the project work
Modeling the spatiotemporal complexity of Eco-epidemiological systems: A dynamical system Approach.	UGC, New Delhi	Prof. R. K. Upadhyay	Rs. 3,49,500/-	01.04.2013	31.03.2016	To develop some reaction-diffusion model for epidemiological system and study its spatiotemporal dynamics.	On going	Just Awarded
A Study on an Inventory system model	UGC, New Delhi	Prof (Mrs.) Bani Mukherjee	Rs.6,85,800/-	01.02.2011	31.01.2014	To develop deterministic inventory model of deteriorating items with stock, time dependent demand and varying deterioration rate with shortage or back-lagging.	On going	One (01) paper published related to the project work
Study of Analytical Approach of Unsteady Groundwater Flow Modeling	UGC, New Delhi	Dr. M. K. Singh	Rs.867477/-	02.02.2010	01.02.2013	To develop analytical model to predict the contaminant concentration in aquifer	On going	One Ph.D. thesis will be submitted as an outcomes of the project work and research papers regarding one and two-dimensional analytical models have been published in the International Journal of repute like Journal of Engineering Mechanics (ASCE), International Journal of Geology, Earth
Study of Analytical Approach of Unsteady Groundwater Flow Modeling	UGC, New Delhi	Dr. M. K. Singh	Rs.867477/-	02.02.2010	01.02.2013	To develop analytical model to predict the contaminant concentration in aquifer	On going	One Ph.D. thesis will be submitted as an outcomes of the project work and research papers regarding one and two-dimensional analytical models have been published in the International Journal of repute like Journal of Engineering Mechanics (ASCE), International Journal of Geology, Earth and Environmental Sciences (JUGES) etc.

Fuzzy Automata and Languages: A Topological and Categorical Approach	CSIR, New Delhi	Dr. S.P. Tiwari	Rs. 1051000/-	01.05.2010	30.04.3013	To study the fuzzy automata based on higher order fuzzy sets by using topology and category theory	On going	The findings are communicated in terms of five papers for publication, among which four papers have been published.
Pseudo-Differential Operators and Wavelet Transform Involving Fractional Fourier Transform on Function and Distribution Spaces	NBHM (DAE)	Dr. Akhilesh Prasad	Rs. 10,07,000/-	01.04.2012	31.03.2015	The objectives of study are two folds: (i) To develop a theory of pseudo-differential operators and wavelets/ wavelet transforms using the technique of fractional Fourier transform. (ii) To investigate solutions of certain boundary value problems and color image encoding and decoding using fractional Fourier transform associated with wavelet transforms.	On going	One paper is published in Journal of Computational and Applied Mathematics (Elsevier) and another one is communicated
A Numerical Investigation of load carrying mechanism in tilted pad slider bearing lubrication	UGC, New Delhi	Dr. P. S. Rao	Rs. 6,46,300	Feb 01, 2011	January 31, 2014	To Investigate the load carrying Mechanism in slider bearing lubrication	On going	Two papers have been communicated
Analysis of Effective Stability around the Equilibrium Points in the Generalised Photogravitational Chermnykh -Like Problem	DST	Dr. Badam Singh Kushvah	Rs. 12,84,000/-	October 4, 2010	October 3, 2013	To examine stability of equilibrium points in modified restricted three body problem with disk	On going	Three papers have been published and one in under review
Stability and Chaos in Photogravitational N-body problem with Solar Wind Drag	ISRO, Department-t of Space (DOS)	Dr. Badam Singh Kushvah	Rs. 16,97,000/-	Newly sanctioned (order No. ISRO/RES/2/ 383/2012-13 dated March 19, 2013)	March 2016	Study of Sun-Earth and Earth-Moon systems: Singularities and existence of equilibrium points, Halos and Invariant Manifolds, Orbits (periodic/quasi periodic) around equilibrium points, Transfer of trajectories, Stability and Chaos	Newly sanctioned-d	Nil
Some Aspect of Mathematical Programming Problems Involving Generalized Convex Functions	UGC, New Delhi	Dr. Anurag Jayswal	Rs. 980000/-	01-07-12	01-07-15	To study the relation between different kind of mathematical programming problems and its dual models under generalized convexity	On going	Three papers have been published and some have been communicated.

3.4.4 IMPORTANT COLLABORATIVE WORKS

Prof. G. S. Seth

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Faculty of Engineering, Cape Peninsula University of Technology, Bellville-7535, South Africa.	Collaborative Scientific research work
2.	School of Mathematics, Statistics & Computer Sciences University of Kwazulu-Natal, Pietermaritzburg, South Africa.	Collaborative Scientific research work

Prof. R. K. Upadhyay

SI.No.	Organisation/laboratory	Nature of Interaction
1.	National Institute of Mental Health, Bethesda, 20892 MD, USA.	Collaborative Scientific research work
2.	Department of Mathematics, Faculty of Science, Jazan University, 45142 Jazan, Saudi Arabia.	Collaborative Scientific research work
3.	College of Mathematics and Information Science, Wenzhou University, Wenzhou, Zhejiang 325035, China	Collaborative Scientific research work
4.	Department of Mathematics, College of Science, University of Baghdad, Iraq	Collaborative Scientific research work
5.	Mathematics Group, BITS Pilani	Collaborative Scientific research work

Dr. M. K. Singh

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Department of Mathematics & Astronomy, Lucknow University, Lucknow	Scientific research and Development of Mathematical techniques under joint research activity
2.	Department of Mathematics, Faculty of Science, BHU, Varanasi	Scientific research and Development of Mathematical techniques under joint research activity
3.	Department of Civil & Environmental Engineering, Biological and Agricultural Engineering, Texas A and M University, 321 Scoates Hall, 2117 TAMU, College Station Texas 77843-2117, USA	Scientific research and Development of Mathematical techniques under joint research activity

4.	Department of Earth Sciences, Perugia University, Perugia, Italy	Scientific research and Development of Mathematical techniques under joint research activity
5.	Department of Civil Engineering, 212 Harbert Engineering Center, Auburn University, Auburn, AL 36849-5337	Scientific research and Development of Numerical techniques under joint research activity

Dr. S.P. Tiwari

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Banaras Hindu University, Varanasi	Collaborative research work on fuzzy topology and theoretical computer science is going on. One research paper has been published another has submitted for publication.
2.	Yazd University, Iran	Collaborative research work on fuzzy automata and fuzzy topology is going on. One research paper has been published.

Dr. Akhilesh Prasad

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Centre of Interdisciplinary Mathematical Sciences, Banaras Hindu University, Varanasi	Collaborative research work on Pseudo-differential operators. Two papers have been published.
2.	Department of Mathematics, NERIST, Nirjuli, Arunachal Pradesh.	Collaborative research work on Pseudo-differential operators. Three papers have been published
3.	University of Delhi (South Campus) and Maharaja Agrasen College, University of	Collaborative research work on Complex Analysis. One paper has

Dr. P. S. Rao

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Department of Mathematics IIT, Kanpur 208016 (Prof. B.V.R. Kumar)	Numerical treatment of SUPGFEM and its applicability for heat transfer applications
2.	Department of Mathematics TIFR - IISC, Bangalore (Prof. V. Gowda)	FEM Error analysis

Dr. Badam Singh Kushvah

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Department of Celestial Mechanics, and Dynamical Astronomy, Pulkovo Observatory of the Russian Academy of	Submitted a DST-RFBR Indo-Russian Joint Research Proposals 2013
2.	Department of Celestial Mechanics, the Faculty of Mathematics and Mechanics, St. Petersburg State University, St. Petersburg	Submitted a DST-RFBR Indo-Russian Joint Research Proposals 2013
3.	Department of Mathematics, B.R.A. Bihar University, Muzaffarpur - 842 001	Submitted a DST-RFBR Indo-Russian Joint Research Proposals 2013
4.	Department of Applied Sciences, RIMT-Institute of Engineering & Technology, Mandi Gobindgarh, Punjab, India	Submitted a DST-RFBR Indo-Russian Joint Research Proposals 2013
5.	Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune	Observational astronomy and organization of workshop with collaboration

Dr. Anurag Jayswal

SI.No.	Organisation/laboratory	Nature of Interaction
1.	Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy, 13 Septembrie Street, No.13,	Collaborative research work on Pseudo-differential operators. Two papers have been published.
2.	Department of Mathematics and Statistics, King Fahd University of Petroleum and Minerals, P.O. Box 728,	Collaborative research work. One research paper has been published.

Dr. P. K. Kewat

SI.No.	Organisation/laboratory	Nature of Interaction
1.	IIT Bombay, Mumbai	Collaborative research work. One research paper has been published.

Dr. G.K. Vishwakarma

SI.No.	Organisation/laboratory	Nature of Interaction
1.	School of Studies in Statistics, Vikram University, Ujjain-456010, Madhya Pradesh	Collaborative research work. One research paper has been published.
2.	Department of Mathematics, Guru Nanak Dev University, Amritsar 143 005, Punjab, India	Collaborative research work. One research paper has been published.

3.	Department of Mathematics & Statistics, Banasthali University, Jaipur- 304022, Rajasthan, India	Collaborative research work. One research paper has been published.
4.	Department of Mathematics and Statistics, Dr. H.S. Gour University (Central University), Sagar-470003, India	Collaborative research work. One paper presented in National Seminar.

3.4.5 RESEARCH PUBLICATIONS

3.4.5.1 Books Published

1. Singh, M. K. (Edt.), 2012, "Journal of Groundwater Research", Vol. 1(1), 1-51, AGGS alias IGWC, Coimbatore.
2. Seth, G. S., Singh, M. K. and Tiwari, S. P., (Edts.) 2013, "Proceedings of the National Conference on Recent Advances in Mathematics and its Applications (RAMA-2013)", Allied Publishers Pvt. Ltd., New Delhi

3.4.5.2 Books Review/Contribution of Chapter in a Book

S Chatterjee; J.B. Singh; S. Nigam and L.N.Upadhyaya 2012, "A Study of a Single Multiplicative Neuron (SMN) Model for Software Reliability Prediction", Innovations in Intelligent Machines-3 Contemporary Achievements in Intelligent Systems, Book Edited by Springer, Chapter -6, Page 89-103

3.4.5.3 Paper published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Chattopadhyay, A., Gupta, S., Sahu, S. A. & Dhua, S.,	2012	Torsional Surface Waves in Heterogeneous Anisotropic Half-Space under Initial Stress	Archive of Applied Mechanics (Springer Verlag)	83	357366
2.	Chattopadhyay, A. and Singh, A. K.,	2012	G-type seismic waves in fibre reinforced media	Meccanica (Springer Verlag)	47	1775-1785
3.	Chattopadhyay, A. and Singh, A. K.,	2012	Propagation of Magnetoelastic Shear Waves in an Irregular Self-reinforced layer	Journal of Engineering Mathematics (Springer Verlag)	75	139-155

4.	Chattopadhyay, A. and Sahu, S. A.	2012	Stresses produced in slightly compressible, finitely deformed elastic media due to a normal moving load'	Archive of Applied Mechanics' (Springer Verlag)	Vol. 82, Issue 5	699-708
5.	Chattopadhyay, A., Sahu, S. A. and Singh, A. K.,	2012	Dispersion of G-type seismic waves in magnetoelastic self-reinforced layer'	Int. J. of Appl. Math and Mech	Vol. 8 (9)	79-98
6.	Seth, G. S. and Singh, J. K.,	2012	Unsteady MHD Couette Flow of Class-II of a Viscous Incompressible Electrically Conducting Fluid in a Rotating System	Int. J. Appl. Mech. Eng.,	Vol. 17, No. 2	495-512
7.	Seth, G.S., Mahato, G. K., Sarkar, S. and Ansari, Md. S.	2012	Effects of Hall Current on Hydromagnetic Natural Convection Flow of a Heat Absorbing Fluid past an Impulsively Moving Vertical Plate with Ramped Temperature'	Int. J. Appl. Math. Res.,	Vol.1, No.4	462-486
8.	Das, S., Maji, S. L., Jana, R. N. and Seth, G. S.	2012	Flow Induced by Torsional Oscillations of a Disk in a Rotating Visco-Elastic Fluid	Int. J. Computer Applications	Vol. 58, No. 6	18-21
9.	Seth, G. S., Banerjee, B., Sarkar, S. and Hussain, S. M.	2012	Hydromagnetic Couette Flow with Hall Effects due to Accelerated Movement of one of the Plates of the Channel in a Rotating System'	OPJIT Int. J. Innovation & Research	Vol. 1., No. 1	7-14
10.	Seth, G. S., Singh, J. K. and Mahato, G. K.	2012	Effects of Hall Current and Rotation on Unsteady Hydromagnetic Couette Flow within a Porous Channel	Int. J. Appl. Mech.,	Vol.4, No.2	DOI: 10.1142/S1758825112500159
11.	Seth, G. S., Mahato, G. K., and Singh, J. K.	2012	Combined Free and Forced Convection Couette-Hartmann Flow in a Rotating System with Hall Effects	J. Nature Sci. and Sustainable Tech	Vol.6, No.3	125-150

12.	Seth, G. S., Nandkeolyar, R. and Ansari, Md. S.	2013	Effects of Thermal Radiation and Rotation on Unsteady Hydromagnetic Free Convection Flow Past an Impulsively Moving Vertical Plate with Ramped Temperature in a Porous Medium	J. Appl. Fluid Mech.,	Vol.6, No.1	27-38
13.	Pal, P. C. and Mandal, D.	2012	Surface waves in fluid-saturated porous layer bounded by a liquid layer and an orthotropic elastic half-space	Journal of Informatics and Mathematical Sciences	Vol. 4, No. 1	39-49
14.	Pal, P. C. and Mandal, D.	2012	Propagation of waves in a generalized thermo-elastic orthotropic medium'	International Journal of Applied Mathematics and Mechanics	Vol. 1, No. 1	27-34
15.	Gupta, S., Majhi, S. K., Vishwakarma, S. K.,	2012	Torsional surface wave propagation in an initially stressed non-homogeneous layer over a non-homogeneous half-space'	Applied Mathematics and Computation, (Elsevier)	Vol. 219	3209-3218
16.	Gupta, S., Majhi, S. K., Vishwakarma, S. K.,	2012	Influence of linearly varying density and rigidity on torsional surface waves in an inhomogeneous crustal layer'	Applied Mathematics and Mechanics, (Springer-Verlag),	Vol. 33, No. 10	1-14
17.	Vishwakarma, S. K., Gupta, S.	2012	Behaviour of Torsional surface wave in a homogeneous substratum over a dissipative half space'	Communication in Computer and Information Science, (Springer-Verlag),	Vol. 306	130-140
18.	Singh, G. N. and Homa, F.,	2013	Effective rotation patterns in successive sampling over two occasions	Journal of Statistical Theory and Practice	Vol. 7, No. 1	146-155

19.	Rai, V., Upadhyay, R. K., Thakur, N. K.,	2012	Complex population dynamics in heterogeneous Environments: Effects of Random and Directed animal movements	International Journal of Nonlinear Science and Numerical Simulations	Vol. 13. No. 3-4	299-309
20.	Wang, W., Guo, Z., Upadhyay, R. K., Lin, Y.,	2012	Pattern formation in a cross-diffusive Holling Tanner Model	Discrete Dynamics in Nature and Society	Vol. 2012, 828219	1-12
21.	Rai, V., Nadar, S. R., Upadhyay, R. K.,	2012	Nonlinear Phenomena in Biology and Medicine	Computational and Mathematical Methods in Medicine	Vol. 2012, 183879	1-2
22.	Upadhyay, R. K., Raw, S. N., Roy, P. Rai, V.	2013	Restoration and recovery of damaged eco-epidemiological systems: Application to the Salton Sea, California, USA	Mathematical Biosciences	Vol. 242, No. 2	172-187
23.	Upadhyay, R. K., Naji, R. K., Raw, S. N. Dubey, B.,	2013	The role of top predator interference on the dynamics of a food chain model	Communication in Nonlinear Science and Numerical Simulations	Vol. 18	757-768
24.	Mukherjee, B. and Chatterjee, D.,	2012	Evaluation of technical institutions using AHP : A case study	International J of Math. Sci&Engg. Appls. (IJMSEA),	Vol-6, No-VI	383-394
25.	Mukherjee, B and Prasad, K.	2013	A deterministic inventory model of deteriorating items with stock and time dependent demand rate	J Applied functional analysis (JAFA),	vol-8, no-2	214-222
26.	Singh, M. K.,Ahmad, S. and Singh, V. P.	2012	Analytical Solution for One-dimensional Solute Dispersion with Time-dependent Source Concentration along Uniform Groundwater Flow in a Homogeneous Porous formations	'J. Engineering Mechanics (ASCE)	Vol. 138 (8),	pp. 1045-1056

27.	Singh, M. K., Ahamad, S. and Singh, V. P.	2012	Non-reactive Solute Dispersion in Aquifer Subjected to Temporally Dependent Source Concentration	International Journal of Geology, Earth and Environmental Sciences (IJGEES).	Vol. 2 (2)	235-244
28.	Singh, M. K., Singh, V. P., Kumari, P. and Das, P.	2012	Analytical and Numerical Approaches to Horizontal Non-reactive Solute Dispersion in a Semi-infinite Aquifer	J. Groundwater Research,	Vol. 1 (1),	42-51
29.	Thangrajan, M. and Singh, M. K.	Ed. 2012	International Groundwater Congress in India and Abroad	J. Groundwater Research	Vol. 1 (1),	2-5
30.	Singh, M. K., and Kumari P.,	2012	One-dimensional solute dispersion with time dependent source concentration along transient flow: An analytical/ numerical approach'	Groundwater Research Series 5(IV)	IGWC	351-361
31.	Chatterjee, S.; Nigam, S.; Singh, J.B. and Upadhyaya, L.N.	2012	Software Faults Predication Using NARX Network'	Applied Intelligence	37	121-129
32.	Chatterjee, S.; Nigam, S.; Singh, J.B. and Upadhyaya, L.N.,	2012	Effect of change point and imperfect debugging in software reliability and its optimal release policy'	Mathematical & Computer Modelling of Dynamical Systems	18(5),	539-551
33.	Chatterjee, S.; Nigam, S.; Singh, J.B. and Upadhyaya, L.N.,	2012	An Improved Additive Model for Reliability Analysis of Software with Modular Structure'	Journal of Applied Mathematics and Informatics	30	489- 498
34.	Tiwari S.P. and Sharan S.,	2012	Fuzzy automata based on lattice-ordered monoids with algebraic and topological aspects	Fuzzy Information and Engineering	4	155-164
35.	Tiwari S.P. and Srivastava A.K.,	2013	Fuzzy rough sets, fuzzy preorders and fuzzy topologies	Fuzzy Sets and Systems	210	63-68

36.	Prasad, A., Singh, V. K. and Dixit, M. M.,	2012	Pseudo-differential operator involving Hankel-Clifford transformation	Asian-European Journal of Mathematics 5(3)	1250040	(15 pages) DOI: 10.1142/S1793557112500404. (World-Scientific).
37.	Prasad, A., Singh, V. K.,	2012	On Sobolev type spaces Involving Hankel Clifford transformation'	Investigations in Mathematical Sciences	Vol. 2(1),	17-27
38.	Jain, P. K., Prasad, A., and Jain V.,	2012	A class of-uniformly univalent analytic functions involving differentio-tntegral operator'	Investigations in Mathematical Sciences	Vol. 2(2),	17-27
39.	Prasad, A., and Singh, V. K.,	2013	The fractional Hankel transform of certain tempered distributions and pseudo-differential operators'	Ann. Univ. Ferrara	59 (1),	141-158
40.	Kishor R. and Kushvah B. S	2013	Periodic orbits in the generalized photogravitational Chermnykh-like problem with power-law profile	Astrophysics Space and Science	344	333-346
41.	Kumari R. and Kushvah B. S.	2013	Equilibrium points and zero velocity surfaces in the restricted four-body problem with solar wind drag	Astrophysics Space and Science	344	347-359
42.	Jayswal, A., and Stancu-Minasian, I. M.,	2012	On sufficiency and duality in multiobjective subset programming problems involving generalized d-type I univex functions'	J. Appl. Math. Inform	Vol. 30	111-125
43.	Jayswal, A., Kumar, R., and Kumar, D.,	2012	Multiobjective fractional programming problems involving $(p, r) - \rho - (\eta, \theta)$ invex function'	J. Appl. Math. Comp	Vol. 39	35-51
44.	Jayswal, A., Stancu-Minasian, I.M., and Kumar, D.,	2012	Minmax fractional programming problem involving generalized convex functions'	Reveu D'analyse Numerique De Theorie De L'approximation	Vol. 41	48-61

45.	Ahmad, I., Agarwal, R.P., and Jayswal, A.,	2013	Higher order duality in nondifferentiable fractional programming involving generalized convexity'	J. Comp. Anal. Appl.	Vol. 15	1444-1455
46.	Jayswal, A., and Kumar, D.,	2013	Second order duality for minimax fractional programming involving generalized Type I functions	Maejo Int. J. Sci. Tech.	Vol. 7	145-154
47.	Jayswal, A., Kumar, R., and Kumar, D.,	2013	Minimax fractional programming problem involving nonsmooth generalized-univex functions'	Int. J. Optim. Control: Theories & Appl.,	Vol. 3	7-22
48.	Abhay K Singh	2012	Essentially Slightly Compressible Modules and Rings	Asian European Journal of Mathematics	Vol. 05, No. 2	1-8
49.	Gupta, S., Chattopadhyay, A., and Kundu, S.,	2012	Torsional wave in a homogeneous layer over a heterogeneous half-space - A Mathematical Model	Journal of Mathematical Modelling and Application (ISSN 2178-2423),	Volume 1, Issue 5	59-66
50.	Pramod Kumar Kewat and Ravi Raghunathan		On the local and global exterior square L-functions of GL _n	Mathematical Research Letter	19(4)	785-804.
51.	Grover, L. K., Kaur, P. and Vishwakarma, G.K.	2012	Product type exponential estimators of population mean under linear transformation of auxiliary variable in simple random sampling	Applied Mathematics and Computation	219, 4,	19371946 ISSN: 0096-3003, Elsevier, USA
52.	Vishwakarma, G.K. and Singh, H.P.,	2012	A general procedure for estimating the mean using double sampling for stratification and multi-auxiliary information	Journal of Statistical Planning and Inference	142, 5	1252-1261
53.	Chattopadhyay, A., Gupta S., Sahu, S. A. and Singh A. K.	2012	Dispersion of SH Waves in an Irregular Non Homogeneous Self-reinforced Crustal Layer over a Semi-infinite Self-reinforced Medium'	Journal of Vibration and Control. Archive of Applied Mechanics	Vol. 19, Issue 51	109-119

3.4.5.4 Paper Published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Seth, G. S., Banerjee, B. and Sarkar, S.,	2012	Transient Hydromagnetic Couette Flow in a Rotating System with Hall Effects	Bulletin of the Gauhati University Mathematics Association	Vol.12	21-36
2.	Singh, R., Pareek, S., Vishwakarma, G.K. and Gupta, P.C.	2012	A family of unbiased chain-type estimators using auxiliary information in double sampling	Indian Journal of Statistics and Applications, University of Rajasthan, India	2	1-10

3.4.5.5 Papers presented/published in International Conferences

1. Seth, G. S., Sarkar, S. and Mahato, G. K., 'Effects of Hall Current on Hydromagnetic Free Convection and Mass Transfer Flow of a Heat Absorbing Fluid Past an Impulsively Moving Vertical Plate with Ramped Temperature', International Conference on Innovation and Research in Technology for Sustainable Development, Nov 1-3, 2012, OP JIT Institute of Technology, Raigarh (C.G.).
2. Seth, G. S. and Hussain, S. M., 'Hydromagnetic Natural Convection Flow with Radiative Heat Transfer Past an Accelerated Moving Plate with Ramped Wall Temperature', International Conference on Innovation and Research in Technology for Sustainable Development, Nov 1-3, 2012, OP JIT Institute of Technology, Raigarh (C.G.).
3. Seth, G. S., Sarkar, S., Mahato, G. K. and Hussain, S. M., 'Numerical Solution of Hydromagnetic Natural Convection Flow Past an Impulsively Moving Vertical Plate with Radiative Heat Transfer with Ramped Temperature', International Conference on Innovation and Research in Technology for Sustainable Development, Nov 1-3, 2012, OP JIT Institute of Technology, Raigarh (C.G.).
4. Seth, G. S., Sarkar, S. and Mahato, G. K., 'Effects of Hall Current and Rotation on MHD Natural Convection Flow Past and Impulsively Moving Vertical Plate with Ramped Temperature in the Presence of Thermal Diffusion and Heat Absorption', The 15th International Conference of International

Academy of Physical Sciences (CONIAPS-XV), Dec. 9-13, 2012, Rajamangala University of Technology Thanyaburi, Thailand.

5. Seth, G. S., Sarkar, S. and Mahato, G. K., 'Transient Hydromagnetic Natural Convection Flow of a Heat Absorbing Fluid past an Impulsively Moving Vertical Plate with Ramped Wall Temperature' International Conference of Mathematical Sciences, Dec. 28-31, 2012, Science College, Nagpur.
6. Pal, P. C. and Kumar, L., ' On Shear wave propagation in a transversely isotropic elastic media containing void pores' 8th European Solid Mechanics Conference, July 09-14, 2012, Graz Technical University, Graz, Austria.
7. Pal, P. C. and Mandal, D., 'On the propagation of SH-type waves in inhomogeneous media sandwiched by isotropic and visco-elastic half-space' The 15th International Conference of International Academy Physical Sciences (CONIAPS-XV), Dec. 09-13, 2012, Rajamangala University of Technology Thanyaburi, THAILAND.
8. Gupta, S., Vishwakarma, S. K., 'Behaviour of Torsional surface wave in a homogeneous substratum over a dissipative half space' 5th International Conference on Contemporary Computing, Noida, 6-8 August, 2012, Jaypee Institute of Information Technology, Noida and University of Florida, USA.
9. Vishwakarma, S. K., Gupta, S., 'Torsional wave dispersion relation in a self reinforced layer resting over a viscoelastic half space', The 8th IMACS International Conference on Nonlinear evolution equations and Wave phenomena: Computation and Theory, March 25-28, 2013, The University of Georgia, Athens, GA, USA.
10. Singh, G. N. and Homa, F. Effective rotation patterns in successive sampling over two occasions. Presented in International Conference on "Advances in Interdisciplinary Statistics and Combinatorics" (AISC-2012) at University of North Carolina, Greensboro, USA during October 05-07, 2012.
11. Mukherjee, B. and Prasad, K, 2013, "Optimal production inventory model for deteriorating item with production disruption and shortage", International symposium on applied optimization and game theory model, ISI, Delhi during January 9-11, 2013.
12. Singh, M. K., Mahato, N. K. and Singh, V. P., 2012. 'Analytical Approach to Solute Dispersion along and against Transient Groundwater flow in a Homogeneous Finite Aquifer: Pulse Type Boundary Conditions',

International Conference Earth Space, April 15-18, ASCE, Pasadena, California, USA.

13. Singh, M. K. and Mahato, N. K., 2012. 'Two dimensional solute transports for temporally dependent source concentration in semi-infinite Aquifer', International Conference of ICMSDPA, Oct. 08-12, BHU, Varanasi.
14. Singh, M. K., and Kumari, P., 2012. 'A Comparative Study of Advection-dispersion Equation in One-dimensional Semi-infinite Aquifer', International Conference of ICMSDPA, Oct. 08-12, BHU, Varanasi.
15. Singh, M. K., and Ahamad, S. 2012. 'One-dimensional Non-reactive Solute Transport in a Semi-infinite Aquifer Subject to a Temporally Dependent Dispersion with Temporally Dependent Input Concentration' International Conference of ICMSDPA, Oct. 08-12, BHU, Varanasi.
16. Singh, M. K., Mahato, N. K., and Singh, V. P., 2012. 'An analytical approach to one-dimensional solute dispersion along and against transient groundwater flow in aquifers', IGWC, Dec 18-21, Aurangabad.
17. Singh, M. K., and Kumari, P., 2012. 'One-dimensional solute dispersion with time dependent source concentration along transient flow: An analytical/numerical approach', IGWC, Dec. 18-21, Aurangabad.
18. Roy, A. and Chatterjee, S., 2013, 'Logic Based Algorithm for Web Software Reliability Analysis and Estimation', ICAMTCS -2013, Jan. 24-26, Nagercoil, Tamilnadu, India.
19. Tiwari S.P. and Singh A.K., 2013, 'Fuzzy preorder, fuzzy topology and fuzzy transition system', ICLA-2013, Jan 10-13m IMSc Chennai.
20. Prasad, A. and Kumar, M., 'Boundedness of pseudo-differential operator associated with fractional Fourier transform' International Conference on Applied Mathematics & Approximation Theory, May 17-20, 2012, TOBB University of Economics, Ankara, Turkey.
21. Prasad, A. Manna, S., and Mahato, A., 'The fractional Fourier transform and its Applications'. ICACM, October 03-06, 2012, Institute of Applied Mathematics, Middle East Technical University, Ankara, Turkey.
22. Jayswal, A., Stancu-Minasian, I.M., and Ahmad, I., 2012. 'Multiobjective Programming Problem Involving B-(p,r)-Type I Functions', World Congress on Engineering, July 4-6, 2012, Imperial College, London, U.K. WCE 2012.

23. Kundu, S., Gupta, S., Chattopadhyay, A., Majhi, D.K., and Vishwakarma, S.K., 2012. 'Mathematically modeling of G type seismic waves in a homogeneous layer over a transversely isotropic half-space under initial stress' published in proceedings of the World Congress on Engineering 2012 Vol. I WCE, July 4-6, 2012, Imperial College, London, U.K.
24. Vishwakarma, G.K., Estimation of mean with non-response in double sampling using exponential technique. 15th International Conference of International Academy Physical Sciences (CONIAPS-XV), December 913, 2012, Rajamangala University of Technology, Thanyaburi, Thailand.

3.4.5.6 Papers presented/published in National Seminars/Conferences

1. Seth, G. S., Sarkar, S. and Mahato, G. K., "Numerical Solution of Unsteady Hydromagnetic Couette Flow in a Rotating System with Hall Effects", National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad.
2. Pal, P. C., Mandal, D. and Pramanik, A., "Propagation of SH-type waves in anisotropic media sandwiched by isotropic and inhomogeneous media", National Conference on Recent Advances in Mathematics and its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad.
3. Pal, P. C., Kumar, S. and Maji, B., "Propagation of SH-type wave in sandy layer overlying an inhomogeneous elastic half-space", National Conference on Recent Advances in Mathematics and its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad.
4. Singh, G. N., Majhi, D. Karna, J. P. and Homa, F., 2013. "Non-response and its remedies in two-occasion rotation patterns" in National Conference on Recent Advances in Mathematics and its Applications, (RAMA 2013), ISM, Dhanbad.
5. Singh, G. N. and Bandyopadhyay, A., 2013. "A class of estimators of population variance in sample surveys" in National Conference on Recent Advances in Mathematics and its Applications, (RAMA 2013), ISM, Dhanbad.
6. Singh, G. N. and Homa, F., 2013. "A class of estimators of population mean in two-phase sampling" in National Conference on Recent Advances in Mathematics and its Applications, (RAMA 2013), ISM, Dhanbad.

7. Roy, P. and Upadhyay, R. K. (2013) "Dynamical Analysis of an Eco-epidemiological model of Salton sea: Deterministic chaos and its possible control". National Conference on Recent Advances in Mathematics and its Applications (RAMA-2013), Feb. 14-16, 2013. ISM, Dhanbad.
8. Mukherjee, B. and Prasad N., (2013): "Effect of radiation and porosity parameter on magneto- Hydro dynamics flow due to exponentially stretching sheet in porous media", in National Conference on Recent Advances in Mathematics and its Applications, (RAMA 2013), February 14-16, 2013. ISM, Dhanbad.
9. Mukherjee, B. and Prasad, K., (2013): "A deterministic inventory system model of deteriorating item with four rate of production and shortage", in National Conference on Recent Advances in Mathematics and its Applications, (RAMA 2013), February 14-16, 2013, ISM, Dhanbad.
10. Mahato, N. K. and Singh, M. K. "Comparative study of 2-D solute transport with temporally dependent source concentration in homogeneous porous media", Proceeding of Recent Advances in Mathematics and its Applications (RAMA), February 14-16, 2013.
11. Ahamad, S. and Singh, M. K. "Solute Transport Model Subject to Temporally Dependent Dispersion with Temporally Dependent Input Concentration in Semi-infinite Aquifer", Proceeding of Recent Advances in Mathematics and its Applications (RAMA), February 14-16, 2013.
12. Kumari, P. and Singh, M. K. "Solute Transport Modeling in Homogeneous Aquifer with Moving Boundary Condition", Proceeding of Recent Advances in Mathematics and its Applications (RAMA), February 14-16, 2013.
13. Singh, M. K. , Das, P., and Prasad, U. "Solute Transport Modeling in Adsorbing Porous Medium with Unsteady Flow Velocity", Proceeding of Recent Advances in Mathematics and its Applications (RAMA), February 14-16, 2013.
14. Roy, A. and Chatterjee. S, 2013, "An Innovative Approach for Web Software Reliability Analysis", Proceeding of Recent Advances in Mathematics and its Applications (RAMA), February 14-16, 2013.
15. Rao. P. S, Khumbkhar, B, "Analysis of Boundary Layer Flow Over a Nonlinear Stretching Sheet in Porous Media", Proceeding of Recent Advances in Mathematics and its Applications (RAMA), Feb. 14-16, 2013.

16. Rao.P.S, Agarwal.S, “Analysis of Pressure Generation Mechanism in Tilted Pad Slider Bearing Lubrication”, National Conference on Applications of Mathematics in Engineering and Industry, March 26-28, 2013, Department of Mathematics, Kakatiya University, Warangal (A.P).
17. Kundu, S., Gupta, S., Majhi, D.K., and Manna, S., 2013. “Study of Torsional Wave in a Homogeneous Layer Lying over a Gravitating Anisotropic Porous Half-space with Rigid Boundary”, Recent Advances in Mathematics and its Applications (RAMA). February 14-16, 2013
18. Vishwakarma, G.K., “An Alternative to Estimation in Post-Stratification”, 21st International Conference on Interdisciplinary Mathematics, Statistics and Computational Techniques, during December 15-17, 2012 held at Panjab University, Chandigarh, India.
19. Gangele, R.K. and Vishwakarma, G.K., “A note of efficient estimator in two phase sampling”. National seminar on Recent Trends in Mathematical Science and Applications, during November 04-05, 2012 Sponsored by UGC held at Govt. PG College, Panna, India.

3.4.6 MAJOR ACADEMIC CONTRIBUTIONS

Prof. G. S. Seth

1. Associate Editor of peer reviewed international journal “Journal of Applied Fluid Mechanics”.
2. Editorial board member of peer reviewed international journal “Applied Mathematics”.
3. Editorial board member of peer reviewed international journal “International Journal of Applied Mathematical Research”.
4. Editorial board member of peer reviewed international journal “OPJIT International Journal of Innovation and Research”.
5. Member of Board of Advisors of Peer Reviewed National Journal, “Bulletin of the Gauhati University of Mathematics Association”.
6. Reviewer of the following International Journals:

Journal of Applied Fluid Mechanics

International Journal of Physical Sciences

International Journal of Thermal Sciences

International Journal of Engineering, Science and Technology
 International Journal of Energy and Technology
 Journal of Engineering, Technology and Research
 Chemical Engineering Communication
 International Journal of Applied Mechanics
 Computers and Mathematics with Applications
 Journal of International Academy of Physical Sciences
 Zeitschrift für Naturforschung A: A Journal of Physical Sciences
 Journal of Nature Science and Sustainable Technology

7. Examiner of Ph. D. Thesis of the following Universities:

Vidyasagar University, Midnapore (WB)
 VinobaBhave University, Hazaribag (Jharkhand)
 Gauhati University, Gauhati (Assam)
 NIT Warangal.
 Sri Padmavati Mahila Visvavidyalayam, Tirupati.

8. Member of committee of experts to frame the Course Structure in Mathematics of Gauhati University, Guwahati, Assam.
9. Delivered an Invited Talk in 'International Conference on Innovation and Research in Technology for Sustainable Development', Nov 1-3, 2012, OP JIT Institute of Technology, Raigarh (C. G.).
10. Chaired a technical session for presentation of contributed papers in 'International Conference on Innovation and Research in Technology for Sustainable Development', Nov 1-3, 2012, OP JIT Institute of Technology, Raigarh (C. G.).
11. Delivered an Invited Talk in 'The 15th International Conference of International Academy of Physical Sciences (CONIAPS-XV)', Dec. 9-13, 2012, Rajamangala University of Technology Thanyaburi, Thailand.
12. Chaired a technical session for invited talk in, The 15th International Conference of International Academy of Physical Sciences (CONIAPS-XV), Dec. 9-13, 2012, Rajamangala University of Technology Thanyaburi, Thailand.

13. Convener of Workshop on Mathematical Methods and Astronomy (WMMA 2013), Feb. 7-9, 2013, organized by Department of Applied Mathematics, ISM Dhanbad, in collaboration with IUCAA Centre Pune.
14. Chairman, organizing committee of National Conference on 'Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad'
15. Chaired a technical session for invited talk in National Conference on 'Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad'.

Prof. P. C. Pal

1. Acted as recorder in 8th European Solid Mechanics Conference, July. 09-14, 2012, Graz Technical University, Graz, Austria.
2. Chaired a technical session for invited talk in National Conference on 'Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad'.

Prof. S. Gupta

Worked as reviewer of the following Journals:

Journal of Vibration and Control

International Journal of Engineering, Science and Technology

Acta Geophysica

and Examiner of Ph.D. Thesis in Osmania University, Hyderabad.

Prof. G. N. Singh

Worked as reviewer of the following Journals:

Hacettepe Journal of Mathematics and Statistics

Pakistan Journal of Statistics

Canadian Journal of Statistics

Model Assisted Statistics and Application

Journal of Statistical Theory and Practice

Prof. R. K. Upadhyay

1. Editorial board member of a peer reviewed international journal from France "Journal of Nonlinear Systems and Applications"
2. Guest Editor for the special issue on "Nonlinear Phenomena in Biology and Medicine" in the Journal "Computational and Mathematical Methods in Medicine" from USA.
3. Editorial board member of a peer reviewed international journal from Hong Kong "Computational Ecology and Software"
4. Delivered an Invited Talk in Recent Advances in Mathematics and Its Applications (RAMA-2013).
5. Chaired a technical session for invited talk in National Conference on 'Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb. 14-16, 2013. ISM Dhanbad'.
6. Reviewer of the following International Journals:
Journal of Biological Dynamics,
Mathematics and computer in Simulations,
Applied Mathematical Modeling,
Applied Mathematics and computations.
Nonlinear Analysis: real world applications.
7. Nominated as a society member of International Society of computational Ecology.
8. Examiner of Ph.D. Thesis for the following Institutions:
IIT BHU University, Varanasi.
Jiwaji University, Gwalior.
Siksha O' A Deemed University, Bhubaneswar.
Vidyasagar University, Midnapore.

Prof Bani Mukherjee

Visited Ankara, Turkey for presenting a Research Talk in International Conference on Applied Mathematics and Approximation Theory (AMAT-2012) being held at TOBB University of Economics and Technology, Ankara, Turkey during May 17-19, 2012.

Chaired a technical session for invited talk in National Conference on 'Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb. 14-16, 2013.ISM Dhanbad'.

Examiner of Ph. D. Thesis of the following Universities:

F M University, VyasaVihar, Balasore-756019 on 4th March, 2013

Ranchi University, Ranchi on 18th Sep, 2012

Nominated as a society member of International Society

Operational Research Society of Nepal

Reviewer of the following International Journals:

Science journal of mathematics and statistics

Journal of Business Economics and Management

Asian Journal of Natural & Applied Sciences (AJSC), Oyama, Japan.

African Journal of Business Management

Pakistan Journal of Mathematics

Dr. M. K. Singh

1. Member of professional bodies like International Association of Hydrological Sciences (IAHS), U.K.; American Society of Civil Engineers (ASCE)-EWRI, USA.
2. DST Undergraduate Training Programme conducted as a Co-coordinator on "Linear Algebra and Analysis" during May 28-June 6, 2012 organized by Department of Applied Mathematics, Indian School of Mines, Dhanbad.
3. Member, Organizing Committee, International Conference of **ICMSDPA**, Oct. 08-12, 2012, BHU Varanasi.
4. Nominated as an Executive member of Association of Global Groundwater Scientists (AGGS) at International Groundwater Congress (IGWC), Coimbatore, India.
5. Nominated as an Editor, Journal of Groundwater Research, published by AGGS. The first volume of Journal of Groundwater Research was released on Dec. 20, 2012 during IGWC-2012 conference at Aurangabad.

6. Co-chaired the two technical sessions during IGWC-2012 meet at Aurangabad.
7. Nominated as one of the member of Young Scientists panel discussion during IGWC-2012 in solute transport modeling through fracture.
8. Nominated as a Regional Coordinator for International Groundwater Congress (IGWC) - Dec.17-21, 2012.
9. National Conference on Recent Advances in Mathematics and its Applications (RAMA) funded by CSIR, DST, DRDO and MoES New Delhi, Feb.14-16, 2013 was organized as a Convener.
10. Worked as the reviewer of Journal of Earth System Sciences (JESS) and Journal of Agricultural Science and Technology (JAST).

Dr. Subhashis Chatterjee

Worked as reviewer of the following Journals:

IEEE Transaction Reliability.

International Journal of System and Sciences, Taylor and Francis.

Mathematical & Computer Modelling of Dynamical Systems, Taylor and Francis.

Communications in Statistics - Simulation and Computation, Taylor and Francis.

Information and Software Technology, Elsevier.

Software Testing Verification and Reliability, Wiley.

Examiner for M. Tech vivavoce, in Reliability Engineering Centre, IIT Kharagpur.

Co- chaired in 1st International Conference on Recent Advances in Information Technology, RAIT- 2012, ISM Dhnabad.

Dr. S.P. Tiwari

Worked as reviewer of the following Journals:

International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems (World Scientific)

IEEE Transactions on Systems, Man, and Cybernetics-Part A: Systems and Humans (IEEE)

International Journal of Machine Learning and Cybernetics (Springer)

Iranian Journal of Fuzzy Systems

1. Examiner of Ph.D. Thesis of Shivaji University, Kolhapur, Maharashtra.
2. Organized DST Undergraduate Training Programme conducted as a Coordinator on “Linear Algebra and Analysis” during May 28-June 6, 2012 in Department of Applied Mathematics, Indian School of Mines, Dhanbad.
3. Organized National Conference on Recent Advances in Mathematics and its Applications (RAMA) during Feb.14-16, 2013 as an Organizing Secretary.

Dr. Akhilesh Prasad

Worked as reviewer of the following Journals:

Transactions on Signal Processing (IEEE)

Fixed Point Theory and Applications (Springer)

Thai Journal of Mathematics

ZentralblattMaths

Annual Membership of American Mathematical Society.

Dr. P. S. Rao

1. Reviewer for the journal of “IAENG : International Journal of Applied Mathematics”

Dr. Badam Singh Kushvah

1. Editorial Board Member:

- i. Journal of Mathematics and Computer Applications Research (JMCAR); ISSN(Print):2250-2408; ISSN(Online): Applied; Impact Factor(JCC)
- ii. International Journal of Engineering and Applied Sciences (EAAS), ISSN 2305-8269

2. **Reviewer:**
Astrophysics and Space Science, Springer
Journal of Nature Science and Sustainable Technology, Nova Science Publishers
3. **Visiting Associate (2011-2014)** of Inter-University Centre for Astronomy and Astrophysics (IUCAA), Post Bag 4, Ganeshkhind, Pune 411 007, Maharashtra, India.
4. **Coordinator** of Workshop on Mathematical Methods and Astronomy (WMMA 2013), Feb. 7-9, 2013, organized by Department of Applied Mathematics, ISM Dhanbad, in collaboration with IUCAA Centre Pune.

Dr. Anurag Jayswal

Reviewer of the following international Journal

Journal of Mathematical Modeling and Algorithm in Operation Research
Journal of Applied Mathematics and Computing
Opsearch
Optimization Letters

Dr. Abhay K Singh

Worked as a Reviewer of the following international Journal

Int. J. of Computational Intelligence Studies

Organized National Conference on Recent Advances in Mathematics and its Applications (RAMA) during Feb.14-16, 2013 as a Joint Secretary.

Dr. G.K. Vishwakarma

1. Nominated as Fellow of the Society of Earth Scientists (FSES) 2012, The Society of Earth Scientists, India
2. Nominated as Member of the Board of Advisors; Vsoft Infoware Inc., USA
3. Nominated as Editorial Board Member; International Journal of Advanced Mathematics and Statistics, India
4. Reviewer of the following journals:

DRISHTIKON: A Management Journal, India

International Journal of Research, India

Communications in Statistics Theory and Methods, USA.

Communications in Statistics Simulation and Computation, USA.

Computational Statistics, Germany.

Applied Mathematics and Computation, USA

Anadolu University Journal of Science and Technology, Turkey

5. Chaired a technical session for invited talk in National seminar on Recent Trends in Mathematical Science and Applications, during Nov 04 05, 2012 held at Govt. PG College, Panna, India.
6. Advisory Committee Member of Workshop on Use of SPSS in Research Methodology for Social Sciences during Feb. 1-2, 2013 held at Rizvi College, Mumbai

Dr. Sanjeev A. Sahu

1. Worked as reviewer of the following journals:
International Journal of Geomechanics (ASCE).
World Scientific and Engineering Academy and Society (WSEAS).
2. Member of conference management committee of the 10 WSEAS (World Scientific and Engineering Academy and Society) series of international conferences (Science, Technology, Engineering Mathematics) at the Morgan State University, USA, to be held from Sept. 17-19, 2013.

3.4.7 SEMINAR, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPARTMENT

Under Graduate Training Programme in Linear Algebra and Analysis (UTPLAA)	May 28- June 06, 2012
Workshop on Mathematical Methods and Astronomy (WMMA)	February 7-9, 2013
National Conference on Recent Advances in Mathematics and its Applications (RAMA)	February 14-16, 2013

3.4.8 PARTICIPATION OF FACULTY/OFFICER/STAFF IN SEMINARS/ CONFERENCES ETC

Prof. G. S. Seth	International Conference on Innovation and Research in Technology for Sustainable Development	Nov 1-3, 2012	OP JIT Institute of Technology, Raigarh (C. G.).
Prof. G. S. Seth	The 15 th International Conference of International Academy of Physical Sciences (CONIAPS-XV)	Dec. 9-13, 2012	Rajamangala University of Technology Thanyaburi, Thailand.
Prof. P. C. Pal	8 th European Solid Mechanics Conference	July. 09-14	Graz Technical University, Graz, Austria.
Prof. P. C. Pal	Recent Advances in Mathematics and Its Applications (RAMA-2013)	Feb.14-16, 2013	Indian School of Mines, Dhanbad
Prof. S. Gupta	Recent Advances in Mathematics and Its Applications (RAMA-2013)	Feb.14-16, 2013	Indian School of Mines, Dhanbad
Prof. G. N. Singh	Recent Advances in Mathematics and Its Applications (RAMA-2013)	Feb.14-16, 2013	Indian School of Mines, Dhanbad
Prof. R. K. Upadhyay	Turing Centenary Conference CiE-2012: How the World Computes"	June17-23, 2012	University of Cambridge, Cambridge
Prof. R. K. Upadhyay	Recent Advances in Mathematics and Its Applications (RAMA-2013)	Feb. 14-16, 2013	Indian School of Mines, Dhanbad
Prof. R. K. Upadhyay	Recent Advances in Mathematics and Its Applications (RAMA-2013)	Feb. 14-16, 2013	Indian School of Mines, Dhanbad
Prof. Bani Mukherjee	International Conference on Applied Mathematics and Approximation Theory (AMAT-2012)	May 17-19, 2012	TOBB University of Economics and Technology, Ankara, Turkey
Prof. Bani Mukherjee	Recent Advances in Mathematics and Its Applications (RAMA-2013)	Feb. 14-16, 2013	Indian School of Mines, Dhanbad
Dr. M.K. Singh	International Conference Earth and Space	April 15-18, 2012	Pasadena, California, USA

Dr. M.K. Singh	International Conference of ICMSDPA	Oct. 08-12, 2012	BHU, Varanasi
Dr. M.K. Singh	International Groundwater Congress (IGWC) 2012	Dec18-21,2012	Aurangabad
Dr. M.K. Singh	National Conference on RAMA-2013	Feb.14-16,2013	ISM, Dhanbad
Dr. S Chatterjee	National Conference on RAMA-2013	Feb.14-16,2013	ISM, Dhanbad
Dr. S P Tiwari	ICLA 2013	Jan. 10-13, 2013	IMSc Chennai
Dr. Akhilesh Prasad	National Conference on RAMA-2013	Feb.14-16,2013	ISM, Dhanbad
Dr P S Rao	National Conference on Mathematical & Computational Sciences	6-7, July 2012	AdikaviNannayya University, Rajamandry.
Dr P S Rao	National Conference on RAMA 2013	14 16, Feb 2013	ISM, Dhanbad.
Dr P S Rao	National Conference on Applications of Mathematics in Engineering and Industry	26 28, March 2013.	Kakatiya University, Warangal.
Dr. Anurag Jayswal	World Congress on Engineering	July 4-6, 2012	Imperial College London, U.K.
Dr. A K Singh	National Conference on RAMA-2013	Feb.14-16, 2013	ISM, Dhanbad
Dr. S Kundu	World Congress on Engineering	July 4-6, 2012	Imperial College London, U.K.
Dr. S Kundu	National Conference on RAMA-2013	Feb.14-16,2013	ISM, Dhanbad
Dr. P K Kewat	Indo-French Symposium on Automorphic forms, Galois representations and L-functions	September 3-7, 2012	IISER Pune
Dr. P K Kewat	National Conference on RAMA-2013	Feb.14-16,2013	ISM, Dhanbad
Dr. G K Vishwakarma	Workshop on Reliability Theory and Survival Analysis	Dec. 03 05, 2012	IIT Kanpur, India
Dr. G K Vishwakarma	The 15 th International Conference of International Academy of Physical Sciences (CONIAPS-XV)	Dec. 9-13, 2012	RMUTT, Thailand.

Dr. G K Vishwakarma	International Conference on IMSCT 2012 - FIM XXI	Dec. 15 17, 2012	Panjab University, Chandigarh, India
Dr. G K Vishwakarma	National Conference on RAMA-2013	Feb.14-16,2013	ISM, Dhanbad
Dr. Sanjeev. A. Sahu	National Conference on RAMA-2013	Feb. 14-16, 2013	ISM, Dhanbad

3.4.9 VISITS OF FACULTY MEMBERS ABROAD:

1. Prof. G. S. Seth visited Thanyaburi, Thailand and delivered an invited talk during Dec. 9-13, 2012.
2. Prof. P. C. Pal visited Graz Technical University, Graz, Austria from July. 09-14, 2012 and presented a technical research paper (ESMC 2012).
3. Prof. G. N. Singh visited University of North Carolina, Greensboro, USA and delivered an invited lecture during October 05-07, 2012 in an international conference on “Advances in Interdisciplinary Statistics and Combinatorics” (AISC-2012)”.
4. Prof. R. K. Upadhyay visited University of Cambridge, Cambridge, England and delivered a talk in Turing Centenary Conference CiE-2012: How the World Computes during June 17-23, 2012.
5. Prof. Bani Mukherjee visited Ankara, Turkey for presenting a Research Talk in International Conference on Applied Mathematics and Approximation Theory (AMAT-2012) being held at TOBB University of Economics and Technology, Ankara, Turkey during May 17-19, 2012.
6. Dr. M. K. Singh visited Pasadena, California, USA for presenting a research paper in International Conference on Earth and Space organized by ASCE during 15-18, April, 2012. Dr. Singh has also visited NASA JPL at California Institute of Technology, California.
7. Dr. Akhilesh Prasad visited TOBB University of Economics, Ankara, Turkey and delivered a talk in International Conference on Applied Mathematics & Approximation Theory during May 17-20, 2012.
8. Dr. Akhilesh Prasad visited Inst. of Applied Mathematics, Middle East Technical University, Ankara, Turkey and delivered a talk in Int. Conference on Applied & Computational Mathematics during Oct. 03-06, 2012.

9. Dr. Anurag Jayswal visited Imperial College, London, and delivered a talk on World Congress of Engineering during 4-6 July 2012.
10. Dr. S. Kundu visited Imperial College, London, and delivered a talk on World Congress of Engineering during 4-6 July, 2012.
11. Dr. G.K. Vishwakarma, Visited Rajamangala University of Technology, Thanyaburi, Thailand during December 9 13, 2012,

3.4.10 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Prof. A. K. Sriwastav, BHU Varanasi	Speaker of Under Graduate Training Programme in Linear Algebra and Analysis (UTPLAA) , May 28- June 06, 2012
Prof. A. K. Lal, IIT Kanpur	Speaker of Under Graduate Training Programme in Linear Algebra and Analysis (UTPLAA) , May 28- June 06, 2012
Dr. B Tiwari, DST CIMS, BHU Varanasi	Speaker of Under Graduate Training Programme in Linear Algebra and Analysis (UTPLAA) , May 28- June 06, 2012
Prof. B B Bhattacharya, Distinguish Professor, National Center for School of Basic Sciences, Kolkata	Chief Guest for Inaugural Function of National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb.14-16,2013
Prof. Phoolan Prasad, S SBhatnagar Awardee, IISc, Bangalore	Keynote Speaker and Guest of Honour for Inaugural Function of National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013),Feb.14-16,2013
Prof. H S Dhami, Pro-Vice chancellor, Kumaun University, Nainital	Keynote Speaker for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb.14-16, 2013
Prof. Naveen Kumar, BHU, Varanasi	Keynote Speaker and Guest of Honour for Valedictory function for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013),Feb.14-16,2013
ShriPrashant Kumar, Deputy Commissioner, Dhanbad	Chief Guest for Valedictory function for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013), Feb.14-16,2013

Prof. P.K. Jain, Emeritus Professor, Delhi University	Invited Speaker for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013),Feb.14-16,2013
Prof. D.K. Gupta, IIT Kharagpur	Invited Speaker for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013),Feb.14-16,2013
Dr. Nandadulal Bairagi, Jadavpur University, Kolkata	Invited Speaker for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013),Feb.14-16,2013
Dr. Ashish Upadhyay, IIT Patna	Invited Speaker for National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013),Feb.14-16,2013
Prof. Ranjan Gupta, IUCAA Pune	IUCAA Coordinator of Workshop on Mathematical Methods & Astronomy (WMMA 2013)February, 07-09,2013
Prof. A.N. Ramaprakash, IUCAA Pune	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013
Prof. Shantanu Rastogi Professor, Department of Physics, DDU Gorakhpur University, Gorakhpur - 273 009	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013
Prof. M.R. Adhikari Department of Pure Mathematics, University of Calcutta , Kolkata	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013
Prof. B Ishwar,B.R.A. Bihar University Muzaffarpur, Bihar	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013
Prof. D. K Bhattacharya, Professor Emeritus, UGC, (2011 2013), Rabindra Bharati University, Kolkata- 700 050	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013
Prof. AK Sen, Assam University	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013
Dr. Sandeep Sahijpal, Panjab University, Chandigarh.	Invited Speaker for Workshop on Mathematical Methods & Astronomy (WMMA 2013) February, 07-09,2013

3.4.11 MISCELLANEOUS:

1. Prof. A. Chattopadhyay: Attended a “Training on Management Capacity Enhancement for Administration” at IIM Lucknow (Noida Campus) from 11.2.13 to 15.2.13
2. Prof. G. S. Seth, Head, Department of Applied Mathematics, ISM Dhanbad has worked as member of Central Purchase Committee of ISM Dhanbad.
3. Prof. G. S. Seth, Head, Department of Applied Mathematics, ISM Dhanbad has worked as Chairman of Health Centre Committee of ISM Dhanbad.
4. Prof. P. C. Pal as a Reviewer of Int. J. of Bio-Mechanics.
5. Prof. P. C. Pal- Examiner of Ph.D. Thesis in Applied Mathematics, BIT Mesra Ranchi.
6. Prof Bani Mukherjee, presently working as a chairperson of the Gender-Sensitization Committee, ISM, Dhanbad.
7. Dr. Akhilesh Prasad has delivered a talk in Advanced Training Programme on Integral Transforms, Wavelets, Distribution Theory and Applications during July 12-21, 2012 at DST- Centre for Interdisciplinary Mathematical Sciences, Banaras Hindu University, and Varanasi.
8. Dr. Badam Singh Kushvah has delivered a talk entitled Stability and Chaos in Dynamical System at IUCAA, Pune on 12-JUN-2012.
9. Dr. A. K. Singh has delivered some lectures on Analysis in Under Graduate Training Programme in Linear Algebra and Analysis during May 28- June 06, 2012 at Department of Applied Mathematics, Indian School of Mines, Dhanbad
10. Dr. P. K. Kewat has delivered some lectures on Analysis in Under Graduate Training Programme in Linear Algebra and Analysis during May 28- June 06, 2012 at Department of Applied Mathematics, Indian School of Mines, Dhanbad.
11. Dr. Sanjeev A. Sahu delivered an invited talk in 'National Workshop on THE FUZZY SETS & FUZZY LOGIC' at Govt. E. Raghvendra Rao Science PG College Bilaspur (Chhattisgarh)

3.5 Department of Applied Physics

The Department of Applied Physics came into existence as a separate Department in 1989, although it was functional since the inception of the Institute. The objective of the Department is to produce highly skilled manpower in the field of teaching, research and development for the institute, research laboratory and industries.

The Department offers 2-year M.Sc., 5-year Integrated M.Sc., 1-year M.Phil. and Ph.D. programmes in Applied Physics.

3.5.1 FIELD VISITS/ EXCURSIONS/TRAINING PROGRAMS UNDERTAKEN BY STUDENTS

Particulars	Batch of students	Place of visit	Period of visit
Summer Training	II-Semester, M. Sc.(Applied Physics) and VIII-Semester Int. M.Sc	1. IISC, Bangalore 2. IISER, Kolkata 3. IISER, Bhopal 4. IMS, Chennai 5. UGC-DAE CSR Indore 6. RRI, Bangalore 7. VECC, Kolkata 8. SINP Kolkata 9. HRI Allahabad 10. BARC, Mumbai 11. NISP, Netherland 12. Academy of Sciences, Czech Republic 13. Washington University 14. HAO, Boulder USA 15. University of Queensland, Australia	May 2012 to June 2012 (~ 8 weeks)
Winter training	VII-Sem. Integrated M. Sc. (Applied physics)	• TIFR, Mumbai • IIA Bangalore • PRL Solar Observatory, Udaipur	December 2012 to January 2013 (6 weeks)

3.5.2 BRIEF LIST OF ON-GOING R& D PROJECTS

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement / Date of Completion	Objective	Status	Findings
Synthesis and characterization of ultra-thin film using Langmuir-Blodgett apparatus with application as gas sensor	UGC New Delhi	Rs.5,02,800/-	₹ 5,02,800/-	01.02.2011	To synthesize monolayer thin films of various organic and inorganic materials using LB Apparatus and study their applications with special emphasis on use as gas sensor.	Ongoing	In Progress
UGC Special Assistance Program	UGC New Delhi	Dr. J. Manam (Co-ordinator) Dr. S. K. Sharma (Deputy Co-ordinator)	Rs. 68.5 lacs	01.04.09 to 31.03-2014	To synthesize and characterize various luminescent ceramics, glasses, thin films for possible applications in optoelectronics devices	Ongoing	In Progress
Synthesis and characterization of nanocomposite thin films for Optoelectronic applications.	UGC-DAE CSR, Indore	Dr. S. K. Sharma	Rs 7.38 lacs	February 2013/ January 2016	Synthesis of nanocomposite thin films by Pulsed Laser Deposition method for their suitable applications in Optoelectronic devices.	Ongoing	In Progress
Optical spectroscopic studies of rare earth doped molybdate phosphors.	DST, New Delhi	Dr. S. K. Sharma	Rs 20,94,800/-	September 2011	Synthesis of rare earth doped molybdate phosphors for their suitable applications in Optoelectronic devices.	Ongoing	In Progress
Optical properties of the rare earth doped heavy metal oxide glasses	DST, New Delhi	Dr. Vineet Kumar Rai	Rs 15 lakhs	23.09.2009	a. Effect of the addition of heavy glass modifiers on the optical properties of rare earth ions b. Concentration quenching and up conversion	Ongoing Under extension	New optical properties of the synthesised rare earth doped heavy metal oxide glasses have been studies.
Temperature sensor based on upconversion of the embedded emitters	UGC, New Delhi	PI: Dr. V. K. Rai Co-PI: Dr. A. K. Nirala	Rs. 6, 79, 800/-	01. 02. 2011	To study the Up- conversion and temperature sensing behavior in lanthanides doped solid materials	Ongoing	Instrument Procurement process is on
Electron induced collision and ionization of technologically relevant atoms/molecules- A theoretical study	DST, New Delhi	Dr. Bobby K. Antony	Rs. 11.94 lakh	Nov 2010	The proposed project aims to perform theoretical investigations on probing electron interactions with atoms and molecules in environmental, atmospheric and plasma surroundings	Ongoing	Study atom related to technological fields like Ln, Sn, Sd, etc.

Electron impact scattering cross sections for molecules of environmental and biological importance: A theoretical study	UGC	Bobby Antony	Rs. 6.80	Feb 2011	The objective of this project is to study the interactions of electrons with biomolecules. This work aims primarily at the DNA strand break caused by low energy secondary electrons produced through radiation therapy.	Ongoing	Study on simple biomolecule has been performed and Ionization cross section data has been reevaluated.
Density functional theory of structure and properties of colloidal dispersions in external fields	UGC, New Delhi	Dr. Pankaj Mishra	Rs. 7.52, 300/-	1 Feb 2011	To study the phase diagrams of Colloids in external fields	Ongoing	Studies have been made regarding the effect of multipolar interaction potentials on the structure of colloidal systems and paper has been published.
Photonic Crystal Fiber : Designing and characterization for applications in optical communication & sensors	UGC, New Delhi	Dr. Vinod K Singh	Rs. 9.54 Lakhs	01.02.2011	To design and characterize PCF to use as sensors	Ongoing	Procurement of instrument required is over and experimental work is going on

3.5.3 IMPORTANT COLLABORATIVE WORKS

Organisation/laboratory	Nature of Interaction
Prof. P. S. Gupta UGC DAE consortium for Scientific Research, Indore	Collaborative research works & use of Laboratory for Characterization of Samples
Dr. S. K. Sharma 1. Inter University Accelerator Center, New Delhi 2. UGC-DAE, Indore	Collaborative research work for Swift Heavy Ion Beam Irradiation and Thermo luminescence studies of materials. Collaborative research work for synthesis of thin films by Pulsed Laser deposition/Secondary ion mass spectroscopy/XPS studies.
Dr. V. K. Rai 1. Department of Physics B.H.U. 3 Varanasi India 2. UFPE, Recife, PE- Brasil 3. Université Rennes France 4. Laboratoire de Photonique Quantique et Moléculaire, Institut d'Alembert, Ecole Normale Supérieure de Cachan, 61 av. du Président Wilson, 94 235 Cachan, France 5. Institute of Physics, University of Sao Paulo, 05508-090, Sao Paulo/SP, Brazil Mechanical Engineering Department, Chung-Ang University, Seoul 156-756, Korea.	Collaborative studies on Thermal lensing, Upconversion spectroscopic studies etc. Glasses and Optical limiters Nano-Materials and upconverters Nano Phosphors Glasses and upconverters Nano Phosphors
Dr. Pankaj Mishra 1. Department of Physics, BHU, Varanasi	Collaborative research on the theory of Inhomogeneous classical fluids
Dr. Kaushal Kumar 1. Department of physics, BHU Varanasi 2. Department of Ceramic Engineering, IIT BHU, Varanasi Biophotonics Lab, TIFR, Mumbai	Collaborative studies on Lasers and Materials Synthesis and Characterisation of ceramic materials Fluorescence correlation spectroscopy
Dr. P. M. Sarun 1. NIIST (CSIR), Trivandrum 2. IACS, Kolkata	Collaborative research and Scientific Interaction On superconducting materials

Dr. R. Thangavel Crystal Growth centre, Anna University, Chennai Research centre for Applied Science, Academia Sinica, Taiwan	Collaborative studies on Theory and experiment on Semiconductor Nano Structures Semiconductor Nanostructure and Solar Cell device Collaborative research
Dr. R. Thangavel Crystal Growth centre, Anna University, Chennai Research centre for Applied Science, Academia Sinica, Taiwan	Collaborative studies on Theory and experiment on Semiconductor Nano Structures Semiconductor Nanostructure and Solar Cell device
Dr. S. Sahu Indian Institute of Technology Bombay	Collaborative research

3.5.4 IMPORTANT NEW EQUIPMENT ACQUISITIONED

Name of Equipment	Purpose	Date of Purchase	Value (₹)
Milli-Q Water Purification System	For ultra purification of water	09/11/2012	719881/-

3.5.5 RESEARCH PUBLICATIONS

3.5.5.1 Book Published

1. Sharma P. K. and Pandey A. C., 2012, "Study of Nanomaterials for Opto-electronics and DMS Based Applications", LAP Lambert Academic Publishing, 244 Pages, ISBN 978-3-8473-7963-8.

3.5.5.2 Contribution of Chapters in a book

1. Vineet Kumar Rai (2012), "Frequency Upconversion in Rare Earth Ions", in book Solid State Laser (ISBN 978-953-51-0086-7).
2. Sharma P. K. et al., 2012, "Functionalized Biocompatible Nanoparticles for Site Specific Imaging and Therapeutics" in book entitled "Advances in Polymer Science: Polymers in Nanomedicine", Springer-Verlag Berlin Heidelberg 1-43, DOI: 10.1007/12(2011)155, ISBN 978-3-642-27855-6.
3. Sharma P. K. and Pandey A. C., 2012, "High Resolution Transmission Electron Microscopic Investigations of Nanocrystals Growth and Defect Formation", in book entitled 'Current microscopy contributions to advances

in science and technology (Microscopy Book Series, number #5)', Formatex Publications, Spain, ISBN (13): 978-84-939843-6-6.

4. Sharma P. K. and Pandey A. C., 2012, "Multifunctional core-shell luminescent magnetic nanocrystals for targeted imaging and therapy", in book entitled "Nanobiomaterials for Intelligent Medical Devices", WILEY-Scrivener Publishing LLC, USA, Chapter 16, ISBN 978-1-1180-3014-1.
5. Sharma P. K. and Pandey A. C., 2012, "Advancement in Semiconducting Nanomaterials Based Solar Cell Applications", in book entitled 'Nanomaterials and Nanotechnology', VBRI Press, India, ISBN 978-81-920068-33.

3.5.5.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Roy, Dhruvjyoti, Das, Nayan Mani, Gupta, P. S.	2012	"Study of cadmium arachidate multilayers deposited by Langmuir-blodgett technique"	International Journal of Metallurgical & Material Science and Engineering (IJMMSE) ISSN 2278-2516,	Vol.2, Issue 3	pp.1-10
2.	Bobby, A, Gupta P. S., Antony B. K.	2012	"Effect of tunneling current on the reverse I-V characteristics of In, Al-pWSe ₂ Schottky diodes".	The European Physical Journal Applied Physics.	Vol.60, no. 2	p. 10104
3.	Das, Nayan Mani, Roy, Dhruvjyoti, Gupta, Mukul, Gupta, P. S.	2012	"Structural and surface morphological studies of long chain fatty acid thin films deposited b Langmuir Blodgett technique"	Physica B: Condensed Matter,	Vol. 407, Issue 24,	pp. 4777-4782
4.	Roy, Dhruvjyoti, Das, Nayan Mani, Gupta, P. S.	2013	"Structural morphology study of Cd ²⁺ induced Langmuir-Blodgett multilayer films of Arachidic Acid"	Applied Surface Science,	Vol. 271	pp.394-401

5.	Pal Partha P., and Manam,J.	2012	Influence of rare-earth doping on the photoluminescence of Zinc oxide nanophosphors,	International Journal of Luminescence and Applications	Vol. 1(II)	pp. 124-128
6.	Pal Partha P., and Manam, J.	2013	Structural and photoluminescence studies of Eu^{3+} doped Zinc Oxide nanorods prepared by precipitation method	Journal of Rare Earths	Vol. 31, No 1	pp. 37-43
7.	Pal Partha P., and Manam, J.	2013	Photoluminescence and thermoluminescence studies of Tb^{3+} doped ZnO nanorods	Material Science & Engineering	Vol. 178	pp. 400-408
8.	Ansari, Md Zaheer Ansari and Nirala, A.K.	2013	Assessment of bio-activity using the methods of inertia moment and absolute value of the differences	Optik	Vol. 124	pp. 512 516
9.	Som S., Choubey A., Sharma S.K.	2012	Luminescence studies of rare earth doped yttrium gadolinium mixed oxide phosphor	Physica B	Vol. 407	pp. 35153519
10.	Som S., Sharma S.K.	2012	$\text{Eu}^{3+} / \text{Tb}^{3+}$ codoped Y_2O_3 nanophosphors: Rietveld refinement, Bandgap and Photoluminescence optimization	Journal of Physics D: Applied Physics	Vol. 45	pp. 415102
11.	Dutta S., Som S., Mukherjee R.K., Sharma S.K.	2013	'Synthesis and characterization of yellow light emitting $\text{Na}_5\text{Dy}(\text{MoO}_4)_4$ double molybdate phosphor'	Physics Express	Vol. 3	pp. 24
12.	Som S., Sharma S.K. , Lochab S.P.	2013	'Swift heavy ion induced structural and optical properties of $\text{Y}_2\text{O}_3: \text{Eu}^{3+}$ nanophosphor'	Materials Research Bulletin	Vol. 48,	pp. 844-851
13.	Dutta S., Som S., Priya J. and Sharma S.K.	2013	'Bandgap, CIE and trap depth parameters of rare earth molybdate phosphors for optoelectronic applications'	Solid State Sciences	Vol. 18	pp. 114-122

14.	Singh, V., Rai, V. K., In-Ja Lee, Isabelle Ledoux-Rak Katharina Al-Shamery, Jörg Nordmann, Markus Haase	2012	Infrared and visible emission of $\text{CaAl}_{12}\text{O}_{19}$ powders doped with Er^{3+} , Yb^{3+} and Mg^{2+} ions	Appl. Phys. B	Vol. 106	pp. 223-228
15.	Mohanty, Deepak Kumar, Rai, V. K., Dwivedi, Y	2012	Yb^{3+} sensitized Tm^{3+} Upconversion in Tellurite Lead Oxide glass	Spectrochim. Acta A	Vol. 89	pp. 264 267
16.	Singh, V., Rai, V. K., Watanabe, S., Gundu Rao, Ledoux-Rak, I., Kwak, Ho-Young	2012	Synthesis, Characterization, Optical absorption, Luminescence and Defect Centres in Er^{3+} and Yb^{3+} co-doped MgAl_2O_4 phosphors.	Appl. Phys. B	Vol. 108	pp. 437-446
17.	Rai, V. K.; Mohanty, Deepak Kumar	2012	Visible Upconversion Emissions in Pr^{3+} doped TeO_2 -ZnO glass	Applied Physics B	Vol. 109	pp. 599603
18.	Singh, V., Rai, V. K., Markus Haase	2012	Intense green and red upconversion emission of Er^{3+} , Yb^{3+} co-doped CaZrO_3 obtained by a solution combustion reaction, J.	Applied Physics	Vol. 112	pp. 063105 (1-5).
19.	Singh, V., Rai, V. K., Venkatramu V., Chakradhar R.P.S., Sang Hwang Kim	2013	Infrared emissions in $\text{Mg SrAl}_{10}\text{O}_{17}:\text{Er}^{3+}$ phosphor co-doped with $\text{Yb}^{3+}/\text{Ba}^{2+}/$ Ca^{2+} obtained by solution combustion route,	J. Luminescence	Vol. 134	pp. 396-400
20.	Rai, V. K; Pandey Anurag.; Dey Riya	2013	Photoluminescence study of $\text{Y}_2\text{O}_3:\text{Er}^{3+}-\text{Eu}^{3+}-\text{Yb}^{3+}$ phosphor for lighting and sensing applications- J.	Appl. Phys	Vol. 113	pp. 083104 (1-6).

21.	Pandey Anurag; Rai, V. K	2012	Colour emission tunability in Ho^{3+} - Tm^{3+} - Yb^{3+} codoped Y_2O_3 upconverted phosphor	Applied Physics B	Vol. 109	pp. 611616
22.	Pandey Anurag; Rai, V. K.; Dey Riya; Kumar K.	2013	Enriched green upconversion emission in combustion synthesized $\text{Y}_2\text{O}_3\text{:Ho}^{3+}\text{-Yb}^{3+}$ phosphor,	Materials Chemistry and Physics	Vol. 139	pp. 483-488
23.	Rai, V. K.; Dey Riya; Kumar K.	2013	White upconversion emission in $\text{Y}_2\text{O}_3\text{:Er}^{3+}\text{-Tm}^{3+}\text{-Yb}^{3+}$ phosphor,	Materials Research Bulletin	Vol. 48	pp. 22322236
24.	Pandey, B., Pal, P.P., Bera, S., Ray, S.K. and Kar, A.K.,	2012	'Effect of nickel incorporation on microstructural and optical properties of electrodeposited diamond like carbon (DLC) thin films'	Applied Surface Science	Vol. 261	pp. pp. 789-799
25.	Gupta, Dhanoj and Antony, Bobby	2013	Total cross section for chloroflouromethanes and CCl_x radicals by electron impact	J.Electron Spec. Rel.Phenom	Vol. 186	pp. 25-29
26.	Nagma, Rahla and Antony, Bobby	2013	Electron impact ionization cross section of C_2 , C_3 , Si_2 , Si_3 , SiC , SiC_2 and Si_2C	Mol. Phys.	Vol. 111	Pp 269-275;
27.	Minaxi Vinodkumar, Avani Barot, and Bobby Antony	2012	“Electron impact total cross section for acetylene over an extensive range of impact energies (1 eV - 5000 eV)”	J. Chem. Phys.,	Vol. 136	1-8
28.	Mukherjee, Manjori and Mishra, Pankaj	2012	“Structure of two-dimensional binary mixture of colloidal particles interacting via quadrupole-duadrupole interaction potential”	International Journal of Physics and Mathematical Sciences	Vol. 2 (No.S1)	pp-50
29.	Mishra, S S and Singh, Vinod Kumar	2012	Highly Nonlinear Dual Core Photonic Crystal Fiber with low Confinement loss at $1.55\mu\text{m}$ wavelength	International Journal of Optics and Photonics (IJOP)	Vol. 5, no. 2	pp. 97-102

30.	Verma R. K.; Kumar K. ; Rai S.B	2013	'Near infrared induced optical heating in laser ablated Bi quantum dots'	Journal of Colloid and Interface Science	Vol. 390	pp. 11-16
31.	Yadava R. S.; Shukla V. K.; Mishra P.; Pandey S. K.; Kumar K. ; Baranwal V.; Kumar M.; Pandey A. C.,	2013	'Enhanced Blue luminescence in Ba MgAl10O17: Eu, Er, Nd nanophosphor for PDPs and Mercury free fluorescent lamps'	J. Alloys & Compds	Vol. 547	pp. 1-4
32.	Kumar K. ; Singh A. K.; Rai S. B.	2013	'Enhanced Blue luminescence in Ba MgAl10O17: Eu, Er, Nd nanophosphor for PDPs and Mercury free fluorescent lamps'	J. Alloys & Compds	Vol. 547	pp. 1-4
33.	Singh A.K.; Kumar K. ; Pandey A.C.; Rai S.B.; Kumar D.	2013	Multi-phonon assisted upconversion emission and power dependence studies in LaF ₃ :Er ³⁺ phosphor	Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy	Vol. 106	pp. 236-241
34.	J.B. Anooja, P.M. Aswathy, P.M. Sarun , U. Syamaprasad,	2012	A novel low temperature synthesis route for SmFe AsO _{1-x} F _x bulk superconductor with improved transport properties	J. Alloys and Compounds	Vol. 514	pp. 1-5
35.	Dewangan K., Sharma P. K. , Pandey A. C., Munichandraiah N., Gajbhiye N. S.	2012	Self-Assembled Nanofiber-Bundles of Single-Crystalline V ₂ O ₅ for High-Performance Lithium-Ion Batteries	Nanoscale	Vol. 4	pp. 645-651
36.	Sharma P. K. , Dutta R. K. and Pandey A. C.	2012	Performance of RGB (YAG:Eu ³⁺ , YAG:Tb ³⁺ and BAM:Eu ²⁺) plasma display nanophosphors	J. Nanopart. Res.	Vol. 14	pp. 731

37.	Sharma P. K., Dutta R. K. and Pandey A. C.	2012	Size-Dependent Emission Efficiency and Luminescence Characteristics of YBO ₃ :Tb ³⁺ Nanocrystals under Vacuum Ultraviolet Excitations	J. App. Phys.	Vol. 112	pp. 054321
38.	Singh D. P., Manohara R., Sharma P. K.. and Pandey A. C.	2013	Concentration Dependent Physical Parameters of Ferroelectric Liquid Crystal and ZnOS Nano material Composite System	Soft Materials	Vol. 11	pp. 305314
39.	S.Kalyanaraman, R. Thangavel and R.Vettum Perumal	2013	High mobility formation of p-type Al doped ZnO Films with annealing in NH ₃ Ambient	Journal of Physics and chemistry of solids	Vol. 74	pp.504-508
40.	S.Kalyanaraman, R.Thangavel and R.Vettum Perumal	2013	“Structural and electrical properties of Li Doped ZnO under Ar/H ₂ atmosphere	Journal of sol-gel science and technology	Vol. 65	pp.238242
41.	Sanjeev Kumar C. L. Chen ; C. L. Dong; Y. K. Ho ; J. F. Lee ;T. S. Chan ; R. Thangavel; T. K. Chen; B. H. Mok; S. M. Rao; M. K. Wu	2013	Structural, optical, and magnetic characterization of Co and N co-doped ZnO nanopowders	Journal of Materials Science,	Vol. 48	pp. 2618-2623
42.	Sanjeev Kumar, C.L. Chen, C.L. Dong, Y.K. Ho, J.F. Lee, T.S. Chan, R. Thangavel, T.K. Chen, B.H. Mok, S.M. Rao, M.K. Wu	2013	Room temperature ferromagnetism in Ni doped ZnS nanoparticles	Journal of Alloys and Compounds	Vol. 554	pp. 357362
43.	S. Sahu	2012	Interaction of second-row dicarbides with molecular oxygen: A theoretical study	J. Comp. Theo. Chem	Vol. 999	pp. 184

3.5.5.4 Paper Published In National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	R. B. Choudhary	2013	Processing, Properties and Utility Features of Conducting Polyaniline....	Publisher: Colour Publication-Chem. Busi.	Vol. 27, No. 1	pp. 12-17

3.5.5.5 Paper Presented/Published In International Seminar/Conferences

1. Pal Partha P., and Manam,J .,2012, Effect of Li⁺ co-doping on the luminescence properties of ZnO:Tb³⁺ nanophosphors Proceedings of International Symposium on Macro and supramolecular architectures and materials MAM-12 held in Le Meridien, Coimbatore, India during 21-25 Nov,2012 pp 227-232
2. MD Zaheer Ansari, and A.K. Nirala, "Biospeckle Techniques in Quality Evaluation of Indian Fruits", World Academy of Science, Engineering and Technology, Nov 14-16, 2012, Venice, Italy, 71, 520-524 (2012).
3. Mukherjee, Manjori and Mishra, Pankaj (2013) "Self Assembly of Complex Molecular System Interacting Via Dipolar Interaction" in Proceedings International Conference on Technological Innovations through Modern Engineering Sciences (TIMES-2013), Alwar, Rajasthan, Feb 23-24, pp10-12, ISBN 978-93-81771-22-8.
4. Sharma, Prashant K., and Pandey, Avinash C., 2012, Zinc Oxy-Sulphide Ternary Nanocrystals: An efficient Nanophosphor for Performance Enhancement of Large Area Solar Cells and WLEDs, Proceedings of '4th International conference on Luminescence and Its Applications-ICLA 2012', ISBN 81-6717-806-5, IICT, Hyderabad, February 7-10, 2012.
5. Dutta, Ranu K., Sharma, Prashant K. and Pandey, Avinash C., 2012, Superparamagnetic Eurogadofluoroprobes (EGFP) for Medical Imaging and Cancer Theragnostics, Proceedings of '4th International conference on Luminescence and Its Applications-ICLA 2012', ISBN 81-6717-806-5, IICT, Hyderabad, February 7-10, 2012.
6. Madhuri, Rashmi and Sharma, Prashant K., 2013, Designing of Target-Specific Sites on Nanostructures for the Early Diagnosis of Cancer Biomarker, Proceedings of International Conference on Chemistry: Frontiers & Challenges (ICCFC-13), ISBN 88-9235- 401-9, AMU, Aligarh, March 2-3.

7. Parida, S. K. and Sahu, S. 2013 'Theoretical study of Si_8H_8 and Si_8Li_8 clusters: Searching for new high energy density materials' AIP Proceedings, International conference on Recent Trends in Applied Physics and Material Science (RAM2013), February 01-02.

3.5.5.6 Paper Presented/Published In Indian Seminars/Conferences

1. Pal, Partha P and Manam J, 2012, Luminescence properties of $\text{Eu}^{3+}/\text{Li}^+$ co-doped ZnO nanophosphors Proceedings of National Conference on Laser and Spectroscopy ALS-2012 organized by Department of Applied Physics, Indian School of Mines, Dhanbad, India during Nov 01-03, 2012 pp114
2. Baitha, Pankaj Kr., Pal, Partha P and Manam, J., Synthesis and photoluminescence properties of Eu^{2+} doped SrSO_4 phosphor, Proceedings of National Conference on Laser and Spectroscopy ALS-2012 organized by Department of Applied Physics, Indian School of Mines, Dhanbad, India during Nov 01-03, 2012 pp 91-95
3. Borgohain, Nitu., Baitha, Pankaj., Kr., Pal, Parth P and Manam, J., Synthesis and investigation of structural and optical properties of Eu^{2+} doped MgSO_4 Phosphor. Proceedings of national conference on Luminescence and its application held in PES institute of technology, Bengaluru, India during 08-10 Jan, 2013, pp 64
4. R. Ranjan, Abhijit Ghosh, Anil Kumar Nirala and H.L. Yadav "Design and Analysis of Holographic Wavelength Filter" " Publication in proceedings on pages 72-74 in National Conference on Advances in Laser and Spectroscopy (ALS-2012), organised by Dept. of Applied Physics from 1-3 Nov 2012 at ISM Dhanbad.
5. Abhijit Ghosh, Anil Kumar Nirala and H.L. Yadav "Compact LDA Optical Setup using HOEs " Publication in proceedings on pages 75-78 in National Conference on Advances in Laser and Spectroscopy (ALS-2012), organised by Dept. of Applied Physics from 1-3 Nov 2012 at ISM Dhanbad.
6. Abhijit Ghosh, A.K. Nirala and H L Yadav, "Dependence of Angular Selectivity of Holographic Solar Concentrator on Spatial frequency", Published in the proceedings on pages 335-337 in National Seminar on Energy and Environment for Sustainability organised by Mechanical & Electrical Engg Department & Geology, B.I.T. Sindri, 16-17 March, 2013.
7. Dutta S., Som S., and Sharma S.K. 2012. 'Synthesis and characterization of yellow light emitting $\text{Na}_5\text{Dy}(\text{MoO}_4)_4$ double molybdate phosphor', Proc. National Conference on Condensed Matter Physics, pp 11.

8. Som S., Chowdhury M., and Sharma S.K. 2012. 'Structural and optical properties of Dy^{3+} co-activated $\text{Y}_2\text{O}_3:\text{Yb}^{3+}$ luminescent ceramic', Proc. National Conference on Advances in Lasers and Spectroscopy, pp 84-90.
9. Dutta S., Som S., and Sharma S.K. 2013. 'Luminescence modification of $\text{CaMoO}_4:\text{Dy}^{3+}$ phosphor by charge compensation'. Proc. National Conference on Luminescence and its Applications, pp 31.
10. Mohanty D. K., Rai, V.K. (2012): Multicolour upconversion emissions from Er^{3+} doped $\text{TeO}_2\text{-ZnO}$ glasses under 808nm excitation, Proceedings of the 1st National conference on "Recent trends in Engineering & Sciences (NCRTES-2012)", Prestige Institute of Engineering & Science, Indore, Madhya Pradesh, India, 20-21 April 2012; ISBN: 978-93-82062-27-1; www.pies.ac.in.
11. Pandey Anurag, Rai V. K. (2012): Luminescence and Temperature sensing investigation of $\text{Ho}^{3+}\text{-Yb}^{3+}$ codoped NaYO_2 phosphor, Proceedings of National Conference on Advances in Lasers and Spectroscopy (ALS-2012), held at Department of Applied Physics, ISM, Dhanbad during 01-03 November, 2012; ISBN 978-81-8424-806-7; Allied Publishers Pvt. Ltd., New Delhi, India.
12. Pandey Anurag, Kumar Kaushal, Rai V. K. (2012): UV, Blue and Red Upconversion Emission in Tm^{3+} doped Y_2O_3 , Phosphor, Proceedings of National Conference on Advances in Lasers and Spectroscopy (ALS-2012), held at Department of Applied Physics, ISM, Dhanbad during 01-03 November, 2012; ISBN 978-81-8424-806-7; Allied Publishers Pvt. Ltd., New Delhi, India.
13. Mohanty Deepak, Rai V. K. (2012): Upconversion in rare earth ions doped $\text{TeO}_2\text{-ZnO}$ glass, Proceedings of National Conference on Advances in Lasers and Spectroscopy (ALS-2012), held at Department of Applied Physics, ISM, Dhanbad during 01-03 November, 2012; ISBN 978-81-8424-806-7; Allied Publishers Pvt. Ltd., New Delhi, India.
14. Kumari A., Mahata M. K., Rai V. K., Kumar K. (2012): Upconversion emission studies of $\text{Er}^{3+}\text{-Yb}^{3+}$ doped yttrium oxide phosphor, Proceedings of National Conference on Advances in Lasers and Spectroscopy (ALS-2012), held at Department of Applied Physics, ISM Dhanbad during 01-03 November, 2012; ISBN 978-81-8424-806-7; Allied Publishers Pvt. Ltd., New Delhi, India.
15. Mahata M. K., Dey R., Kumar K., Rai V. K., Rai S. B. (2012): Upconversion emission studies of $\text{Er}^{3+}/\text{Yb}^{3+}$ doped barium titanate phosphor prepared by

co-precipitation method, Proceedings of National Conference on Advances in Lasers and Spectroscopy (ALS-2012), held at Department of Applied Physics, ISM, Dhanbad during 01-03 November, 2012; ISBN 978-81-8424-806-7; Allied Publishers Pvt. Ltd., New Delhi, India.

16. Dey Riya; Pandey Anurag; Rai V. K. (2013): NIR to blue upconversion emission in $\text{Tm}^{3+}/\text{Yb}^{3+}$ codoped Y_2O_3 Phosphor, DAE-BRNS National symposium (NLS-21), 06-09, Feb. 2013, BARC, Mumbai.
17. Dey Riya; Rai V. K. (2013): Diode laser pumped green upconversion emission of Er^{3+} doped La_2O_3 phosphor, International conference on Technological innovations through modern engineering sciences (TIMES-2013), IET, Alwar, Rajsthan, 23-24 Feb. 2013.
18. Rai, V.K. (2013): Rare earth doped glasses as temperature sensor, Indo-US International workshop on spectroscopy: Application to National security, Department of Physics, BHU Varanasi, January 18-20, 2013 (invited talk).
19. Dey Riya; Rai V. K. (2013): Intense green upconversion emission from Er^{3+} - Yb^{3+} codoped lanthanum oxide phosphor, Indo-US International workshop on spectroscopy: Application to National security, Department of Physics, BHU Varanasi, January 18-20, 2013.
20. Pandey, Anurag; Rai, V.K. (2013): Ho^{3+} - Yb^{3+} - Zn^{2+} codoped Y_2O_3 phosphor for optical temperature sensor, Indo-US International workshop on spectroscopy: Application to National security, Department of Physics, BHU Varanasi, January 18-20, 2013.
21. Mahata, M.K.; K. Kumar; Rai, V.K.; Rai, S.B. (2013): Synthesis and upconversion emission study of trivalent rare earth ions doped barium titanate phosphor Indo-US International workshop on spectroscopy: Application to National security, Department of Physics, BHU Varanasi, January 18-20, 2013.
22. Pandey, Anurag; Rai, V.K. (2013): Frequency upconversion in Er^{3+} sensitized $\text{Y}_2\text{O}_3:\text{Eu}^{3+}$ phosphor under 980nm diode laser excitation, Third National Seminar On Recent Trends In Condensed Matter Physics Including Laser Application, Department Of Physics, Centre of Advanced Study, The University of Burdwan, Golapbag, Burdwan, March 5-7, 2013.
23. S. Mukherjee; M.K. Mahata; K. Kumar; Rai, V.K. (2013): Synthesis and upconversion emission studies of $\text{Er}^{3+}/\text{Yb}^{3+}$ codoped YVO_4 nanophosphor,

Third National Seminar On Recent Trends In Condensed Matter Physics Including Laser Application, Department Of Physics, Centre of Advanced Study, The University of Burdwan, Golapbag, Burdwan, March 5-7, 2013.

24. A. Dan; M.K. Mahata; K. Kumar; Rai, V.K. (2013): Green and red upconversion emission from $\text{Ho}^{3+}/\text{Yb}^{3+}$ doped SrTiO_3 (ABO_3 type), Third National Seminar On Recent Trends In Condensed Matter Physics Including Laser Application, Department Of Physics, Centre of Advanced Study, The University of Burdwan, Golapbag, Burdwan, March 5-7, 2013.
25. T. Mandal, M.K. Mahata; K. Kumar; Rai, V.K. (2013): Effect of ZnO doping on upconversion emission of $\text{BaTiO}_3:\text{Er}^{3+}/\text{Yb}^{3+}$, Third National Seminar On Recent Trends In Condensed Matter Physics Including Laser Application, Department Of Physics, Centre of Advanced Study, The University of Burdwan, Golapbag, Burdwan, March 5-7, 2013.
26. Kar, A.K., 2012. 'Supramolecular Photonics: An approach by Photon Scanning Tunneling Spectroscopy', Proceedings of National Conference on Advances in Lasers and Spectroscopy, Allied Publishers Pvt. Ltd., pp 6□11.
27. Mahato, S. and Kar, A.K., 2012. 'Electrodeposited Cadmium Selenide thin films for photoelectrochemical cell', Proceedings of National Conference on Advances in Lasers and Spectroscopy, Allied Publishers Pvt. Ltd., pp 61□64.
28. Mukherjee, Manjori, Kumar, Sanat and Mishra, Pankaj (2012), "A Review of advancement in the study of complex molecular system", Conference proceedings of Advances in Lasers and Spectroscopy (ALS-2012), at ISM Dhanbad, Nov. 1-3, pp 262-266, ISBN: 978-81-8424-806-7.
29. Mukherjee, Manjori and Mishra, Pankaj (2013) , "A Comparative Study on the Structure of Binary Colloidal Mixtures Interacting via multipolar Interaction " in "National Conference on Emerging Trends in Physics of Fluids & Solids (NCETPFS-2013)" February 27 28, 2013, Jadavpur, Kolkata.
30. Kumar, Sanat and Mishra, Pankaj (2013), "Pair Correlation Functions of binary mixtre of colloidal particles" in "Third National Seminar on Recent Trends in Condensed Matter Physics Including Laser Application (TNSCMPLA-2013)" March 5-7, 2013, Burdwan
31. Dhara, P and Singh, V K , 2012 "A review article on all fiber modal Mach-Zender interferometer sensors, P Dhara and V K Singh, Proceedings of National Conference on Advances in Lasers and Spectroscopy (ALS-2012), at ISM Dhanbad, Nov. 1-3, 2012

32. Choudhary, R. B., 2013 "An Investigation on Tribo-Chemical Reactions of AF/AW Additive Compounds of Alkyl Thio Octadecenoate Origin." CCECP-2013, GSTF Fort Canning Singapore Feb. 25-26, 2013.
33. Choudhary, R. B. and Gorai, Swapan: "Dielectric Features and I-V Characteristics of Poly-Phenylene Sulphide in its Neat Phase of Utility Mode" ICEP-2013, BHU Varanasi, Nov. 4 - 9, 2013.
34. Choudhary, R. B. and Gorai, Swapan, 2012, "Synthesis, Characterization and Dielectric Spectroscopy of Polypyrrole" ALS-2012 ISM Dhanbad Nov. 1-3.
35. Sharma, Prashant K. , 2012, Cutting Edge Advanced Theragnostics: The Epoch of Nano-biotechnology, proceedings of National Conference on "Nanotechnology and Life", ISBN 978-88-8526-901-1, AU, Allahabad, September 12-14.
36. Kakati, Abhijit and Sharma, Prashant K. , 2012, A Review of Nanocomposite Semiconducting Sensing Material, Proceedings of National Conference on Advances in Lasers and Spectroscopy-ALS, Page No- 248-252, 2012, ISBN 978-81-8424-806-7, ISM, Dhanbad, November 01-03.
37. Ghosh, Anima and Thangavel, R., 2012, Structural and optical properties of $\text{Cu}_2\text{ZnSnX}_4$ (X= S, Se) new solar cell absorbers: A First principles study, National conference on Advances of Lasers Spectroscopy (ALS-2012) ,ISBN 978-81-8424-806-7, ISM, Dhanbad.
38. Sahu, S., Parida, S.K. and Shukla, A., 2012, A many-body calculation of photoabsorption in Al_4H_6 cluster", Proceedings National conference on Advances of Lasers Spectroscopy (ALS-2012), ISBN 978-81-8424-806-7, Nov. 01-03, ISM, Dhanbad.

3.5.6 MAJOR ACADEMIC CONTRIBUTIONS

1. Dr. Prashant K. Sharma developed an ultra-sensitive saccharides detection assay using carboxyl functionalize chitosan containing $\text{Gd}_2\text{O}_3:\text{Eu}^{3+}$ nanoparticles probe.
2. One article of Dr. Prashant K. Sharma published in the Royal Society of Chemistry (RSC) Publishing was cited under 'Hot Article' Category (<http://blogs.rsc.org/ay/category/hot-article/>).

3.5.7 SEMINAR, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

National Conference on Advances in Lasers and Spectroscopy (ALS-2012)	01-03 November, 2012

3.5.8 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof J Manam	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Prof A K Nirala	International conference on Optics and Photonics (ICOP-2012), World Academy of Science, Engineering and Technology	Nov 14-16, 2012	Venice, Italy
	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Dr. S. K. Sharma	National Conference on Condensed Matter Physics	29-31 August, 2012	BIT Mesra, Ranchi
	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Dr. Vineet Kumar Rai	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
	Indo-US International workshop on spectroscopy: Application to National security	January 18-20, 2013	Department of Physics, BHU Varanasi

Dr. A. K. Kar	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Dr. B. K. Antony	National Conference on Electron Collision Processes in Atomic and Molecular Physics	Mar 7-9, 2013	VP & RTP Science College, Gujarat
	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Dr. Pankaj Mishra	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Dr. R.B. Choudhary	MRS, DMEMS IIT Mumbai	May 03 - 05,2012	MEMS, IITB. Mumbai
	ICEPMD, BHU Varanasi	Nov.04- 09, 2012	Department of Physics, BHU Varanasi
	IUSWSANS, BHU Varanasi	Jan. 18-20, 2013	Department of Physics, BHU Varanasi
	CCECP-GSTF, Singapore	Feb. 25-26, 2013	Fort Canning, Singapore
	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India
Dr. K. Kumar	Workshop on Fluorescence Correlation Spectroscopy (FCS)	03-07 December 2012	SINP, Kolkata
	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad, India

Dr. P. M. Sarun	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03,2012	Department of Applied Physics, Indian School of Mines, Dhanbad
Dr. P. K. Sharma	National Conference on “Nanotechnology and Life”	Sep 12-14, 2012	CMP Degree College, AU, Allahabad
	National Conference on Advances in Lasers and Spectroscopy-ALS	Nov 1-3, 2012	Department of Applied Physics, ISM
	International Conference on Chemistry: Frontiers & Challenges (ICCF-13)	March 2-3, 2013	Aligarh Muslim University
Dr. R. Thangavel	National Conference on Laser and Spectroscopy ALS-2012	Nov 01-03, 2012	Department of Applied Physics, Indian School of Mines, Dhanbad

3.5.9 VISITS OF FACULTY MEMBERS ABROAD

- i. Prof. A. K. Nirala visited Venice, Italy on November 15-16, 2012 to Participation in International conference on Optics and Photonics (ICOP-2012), World Academy of Science, Engineering and Technology.
- ii. Dr. R. B. Choudhary visited Fort Canning, Singapore on February 25-26, 2013 to Participation in the International Conference CCECP-2013, organized by Global Science & Technology Forum S'pore.

3.5.10 DISTINGUISHED VISITORS TO THE SCHOOL

Prof. G D Baruah , Retd. Prof, Dibrugarh University, Dibrugarh	UGC expert member attended advisory committee meeting of UGC SAP held on 02-11-2012
Prof. K. Sreenivas, Professor, Delhi University, Delhi	UGC expert member attended advisory committee meeting of UGC SAP held on 02-11-2012

3.5.11 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Dr Ram J. Choudhary Scientist from UGC-DAE CSR (Consortium for Scientific Research) delivered a lecture on the topic “Thin films of functional magnetic oxides (at Nano & Micro scale)”	20 th Feb. 2013
Shri S K Malhotra, DAE,Mumbai delivered a talk on Nuclear Power-The Need, The Perceptions and The Realities	16 th April 2012

3.5.12 MISCELLANEOUS

1. Dr. V. K. Rai was appointed as Editorial Board Member International Journal of Applied and Natural Sciences (IJANS); ISSN (Print): 2319-4014; ISSN (Online): 2319-4022.
2. Dr. V. K. Rai reviewed several articles for the refereed Journals viz. Spectrochimica Acta A, Journal of Pharmaceutical Biology, Bulletin of the Chemical Society of Ethiopia, Journal of Luminescence, Journal of Fluorescence, Journal of American Ceramic Society, Optics Express, Optica Applicata, Materials Chemistry & Physics, Luminescence.
3. Dr. Kaushal Kumar reviewed several articles for the refereed Journals viz. Optics Letters, AIP Advances, Materials Chemistry & Physics.

3.6 Department of Chemical Engineering

A four year B.Tech programme in Chemical Engineering was introduced during the academic year 2011-12, and 18 students were admitted. A course structure for B. Tech in Chemical Engineering was prepared and was approved by academic Council.

3.6.1 IMPORTANT NEW EQUIPMENT

Sl.No.	Name of Equipment	Purpose	Date of Purchase	Value (₹) Lakhs
1.	Rheocal Lab (Rotational Viscometer)	Rheological studies	13.08.12	7.14
2.	Zetasizer Nano S-90 (Malvern)	Nano particle size analyser	29.10.2012	12.50
3.	Du-Noy Tensiometer (Kruss GMBH DSA 15S)	Interfacial Tension & Contact angle of liquid	24.03.2013	8.50
4.	Varioo Micro Cube (Elementar, Elemental Analyser System GMBH Germany)	C,H,N,S,O and Cl analyses of liquid & solid	24.03.2013	33.50
5.	TOC Select (Elementar, Elemental Analyser System GMBH Germany)	Total carbon, IC, TOC of water, liquid and solid	24.03.2013	19.50
6.	Trace GC- 700, (Thermo Fisher)	Gas Chromatography of gaseous samples	24.03.2013	11.43
7.	CHEMCAD (Simulation Tool)	Simulation studies in various area of chemical Engg. (Fluid Mechanics, Reaction Kinetics, Process Design, Heat Transfer, Mass Transfer, Safety etc.)	24.03.2013	6.03

3.6.2 RESEARCH PUBLICATIONS

3.6.2.1 Papers presented/published in International journals Conferences

1. Samardeep Prasad, V K Saxena & Suresh Kumar Yatirajula, “ Rheological Behaviour of Coal Water Slurries” Paper accepted and presented in International conference on Advances in Chemical Engineering, organized by NIT Raipur.

TESTING SERVICES (LAB FACILITIES AVAILABLE IN THE DEPARTMENT)

Fluid Mechanics Lab:

Bernoulli's Theorem Apparatus, Flow measurement through Venturimeter, Orifice meter & Rotameter, Reynolds No. Test equipment, Centrifugal Pump Test Rig, Test rigs for reciprocating pumps,

Pressure Drop through Packed Bed, Losses due to friction in pipe

Mechanical Operation Lab

Jaw Crusher, Roll Crusher, Ball Mill (With Variable Speed), Vibrating Screen, Cyclone Separator, Plate & Frame Filter Press, Leaf Filter, Hard Groove Grindability Index Set Up

Heat Transfer Lab :

Lab scale Stefan Boltzmann apparatus, Lab scale Emissivity measurement apparatus, Heat transfer in forced convection, Heat transfer in natural convection, Unsteady state Heat transfer unit, Lab scale apparatus thermal conductivity of metal rod, Drop wise and film wise condensation apparatus, Thermal conductivity of liquid.

Refractive Index of liquid

Potentiometric titration for all chemical, food, pulp & paper, petrochemicals, pharmaceuticals industries.

3.7 Department of Computer Science & Engineering

The Department of Computer Science & Engineering was set up in the year 1997. The Department conducts academic programmes leading to the award of degrees in B.Tech. (Computer Science & Engineering), M.Tech. (Computer Application) and Ph.D. programmes.

3.7.1 INTRODUCTION OF NEW COURSES AND PROGRAMMES, IF ANY (GIVE COURSE OUTLINE)

The Dept. of CSE introduced a new 2-year PG course M. Tech (CSE) from 2012-13.

3.7.2 BRIEF LIST OF ON-GOING R&D PROJECTS (PROJECTS VALUE RS. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement	Date of Completion	Objective	Status	Findings
1.		3.	4.	5.	6.	7.	8.	9.
Information Security Education and Awareness (ISEA)	MIT, Govt. of India	Prof. G.P. Biswas	49.32 (L)	12.06.2006	31.03.2013 (Phase-II may start on 01.04.2013 (no letter yet received))	(1) Retrofitting of Information Security courses in B.Tech and M.Tech (CSE/EE/Electronics) (2) Conducting research works	Satisfac-tory	1) A number of B.Tech and M.Tech (CSE) projects are done, (2) Several research papers have been published
Designing Clustering Algorithms for Biological Data	CSIR, New Delhi	Prof. P. K. Jana	Rs. 7.28,120.00 (Total granted)	13.02. 2009	13.03.2013	To design clustering algorithms for biological data	To be ended on 31 March 2013	Development Clustering algorithms and their implementation
Design of Machine Learning Techniques for Specialized Biological Online Database-mining	CSIR, New Delhi	Dr. Haider Banka (PI) and Mr. A.C.S.Rao (Co-PI)	16.05 Lakh	1.04. 2012	31.03. 2015	Design algorithms for Bioinformatic problems	On going	some works partly completed
Design and Implementation of Group/Key Generation Protocols and Its Applications Secure Multicast	UGC	Dr. Sachin Tripathi	Rs. 10.74 Lakhs	01.08.12	01.07.15	To design some group key generation protocols and to propose some application of same.	On going	Survey has been done on group key generation protocols and some new protocols has been proposed

3.7.3 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS. 5,00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value (Rs)
Desktop Computer with Monitor (15 Nos.)	For the use of JRFs and B.Tech students in Lab.	04.10.2012	6,58,161.00
Desktop Computer with Monitor (15 Nos.)	For the use of Faculty and B.Tech & M.Tech students in Lab.	05.02.2013	5,11,006.07

3.7.4 RESEARCH PUBLICATIONS

3.7.4.1 Book Reviews/contribution of chapter in a book

1. Prof. P. K. Jana has reviewed the book: Object Oriented Programming with C++ authored by Balagurusamy, Tata McGraw-Hill, India.
2. Dr H. Banka has contributed a book chapter (Chapter 18, no. of pages 24) in "Biological Knowledge Discovery Handbook: Pre-processing, Mining, and Post Processing of Biological Data", Albert Y. Zomaya and Mourad Elloumi (Eds.), John Wiley & Sons, December, 2012.

3.7.4.2 Papers published in International journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Islam, S H. and Biswas, G.P.	2012	An Efficient and Probably Secure Digital signature Scheme based on Elliptic Curve Bilinear pairings	Theoretical and Applied Informatics	Vol. 24, No. 2	pp. 109-118
2.	Dasgupta, M. and Biswas, G.P.	2012	Design of Multi-Path Data Routing Algorithm based on Network Reliability	Computers and Electrical Engineering, Elsevier	Vol. 38, Issue 6	pp. 1433-1443
3.	Dasgupta, Mou and Biswas, G. P. and Bhar, Chandan	2013	Design of Network Topology based on Delay-Cost Sink Tree	International Journal of Communication Networks and Distributed Systems, Inderscience	Vol. 10, No. 2	pp. 146-162

4.	Islam, S H. and Biswas, G. P.	2013	Probably Secure Certificateless Strong Designated Verifier Signature Scheme based on Elliptic Curve Bilinear Pairings	Journal of King Saud Univ.Computer and Information Sciences (Elsevier)	Vol. 25	pp. 51-61
5.	Dasgupta, Mou and Biswas, G.P. and Bhar, Chandan	2013	Design of Network Topology based on Delay-Cost Sink Tree	International Journal of Communication Networks and Distributed Systems	Vol. 10, No. 2	pp. 146-162
6.	Islam, S. H. and Biswas, G. P.	2013	An Improved ID-Based Client Authentication with Key Agreement Scheme on ECC for Mobile Client-Server Environments	Theoretical and Applied Informatics	Vol. 24, No. 4	pp. 293-312
7.	Roy, Sangram and Biswas, G. P.	2013	Design of Mobile Public Key Infrastructure (M-PKI) using Elliptic Curve Cryptography	International Journal of Cryptography and Information Security	Vol. 3, No. 1	pp. 25-37
8.	Banerjee, Mahua and Kumar Chiranjeev	2013	Metaprogramming: An Art of Programming Programs using Software Product Lines	The International Journal of Enhanced Research in Management and Computer Applications (IJERMCA),	Vol. 2, Issue 3	pp. 1-8
9.	Nath, Prem and Kumar, Chiranjeev	2013	User's profile Replication Tree and on Demand Replica Update in Wireless Communication	International Journal of Computer Network and Information Security (IJCNIS)	Vol. 5, No. 3	pp. 63-71

10.	Ramesh, D., Kumar, C. and Kumar, V. V.,	2013	A Resilient Failure Evaluation and Patch-up (R-FEP) Algorithm for Distributed Database Processing Systems	International Journal of Computer Applications (IJCA)	Vol. 62, No. 9	pp. 20-25
11.	Banerjee, M., Kumar, C., and Roy, S. S.	2012	A New Dimension to Modular System Product Lines using Feature Oriented Programming	International Journal of Advances Computer Engineering and Architecture (IJACER)	Vol. 2, No. 2	pp. 185-193
12.	Nath, P. and Kumar. C.	2012	Dynamic Hierarchical Location Management Scheme Based on Huffman Tree Notion for IP Networks	International Journal of Indian School of Mines (JISM)	Vol. 1	pp. 15-29
13.	Singh, M. K., Kumar, C. and Bansal, S.	2012	AODV-MS: Adhoc On Demand Distance Vector Routing Protocol with Multipath and Selective Flooding	International Journal of Modern Engineering Research (IJMER)	Vol. 2, Issue 3	pp. 803-806
14.	Shukla, M. K. and Banka, H.	2012	A Study of Different Kinds of Degradation in Printed Bangla Script	International Journal of Advances Computer Engineering and Architecture	Vol. 2 Issue 4	pp. 143-151
15.	Rao, A. C. S., Somayajulu, D. V. L. N. and Banka, H.	2012	Modified CURE algorithm for finding optimal number of clusters	IRNET Transactions	Vol. 1	pp.1-6

16.	Rao, A. C. S., Somayajulu, D. V. L. N. and Banka, H.	2012	Modified Correlation and CURE for Micro Array data Analysis	Int. Journal of Advanced Computer Engineering & Architecture	Vol. 2 No. 2	pp. 129-141
17.	Sarkar, S, Banka, H.	2012	Rule Generation for Recruitment Decision Analysis-A Granular Approach	Advanced Materials Research	Vols. 403-408 (2012)	pp. 802-809
18.	Om, H. and Biswas, M.	2013	A Generalized Image Denoising Method Using Neighbouring Wavelet Coefficients	Signal Image and Video Processing (Springer)	Vol. 7, Issue 2	DOI 10.1007/s11760-013-0434-5.
19.	Biswas, M. and Om, H.	2013	An Image Denoising Threshold Estimation Method	Advances in Computer Science and its Applications (ACSA) ISSN 2166-2924	Vol. 1, No. 1	pp. 377-381
20.	Om, H. and Gupta, A. K.	2013	Design of Host based Intrusion Detection System using Fuzzy Inference Rule	International Journal of Computer Applications	Vol. 64(9)	pp. 39-46
21.	Om, H. and Biswas, M.	2012	A Hybrid Image Denoising Method	International Journal of Computer Applications	Vol. 58(3)	pp.21-26
22.	Om, H. and Hazra, T.	2012	Statistical Techniques in Anomaly Intrusion Detection System	International Journal of Advances in Engineering & Technology	Vol.5, Issue 1	pp. 387-398
23.	Sharma, N. and Om, H.		Usage of Data Mining Techniques for Early Detection and Prevention of Oral Cancer: Literature Review	International Journal of Advanced Computing	Vol.34, Issue 10	pp. 301-309,
24.	Om, H. and Hazra, T.	2012	Design of Anomaly Detection System for Outlier Detection in Hardware Profile Using PCA	International Journal of Computer Science and Engineering	Vol. 4, Issue 9	pp. 1623-1632

25.	Om, H. and Hazra, T.	2012	Framework for Early Detection and Prevention of Oral Cancer using Data Mining	International Journal of Advances in Engineering & Technology	Vol. 4, Issue 2	pp. 302-310
26.	Om, H. and Biswas, M.	2012	A New Denoising Scheme Using Soft- Thresholding	Journal of Signal and Information Processing, USA	Vol. 3 No. 3	pp. 360-363
27.	Sarkar, A. and Tripathi, S.	2012	Removal of certificates from SET protocol using certificate less public key cryptography	International Journal of Network Security & Its Applications	Vol.4 , No.6	pp. 157-172
28.	Pamula, R., Deka, J. K. and Nandi, S.	2013	Centriod Based Cluster Pruning Outlier Detection Method	Special Issue ICRAET in International Journal of Systems, Algorithms & Applications	3	-----
29.	Ranjan, R., and Pal, A. K.	2012	Logistic Map Based Encryption Algorithm for Image Encryption	International Journal of Information Technology & Systems	Vol. 1; No. 2	pp. 162-165
30.	Ramesh, D., Saritha, R. and Kumar, V. V. and Kumar, V. V.	2013	An Integration Approach for Heterogeneous Distributed Database Transaction Protocols	International Journal of Computer Science and Informatics (IJCSI)	Vol. 2, Issue.4	pp. 12-17

3.7.4.3 Papers published in National journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Om, H. and Reddy, M. R.,	2012	RSA based Remote Password Authentication Using Smart Card	Journal of Discrete Mathematical Sciences & Cryptography	Vol. 15 (2&3)	pp. 105-111

3.7.4.4 Papers Published/Presented in International Seminars/Conferences

1. Ray, S. and Biswas, G. P., 2012. "Establishment of ECC-based Initial Secrecy Usable for IKE Implementation", Proceedings of the World Congress on Engineering-12 (WCE 2012), Vol 1, pp. 530-535, 4-6th July, London, U.K., 2012.
2. Islam, S H. and Biswas, G.P., 2012. "Certificateless Strong Designated Verifier Mutlisignature Scheme using Bilinear Pairing", International Conference on Advances in Computing, Communications and Informatics, pp. 540-546, 2012.
3. Ray, S. and Biswas, G. P., 2012. "Design of RSA-CA based E-Health System for Supporting HIPPA Privacy-Security Regulations", 2nd International Conference on Communication, Computing and Security, NIT Rourkela, Procedia Technology 6, Elsevier, pp. 954-961 (doi:10.1016/j.protcy.2012.10.116, 2012.
4. Ray, S. and Biswas, G. P., 2012. " An ECC based Public Key Infrastructure usable for Mobile Applications", 2nd International Conference on Computational Science, Engineering and Information Technology (CCSEIT-2012), ACM Digital Library, pp. 562-568, doi: 10.1145/2393216.2393310, Coimbatore, Oct. 26-28, 2012.
5. Gupta, S K., Kuila, P. and Jana, P. K. 2013. 'GAR: An Energy Efficient GA-based Routing for Wireless Sensor Networks', LNCS (Springer) 7753, pp.267-277.
6. Reddy, D. and Jana, P. K. 2013 'Minimum Spanning tree based clustering using partitional approach', Advances in Intelligent Systems and Computing (Springer, AISC), Vol. 199, pp. 237-244.
7. Kuila, P. and Jana, P. K. 2012. 'An Energy Balanced Distributed Clustering and Routing Algorithm for Wireless Sensor Networks' PDGC 2012, Shimla, IEEE Xplore.

8. Kuila, P. and Jana, P. K. 2012. 'Energy efficient load balanced clustering algorithm for Wireless Sensor Networks', *Procedia Technology (Elsevier)*, Vol. 6, pp. 771-777.
9. Reddy, D. and Jana, P. K. 2012. 'A prototype based modified DBSCAN for gene clustering', *Procedia Technology (Elsevier)*, vol. 6, pp. 485-492.
10. Reddy, D. and Jana, P. K. 2012. 'A novel clustering algorithm using Voronoi diagram', *IEEE Explore, ICDIM-2012*, pp. 35-40.
11. Reddy, D., Machavarapu, S. and Jana, P. K. 2012. 'An improved MST-based clustering for Biological Data', *IEEE Explore, ICDSE-2012*, pp. 42-47.
12. Sharma, D. K., Kumar, C. and Mandal, S., 2013. "An Efficient Cluster based Routing Protocol for MANET," Published in the Proceedings of the 3rd IEEE International Advance Computing Conference (IACC-2013), held at AKG Engineering College, Ghaziabad, India on 22 - 23 February 2013, pp. 224-229.
13. Sharma, D. K., Kumar, N. and Kumar, C., 2012. "ERP: An Energy-Efficient Reactive Routing Protocol for Mobile Ad-hoc Networks," Published in the proceedings of International Conference on recent Trends in Engineering & Technology (ICRTET-2012) held at New Delhi, India, 23 December 2012, pp. 13-17.
14. Nath, P. and Kumar, C., 2012. "User Movement-Based Hierarchical Mobility Management Scheme (UM-HMIP) for IP Networks," Published in the Proceedings of the 3rd IEEE International Conference on Computer & Communications Technology (ICCCT 2012) held at MNNIT, Allahabad, India on 23-25 November 2012, pp. 210-215.
15. Ramesh, D., Kumar C. and B. Ramji, 2012. "Design of a Transaction Recovery Instance based on Bi-directional Ring Algorithm for Crashed Coordinator in Distributed Database Systems," Published in the Proceedings of 2nd IEEE World congress on Information and communication Technology (WICT 2012) held at IIIT, Kerala, India, 1-2 November 2012, pp. 721-726.
16. Ramesh, D. , Kumar C., 2012. "An Optimal Novel Byzantine Agreement Protocol (ONBAP) for Heterogeneous Distributed Database Processing Systems," Published in the Proceedings of the 2nd International Conference on Communication, Computing & Security (ICCCS-2012) held at NIT, Rourkela on 6-8 October 2012, pp. 57-66.

17. Nath, P. and Kumar, C., 2012. "Adaptive Hierarchical Mobility Management Scheme (A-HMIP) for IP Networks," Published in the Proceedings of the 12th International Symposium on Communications and Information Technologies (ISCIT-2012) held at Surfers Paradise, Gold Coast, Australia on 2-5 October 2012, pp. 331-336.
18. Kumar, C., Kumar, G. and Rani, P., 2012. "Efficient-Dynamic Source Routing (E-DSR)," Published in the Proceedings of the 12th International Symposium on Communications and Information Technologies (ISCIT-2012) held at Surfers Paradise, Gold Coast, Australia on 2-5 October 2012, pp. 319-324.
19. Nath, P. and Kumar, C.,. Yadav, R. K and Pandey, A., 2012. "Replication Strategy using Huffman Tree like Structure," Published in the Proceedings of the International Conference on Advances in Electronics, Electrical & Computer Science Engineering (EEC-2012) held at Dehradun on July 07-09, 2012, pp. 392-396.
20. Rao, A. C. S., Somayajulu, D. V. L. N., Banka, H. and Roy, S., 2012. "Feature Binding Technique for Integration of Biological Databases with Optimized Search and Retrieve", 2nd international conference ICCCS2012, Procedia Technology Vol. 6, Pp 622-629 2012.
21. Rao, A. C. S., Somayajulu, D. V. L. N. and Banka, H., and Chaturvedi, R., 2012. "Outlier Detection in Microarray Data Using Hybrid Evolutionary Algorithm", 2nd international conference ICCCS2012, Vol. 6 Pp 291-298, 2012.
22. Rao, A. C. S., Avinash, A., Somayajulu, D. V. L. N. and Banka, H., 2012. A New Parallel Searching Model for Integration of Biological Databases", 6th International Conference on Advanced Computing and Communication Technologies (ICACCT-2012). Vol 1.137-141, November, 2012.
23. Banka, H. and Dara, S. 2012. "Feature Selection and Classification for Gene Expression Data using Evolutionary Computation", 23rd International IEEE Workshop on Database & Expert Systems Applications, Vol-1, 185-189, September 2-5, 2012.
24. Om, H. and Biswas, M., 2013. "An Enhanced Image Denoising Scheme," 2nd International Conference on Innovative Developments in ICT- Today & Tomorrow, DAV College, Amritsar (Punjab), March 2-3, 2013 (awarded Best paper).

25. Biswas, M. and Om, H, 2012. "A New Soft-Thresholding Image Denoising Method," 2nd International Conference on Communication, Computing & Security (ICCCS-2012) (Elsevier), Oct. 06-08, 2012, NIT Rourkela Procedia Technology, Volume 6, pp.10-15.
26. Biswas, M. and Om, H, 2012. "Selective Parameters based Image Denoising Method," 1st International Symposium on Intelligent Informatics (Springer), Chennai (Madras) India, Aug. 4-5, pp. 325-332.
27. Kisan, S. and Tripathi, S., 2012. " Removal of Digital Envelopes in SET Protocol using Diffie Hellmann Key Exchange Algorithm" Proceedings of the World Congress on Engineering 2012, Vol I, WCE 2012, July 4-6, 2012 London U.K..
28. Ghorai, T. and Tripathi, S. 2012. "Ternary Tree Based Group Key Generation using Elliptic Curve Diffie-Hellmann" Proceedings of International Conference on Recent Trends in Communication Engineering and Network Technologies CENT 2012, Dec 03-04, 2012, Chennai, India.
29. Yadav, A., Yadav, R. and Pal, S. 2012. "ISM FIRE-2012 Adhoc Retrieval Task and Morpheme Extraction Task", FIRE-2012 Workshop Pre-Proceedings, Kolkata, 2012.
30. Bandyopadhyay, A., Pal, S. Mitra, M., Majumder, P., Ghosh, K., 2012. "Passage Retrieval for Tweet Contextualization at INEX 2012", CLEF (Online Working Notes/Labs/ Workshop), Rome, Italy.
31. Tarachand, A., Kumar, V., Raj, A., Kumar, A. and Jana, P. K., 2012. "An energy efficient load balancing algorithm for cluster-based wireless sensor networks", IEEE INDICON, pp.1250-1254.
32. Mukherjee, S. and Pal, A. K., 2012. "A DCT-SVD based Robust Watermarking Scheme for Grayscale Image", International Conference on Advances in Computing, Communications and Informatics (ICACCI-2012), Chennai, India, pages 573-578, August 3-5, 2012. (Published by ACM Digital Library, Indexed by DBLP)
33. Agrawal. R. and Pal, A. K., 2013. "A Scheme for Secret Image Communication using Image Steganography and DCT", International Conference on Computation and Communication Advancement -2013, Kalyani, West Bengal, India, pages 88-91, January 11-12, 2013. (Published by McGraw-Hill Publication)

34. Ramesh, D., Jain, A. K., and Kumar, C., 2012. "Implementation of Atomicity and Snapshot Isolation for Multi Row Transactions on Column oriented Distributed Databases using RDBMS," published in the Proceedings of IEEE Int. Conference on Communications, Devices and Intelligent Systems (CODIS 2012), held at Jadavpur University, Kolkata, India, Dec. 28-29, ISBN 978-1-4673-4698-6, 2012 IEEE, pp 306-309. (Available on IEEE Explore).
35. Ramesh, D. and Kumar, C., 2012. "An algorithmic model scenario for fragment allocation to handle transaction conflicts in Heterogeneous distributed databases," Published in International Journal of Computer Applications (IJCA) Special Issue on International Conference on Computing, Communication and Sensor Networks (CCSN 2012), held at PIET, Rourkela - India, November 22-23, 2012, ISSN (0975-8887) CCSN2012 Number 4, pp.34-39.
36. Ramesh, D. and Kumar, C., 2012. "An incremental protocol approach for secure collaboration between Byzantine processes in Heterogeneous distributed processing systems," Published in the Proceedings of 3rd World conference on Information Technology (WCIT 2012.), held at University of Barcelona, Barcelona, Spain, November 14-16.
37. Ramesh, D. and Kumar, C., and Ramji, B., 2012. "Design of a transaction recovery instance based on Bi-directional ring algorithm for crashed coordinator in distributed database systems," Published in the proceedings of IEEE 2nd World congress on Information and communication Technology (WICT 2012.), held at IIIT, Kerala, India, October 30-31, November 1-2, 2012, ISBN 978-1-4673-4804-1, 2012 IEEE, pp 721-726. (Available on IEEE Explore).
38. Ramesh, D. and Kumar, C., 2012. "An Optimal novel Byzantine protocol for Heterogeneous distributed database processing systems," Published in the Proceedings of 2nd International conference on Communication, Computing & Security (ICCCS 2012.), held at NIT Rourkela, India, October 6- 8, 2012, Elsevier Procedia Technology, Volume 6, PP. 57 -66. (Available on Elsevier Science Direct)
39. Pamula, R.; Deka, J.K.; Nandi, S., 2013. "Centriod Based Cluster Pruning Outlier Detection Method" 2nd International Conference on Recent Advances in Engineering and Technology (ICRAET-2013), February 2013.
40. Pamula, R.; Deka, J.K.; Nandi, S., 2012. "Pruning based method for outlier detection," Emerging Applications of Information Technology (EAIT), 2012 Third Int. Conference on, vol., no., pp.210,213, Nov. 30-Dec. 1, 2012.

3.7.4.5 Papers Published/Presented in National Seminars/Conferences

1. Biswas, M. and Om, H., 2013. "An Adaptive Wavelet Thresholding Image Denoising Method," National Conference on Communications, IIT Delhi, Feb. 2013; DOI:10.1109/NCC.2013.6488014.
2. Maheshkar, V., Agarwal, S., Srivastava, V. K., and Maheshkar, S., 2012. "Face Recognition using Geometric Measurements, Directional Edges and Directional Multiresolution Information", Procedia Technology, Volume 6, 2012, Pages 939-946, ISSN 2212-0173, 10.1016/j.protcy.2012.10.114.

3.7.5 MAJOR ACADEMIC CONTRIBUTIONS

Dr. Sukomal Pal received JASIST Best Paper Award 2011 from American Society for Information Science & Technology on Oct 30, 2012.

3.7.6 SYMPOSIA, WORKSHOP, CONFERENCE ORGANIZED BY THE DEPT/CENTRE

Title	Date
1. Short term Certificate course on Information and Network Security: Goals, Attacks and Defenses" (5-day course) Course Coordinator: Prof. G. P. Biswas Course Co-coordinator: Dr. Hari Om.	22-26 Aug. 2012, and 18-22 Sept. 2012.
2. Short term Certificate course on Advanced Algorithms and their Applications (4-day course) Course Coordinator: Prof. P. K. Jana Course Co-coordinator: Mr. A. Tarachand	2-5 April, 2012
3. Short term Certificate course on Skill Development on Linux Environment (7-day evening course) Course Coordinator: Dr. Susanta Mukhopadhyay Course Co-coordinator: Dr. Sukomal Pal	30 July, 2012 05 August, 2012
4. Short term Certificate course on Skill Development on Linux Environment (7-day evening course) Course Coordinator : Dr. Susanta Mukhopadhyay Course Co-coordinator: Dr. Sukomal Pal	18 March 25 March, 2013
5. Online workshop conducted by IITB on PHP & MySQL (Organizer at ISM: Mr. Rajendra Pamula)	3 Mar, 2013 and 18 Mar, 2013

3.7.7 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Name of	Conference/seminar name	Date of participation	Place
Prof. P. K. Jana	Intl. Conference ICDIM 2012	21-24 August, 2012	Uni. of Macau, Macau, China.
Dr. Chiranjeev Kumar	IEEE International Symposium on Communication & Information Technology (ISCIT-2012)	02-05 October 2012	Gold Coast, Australia
Dr. Haider Banka	DEXA 2012	2-5 September, 2012	Vienna, Austria
Dr. Hari Om	National Conference on Communications	Feb. 15-17, 2013	IIT Delhi
Dr. Sachin	World Congress on Engineering 2012,	4-6 July 2012	London
Dr. Tripathi	International Conference on Recent Trends in Communication Engineering and Network Technologies CENT 2012	3-4 December	Chennai
Dr. Sukomal Pal	4 th international workshop of FIRE 2012	17-19 Dec, 2012	Kolkata, India
Dr. Sukomal Pal	4 th international workshop of FIRE 2012	17-19 Dec, 2012	Kolkata, India
Mr. A.Tarachand	IEEE INDICON 2012	7-9 December, 2012	Cochin, Kerala
Mr. A. C. S. Rao	International Workshop on Data Analytics & Applications, 2013 (IWDA'A'13)	26 Feb 1 March 2013	Goa, India.
Dr. Arup Kumar Pal	International Conference on Advances in Computing, Communications and Informatics (ICACCI-2012)	August 3-5, 2012	Chennai, India
Mr. Dharavath Ramesh	CODIS-2012	December 28-29, 2012	Jadavpur University Kolkata
	CCSN 2012	November 22-23, 2012	PIET, Rourkela
	WCIT-2012	November 14-16, 2012	Barcelona, Spain
	WICT-2012	Oct 30 Nov 02, 2012	IIITK, Kerala
	ICCCS-2012	October 6-8, 2012	NIT, Rourkela
Mrs. Sushila Maheshkar	2nd Int. Conference on Communication, Computing & Security [ICCCS-2012]	6-8 October 2012	NIT ROURKELA

3.7.8 VISITS OF FACULTY MEMBERS ABROAD

1. Prof. P. K. Jana visited University of Macau, Macau, Macau during 21-24 August, 2012.
2. Dr. Chiranjeev Kumar, Associate Professor, visited Gold Coast, Australia to present his research work at ISCIT-2012 during 02-05 October 2012.
3. Dr. Haider Banka visited Vienna, Austria during 2-5 September, 2012.
4. Dr. Sachin Tripathi Visited Imperial College London, U.K. to attend and present a paper in International Conference World Congress on Engineering, July 2012.
5. Mr. Dharavath Ramesh visited University of Barcelona, Barcelona, Spain and presented a paper on November 22-23, 2012

3.7.9 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Mr. Abhijit Banerjee Senior Consultant, TCS Kolkata	Guest Lecture (on 01 December 2012 under TEQIP-II) on "Introduction to ERP Oracle Applications"
Mr. Siddharth Srivastava Principal Member Technical Staff Oracle India Pvt. Ltd., Bangalore	Guest Lecture (on 22 March 2013 under TEQIP-II) on "Building Enterprise Applications with .NET and Oracle Database"
2.3 Ms. Anshu Malika Singh 2.4 Senior Member Technical Staff Oracle India Pvt. Ltd., Bangalore	Guest Lecture (on 22 March 2013 under TEQIP-II) on "Oracle Database on Windows"

3.7.10 MISCELLANEOUS: ANY OTHER RELEVANT INFORMATION

1. Prof. G. P. Biswas:

- acted as reviewer of some International Journals
- guided and awarded PhD to one student
- attended a meeting organized by Govt. of Jharkhand
- attended DRDO recruitment meeting at IIT Kharagpur
- evaluated one PhD thesis

- conducted viva-voce examination at BIT, Sindri
 - gave an invited talk at NIT, Patna
 - Conducted a short-term certificate course as course coordinator
2. Prof. P. K. Jana: acted as External Member of Board of Faculty Selection at Central University of Jharkhand, 14 July, 2012
- acted as Member of Board of Studies for Master of Engineering in Computer Sc. & Engg., University Institute of Technology, Burdwan University, West Bengal.
 - chaired a technical session in the Intl. Conference ICDIM 2012, University of Macau, Macau, 21-24 August, 2012.
 - delivered a guest lecture for Refresher Course at UGC Staff College at Burdwan University
 - acted as a Programme Committee Member of Intl. Conference on Intelligent Infrastructure: 47th Annual Convocation of CSI, Organized by CSI chapter, Kolkata, during 1-2 December, 2012.
 - acted as a Programme Committee Member of Third International Conference on Emerging Applications of Information Technology (EAIT 2012), Organized by CSI, Kolkata Chapter, during Nov 30 Dec. 01, 2012.
 - attended TCS Annual meet 2012 during 12-13 December, 2012 at Taj Mahal Palace Hotel, Mumbai.
3. **Dr. Chiranjeev Kumar:** became a Member of Selection Committee for engagement of Project Assistant Level II at CIMFR, Dhanbad, 18th March 2013.
- received a Certificate of Appreciation for “Design & Development of Student Feedback System for ISM Dhanbad,” December 2012.
 - became an External Examiner at Allahabad University, Allahabad Viva-Voce Examination of D. Phil Degree Candidate, 11 August 2012.
 - was an External Examiner at St Xavier's College, Ranchi, II Semester MCA “Programming using C++” practical, 20 June 2012.

- became a Member of Project Review and Supervisory Group of the project at IIT(BHU), Varanasi on “E-Content for Digital Image Processing” sanctioned under NMEICT, May 2012.
4. **Dr Hari Om:** became Editorial Board member of the following journal 1) International Journal of Engineering and Applied Sciences (EAAS), 2) International Journal of Scientific Knowledge (IJSK), 3) International Journal of Computer Science and Engineering (IJCSE), 4) Journal of Computer Science and Engineering (JCSE), International Journal of Computer Networking, 5) Wireless and Mobile Communications (IJCNWMC).
- served 'Advisory Board Member' for the journal: 'World Research Journal of Computation Theory'.
 - served as Course Co-coordinator of the short-term Course on “Information and Network Security: Goals, Attacks and Defenses” during 22-26/08/2012, and 18-22/09/2012.
 - served Technical Program Committee of 1) International Conference on Control Engineering and Information Technology (ICCEIT), August 9-11, 2013 in Nanning, China, 2) World Conference on Information Systems and Technologies (WorldCIST'13), March 27-30, 2013 Algarve, Portugal, 3) 7th FTRA International Conference on Multimedia and Ubiquitous Engineering (MUE 2013), May 9-11, 2013, Seoul, Korea.
 - became member of Professional Bodies: IEEE, ACM, ISTE, IETE, CRSI, IMS, ISMAMS
5. **Dr. Sachin Tripathi:** became Advisory Board Member of 3rd IEEE International Advance Computing Conference (IACC-2013) February 22-23, 2013
- became Program Committee member of NCCCS 2012
 - became Reviewer of Information Security Journal: A Global Perspective.
 - became Editorial Board member of International Journal of Advanced Computer Engineering and Architecture (IJACEA).

6. Dr. Sukomal Pal: served as a Coordinator of poster session at 4th international workshop of FIRE-2012, Kolkata.
 - served as a Course Co-Coordinator, Skill Development in Linux Environment, 2012-13.
 - served as Faculty-in-Charge, Training & Placement (CSE), 2012
 - served as Faculty Advisor, B. Tech (CSE) 3rd year, 2012-13
 - served as Treasurer, CSES, ISM, 2011-till date.
7. Mr Amgoth Tarachand: served as CO-PI for short term course on “Advanced Igorithms and their application” held during 2-5 April, 2012.
8. Mr. A C S RAO: became a Member of Organizing Program Committee second Intl. Conference on Recent Advances in Information Technology RAIT 2014.
 - acted as Publication Co-Chair for second International Conference on Recent Advances in Information Technology RAIT 2014.

3.8 Department of Electrical Engineering

The Department of Electrical Engineering was established in 2005, the B. Tech. programme in Electrical Engineering started in the academic session 2006-07, and the first batch graduated in 2011-12.

3.8.1 FIELD VISITS / EXCURSIONS / TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Sl. No.	Particulars	Batch of students	Place of visit	Period of visit
1.	Educational Excursions for B. Tech (EE) 6 th Sem Students	36 Students 3 rd Year B.Tech. (VI Semester), Department of Electrical Engineering	DVC Mejia Thermal Power Station	22.03.2013
2.	Educational Excursions for B. Tech (EE) 6 th Sem Students	37 Students 3 rd Year B.Tech. (VI Semester), Department of Electrical Engineering	DVC Mejia Thermal Power Station	23.03.2013
3.	Educational Excursions for B. Tech (EE) 6 th Sem Students	32 Students 3 rd Year B.Tech. (VI Semester), Department of Electrical Engineering	DVC Mejia Thermal Power Station	25.03.2013
4.	Industrial Visit at Maithon Power Limited (TATA), Maithon	2 nd Semester Students of M-Tech (Power System Engg)	Maithon Power Limited (TATA)	One day on 13.01.2013
5.	11 kV Substation Visit	3 rd Year B.Tech. (VI Semester), Department of Electrical Engineering	ISM, 11 kV Substation I	9 th 10 th March, 2013

3.8.2 INTRODUCTION OF NEW COURSE AND PROGRAMME, IF ANY (GIVE COURSE OUTLINE)

Department of Electrical Engineering has started two year M-Tech Degree programme in Power System Engineering from July 2012.

3.8.3 BRIEF LIST OF ON-GOING R & D PROJECTS:

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement / Date of Completion	Objective	Status	Findings
On Line Condition Monitoring of Mine winder Motor	U.G.C	Prof. T. K. Chatterjee	9.5 lakhs	02/08/2012 to 01/08/2015	Novel micro-computer based noninvasive on line condition monitoring and fault diagnosis of Mine winder motor using axial leakage flux and current monitoring	Procurement of equipment is under progress	Nil
Optimal Allocation of FACTS devices for the Increased Load ability of power system in Deregulated Electricity Market	U.G.C	PI: Biplab Bhattacharyya Co PI: Sanjoy Mandal	3.71 Lakhs	01.02.11 To 31.01.14	To obtain an effective tool for the placement of multi-type FACTS devices in an interconnected Power system	70% completed	Satisfactory

3.8.4 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS. 50, 0000/-)

Sl.No.	Name of Equipment	Purpose	Date of Purchase	Value (₹) Lakhs
1.	MCK 28335 Kit C Pro-S (IM) port# 24 Tk 83315	E. Tech Lab	01/01/2013	5,90,000/-
2.	Mixed Signal Oscilloscope Bandwidth: 500 MHz, No of channel: 4;	E.Tech Lab	24/8/12	8,10,600/-

3.8.5 RESEARCH PUBLICATIONS

3.8.5.1 Book Published

- Pradip Kumar Sadhu, Nitai Pal and Ananya Bhattacharya, "Design of Working Coil Using Litz Wire for Industrial Induction Heater" Lap Lambert Academic Publishing, ISBN : 978-3-659-35853-1, March 2013, pp. 1-65.

3.8.5.2 Book Reviews/contribution of chapter in a book

- Dola Sinha, Pradip Kumar Sadhu and Nitai Pal, "Design of an Induction Heating Unit Used in Hyperthermia Treatment" Advances in Therapeutic Engineering, CRC Press, Taylor & Francis Group, ISBN : 978-1-4398-7173-7, October 2012, Chapter 11, pp. 215-266.

3.8.5.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Bhagirath Ahirwal & T. K. Chatterjee	2012	Effect of starting torque on the temperature rise and time t_r of Increased Safety HT Induction Motor for Explosive Atmospheres ¹	International Journal of Electrical Engineering & Technology	Vol.3, Issue 2	pp. 223-235
2.	Ananda Shankar Hati, T. K. Chatterjee	2012	Some studies on condition monitoring techniques for on line condition monitoring and fault diagnosis of mine winder motor	International Journal of Engineering Science and Technology (IJEST) ISSN : 0975-5462	Vol. 4 No. 08	pp. 3785-3793

3.	Ravi Shankar, Kalyan Chatterjee & T.K. Chattrejee	2012	A Control Strategy for Load Frequency Control Coordinating Economic Load Dispatch & Load Forecasting Via Kalman Filter	International Journal on Electrical Engineering and Informatics	Vol. 4	--
4.	Ravi Shankar, Kalyan Chatterjee & T.K. Chattrejee	2012	Optimal Controller Design for Thermal Power System with Feedback Linearization	International Journal of Electrical and Computer Engineering (IJECE)	Vol.2, No.5	--
5.	Jay Singh, Kalyan Chattterjee, and C.B. Vishwakarma	2012	MOR Development and Application	International Journal of Advanced Research in Electrical , Electronics and Instrumentation Engineering	Vol.1, No.5	--
6.	Dr. Ananya Chakraborty, Dr. S. P. Tiwari, Prof. Amares Chattopadhyay, Dr. K. Chatterjee	2012	Multi Objective Linear Programming Problem with interval coefficients based on the preference relations	International Journal of Advanced Research in Applied Mathematics	Vol.4, Issue 4	pp.1 11
7.	Ravi Shankar, Kalyan Chatterjee & T.K. Chatterjee	2012	A Very Short-Term Load Forecasting using Kalman Filter for Load Frequency Control with Economic Load Dispatch	Journal of Engineering Science & Technology Review (JESTR)	Vol. 5 (1)	pp.97-103
8.	Ravi Shankar, Kalyan Chatterjee & T.K. Chatterjee	2012	Facts Based Controller for Interconnected Hydrothermal Power System	International Journal Engineering Science & Technology	Vol.4, Issue 4	pp. 1776-1786
9.	Kalyan Chatterjee, T. Ghose	2012	Design of Integral Controller for Automatic Generation Control In Deregulated Environment	International Journal of Electronic and Electrical Engineering	Vol. 5: No:2	pp. 143-155

10.	Dr. N. Pal, S. Vamsi Krishna and Prof. P. K. Sadhu	2013	A Review on Illuminance Measuring Technique for Hassles Free Operation in Underground Mines	International Journal of Engineering Sciences & Research Technology (IJESRT),	ISSN: 2277- 9655, 2 (2)	pp. 872-879
11.	Dr. N. Pal, Nibedita Das and Prof. P. K. Sadhu	2013	Studies on Low Cost LED Based Solar Cell for Emergency Lighting	International Journal of Engineering Sciences & Research Technology (IJESRT),	ISSN: 2277- 9655, 2 (2)	pp. 858-865
12.	Pradip Kumar Sadhu, Nitai Pal, Ananyo Bhattacharya and Atanu Bandyopadhyay	2012	Design of Helical Shaped Heating Coil and Load Circuit for H.F. Mirror Inverter based Induction Heater	International Journal of Engineering Science and Technology (IJEST)	ISSN: 0975- 5462, Vol.4, No. 11	pp. 4516-4531
13.	S. Vamsi Krishna, Nitai Pal and Pradip Kumar Sadhu		Evolution of Efficient Lighting System in Underground Mines	International Journal of Indian School of Mines (JISM),	ISSN: 0973- 4295, Vol. 1	pp. 07-14
14.	Banerjee, Abhik, Mukherjee, V., and Ghoshal, S. P.	2012	Seeker optimization algorithm for load-tracking performance of an autonomous hybrid power system	Int. J. Elect. Power and Energy Syst.	Vol.43, No. 1	pp. 1162-1170
15.	Chatterjee, A., Ghoshal, S. P. and Mukherjee, V.		Transient performance improvement of grid connected hydro system using distributed generation and capacitive energy storage unit	Int. J. Elect. Power and Energy Syst.,	Vol. 43, No. 1	pp. 210-221
16.	Chatterjee, A., Ghoshal, S. P. and Mukherjee, V.	2012	Solution of combined economic and emission dispatch problems of power systems by an opposition-based harmony search algorithm	Int. J. Elect. Power and Energy Syst.,	Vol. 39, No. 1	pp. 9-20

17.	Shaw, Binod, Ghoshal, S. P., and Mukherjee, V.	2012	Solution of economic dispatch problems by seeker optimization algorithm	Expert Syst. with Applications	Vol. 39, No. 1	pp. 508-519
18.	B. Bhattacharya, Vikash kumar Gupta, S.K.Goswami	2012	Application of DE & PSO algorithm for the placement of FACTS devices for Economic Operation of a power system	WSEAS Transaction on Power System	Vol.7, issue.4 Print. ISSN: 1790- 5060; E-ISSN 2224- 350X	pp. 209-216
19.	Sonar S., Maity, T	2012	A Single Phase to Three Phase Buck-Boost Converter cum Voltage Regulator suitable for Wind Power	International Journal Energy and Power	Vol.2, No.3	pp. 33-38
20.	Maity, T., Das. P.S., Mukherjee, M.,	2012	Rescue and protection system for underground mine workers based on Zigbee	Int. Jr. of Advanced Computer Engineering & Architecture	Vol. 2 No. 2	pp.101-06
21.	Sonar S., Maity, T	2012	A new low cost single phase ac-ac power line conditioner	International Journal of Advanced Computer Research	Vol. 2, No. 4 Issue 6	pp.284-289
22.	Sonar S., Maity, T	2012	Z-Source Converter for PMSM Based Grid Connected Wind Power Conversion	International Journal of Advanced Renewable Energy Research	Vol.1 No.9	pp.532-536
23.	Sonar S., Maity, T	2013	Single phase transformerless wide range ac boost voltage regulator based on z-source network	International Journal of Advanced Renewable Energy Research	Vol.1 No.9	pp.532-536

24.	Maity T., Sonar. S.	2012	A new single phase to three phase buck-boost Converter cum Voltage Regulator suitable for Wind Power	Academic Journal of Science,	Vol. 1, No. 3	pp.533-541
25.	Maity T., Sonar. S., March	2013	Selection of suitable Topology and Switching Technique of ZSI for wind power application	International Journal of Advanced Computer Research	Vol.3, No. 1, Issue 8	pp.159-64
26.	Das, S., Syam, P., Bandopadhyay, G., and Chattopadhyay, A. K.	2012	Application of wavelet transform in denoising synchronizing signal in line synchronised power electronics converters	IET Power Electron	Vol.5, issue 3	pp. 281-292
27.	Mandal S, Dey S B	2012	Enhancement of Free Spectral Range Using Pentuple Microresonator	Applied Optics, Optical Society of America (OSA), USA	Vol.51, Issue 29	pp.6901-6912
28.	Mandal S, Dey S B	2012	Modeling and analysis of quadruple optical ring resonator performance as optical filter using Vernier principle	Optics Communications, Elsevier	285	pp. 439-446
29.	Mandal S, Dey S B	2012	Design & Analysis of Integrated Optic Filter : A Digital Signal Processing Approach	Int. Jr. of Advanced Computer Engineering & Architecture	Vol 2, No. 2	pp. 313-319

3.8.5.4 Papers published in National Journals :

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Vikash kumar Gupta, B.Bhattacharya and S.K.Goswami	2013	Swarm Intelligence based approach for the loss minimum & cost minimum configuration of an interconnected Power System	Journal of CPRI	Vol. 9, Issue 1	---

3.8.5.5 Papers Published/Presented in International Seminars/Conferences

1. Nitai Pal, Rabindra Nath Raul, S. Vamsi Krishna and Pradip Kumar Sadhu, "Modulation Techniques for Power Line Communications" published in the proceeding of "The 2nd International Conference on Engineering & Applied Science" (ICEAS 2013), at Tokyo, Japan, during 15-17 March, 2013, pp 1331-1337.
2. Nitai Pal, Pradip Kumar Sadhu and S. Vamsi Krishna, "A Constant Brightness LED Based Cap Lamps for Underground Coalmines using Buck Regulator" published in the proceeding of "World Congress of Engineering 2012" (WCE 2012), at the Imperial College, London, U.K., during 4th to 6th July, 2012, ISBN : 978-988-19252-1-3, ISSN : 2078-0958, Volume II, pp 986-990.
3. Pradip Kumar Sadhu, Nitai Pal and Atanu Bandyopadhyay, "A new generation IGBT based High Frequency Mirror Inverter for Induction Heating" published in the proceeding of "World Congress of Engineering 2012" (WCE 2012), at the Imperial College, London, U.K., during 4th to 6th July, 2012, ISBN : 978-988-19252-1-3, ISSN : 2078-0958, Volume II, pp 962-967.
4. Sanjay Kumar, B. Bhattacharya and Vikash Kumar Gupta, "Application of GA&DE Algorithm for the placement of FACTS Devices in cost Economic operation of power system. Presented in SAP-BEATS 2013, 23-24 Feb. 2013.
5. Das, S., Syam, P., and Bandopadhyay, G., "Application of Wavelet Transform for extraction of slip frequency component from SVPWM signal," IEEE Int. Conf. Power Electronics, Drives and Energy Systems (PEDES 2012), Bengaluru, India, 16-19 December, 2012.
6. Sonar S., Maity, T., Dec 2012, "A new low cost single phase ac-ac power line conditioner", Proc. International Conference on Emerging Trends and Technology, ICETT 2012 Indore, India, pp 284-89
7. G. Shankar, V. Mukherjee, S. Debnath, K. Gogoi "Study of different ANN algorithms for weak area identification of power systems," IEEE International Conference on Power and Energy in NERIST (ICPEN 2012), held during 28-29 December 2012 at NERIST, Itanagar, Arunachal Pradesh, pp. 1-4.
8. Bhaskar, D.V. ; Vishwanathan, N. "Full bridge series resonant inverter for induction cooking application" Power Electronics (IICPE), 2012 IEEE 5th India International Conference Publication Year: 2012, Page(s): 1-5.

9. Md. Nishat Anwar and S. Pan, "A Frequency Response Matching Method with Dominant Pole Placement for PID Controller Design", International Conference on Emerging Trends in Electrical, Electronics and Communication Technologies (ICECIT-2012), Anantapur, A.P., INDIA, Dec 21-23, 2012.
10. S. Pan and Md. Nishat Anwar, "A Frequency Response Matching Method for PID Controller Design for Industrial Processes with Time Delay", International Conference on Advances in Computing, Communication and Control (ICAC3-2013), Mumbai, INDIA, Jan 18-19, 2013.

3.8.5.6 Papers Published/Presented in National Seminars/Conferences

1. Anup Kumar Rajak, Vikram and P. K. Sadhu, "Analysing the Motion of Holes and Electrons in a Semiconductor - An Useful Conceptual Tool" published in the proceeding of National Seminar on Energy and Environment for Sustainability (EES2013) organized by BIT Sindri, Dhanbad 828123, Jharkhand during 16th 17th March, 2013, pp. 265-268.
2. Swastik Roy, P. K. Sadhu and Suhit Datta, "Impact of Energy Band Structure and Equilibrium Carrier Concentration on Commercialization of Solar Cell" published in the proceeding of National Seminar on Energy and Environment for Sustainability (EES2013) organized by BIT Sindri, Dhanbad 828123, Jharkhand during 16th 17th March, 2013, pp. 169-173.
3. Praveen Kumar, Chirag Jain and P. K. Sadhu, "The Review of Physics from the Solar Cell" published in the proceeding of National Seminar on Energy and Environment for Sustainability (EES2013) organized by BIT Sindri, Dhanbad 828123, Jharkhand during 16th 17th March, 2013, pp. 128-131.
4. S. Vamsi Krishna, K. Dharma Rao, Ritesh Mishra, Birendar Singh, P. K. Sadhu and N. Pal, "Efficient Photovoltaic Conversion and its Antecedents" published in the proceeding of National Seminar on Energy and Environment for Sustainability (EES2013) organized by BIT Sindri, Dhanbad 828123, Jharkhand during 16th 17th March, 2013, pp. 269-273.
5. Nitai Pal, S. Vamsi Krishna, R. Nath Raul and P. K. Sadhu, "Study on Coupling Techniques for Power Line Communications" published in the E-Proceedings of Michael Faraday IET India Summit-2012, organized by Young Professional Section, The Institution of Engineering and Technology-UK, Kolkata Local Network, Kolkata, during November 25, 2012, pp. 163-167.

6. Vikash kumar Gupta, B. Bhattacharya, S. K. Goswami, "SVC & TCSC for Minimum operational Cost Under Different loading Condition", presented in NPSC -2012, IIT-BHU 12-14 Dec. 2012.
7. Vikash Kumar Gupta, B. Bhattacharya, S. K. Goswami, "PSO based placement of FACTS Devices for the Economic operation of power system, presented in NCPD -2012, CPRI 8-9 Nov. 2012.
8. Sonar S., Maity, T., Dec 2012, "A z-source single phase push-pull inverter", Proc. IET-India-Summit_2012 Kolkata, pp 92-95
9. Maity T., Sonar. S., March 2013, "Selection of suitable Topology and Switching Technique of ZSI for wind power application" International Conference on advanced computing and communication, ICACC-2013
10. B. K. Naick, G. Shankar, "Energy Auditing: A Case Study at ISM Dhanbad," In proceedings of National Conference on Recent Advances in Modern Power Systems (RAMPS) held on 30th December, 2012, VSSUT, Burla, Odisha, pp 97-100.
11. Ravi Shankar, Kalyan Chatterjee & T.K. Chatterjee, "Application of Feedback Linearization for Isolated Thermal Power System" 17th National Power System Conference (NPSC-2012), Indian Institute of Technology-BHU (IIT-BHU), 12-14 December, 2012.
12. Md. Nishat Anwar and S. Pan, "PID Controller Design Method for Integrating Process with Dead Time", National Conference on Recent Advances in Mathematics and its Application, Dhanbad, Feb 14-16, 2013.

3.8.6 SEMINARS , SYMPOSIA, WORKSHOPS, CONFERENCE ORGANIZED BY THE DEPT/CENTRE

Title of Course	Duration
Certificate course on MATLAB & Simulink for Engineering Application	27 th Aug., -1 st Sep., 2012 & 17 th Sep. -22 nd Sep., 2012
Mine Electrical Engineering	Dec 3 rd - 8 th Dec., 2012 Tata Steel , Jamadoba
Wireless Communication and Environment Monitoring in Underground Mines Possibilities	21-23 Feb, 2013, ISM

3.8.7 PARTICIPATION OF FACULTY / OFFICERS / STAFF IN SEMINARS / CONFERENCES ETC

Name of	Conference/seminar name	Date of	Place
Prof. P. K. Sadhu	“World Congress of Engineering 2012” (WCE 2012)	From 4 th to 6 th July, 2012	Imperial College, London, U.K.
Dr. Nitai Pal	The 2 nd International Conference on Engineering & Applied Science (ICEAS 2013)	From 15 th 17 th March, 2013	Tokyo, Japan
Dr. T. Maity	International Journal of Arts & Sciences (IJAS) conference,	1-5 April, 2012	Vienna, Austria
Dr. T. Maity	International Conference on advanced computing and communication, ICACC-2013	16-17 March, 2013	Ranchi, India
Dr. Sukanta Das	Workshop on “Wavelets and its Applications”	13 th July-15 th July, 2012	PDPM IIIT DM, Jabalpur
Dr. Sukanta Das	One-day Tutorial Course on “WAVELET TRANSFORM”	26 th November, 2012	BESU, Shibpur, Howrah
Dr. Sukanta Das	IEEE Int. Conf. Power Electronics, Drives and Energy Systems (PEDES 2012)	16 th December 19 th December, 2012	CPRI, Bangaluru
Mr. G. Shankar	IEEE International Conference on Power and Energy in NERIST (ICPEN 2012)	28-29 December 2012	NERIST Arunachal Pradesh
Mr. B. K. Naick	Short term course on “Modeling and Control of Renewable Energy Sources”	04 th -08 th June, 2012.	Dept. of Electrical Engineering, NIT Rourkela

3.8.8 VISITS OF FACULTY MEMBERS ABROAD

- (i) Prof. P. K. Sadhu visited Imperial College, London, U.K. to present a research paper in the World Congress of Engineering 2012 (WCE 2012) , during 4th to 6th July, 2012.

- (ii) Dr. T Maity Visited Vienna, Austria to present a research paper in the International Journal of Arts & Sciences (IJAS) conference, during 1-5 April, 2012.
- (iii) Dr . N. Pal visited Tokyo, Japan to present a research paper in the 2nd International Conference on Engineering & Applied Science (ICEAS 2013), during 15th 17th March, 2013.

3.8.9 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Guest Lecture delivered by Prof. Sukumar Mishra, Professor, Department of Electrical Engineering, Indian Institute of Technology, Delhi on “Micro-grid Control”.	08/01/2013
Guest Lecture delivered by Prof. Abhijit Chakrabarti, Professor, Department of Electrical Engineering, Bengal Engineering & Science University, Howrah and Ex-Vice-Chancellor of Jadavpur University, Kolkata, on (i) “Reactive Power and Voltage Stability Problems in EHV Transmission Systems” and (ii) “HVDC Transmission An Emerging Trend in EHV Transmission”.	16/01/2013
Guest Lecture delivered by Mr. B. K. Lama, Deputy Director General (Electrical), DGMS, Dhanbad on “Power Plant - Practical Overview”.	09/02/2013

3.8.10 MISCELLANEOUS

Prof. S. Pan

- Examiner of Ph.D. thesis, Deptt of EE, Jadavpur University, Kolkata.
- Examiner of Ph.D. Viva-voce, Deptt of EE, Jadavpur University, Kolkata.
- Examiner, ME Project Evaluation and Viva-voce (Control Systems, EEE), Birla Institute of Technology, Mesra, Ranchi.
- Reviewer of 02 Technical papers for presentation in IEEE International Conference on Power and Energy (ICPEN 2012) on 28th & 29th Dec 2012, NERIST, Arunachal Pradesh.
- Member, National Advisory Committee, National Conference on Recent Trends in Communication, Measurement & Control. 14th August, 2012. Organised by Department of Electronics & Communication, Electrical, Electronics & Instrumentation and Mechanical Engineering and IIP Cell, Asansol Engineering College, Asansol, W.B.

Prof. P.K. Sadhu

- Applied patent (Application No : 1240 / KOL / 2012, Dated 30 / 10 / 2012) for “Emission Control Device for Diesel Engine to Reduce the Particulate Matters in Exhaust Gases and the Method for the Same” in the name of inventors Pradip K. Sadhu, Nitai Pal and **Atanu Bandyopadhyay**, at Patent Office, Kolkata, Government of India.

Dr. K. Chatterjee

- Delivered Lecture on Soft Computing Techniques at Department Of Electrical & Electronics Engineering, Galgotias College of Engg & Tech. Greater Noida on 28th September, 2012.
- Examiner, ME Project Evaluation and Viva-voce (Power Systems, EEE), Birla Institute of Technology, Mesra, Ranchi.

Shri G. Shankar

- Participated for one and half month in Summer Faculty Research Programme (SFRFP-2012) during 21st May 2012 - 6th July 2012 at Electrical Engineering Department of IIT Delhi.

3.9 Department of Electronics Engineering

The Department has been running B.Tech. programme in Electronics Engineering (currently renamed as Electronics & Communication Engineering) since 1998. It also offers M.Tech. and Ph.D. programmes. The students are exposed not only to the core electronics courses but also to state-of-art courses that are offered by only a few premier institutes in the country.

3.9.1 BRIEF LIST OF ON-GOING/COMPLETED R&D PROJECTS (PROJECT VALUE RS. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement	Date of Completion	Objective	Status	Findings
Basic Scientific Research (BSR) Projects for strengthening of infrastructure in the Department.	U.G.C	Prof. V. Kumar	Rs. 20.00 lakhs-	4.7.2011	3.1.2013	To develop infrastructure in term of power supply, safety equipments, laboratory working tables and infrastructure required for including the component of research at PG level.	Rs.10,93,565 lakhs utilized Rs.09,06,431 lakhs FC given vide file No. ECE 511010/12-13 for Optical	Ten KVA, 3-Nos. UPS, one color laser printer, computer tables and chairs, faculty chairs have been procured and FC for one Fiber Optical table has been given
Modeling of Semiconductor Nanostructured Devices	UGC (SAP)	Dr. Mukul K Das, Coordinator Dr. J. Kumar, Co-coordinator	28.5 lakhs	1.4.2011	31.3.2016	Performance analysis and optimum design of nanostructured devices, e.g. Solar cell, Photodetector, MOSFET etc.	Ongoing	Obtained maximum efficiency of SiGe/Si heterojunction solar cell is ~17%
Accurate analysis of passive waveguide structures under pulse / FM excitation	DST	Dr. Sushrut Das	14.4 lakhs	28.02.2009	(a) 27.02.2012	Analysis of passive waveguide structures under non-sinusoidal periodic excitations.	Ongoing	Different waveguide based circuits have been analyzed under periodic non sinusoidal excitation to find the aperture field distribution.
Study on opto-Electronics Devices and System Processing Signals at Microwave Frequencies	FRS, ISM	Amitesh Kumar	Rs. 8.00 Lakhs	27.03.2013	--	To study the combine world of microwave and photonics system to introduce new application which will be able for photonic processing of microwave and mm-wave signals.	Ongoing	---
Performance Study of some WDM optical network components	Indian School of Mines Dhanbad	Dr. S. K. Raghuvanshi	Rs.5.75 Lakhs	31.03.2011	31.03.2013	It builds on the strength of ISM in optical fiber communication and aims at broadening and deepening its knowledge.	Completed	Purchased Opt-BPM software and visited IISc. Bangalore in June 2012 to learn it. Published several papers in reputed journals.

3.9.2 IMPORTANT COLLABORATIVE WORKS

Organisation / Laboratory	Nature of Interaction
National United University, Miaoli, Taiwan 360, R.O.C.	Faculty and students interchange program.

3.9.3 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS.5,00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value (₹)
Optispice Software	Simulation for Research work.	01.10.12	13,12,500.00
Material Studio 6.0 Academic	Simulation	26.11.12	9,82,460.00
Fibre communication modules with accessories	For optical communication Lab, for B.tech students.	15.01.2013	11,85,599.00

3.9.4 RESEARCH PUBLICATIONS

3.9.4.1 Books published

1. Raghuwanshi, S. K., 2013 "Electromagnetic field theory," AXIOE-Books, India (A division of Agarwal publication).

3.9.4.2 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Pandey, N and Paul, S. K.	2013	Mixed Mode Universal Filter'	Journal Circuits, Systems and Computer	Vol. 22, no. 1	10 pages
2.	Kumar, M., Hussain, M. A. and Paul, S. K.	2013	New Hybrid Design Techniques for Reducing Subthreshold Leakage Power in Stand By Mode'	Circuits and Systems	Vol. 4	pp 1-8.

3.	Ghosh, M., Paul, S. K., Ranjan, R. K. and Ranjan, A.	2013	Third Order Universal Filter Using Single Operational Transresistance Amplifier'	Journal of Engineering	Vol. 2013	1-6
4.	Pandey, R., Pandey, N., Sriram, B. and Paul, S. K	2012	Single OTRA Based Analog Multiplier and Its Applications	ISRN Electronics	Vol. 2012	1-7
5.	Pandey, R., Pandey, N., Paul, S. K., Singh, A., Sriram, B. and Trivedi, K.	2012	Voltage Mode OTRA MOS-C single Input Multi Output Biquadratic Universal Filter'	Advances in Electrical and Electronics Engineering	Vol. 10, No 5	pp 337-344
6.	Paul, S. K., Ghosh, M. and Ranjan, A.	2012	Design of Feedback Circuit for Scanning Tunneling Microscope Using Current conveyor'	Journal of Electron Devices	Vol. 13	pp 997-1001
7.	Kumar, M., Hussain, M. A. and Paul, S. K.,	2012	Performance of a Two Input NAND Gate Using Subthreshold Leakage Control Techniques'	Journal of Electron Devices	Vol. 14	pp 1161-1169
8.	Pandey, N and Paul, S. K.	2012	SIMO Mixed Mode Universal Filter'	Journal of Active and Passive Electronic Devices	Vol. 7, No. 3	pp 215-226
9.	Kumar, V., Tripathy, S. K. and Jha, V.,	2012	Second order nonlinear optical properties of $A^{I\text{III}}B^{VI}C_2$ chalcopyrite semiconductors	Appl. Phys. Lett	Vol. 101	pp 1-5
10.	Pandey, B. P. and Kumar, V.	2012	Lattice Dynamics and Heat Capacity of ZB III-N (III-Al, Ga, In)	Int. J. of Adv. Technol.& Engg. Res.	Vol. 2	pp 1-7
11.	Goudar, M. D., Kumar V. and Patil, B. P.,	2012	Adaptive MPPT based approach for single-phase AC Photovoltaic modules under partial shading conditions	Int. J. of Electro. Commun. & Comp. Eng.	Vol. 3	pp 362365

12.	Goudar, M. D., Kumar, V. and. Patil, B. P.	2012	Neuro-Fuzzy Controller Algorithm for obtaining Maximum Power Tracking Point of Photovoltaic System for Dynamic Environmental Conditions'	Int. J. Electr. & Electro. Eng. Res.	Vol. 2	pp.1-11
13.	Chak, D., Raghuwanshi S.K. and Kumar, V.	2012	Pulse propagation study of 1x3 multibranch optical waveguide using BPM	Int. J. Recent Trends Engg. & Technol	Vol. 7	pp 27-30
14.	Raghuwanshi, S. K., Kumar, V., Chack, D. and Pandey, R.R.	2012	Dispersion study of even mode thin planar slab dielectric waveguide without computing $d^2\beta/dk^2$ numerically	Procedia Technol	Vol. 1	pp 286-290
15.	Tripathy, S. K. and Kumar, V.	2012	Density functional theory studies of electronic and thermal properties of ZnSiP ₂ semiconductor	Int. J. .Electro. Signals and Systems (IJESS), ISSN: 2231- 5969	Vol. 2	pp 104
16.	Anamika and Priye, V.	2013	Stimulated Raman crosstalk in bidirectional pumped distributed Raman amplifier for DPSK and OOK modulation format	Optics Communi- cation	290	pp 163 169
17.	Sethy, P. K. and Bhattacharya, S.	2012	Interference Cancellation in Adaptive Filtering through LMS Algorithm using TMS320C6713 DSK'	International Journal of Electronics and Communi- cation Engineering,	Vol. 5, No.2	pp 113-124
18.	Sethy, P. K. and Bhattacharya, S.	2012	Noise cancellation in Adaptive filtering through RLS algorithm using TMS320C6713 DSK	International Journal of Electronics and Communi- cation Engineering & Technology (IJECET)	Vol. 3, No 1	pp 154-159

19.	Nahata, S. and Bhattacharya, S.	2012	Comparative Analysis of Modulation Schemes using Adaptive Equalization as Fading Mitigation technique	International Journal of Electronics Signals and Systems	Vol.1, No. 3	pp 25-31
20.	Kumar, D., Negi, C.M.S., Gupta, K. S. and Kumar, J.	2013	Shape and Size Dependent Electronic Properties of GaAs/ AlGaAs Quantum Dots'	Bonfring International Journal of Power Systems and Integrated Circuits	Vol. 2, No. 23	---
21.	Dutta, R., Gupta, S. and Das, M. K.	2012	Power Consumption and Maximizing Network Lifetime during Communication of Sensor Node in WSN	Procedia Technology, Elsevier	Vol. 4	pp 158-162
22.	Thakur O.P., Dwari S., Kushwaha A.K.	2012	Enhancement of Bandwidth by using Photonic Bandgap Structure in Microstrip Antenna	International Journal of Computational Intelligence Techniques	Vol.3, Issue. 2	pp 112-113
23.	Jha, S., Kumar, A. and Kumar, S.	2012	Impact of Elliptical Cross-Section on Some Electrical Properties of Gate-All-Around MOSFETs'	Bonfring International Journal of Power Systems and Integrated Circuits	Vol. 2 (3)	pp 18-22
24.	Yadav, R. K., Das, S. and Yadava, R.L	2012	Parametric Study of UWB Biconical Antenna for Wide-band Applications'	Journal of Wireless Networking and Communications	Vol. 2, No. 5	pp 117-125
25.	Gayen R. K. and Das S	2012	Resonance and Parametric Analysis of Planar Broad-Wall Longitudinal Slot Array Antennas	Bonfring International Journal of Research in Communication Engineering	Nol 2, No 3	pp 13- 20

26.	Raghuwanshi, S. K., Kumar, Ajay, Kumar, Santosh	2013	Signal Router Using 3 Mach-Zhender Interferometers	Optical Engineering	Vol. 52, No. 03	pp 035002
27.	Kumar, Ajay, Raghuwanshi, S. K., Kumar, Santosh	2013	Effect on modal-index due to an etched film thickness in three-dimensional ridge waveguide,' i-manager's	Journal on Communication Engineering and Systems	Vol. 2, No.1	pp 26-31
28.	Raghuwanshi, S. K., and Singh, Mandeep	2013	Effect of higher order dispersion terms on microwave generation due to single mode fiber, dispersion shifted fiber and non-zero dispersion shifted fiber on lithium niobate mach-zehnder modulator	International journal of electrical and electronics engineering research (IJEER),	Vol. 3	---
29.	Chack, D., Raghuwanshi, S. K., Kumar, V.	2012	Pulse Propagation Study of 1×3 Multibranch Optical waveguide using BPM	International Journal of Recent Trends in Engineering & Technology (IJRTET)	Vol. 7, No. 2	pp 27-30
30.	Raghuwanshi, S. K., Kumar, V. and Talabattula, S.	2012	Dispersion and peak reflectivity analysis in a non-uniform FBG based sensors due to arbitrary refractive index profile'	Progress in Electromagnetic Research B.	Vol.36	pp 249-265
31.	Kumar, Santosh, Raghuwanshi, S. K.	2012	Performance study of parabolically versus exponentially tapered multimode interference coupler	Trends in Opto Electro and Optical Communications (STM Journals, india)	Vol. 2, Issue. 2	pp 8-17
32.	Priyadarshini, B., Ranjan, R. K. and Arya, R.	2012	Determining ECG characteristics using Wavelet transforms	International Journal of Engineering Research and Technology	Vol. 1, Issue.6	pp 1-8

33.	Priyadarshini, B., Ranjan, R. K. and Arya, R.	2012	Determining ECG characteristics using Wavelet transforms	Int. Journal of Engineering Research and Technology	Vol. 1, Issue.6	pp 1-8
33.	Gupta, A., Gangwar, R. K. and Singh, S. P.	2013	Three element dual segment triangular dielectric resonator antenna for X-band application'	Progress In Electromagnetic Research C	Vol.34	pp 139-150
34.	Gangwar, R. K., Singh, S. P., Choudhary, M. and Kumar, D.	2013	LTCC Glass Ceramic based Dual Segment Cylindrical Dielectric Resonator Antenna'	Journal of Ceramic	Vol. 2013	pp 1-8,
35.	Mazumdar, K., Biswas, A. and Ghosal A	2012	Study of conductivity and power dissipation in GaAlAs/GaAs superlattice due to electron-phonon interaction	Journal of Electron Devices	Vol. 15	pp 1232-1235
36.	Mazumdar, K. and Ghosal A.	2012	Drain current versus drain voltage characteristics for superlattice MOSFET	Journal of Electron Devices	Vol. 16	pp 1384-1387
37.	Gupta, A., Gangwar, R. K. and Singh, S. P.,	2013	Three element dual segment triangular dielectric resonator antenna for X-band application	Progress In Electromagnetic Research C	Vol. 34	pp. 139-150
38.	Gangwar, R. K., Singh, S.P., Choudhary, M. and Kumar, D.,	2013	LTCC Glass Ceramic based Dual Segment Cylindrical dielectric Resonator Antenna	Journal of Ceramic	Vol. 2013	Pp 1-8.

3.9.4.3 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Singh, R., Ranjan, A., Ghosh, M. and Paul, S. K.	2012	Realization of Fourth Order Multifunction Filter Using Operational Transresistance Amplifier	Journal of Electronic Design Technology	Vol. 2	pp 1-7
2.	Kumar, V., Shrivastava, A. K., Sinha, A. and Jha, V	2013	Dielectric properties of different materials	Ind. J. Pure & Appl. Phys.	Vol. 51	pp 49-54

3.9.4.4 Papers Published/Presented in International Seminars/Conferences

1. Pandey, R., Pandey, N., Paul, S. K., Singh, M. and Jain, M., 2012. 'Voltage Mode single OTRA based Biquadratic Filters', Proceedings of International Conference on Computer and Communication Technology (ICCCT-2012), 23-25 November, 2012, Allahabad, India, IEEE Xplore, pp 63-66.
2. Pandey, R., Pandey, N. and Paul, S. K., 2012. 'MOS-C Third Order Quadrature Oscillator using OTRA', Proceedings of International Conference on Computer and Communication Technology (ICCCT-2012), 23-25 November, 2012, Allahabad, India, IEEE Xplore, pp 77-80.
3. Pandey, N., Pandey, R. and Paul, S. K., 2012. 'Novel single input five output voltage mode universal filter based on DDCCTA', Proceedings of International Conference on Computer and Communication Technology (ICCCT-2012), 23-25 Nov., 2012, Allahabad, India, IEEE Xplore, pp 46-51.
4. Pandey, R., Pandey, N., Paul, S. K., Singh, M. and Jain, M., 2012. 'Voltage Mode Biquadratic Filter using Single OTRA', Proc. of India Int. Conference on Power Electronics (IICPE-2012), 6-8 December 2012, Delhi, India, IEEE Xplore, pp 1-4.
5. Ranjan, A. and Paul, S. K., 2012. 'A Generalized Current Mode First Order Filter Using Single Current Controlled Differential Difference Current Conveyor', Proceedings of International Conference on Computers and Devices for Communication (CODEC-2012), Kolkata, 17-19 December, CIS-1, pp.1-4.

6. Banerjee, K., Ranjan, A. and, Paul, S. K., 2012. 'New First Order Multifunction Filter Employing Operational Transresistance Amplifier', Proceedings of International Conference on Computers and Devices for Communication(CODEC-2012), Kolkata, 17-19 December, CIS-5, pp 1-3.
7. Ghosh, M., Paul, S., K. and Ranjan, R. K., 2012. 'Universal Filter Using Operational Transresistance Amplifier', Proceedings of International Conference on Computers and Devices for Communication(CODEC-2012), Kolkata, 17-19 Dec., CIS-8, pp 1-4.
8. Ranjan, A., Ghosh, M. and Paul, S. K., 2012. 'Voltage Mode Third Order Band Pass Filter Employing Operational Transresistance Amplifier', Proceedings of International Conference on Computers and Devices for Communication (CODEC-2012), Kolkata, 17-19 December, CIS-10, pp 1-3.
9. Pandey, B. P., Tripathy, S. K and Kumar, V., 2012. 'Heat Capacity of LiInX_2 ($\text{X}=\text{S}, \text{Se}, \text{Te}$) Compounds'. Students Conference on Engineering and Systems (SCES 2012), MNNIT, Allahabad, India, held during March 16-18, 2012. IEEE Explore 2012, 978-1-4673-0455-9/12.
10. Tripathy, S. K., Khatua, P. K. and Kumar, V., 2013. 'Linear properties of ZnGeX_2 ($\text{X}=\text{P}, \text{As}$) semiconductors: a first principle approach'. Recent Trends in Applied Phys and Mat. Sci. (RAM 2013) held during Feb 01-02, (2013) Bikaner, Rajasthan.
11. Raghuwanshi, S. K., Kumar, V., Chack, D. and Kumar, S., 2012. 'Propagation Stude of Y-junction Optical Splitter using BPM'. IEEE Int. Conf. on Commun Systems & Network Techno., (CSNT 2012), 11-13 May 2012, Rajkot, India, IEEE Expolre 2012, DOI 10.1109/CSNT.2012.140, p.625-629.
12. Chack, D., Raghuwanshi, S. K., Kumar, V. and Agrawal, N., 2013. 'Analyzing the Optimum Parameter of an 1x2 MMI Splitter'. 2013 Int. Conf on Commun. System and Network Technol. held at IEEE Explore 2013, DOI 10.1109 /CSNT. 2013.41978-0-7695-4958-3/13, p. 149-151.
13. Ranjan, R. and Mitra, D., 2012. "Order estimation of HMM Discrete Channel Model for OFDM systems," Communications, Devices and Intelligent Systems (CODIS), 2012 International Conference on, pp 41-44, doi: 10.1109/CODIS.2012.6422131.
14. Negi, C.M.S., Kumar, D., Gupta, K. S. and Kumar, J., 2013. 'Resonant cavity far infrared photo-detector based on self-assembled InAs/GaAs quantum dots', IEEE 5th Int. Nanoelectronics Conference (INEC, Singapore), pp.407.

15. Kumar, D., Negi, C.M.S., Gupta, K. S. and Kumar, J., 2012. 'Effect of shape anisotropy and size on electronic structure of CdSe/ZnSe Quantum dots', International Conference in Nanotechnology, Pune.
16. Das, M. K. and Choudhary, S. K., 2012. 'Ge-content Dependent Efficiency of Si/SiGe Heterojunction Solar cell', Proc. of the Intl. Conf. Photonics Global Conference (PGC)-12, Singapore, Dec. 13-16, (IEEE Explored, DOI: 10.1109/PGC.2012.6458050, pp 1-4).
17. Das, M. K. and Billaha, M. A., 2012. 'Bound-to-Continuum Transition in GaAs/AlGaAs QWIP', Proc. of the International Conf. Photonics Global Conference (PGC)-12, Singapore, Dec. 13-16, (IEEE Explored, DOI: 10.1109/PGC.2012.6458052, pp 1-3).
18. Choudhary, S. K. and Das, M. K., 2012. 'Effect of Carrier Trapping on the Efficiency of Si/SiGe Heterojunction Solar cell', Proc. of the Intl. Symp. Macro-and Supramolecular Architectures and Materials(MAM)-12, Tamilnadu, India, pp 167-172, Nov. 21-25.
19. Sen, M. and Das, M. K., 2012. "Determination of Resonance Frequencies in Silica Fiber using SRS Gain" Proc. of the Intl. Conf. NUSOD-2012, China (IEEE Explored, DOI: 10.1109/NUSOD.2012.6316555, pp 137-138).
20. Billaha, M. A. and Das, M. K., 2012. 'Theoretical Analysis of GaSb/GaAs QWIP', Proc. of the Intl. Symp. Macro-and Supramolecular Architectures and Materials (MAM)-12, Tamilnadu, India, pp 161-166, Nov. 21-25.
21. Dwari, S., 2012. 'An approach to analyze Planar microstrip circuits with complementary split ring resonator at the ground plane using finite-difference time -domain method', 5th International Conference on Computers and Devices for Communication (CODEC-12), Kolkata, Proc. of CODEC-12.
22. Bakariya, P. S. and Dwari, S., 2012. 'A compact super ultra-wideband printed monopole antenna', 5th International Conference on Computers and Devices for Communication (CODEC-12), Kolkata, Proc. of CODEC-12.
23. Samal, S. K., Dutta, A., Reddy, S. P. and Dwari, S., 2012. 'A microstrip patch antenna for biomedical application at 2.45 GHz', 5th International Conference on Computers and Devices for Communication (CODEC-12), Kolkata, Proc. of CODEC-12.

24. Jha, S., Kumar, A. and Kumar, S., 2012. 'Impact of some important parameters on the propagation delay of elliptical gate-all-around MOSFET based Inverters', Proc 2013 IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT - 2013).
25. Das, S., and Gayen, R. K., 2012. 'Design and Analysis of Slot Coupled Cavity for Wide Band Band-stop Filter Application', International Conference on Electromagnetics in Advanced Applications, (ICEAA 2012), Cape Town, South Africa.
26. Gayen R. K., and Das S., 2012. 'Design and Analysis of Waveguide Slot Doublets for Dual Band or Nearly Omni-directional Radiation Properties', Topical conference on Antenna and Propagation in Wireless Communications, (APWC 2012), Cape Town, South Africa.
27. Gangwar, D., Das, S. and Yadava, R.L., 2012. 'Metamaterial Antennas Miniaturization and Bandwidth Enhancement A Review', International Conference on Communications & Electronics (ICCE 2012).
28. Thakur, S., Yadava, R.L. and Das, S., 2012. 'Ferrite Based Microstrip Antenna with a Normally Biased Magnetic Fields', International Conference on Communications & Electronics (ICCE-2012).
29. Gayen, R. K., Das, S., 2012. 'Resonance Characteristics of the Slots of a Reduced Height Planar Waveguide Slot Array', CODEC 2012, Kolkata, India.
30. Gayen, R. K., Das, S., 2012. 'Studies on the effect of Mutual Coupling on Network and Resonance Properties of Broad-Wall Longitudinal Slot Antenna', CODEC 2012, Kolkata, India.
31. Chakraborty, A., Gayen, R. K., Chattopadhyay, S., Ganguly, A. K., and Das, S., 2012. 'Analysis of shunt series slot fed Waveguide Broad Wall Shunt Slot radiator', 7th International Conference on Electrical and Computer Engineering (ICECE 2012), Dhaka, Bangladesh.
32. Thakur, S., Yadava, R.L. and Das, S., 2013. 'AFSS Superstrate Integrated Microstrip Patch Antennas-A Progressive Study', 3rd IEEE International Advance Computing Conference (IACC-2013), 22 -23 Feb, 2013.
33. Yadav, R.K., Das, S. and Yadava, R.L, 2013. 'DGS Based Microstrip Patch Antennas for UWB Systems', 3rd IEEE International Advance Computing Conference (IACC-2013).

34. Raghuwanshi, S. K., Kumar, Santosh,, 2012. "Analysis of Multimode interference star coupler having s-bend waveguide," Proceeding of IEEE 5th Inter. Conference on Computers and Devices for Communication-CODEC 2012, Kolkatta, India.
35. Chack, Devendra, Raghuwanshi, S. K., Kumar, V., 2012. 'Pulse propagation study of 1x4 multibranch optical waveguides using 3-Y branch optical waveguide,' Procedia Information Technology & Computer Science, 3rd World Conference on Information Technology.
36. Raghuwanshi, S. K., Kumar, Ajay, Kumar, Santosh, 2012. "A method of high repetition rate femtosecond optical pulse generation by using bi-stable optical micro-ring resonators," Progress In Electromagnetics Research Symposium Proceedings, pp 909-912, Moscow, Russia.
37. Raghuwanshi, S. K., Kumar, Santosh, Radha Raman Pandey, 2012. 'Analysis of double negative meta-material asymmetric planar slab waveguide by transmission equivalent T-circuit model,' Progress In Electromagnetics Research Symposium Proceedings, pp 702-706, Moscow.
38. Raghuwanshi, S. K., Kumar, V. Kumar, and D. Chack, 2012. 'Propagation study of Y-branch having inbuilt optical splitters and combiner using beam propagation method', Progress In Electromagnetics Research Symposium Proceedings, pp 720-724, Moscow.
39. Raghuwanshi, S. K., Kumar, Santosh, 2012. 'Derivation of dispersion equation by using equivalent transmission line method for the case of planar slab optical waveguide structure', Proceeding of IEEE International Conference on Optical Engineering 2012, pp 109-112, VTU Belgaum, India.
40. Kumar, Santosh, Raghuwanshi, S. K., 2012. 'Analysis of step discontinuities in rectangular MMI coupler by beam propagation method', Proceeding of IEEE International Conference on Optical Engineering 2012, pp 157-163, VTU, Belgaum, India.
41. Raghuwanshi, S. K., Kumar, Ajay, Kumar, Santosh, 2012. 'Design and analysis of finite/infinite impulse response optical filter for signal processing', IEEE 2012 International Conference on Communication Systems and Network Technologies (CSNT-2012), pp 529-533, Rajkot, India.
42. Arya, R., Kiran, B. V. S., Kumar, Y. S. P., Reddy, J. C. P., Nandula, R. T., Sen, M., Goswami, K., Mondal, H. P., 2012. 'Design of mobile robot and it's optimum path planning', Proc of National Conference on Emerging Trends in Computer Technology (NCETCT-2012), Shirpur, Maharastra, India.

43. Arya, R., Kiran, B. V. S., Kumar, Y. S .P., Reddy, J. C. P., Nandula, R. T., Sen, M., Janarthanan, R., 2012. 'Autonomous navigation of vehicle using visual feedback', Proc of International Conference on Computing, Communication and Information Technology (ICCCIT-2012), Thiruninravur, Chennai, India
44. Chack, D., Raghuwanshi, S. K., Kumar, V. and Agrawal, N., 2012. 'Field Propagation Study of Y- branch assisted by MMI Coupler' world conference on information technology WCIT-12 , University of Barcelona SPAIN.
45. Kumar, A. and Priye, V., 2013. 'Optimization of Wavelength Converter in WDM Networks using Genetic Algorithm', IEEE CONECCT 2013.
46. Gupta, A. Gangwar, R. K. and Singh, S. P., 2012. 'A Novel Three element probe feed triangular dieielectric resonator antenna', International Symposium on Recent Trends in Electronics and Communication (ISRTEC-2012), KNIT-Sultanpur.
47. Gupta, A., Gangwar, R. K. and Singh, S. P., 2013. 'Three element probe feed triangular dieielectric resonator antenna', Antenna Testing and measurement society (ATMS-2010), Kokata.

3.9.4.5 Papers Published/Presented in National Seminars/Conferences

1. Kumar, D., Negi, C.M.S., Gupta, K. S. and Kumar, J., 2012.'Shape and size dependent electronic properties of GaAs/ AlGaAs quantum dots', National Conference on Electronics, Communication and Signal Processing, Siligure Institute of Technology.
2. Jha, S., Kumar, A. and Kumar, S., 2012. 'On some electrical properties of elliptical gate-all-around MOSFETs', Proc National Conference on Electronics, Communication & Signal Processing (NCECS-2012).
3. Murmu, L. and Das, S., 2012. 'Progress in Stepped Impedance, Ultra-Wideband and Dual-Mode Micro Strip Resonator-A Brief Review', National Conference on Electronics, Communication and Signal Processing (NCECS), pp 148-152.
4. Gayen, R. K., Das, S., 2012. 'Analysis of Planar Broad-Wall Longitudinal Slot Array Antennas using Multiple Cavity Modeling Technique', National Conference on Electronics, Communication and Signal Processing (NCECS, pp 119 127.

3.9.5 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

Certificate Course on “SOFT COMPUTING METHODS” Coordinators: Prof V. Priye and D. Mitra	20 th to 24 th March 2013
Short-term Course on “DSP Systems: Applications and Implementation	20 th March to 24 th March, 2013

3.9.6 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof. S. K Paul	5 th International Conference on Computers and Devices for Communication	17-19 December, 2012	Kolkata
Dr. J. Kumar	Workshop on Nanophotonics	3-7 December, 2013	Trieste
Dr. J. Kumar	INUP Familiarization Workshop on Nanofabrication Technologies	29-31 October, 2012	Bangalore
Dr. Mukul K Das	International Conference: “Photonics Global Conference (PGC)-2012”	13-16 December, 2012.	Singapore
Dr. Santanu Dwari	5 th International Conference on Computers and Devices for Communication	17-19 December, 2012	Kolkata
Dr. Sushrut Das	Joint International Conference on Electromagnetics in Advanced Applications and IEEE Topical conference on Antenna and Propagation in Wireless Communications	02 07 September, 2012	Cape Town, South Africa
Dr. S. K. Raghuwanshi	International Conference on Communication Systems and Network Technologies (CSNT-2012)	11-13 May, 2012	Rajkot, India
Dr. S. K. Raghuwanshi	Progress in Electromagnetics Research Symposium (PIERs 2012)	19-23 August, 2012.	Moscow, Russia
Mr. R. K. Ranjan	Workshop on” ASPECT-2013	11-15 March, 2013	Kolkata

Mr. Devendra Chack	World conference on information technology WCIT-12	14-16 Nov. 2012	Barcelona SPAIN
Dr. R.K.Gangwar	National Workshop on “ Computational Electromagnetic”	24-29 September, 2012	Defense lab, Jodhpur

3.9.7 VISITS OF FACULTY MEMBERS ABROAD

1. Dr. J. Kumar visited Workshop on Nanophotonics in Trieste, Italy, during 3-7 December 2012.
2. Dr. Mukul Kumar Das visited some Photonics and Nanoelectronics Laboratories of Nanyang Technological University, Singapore during his participation in the International Conference: “Photonics Global Conference (PGC)-2012”, December 13-16, 2012.
3. Dr. Sushrut Das visited Cape Town, South Africa to attend Joint International Conference on Electromagnetics in Advanced Applications and IEEE Topical conference on Antenna and Propagation in Wireless Communications, 02-07 September, 2012.
4. Dr. S. K. Raghuwanshi attended the Progress in Electromagnetics Research Symposium (PIERs 2012), Moscow, Russia in August 19-23, 2012.
5. Devendra Chack presented a research paper in World conference on information technology WCIT-12 at University of Barcelona, Barcelona Spain from 14.11.2012 to 16.11.2012.

3.9.8 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Dr. Nan-Kuang Chen, Director, Optoelectronics Research Center, National United University, Miaoli, Taiwan 360, R.O.C.	To initiate the faculty and students interchange program and collaborative research work.

3.9.9 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Prof. Binay K. Sarkar, ISRO Chair professor, IIT Kharagpur delivered a lecture on “RADARs”.	November 10, 2012
Prof V D Vankar, IIT Delhi, New Delhi delivered a lecture on “Carbon nano tubes and nano structures”.	December 15, 2012

Dr Nan Kuang Chen, Director, Optoelectronics Research Centre, National United University, Miaoli, Taiwan delivered lecture on “Dispersion engineering techniques for advance components and lasers”	December 20, 2012
Dr K Padmanabh, Lead Architect, Robert Bosch Engineering and Business Solutions Ltd. gave a lecture on “Sensor network to realize Copenhagen dream: the controlled carbon emission”.	January 19, 2013
Dr C Dhanvantri, Scientist G and Group Leader, Optoelectronics Division, CEERI, Pilani, gave lecture on “White and Blue LEDs”.	February 13, 2013
Dr Tapan Mishra, SAC, ISRO, and Ahmadabad delivered a talk on “RISAT-1: ISRO's first microwave eye in the sky”.	March 8, 2013
Dr Prashanta Vasistha, DRDO Laboratory, Jodhpur gave talk on “RCS Measurement Technology”.	March 8, 2013
Mr Poornendu, SSPL, New Delhi gave lecture on “Nanodevices and sensors: Challenges”.	March 8, 2013
Mr B Srinivas, Alcatel Lucent, Bangalore gave a lecture on “Cutting edge SOC architecture for 3G and 4G technologies”.	March 8, 2013
Mr Karun Jain, National Instruments, New Delhi delivered a talk on “Algorithm Engineering”.	March 8, 2013
Dr T Srinivas, IISC Bangalore delivered a talk on “MOEMS”	April 5, 2013

3.9.10 MISCELLANEOUS: ANY OTHER RELEVANT INFORMATION

1.	Prof. V. Kumar was member of Advisory Committee for SAP Project, Shivaji Univ, Kolhapur as an UGC Nominee on March 16, 2013.
2.	Prof. V. Kumar was reviewer of the Int. J. Phys. Chem. Solids, UK and ICAST 2012 IEEE Conference.
3.	Prof. V. Kumar was Chief Guest for the 'World Telecommunication Day' organized by 'The Institution of Engineers (India)', Dhanbad Chapter at ISM on May 17, 2012.
4.	Prof. V. Kumar attended General Body Meeting of District e-Governance Society, Dhanbad on Dec. 17, 2012 and March 20, 2013.
5.	Prof. V. Kumar was member, Selection Committee for Project Fellows, CIMFR, Dhanbad.

6.	Prof. V. Kumar was examiner for M. Tech Projects and conducted Viva-Voce Exam at BIT, Mesra, Ranchi during May 16-17, 2012.
7.	Prof. V. Kumar attended BOS meeting at Burdwan Univ., Calcutta on October 30, 2012
8.	Prof. V. Kumar was member of PG Acad. Committee Meeting at NIT Durgapur on January 17, 2013.
9.	Department of Electronics Engineering received DST FIST project (Level 1). Sanctioned Amount: 120 Lakh, Project Co-coordinator: Dr. Sushrut Das

3.10 Department of Environmental Science and Engineering

The Centre of Mining Environment was created by the Ministry of Environment and Forest in 1987 at ISM, Dhanbad as a Centre of Excellence in Mining Environment. The Department of Environmental Science & Engineering was established out of the existing Centre of Mining Environment in June 2007 with the commencement of a regular B.Tech program in Environmental Engineering under IIT-JEE.

3.10.1 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of students	Place of visit	Period of visit
Field Visits	M.Tech Ist Sem	• Barora Area, BCCL. • Madhuban Coal Beneficiation Plant Organised by Dr. Biswajit Paul	15 Sept 2012
Field Visits	B.Tech V Sem	• Area -1; BCCL. • Madhuban Coal Beneficiation Plant Organised by Dr. Biswajit Paul	16 Sept 2012
Field Visits	B.Tech IV Sem	• Jamadoba Coal Beneficiation Plant • Dorabjee Eco-restoration Park • Jamadoba 10 MW Power Plant • Jamadoba 4-Incline Mine • Jamadoba Mine Water Treatment Plant • BCCL, Ghanudih Fire Area to see mine fire at night. Organised by Dr. Biswajit Paul	4-5 th April 2013

3.10.2 BRIEF LIST OF ON-GOING R & D PROJECTS (PROJECT VALUE Rs. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value (lakhs)	Date of Commencement	Date of Completion	Objective	Status	Findings
i) Environmental Information System (ENVIS) on Mining Environment (continuing since 1993)	MoEF	ESE	5.0025	1-04-12	31-03-13	To develop Mining Environment data base by expert member	Ongoing	Updated the database of mining environment in ENVIS website
Disinfection By-products Formations and Their Management in Water Supplies in India (Project No.: MRD(11)/2010-2011/290/ ESE)	Ministry of Rural Development (GoI), New Delhi	Dr. S. K. Gupta, ASP/ESE	7.38	March, 2011	Dec, 2012	To find out the DBPs in drinking water	Completed	Establish the statistical correlation of DBPs in drinking water along with concentration study of DBPs in various water treatment plant.
Regional Environmental Impact Assessment Study of Mining in Goa Region	Ministry of Environment and Forests	Prof Gurdeep Singh	214.914	March, 2011	Sept 2012 (Extended for 01 Year)	EIA/EMP study of the mining area of Goa region	On-going	Baseline data generated & Hot spot identified. Impact assessment with and without mining & associated activities reached completion.
Reduction of Chlorinated Pesticides by Zero-Valent Iron (ZVI): Kinetics, Pathways and Long Term Performance	Indian School of Mines	Dr. Alok Sinha	5.75	March, 2010	March, 2013	Reduction of halogenated pesticides by zero valent Iron. To study the long term per formance of ZVI	On-going	Preparation of Nano & Micro Iron completed. Degradation of pesticide completed. Kinetic study is completed
Estimation of Aquifer potential in JCM regions with suitable techniques to improve the recharge	Ministry of Water Resources	Dr. PK Singh	28.945	April 2012	April 2014	- Assessment of Longterm water table fluctuation data - Estimation of water resource potential in the region - Estimation of recharge near the storage structure.	On-going	Aquifer potentiality has been identified. Other works are still under progress.
Assessment of Groundwater Level Fluctuations With respect To Changing Patterns of Rainfall in Jharia Coal Mining Regions	University Grants Commission (UGC), New Delhi	Dr. Prasoon Kumar Singh, Associate Professor/ESE	Rs. 9,25,600/=	01.07.2012	01.07.2014	- Identify rainfall &Evapotranspiration Pattern - Quantify the Water Table Fluctuation in different Season - Evaluate the relationship between rainfall &Aquifer recharge of the region	On-going	Rainfall data and water level fluctuation data have been taken.

Assessment of soil fertility through application of Fly-ash based Bio-fertilizer in combination with Bio-compost (FRS(23)/2010-2011/ ESE dated: 31.03.2011)	Indian School of Mines	Dr. Vipin Kumar	5.64	March, 2011	March 2014	Identification of different strain of bio fertilizers. Assessment of soil quality through application of different organic mixture and fly ash. Bioefficacy study of fly ash based bio fertilizer and different organic mixture.	On-going	Bioefficacy study of fly ash based bio fertilizer and different organic mixture completed
Electro Kinetic Removal of Toxic Contaminants from Municipal Sewage Sludge	Indian School of Mines	B.K. Mishra	8.0	March, 13	March, 16	1.To find out the basic sludge properties such. 2.To study the properties of contaminants. 3.To find out the removal efficiency and energy consumption as a function of time during the treatment.	Fund allocated	Review is going on
Physical and Chemical Characterization of PM for Dhanbad City to identify the contribution from traffic sources	Indian School of Mines	Dr. Suresh Pandian E	9.40	March, 13	March, 16	1.The assessment of present air quality status of Dhanbad city by means of ambient PM concentration 2.The influence of vehicle type and fuel used upon emission rate of PM from traffic sources 3.Assessment of PM from tail pipe of vehicles and non-tail pipe PM emissions by heterogeneous traffic 4. Analyze the various factors that lead to ambient PM levels from its physical and chemical characterization for Dhanbad city.	On-going	In-progress

3.10.3 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS. 5, 00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value (₹)
Software- IGIS	Remote Sensing & Gis Lab	05	6.25 Lakh
Elemental Analyzer	Instrum-entation Lab	01	20.24 Lakh

3.10.4 PUBLICATIONS

3.10.4.1 Book Published

1. Maiti, Subodh Kumar (2013). Eco restoration of the Coalmine Degraded lands. SPRINGER, New Delhi, New York (2013 ed); ISBN: 978-81-322-0850-1 (Print) 978-81-322-0851-8 (e-book); DOI 10.1007/978-81-322-0851-8; Hardcover, 361p.
2. Pal, A.K., Maiti, S.K., Gupta, S.K., Sinha, A., Samadder, S. R. and Mishra, B.K. (2012). Edited the Training module of 3-Days Training Program For Executives Of Drinking Water And Sanitation Department, Ranchi on “Water And Wastewater Treatment And Management” 7-9 November, 2012), ESE Department, ISM, Dhanbad.
3. Pal, A.K., Jain, M.K. & Kumar, V. edited following News letter (MINENVIS) ISSN 0972-4648.

Sl.No	Particulars	Volume Number	Period	Description
1.	MINENVIS, Newsletter	73	June 2012	Sustainable Mining
2.	MINENVIS, Newsletter	74	September 2012	Social Aspects of Mining
3.	MINENVIS, Newsletter	75 & 76	December 2012 & March 2013	Environmental Aspects of Mining

3.10.4.2 Book reviews/contribution of chapters in a book

1. Prof. Gurdeep Singh. Best Management Practices on Environmental and Social Aspects of Mining. Published Chapter in Book “Mining Economic, Environmental and Social Implications” Editors: Padmaja Mishra and Amarendra Das, Abhijet Publications, New Delhi, 2013.

2. Prof. Gurdeep Singh Contributed a Chapter entitled “Ill effects of Noise Pollution on Human Beings and Animals” in the Book “Environmental Health: Human and Animal Risk Mitigation” published during May-June, 2012.

3.10.4.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Bhawna Dubey, Asim Kumar Pal, Gurdeep Singh	2012	Trace Metal composition of Airborne particulate Matter in the Coal mining and non- mining Areas of Dhanbad Region, Jharkhand, India	Atmospheric Pollution Research	3	238-246
2.	Soma Giri, Mukesh K. Mahato, Gurdeep Singh and V. N. Jha	2012	Risk Assessment due to Intake of Heavy Metals through the Ingestion of Groundwater around two proposed Uranium Mining Areas in Jharkhand, India.	Environ Monit Assess	184	1351-1358
3.	Arpita Das, M.K. Jain and Gurdeep Singh	2012	Investigation of Long Term Leaching Characteristics of Coal Combustion By products from Mejia Thermal Power Station, India	Int. Jr. of Earth Sciences and Engineering	05(02)	305-313
4.	Bhawna Dubey, Asim Kumar Pal & Gurdeep Singh	2013	Airborne Particulate Matter and their possible sources in the Industrial Region of Jharkhand, India, in an Annual Period	The Journal of Energy and Env. sciences Photon. ISJN: 4382-1729 (Impact Index 3.23)	127	201-208
5.	Sanjoy Kumar, S Choudhury, Subodh Kumar Maiti	2012	Assessment of Physico-chemical and mineralogical properties of alluvial soil	Int. J of Ecology and Development (IJED)	23(3)	25-39
6.	Adarsh Kumar, Subodh Kumar Maiti	2013	Availability of Chromium, Nickel and Other Associated Heavy Metals of Ultramafic and Serpentine Soil /Rock and in Plants	Int. J of Emerging Technology and Advanced Engg.	3(2):	256-268

7.	Arvind kumar Rai, Biswajit Paul and Gurdeep Singh	2012	Studies on the possibilities of Land Degradation due to Opencast Mines in. Jharia Coalfield	The Indian Mining & Engineering Journal	51(9)	15-20
8.	Arpita Das, Manish Kumar Jain , Gurdeep Singh,	2012	Investigation of Long Term Leaching Characteristics of Coal Combustion By products from Mejia Thermal Power Station, India	International Journal of Earth Sciences and Engineering, Indexed in Scopus Compendex and Geobase (products hosted on Engg. Village) Elsevier, Amsterdam, Netherlands, Chemical Abstract Services-USA, Geo-Ref Information Services-USA, IF-0.042	Vol 5, No 2,	Vol 5, No 2,
9.	Arpita Das, Manish Kumar Jain , Gurdeep Singh	2012	Long term leaching study of coal combustion by products for effective utilization	The Ecoscan, An International Quarterly Journal of Environmental Science, Special issue,	Vol 1;	pp 109-112
10.	Tripti, Vipin Kumar, Anshumali	2012	Phosphate solubilising activity of some bacterial strains isolated from chemical pesticide exposed agricultural soils	International Journal of Engineering Research and Development	3(9)	1-16
11.	Kumar V.	2012	Incidence of Salmonella sp. and Listeria monocytogenes in Some Salad Vegetables which .are eaten raw: A Study of Dhanbad City, India	Int. J. Engg & Sci Res	2(10)	1437-1442

12.	Tripti, Kumar V and Anshumali.	2012	Phosphate Solubilizing Activity of Some Bacterial Strains Isolated from Chemical Pesticide Exposed Agriculture Soil	Int. J. Engineering Research and Development	3(9)	01-06
13.	Sen, S. and Kumar V	2012	The Effect of Different Soil Amendments on Growth of Mung bean (<i>Vigna Radiata L.</i>) in Coal Mine Overburden Dumps	International Journal of Emerging Technology and Advanced Engineering	2(12)	264-270

3.10.4.4 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Gurdeep Singh	2012	Environmental Impact Assessment of Mining Projects	Jour. Ind. Geol. Cong.	Vol4(1)	pp.85-98
2.	Arvind kumar Rai, Biswajit Paul and Gurdeep Singh	2012	Studies on the possibilities of Land Degradation due to Opencast Mines in Jharia Coalfield	The Indian Mining & Engineering Journal	51(9)	15-20
3.	Sweta Sinha, Debananda Roy and Gurdeep Singh	2012	Assessment and Impact of Air Pollution in Patherdih Coal Washery, Jharia Coalfield, Eastern India	The Indian Mining & Engineering Journal	51(1)	16-23
4.	Bitthal Upadhay, Prasoon Kumar Singh and Gurdeep Singh	2012	An Assessment of Water Demand Forecasting and Management	The Indian Mining & Engineering Journal	51(02)	11-15
5.	Arpita Das, Jain Manish Kumar , Gurdeep Singh	2012	Engineering Properties of Coal Ash for Mine Filling Application	Mining Engineering Journal	Vol. 13, No. 12	pp-20-23

6.	Kumar V.	2012	An Overview on Environmental Impacts of Mining waste and their Management	Minenvis	72	1-7
7.	Kumar V., Gupta P and Dwivedi S.	2012	Bio-efficacy of fly-ash based Trichoderma formulations against damping-off and root-rot diseases in tomato (<i>Lycopersicum esculentum</i>).	J. Ind. Phytopathology	65 (4)	404-405
8.	Anshumali, Rani M., Yadav S., Kumar A.	2012	Impact of Mining activities and Allied Industries on Geochemistry of Govind Ballabh Pant Sagar, Northern Coalfield, India	Jour. Ind. Geol. Cong.	4 (1)	99-105

3.10.4.5 Papers presented/published in International Seminars/Conferences

1. Suresh Pandian and Asim Kumar Pal . Impact of Traffic road type and non-vehicular sources on SPM and RPM in Indian urban city Dhanbad using M-GFLSM model. 2nd International Conference on Sustainable Energy and Environmental Sciences (SEES 2013), organized by Global Science Technology Forum (GSTF) held on 25-26 Feb, 2013 at Singapore.
2. Adarsh Kumar and SK Maiti (2012). Study of an abandoned chromite-asbestos mine of Chaibasa district, West Singhbhum, Jharkhand, pp 19, (EP: 1-42) In IV Int. Con of NEA on “Anthropogenic Impact on Environment & Conservation Strategy”, Nov 2-4, 2012.
3. Maiti, Subodh Kumar (2012). Ecorestoration of Coalmine degraded lands and biodiversity conservation- is a process leads to sustainable mining. (IMR-3:5. pp. 78).In IV Int Con of NEA on “Anthropogenic Impact on Environment & Conservation Strategy”, Nov 2-4, 2012 (AIECS- 2012).
4. Dr. Biswajit Paul presented a paper on “Geotechnical Investigation of Overburden Wastes of Jharia Coalfields India” on 12th International Symposium on Environmental Geotechnology, Energy and Global Sustainable Development, during June 27-29, 2012, held at California State University, Los Angeles USA.
5. Singh, P.K. (2012). Case Study: Impact of Mining and Allied Activities on Water Resources of East Bokaro Coalfield. 4th International Conference on

“Anthropogenic Impact on Environment and Conservation Strategy,Ranchi, 2-4 November 2012.

6. Singh, P.K. (2012). Change Detection Study of Land Use Patterns of Jharia Coal Region, Jharkahnd. 4thInternational Conference on “Anthropogenic Impact on Environment and Conservation Strategy,Ranchi, 2-4 November 2012.
7. Kumar V, Avantika Chandra, Manish Kumar Jain (2012), “Impacts of Coal Mining on Surface Environmental and Their Management” at International Conference on Energy and Environmental Issues in Non-Ferrus Industries: Complication of Benchmarks, organised by dept. Of Metallurgy and Materials Engineering, BESU, Shibpur, Dec 07-08, 2012, pp 96-102
8. Avantika Chandra, Manish Kumar Jain (2012), “Hydrogeochemical study and Environmental Impact of Coal Mining on Groundwater in Jharia Coalfield Area, India” at International Conference on Anthropogenic Impact on Environment and Conservation Strategy, Dept of Zoology, Ranchi University, Ranchi & Dept of Zoology and Botany, St. Xavier's College Ranchi, pp80.
9. Manish Kumar Jain, Biswajit Paul (2012), “Assessment of status of underground Fire around a coke plant in Jharia Coalfields, India “ at 9th International Mining History Congress, Johannesburg, South Africa, April 17-20, 2012.
10. Anshumali, P. Tripathi, (2012). Arsenic enrichment in groundwater of the Middle Gangetic Plain, India. In: The Fifth International Scientific Conference BALWOIS 2012, Ohrid, Republic of Macedonia, 28th May to 2nd June 2012.
11. Yadav, G.K. and Sinha, A. “Mass Transfer Limitations for Reduction of Chromium (VI) by High Carbon Iron Filings (HCIF)” Proceedings of International Conference on “Advances in Architecture and Civil Engineering (AARCV 2012)”, pp 431-434, School of Architecture and Department of Civil Engineering, M.S.R.I.T., Bangalore, June 21-23, 2012.
12. Mukherjee, R. and Sinha, A. “A Review on : Synthesis and Characterization of Nano Zero Valent Iron (nZVI)” Proceedings of 4th International conference of National Environmentalists Association on Anthropogenic Impact On Environment and Conservation Strategy, pp 162, Department of Zoology & Botany, St. Xavier's College, Ranchi Ranchi, Nov 2-4, 2012

13. Kumar, R. and Sinha, A. "A Review on: Application of n-ZVI (Nano Zero Valent Iron) Technology for in-situ remediation of chromate contaminated ground water" Proceedings of 4th International conference of National Environmentalists Association on Anthropogenic Impact On Environment and Conservation Strategy, pp 148, Department of Zoology & Botany, St. Xavier's College, Ranchi Ranchi, Nov 2-4, 2012
14. Kumar, R. and Sinha, A. "Reductive degradation of mono-azo dye C.I. Acid orange 7 in aqueous solution by high carbon iron fillings(HCIF)" Proceedings of 4th International conference of National Environmentalists Association on Anthropogenic Impact On Environment and Conservation Strategy, pp 131, Department of Zoology & Botany, St. Xavier's College, Ranchi, Nov 2-4, 2012
15. Srivastava R.K., Yadav, G.K. and Sinha, A. "Comparative Study For Reduction Of Hexavalent Chromium By Electrolytic Iron And High Carbon Iron Filings (HCIF)" in Proceedings of Fifth International Groundwater Conference (IGWC-2012) on "The Assessment and Management of Groundwater Resources in Hard Rock Systems with Special Reference to Basaltic Terrain", Maulana Azad College of Arts, Science and commerce, Aurangabad, Maharashtra, India during 18-21 December, 2012.
16. Kumar V and Chandra A and Jain M.K. (2012). Impact of Coal Mining on Surface Environment and their Management. Proceeding of International Conference on Energy and Environment Issues in Non-ferrous Industries: Complication of Benchmarks at Kolkata during December 7-8.
17. Mishra B K, Gupta S K, Sinha A, 2013. Significance and Importance of Water Quality Parameters for Predictive Modeling Approach of Disinfection Byproduct (DBP) in Drinking Water - A Review. 2nd Annual International Conference on Sustainable Energy and Environmental Sciences. Singapore, 25-26 Feb.
18. Pandian, S., Gautam, P., Pal, A.K., 2013. "Impact of Traffic Type and Non-vehicular Sources on SPM and RPM in Indian Urban City Dhanbad Using M-GFLSM Model", 2nd Annual international conference proceedings in "Sustainable Energy and Environmental Sciences (SEES)", 137-141, at Singapore, 25-26 Feb, 2013.
19. Khan, D., Vinod, B. V., and Samadder, S. R. (2012). "Impact of Municipal Solid Waste Leachates on Groundwater and Investigate the Effectiveness of Various Geoliner to Control the Leachate Flow Behaviour". November 2-4,

2012. 4th International Conference of National Environmentalists Association on Anthropogenic Impact on Environment and Conservation Strategy, Ranchi, India.

3.10.4.6 Papers presented/published in National Seminars/Conferences

1. Bhawna Dubey, Asim Kumar Pal and Gurdeep Singh. Effect of Air pollution on human health in Jharia coalfield. UGC sponsored National Seminar on Biodiversity : its conservation and sustainable development for human welfare, organized by University Department of Zoology, Vinoba Bhave University, Hazaribag, Jharkhand in collaboration with Zoological Society of India, Budh Gaya, Bihar during 7-9 April, 2012.
2. Paul, B., Singh, Manjari., 2012 "Sustainability reporting system for mining industry with reference to global reporting initiative index" proceedings of 27th Indian Engineering Congress on the theme "Engineering for Sustainable Development for Inclusive Growth: Vision 2025; Dec 13-16, 2012.
3. Singh, P.K. (2012). Assessment of Groundwater Resources in Mining area: A Case study from East Bokaro Coalfield, Jharkhand. National Workshop on Recent Advance in Geosciences in Bihar and Jharkhand, GSI, Patna, 29,October, 2012.
4. Singh, P.K. (2012). Impacts due to Opencast Projects (Coal Mining) on Surface Water Quality in East Bokaro Coalfield Region, Jharkhand: A Case Study. National Seminar on Environmental Issues and Challenges in the 21th Century (EICC-2013)at Department of Environmental Science, Bareilly College, Bareilly, U.P., 3-5, February, 2013.
5. Kumar, R. and Sinha A. "Natural Adsorbents for Treatment of Textile Wastewater" Proceedings of national Seminar on Biodiversity: Its Conservation and Sustainable Development for Human Welfare, pp 41-42, University Department of Zoology, Vinoba Bhave University, Hazaribag, April 7-9, 2012.
6. Sanjay Kumar Yadav, Manisha Rani, Anshumali, (2012). Impact of mining on plant diversity of Northern Coalfield, Singrauli (M.P.), India. In: National Seminar on Biodiversity: Its Conservation & Sustainable Development for Human Welfare, 7-9 April, 2012 Department of Zoology, Vinoba Bhave University, Hazaribag, Jharkhand.
7. Anshumali, A. Kumar, M. Rani, S. Yadav, S. P. Singh, (2012). Impact of coal mining and allied industries on geochemistry of Govind Ballabh Pant Sagar,

Northern Coalfield, India. In: National Conference on Green Earth, October 18-19, 2012, organised by Indian geological Congress and Wadia Institute of Himalayan Geology, Dehradun.

8. Tripti, Vipin Kumar, Anshumali, (2012). Bio-formulation and Shelf-life Studies of Phosphate Solubilizing Inoculants in Different Carriers In: International conference on Anthropogenic Impact on Environment and Conservation Strategy, November 2 4, 2012, Organised by Department of Biosciences, St. Xavier's College, Ranchi In collaboration with National Environmentalists Association, India, Ranchi, Jharkhand.
9. Shruti Mishra, Chandravir Narayan, Anshumali, Vipin Kumar, (2012). The study on phytosociology of plant species in tropical dry deciduous forests of Jharia Coalfield, Jharkhand, India. In: International conference on Anthropogenic Impact on Environment and Conservation Strategy November 2 4, 2012, Organised by Department of Biosciences, St. Xavier's College, Ranchi In collaboration with National Environmentalists Association, India, Ranchi, Jharkhand.
10. Yadav P K, Babu V, Mishra B K, 2012. Remediation by inclusion of electrokinetics to treat municipal water water sludge by the comparison of different chemical approaches. 4th International Conference on Anthropogenic Impact on the Environment and Conservation Strategy. St. Xavier's College, Ranchi, 2-4 Nov.

3.10.5 MAJOR ACADEMIC CONTRIBUTIONS

Prof. Gurdeep Singh

1. Delivered a key note lecture and participated in the Panel discussion at the Conference on GREEN EARTH, organised by the Indian Geological Congress at WIHG, Dehradun during October 18-19, 2012
2. Invited to participate as an Expert in the State Expert Appraisal Committee (SEAC), Punjab meeting at Chandigarh on November 9, 2012.
3. Participated as an Expert in the CSIR Assessment Committee meetings at New Delhi on November 23, 2012.
4. Co-chaired a Technical Session at the International Meet on the Climate, The Workplace and the Lungs at the Maulana Azad Medical College, New Delhi on December 7, 2012.

5. Served as Member Advisory Committee MEAI 2013 Nagpur. He also chaired a Technical Session and presented a key note address .
6. Member National Advisory Committee SWEMP 2012. He also chaired a Technical Session and presented a key note address . at the SWEMP organised at New Delhi during November 28-30,2012
7. Invited as guest speaker at the Seminar on Innovative Techniques for Coal ash Management at Singrauli on February 7,2013.
8. Presented a key- note presentation and participated as Resource person at National conference on Forests and Environment vis-a-vis Mining Laws organised by the Orissa Judicial Academy at Puri during February 19-20,2013.
9. Presented a key note address and acted as panellist at the MEAI organised National Seminar on Mining Agenda for Future during April 20-21, 2013.
10. Organized Three Day OFF Campus TrainingcumWorkshop on EIA/ Auditing of Mining Projects at Kirandul Complex, Bailadila, NMDC during September 7-9, 2012.
11. A one day interactive workshop, as a part of Base Line Document project, awarded to CMPDI by Ministry of Science & Technology, Govt. of India, was held in Koyal hall of CMPDI on 29.08.2012. This workshop was jointly organized by Environment Department of CMPDI in association with Dept. of Science & Technology, GOI & Indian School of Mines, Dhanbad (Dept. of Environmental Science & Engineering).

Prof. A.K. Pal

1. "Unit operations for treatment of drinking water " (one session) in 3-day training program on Water and Waste water Treatment and Management for the Executives of Drinking Water & sanitation Department (DWSD), Ranchi, held by the Dept of ESE, ISM during 7.11.12 to 9.11.12.
2. "Noise and Vibrations in mines and related statutory provisions" (two sessions) in two week Professional Development Programme for Scientists of Atomic Mineral Directorate for Exploration and Research on "Mining Legislations and Related Issues" held by the Dept of Mining Engineering, ISM during 26.11.12 to 7.12.12.

3. “Water Quality Management for Mining areas” (one session) in three days Short Course on held by the Dept Of ESE, ISM during 11.12.12 to 13.12.12.

Prof. S. K. Maiti

1. Guest lecture on “Ecorestoration of Mine Degraded Lands and Biodiversity Conservation: A Process Leads to Sustainable Mining” in Sustainable Mining Practices: Opportunities and Challenges in the context of Climate Change for the officials of mining companies from 25th- 28th September 2012, IBRAD (Indian Institute of Biosocial Research and Development) Campus, VIP Road, Kestopur, Kolkata 700 101
2. Invited talk on “Restoration Ecology- an Emerging Field of Ecology in India” in 21st Nov, 2012 in UGC refreshers course in “ Life Science (Theme: 'Newer Concepts in Life Sciences)’ Non 19- Dec 2012, Dep of Botany, Calcutta University, Ballygunj campus, Kolkata 700 019.
3. Biological Wastewater Treatment (one session) in 3-day training program on Water and Waste water Treatment and Management for the Executives of Drinking Water & sanitation Department (DWSD), Ranchi, held by the Dept of ESE, ISM during 7.11.12 to 9.11.12.

Dr. B. Paul

1. Dr. Biswajit Paul organized an Environmental Sensitization program conducted at Jamadoba for officials of Tata Steel to promote environmental awareness among the officers engaged in Power Plant, Washery, Coal Mines, etc. on 9th March 2013.

Dr. S. K. Gupta

1. Unit Operations for Wastewater Treatment System, Design of Water Treatment Processes (part-i) and Wastewater Characteristics & Effluent Standards (Three session) in 3-day training program on Water and Waste water Treatment and Management for the Executives of Drinking Water & sanitation Department (DWSD), Ranchi, held by the Dept of ESE, ISM during 7.11.12 to 9.11.12.

Dr. MK Jain

1. Evaluator and question paper setter of M. Tech. Environmental Engineering at NIFFT Ranchi, Ranchi University

2. Member Board of Course studies at NIFFT Ranchi
3. Guest lecture at Tata Steel on Environmental Laws
4. Received a Membership of following professional bodies
 - a) Mining Engineers Association of India - Life Membership (LM-2449)
 - b) The Mining, Geological & Metallurgical Institute of India Life Membership (LM 9440)
 - c) The Institution of Engineers (India) Member (M-141042-8)
 - d) Indian Association of Environmental Management
 - e) Life member Indian Water Works Association
5. Review of following Papers
 - a) The role of remediation, natural alkalinity sources and physical stream parameters in stream recover(JEMA-D-12-02809) at Journal of Environmental Mangement, Elsevier Publication
 - b) A NUMERICAL FLOW ANALYSIS USING THE CONCEPT OF INFLOW AGE FOR OXIDATION POND DESIGN(JEMA-D-12-01509) at Journal of Environmental Mangement, Elsevier Publication
 - c) Correlation between iron mobilization and emergence of VOCs in leachate at old landfills(JEMA-D-12-02249)at Journal of Environmental Mangement, Elsevier Publication
 - d) Source Identification and Characterization of Atmospheric Polycyclic Aromatic Hydrocarbons along the southwestern coastal area of Taiwan - with A GMDH Approach (JEMA-D-12-01283)at Journal of Environmental Mangement, Elsevier Publication.

Dr. Alok Sinha

1. DESIGN OF WATER TREATMENT SYSTEMS (PART-II) & OPERATION AND MAINTENANCE OF WATER TREATMENT PLANTS (Two session) in 3-day training program on Water and Waste water Treatment and Management for the Executives of Drinking Water & sanitation Department (DWSD), Ranchi, held by the Dept of ESE, ISM during 7.11.12 to 9.11.12.

B. K. Mishra

1. **“WATER DEMAND AND WATER QUALITY PARAMETERS ” & MONITORING AND ANALYSIS OF WATER QUALITY PARAMETERS** (Two session) in 3-day training program on Water and Waste water Treatment and Management for the Executives of Drinking Water & sanitation Department (DWSD), Ranchi, held by the Dept of ESE, ISM during 7.11.12 to 9.11.12.

S R Samadder

1. **“Operation and Maintenance of Wastewater Treatment Plants ”** (One session) in 3-day training program on Water and Waste water Treatment and Management for the Executives of Drinking Water & sanitation Department (DWSD), Ranchi, held by the Dept of ESE, ISM during 7.11.12 to 9.11.12.

3.10.6 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTER

Sl.No	Course Title	Coarse Co-ordinator	Date & Venue
1.	3-Days Training Program For Executives of Drinking Water and Sanitation Department, Ranchi on “Water And Wastewater Treatment And Management”	Dr. S. K. Gupta	7-9 November, 2012.
2.	Three days Professional Development Course on Evaluation of Water Resources and Its Management	Dr. Prasoon Kumar Singh, Associate Professor, ESE/ISM	December 10-12, 2012 at EDC/ISM
3.	World Environment Day	ESE	5 th June 2012

3.10.7 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCE ETC

Name	Name of Conference	Date of Conference	Place of Conference
Dr. B. Paul	5 th Indian Mineral Congress	2 nd Feb. 2013	ISM, Dhanbad
	Mining Tourism	August 2013	Ranchi, Jharkhand

Dr. S K Gupta	Fifth International Groundwater Conference (IGWC-2012) on “The Assessment and Management of Groundwater Resources in Hard Rock Systems with Special Reference to Basaltic Terrain”	18-21 December, 2012.	Maulana Azad College of Arts, Science and commerce, Aurangabad, Maharashtra, India
Dr. M K Jain	9 th International Mining History Congress	April 17-20, 2012	ISM, Dhanbad
	Mining Tourism	August 2013	Johannesburg, South Africa
	Training on MIS:WEB Based Management Information system	10-11 July 2012	Jadavpur Univ (2 nd Campus), Kolkata
	National Evaluation Workshop for ENVIS Centres	Aug 13-14, 2012	DMI, Bhopal
Dr. Alok Sinha	Fifth International Groundwater Conference (IGWC-2012) on “The Assessment and Management of Groundwater Resources in Hard Rock Systems with Special Reference to Basaltic Terrain”	18-21 December, 2012.	Maulana Azad College of Arts, Science and commerce, Aurangabad, Maharashtra, India
Dr. Vipin Kumar	International Conference on Energy and Environment Issues in Non-ferrous Industries: Complication of Benchmarks	December 7-8, 2013	Kolkata
Mr. B K Mishra	2nd Annual International Conference on Sustainable Energy and Environmental Sciences.	25-26 February 2013	Singapore
Dr. Suresh Pandian E	2nd Annual International Conference on Sustainable Energy and Environmental Sciences.	25-26 February 2013	Singapore

3.10.8 VISITS OF FACULTY MEMBERS ABROAD

1. Dr. Biswajit Paul visited California State University, Los Angeles USA to present a paper on Geotechnical Investigation of Overburden Wastes of Jharia Coalfields India on 12th International Symposium on Environmental Geotechnology, Energy and Global Sustainable Development, during June 27-29, 2012.
2. Dr. B. K. Mishra presented a review paper on Significance and Importance of Water Quality Parameters for Predictive Modeling Approach of Disinfection Byproduct (DBP) in Drinking Water - A Review in 2nd Annual International Conference on Sustainable Energy and Environmental Sciences at Singapore during 24 to 28 February 2013.
3. Suresh Pandian E, presented a research paper on "Impact of Traffic Type and Non-vehicular Sources on SPM and RPM in Indian Urban City Dhanbad Using M-GFLSM Model" in 2nd Annual international conference proceedings in " Sustainable Energy and Environmental Sciences (SEES)" during 25-26 February 2013.

3.10.9 TESTING SERVICES (LAB FACILITIES AVAILABLE FOR TESTING IN THE DEPARTMENT/CENTER)

Testing facilities are available at department as per following list:

- Air, Water, Soil & Noise quality monitoring and assessment
- Biodiversity Survey
- Land Survey and Mapping
- GIS & Remote Sensing Applications
- Waste Water Testing
- Preparation of EIA/EMP

3.10.10 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Name of Visitors	Occasion/Purpose
Dr Bibhu Mohanty, Dr Lalu Mansinha (Adjunct Research Professor of Geophysics, Academic Director, Dept of Earth Sciences, The University of Western Ontario, London Canada ON N6A 5B7), Dr Laeeque K. Daneshmend (Prof & Head, Noranda-Falconbridge Chair in Mine-Mechanical Engg, The Robert M Buchan, Dept of Mining, Queen's University, Kingston, ON Canada K7L3N6), and Dr Ramesh Subramanian (Director, Bharti School of Engg, associate Prof, Chemical Engg, Laurentian University, on Canada P3E2C6)	In connection with Indo-Canadian Collaboration on Global Mining Initiative. They visited our important laboratories and had a indepth, fruitful discussion with ESE faculty members in order to curve out salient areas of collaborative research as well as to organize short courses in relevant areas on 27.7.12.
Mr. V. P. Raja, Formerly with Dept of Atomic Energy and presently Chairman, Expert Appraisal Committee, Coal and Thermal Sector, MOEF, Mr. Hota, Director MOEF, Dr. G. S. Roonwal, Member EAC (Mining) MOEF, New Delhi, Dr. C.B.S. Dutt, Deputy Director, ECSA, NRSC, ISRO, Bangalore, Mr. Jawahar L Mehta, Former Director (Plg. & Proj) Nyveli Lignite Corporation Ltd.	All the members visited all the facilities available at Centre alongwith ENVIS Centre. They taken deep interest and highly appreciated the work done by Centre in the field of Mine Environment on 29.8.2012.
DRDO Team comprising of Dr R K Sinha, Scientist G, Associate Director and Dr. D B Sarwade, Scientist F, Joint Director visited ESE Dept on 27.02.13.	In order to view the research facilities/laboratories of the Dept and discussed with ESE faculty on probable collaborative research areas.
Dr. Olle Wijk, Professor and Senior Vice President & Head of Group R&D, Sandvik AB, Sweden and his team	In connection with research collaboration with ISM on 8.2.2013.
Mr. Sudhir Vasudeva, Chairman and Managing Director ONGC.	Interacted with students and faculty members regarding research and job scenario. Mr. Vasudeva also address- ed to press media in a press brief and showed keen interest in environmental related issues. A team of experts also accompanied him during the visit. ISM Alumni Ass. also conferred him with Basant Samman 2013 on 9.2.2013.

Prof. T. C. Rao, ExDirector, RRLBhopal & Advisor, NEIST, Dr. P. G. Rao, ExDirector, NEIST & Advisor, NERegion, Dr. R. C. Boruah, Actg. Director, CSIRNEIST, Jorhat, Dr. B. P. Baruah, Principal Scientist, CSIRNEIST, Jorhat and Dr. P. Sengupta, Chief Scientist, SIRNEIST, Jorhat	For Collaboration Study with North East Institute of Science & Technology on 25.2.2013.
Dr. R.K.Sinha, Scientist G, Associate Director and Dr. D. B. Sarwade, Scientist F, Joint Director and DRDO Team	For an objective to understand the facilities available with us and to find the possible areas of collaborative research projects in different subject areas on 28.2.2013
Mr. Sanjay Kumar, SO, Ministry of	In connection with two weeks training
External Affairs (MOEA), Govt. of India and MOEA Officials	In connection with two weeks training
Prof Baray Sediqi, Deputy Minister of MOHE, Mr Bahram Emami (from President's Office), Prof Faqiri, HOD, Administrative and Finance and Mr Sediqullah Sahar, Education Attache in India.	In connection with exploring and finalization of BE program in ISM for Afghanistan students. They visited all the departmental laboratories and interacted with faculty and research scholars on 12.5.2013.

3.10.11 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Shri N. K. Nanda, Chairman-cum-Managing Director, National Mineral Development Corporation Ltd., Hyderabad	Delivered this special lecture on “Sustainable Mining and Environment” for 11 th Professor S.K.Bose Memorial Lecture on 19.4.2012
Professor M.N.V. Prasad, Department of Plant Sciences, University of Hyderabad.	Special lecture delivered on “Biological Cultivation of Mine Industry ravaged soils (Virtual moonscapes) break throughs and bottle necks”. He has discussed about the major bioremediation technologies which are available and upcoming in the future. The presentation was focused on the Biotechnological and Phytoremediation approaches to remediate the mine wastes which looks like virtual moonscape after mining on 24. 8. 2012.
Dr. (Mrs) Asha Juwarkar, Chief Scientist & Head, Ecosystem Division, NEERI, Nagpur.	Special lecture delivered on “Ecorestoration of Mine Degraded through Integrated Biotechnological Approach” on 29.11.2012.
Shri Niladri Kumar Mitra (1972 batch, Petroleum Engg.), Formerly Director (Offshore), ONGC.	Special lecture delivered on “Environmental Aspect, Risk Assessment and Disaster Management of Petroleum Industries” on 24.1.2013.
Dr. Arijit Dey, Officer on Special Duty to Cabinet Minister, Ministry of Water Resources, New Delhi and former Senior Scientist of Central Ground Water Board, New Delhi.	Lecture delivered on following topics: • Groundwater Management in India An Overview. • Water Resources Management on 5.2.2013.
Prof R.P Sharma, Head of the Department, Civil Engg Dept, BIT Sindri.	Lecture on Geotechnical Engineering for Vth Semester B.Tech Env Engg & M.Tech 3 rd Semester Students, September 2012

3.10.12 MISCELLANEOUS: ANY OTHER RELEVANT INFORMATION

1. Dr. Gurdeep Singh, appointed as Chairman, State Level Environment Impact Assessment Authority (SEIAA), Jharkhand Ministry of Environment and Forests/Government of India vide Notification S.O.3010(E) dated 27th December, 2012- in exercise of the powers conferred by sub-section (3) of the Environment (Protection) Act, 1986 (29 of 1986) and in pursuance of the notification of the Government of India in the Ministry of Environment and Forests, number S.O. 1533(E), dated the 14th September, 2006, the Central Government constituted the State Level Environment Impact Assessment Authority (SEIAA), Jharkhand with Professor Gurdeep Singh as the Chairman of the said Authority.
2. Dr. Gurdeep Singh, has been nominated as Member Academic Council, Kamla Nehru Institute of Technology, Sultanpur.
3. Dr. Gurdeep Singh, has been nominated as Member State Advisory Council on Climate Change, Govt. of Jharkhand
4. Dr. Suresh Pandian E secured best research paper award for presenting "Impact of Traffic Type and Non-vehicular Sources on SPM and RPM in Indian Urban City Dhanbad Using M-GFLSM Model" in 2nd Annual international conference proceedings in "Sustainable Energy and Environmental Sciences (SEES)" during 25-26 February 2013.
5. 11th Professor S K Bose Memorial Lecture 2012 was organized on 19 April, 2012. Shri N K Nanda, Chairman-cum-Managing Director, National Mineral development Corporation Ltd presented Prof S K Bose Memorial lecture on Sustainable Mining and Environment.
6. Dept of ESE, ISM, Dhanbad has been recognized as Key Resource Centre (KRC) of Ministry of Drinking Water & Sanitation, Govt. of India for Jharkhand State.

3.11 Department of Fuel and Mineral Engineering

The Department of Fuel and Mineral Engineering was established in 1976 and is actively engaged in teaching, research and consultancy activities. The Department offers academic programmes, such as, B.Tech. in Mineral Engineering, 5-years integrated dual degree programmes, M.Tech. courses and Ph.D. programmes.

3.11.1 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of students	Place of visit	Period of visit
Field Visit/ Excursions	VII B.Tech MLE	Chasnala, Bhelatand, Jamadoba, Moonidih, Electrosteel, Sarshetoli, Mahuda and Sudamdih Coal Washeries, Sonapur Bazari Open Cast Mine, Jamadoba Coal Washery and FBC Power Plant	One day each
	V B.Tech MLE	Jamadoba, Electrosteel, Bhelatand Coal Washeries and DVC Chandrapura Power Plant	One day each
	III B.Tech MLE	Moonidih and Madhuban Coal Washeries	One day each
	IX Dual Degree (MT+MRM)	Bhelatand, Sudamdih, Chasnala, Electrosteel, Sarshetoli Washeries, Sonapur Bazari Open Cast Mine, Jamadoba Coal Washery and FBC Power Plant	One day each
	DD (MT+MRM)+ VIII B.Tech MLE(MT+MRM)	Sighbhum Excursion	Four days
	DD(MT+MRM) + VIII B.Tech MLE (MT+MRM)	West Bokaro and Rajrappa Coal Washeries	Two days
Industrial Training/ summer Internship	IV B. Tech MLE + DD	Essar Steel, Kirandual	Two days
		FOMENTO, Goa	
		TataSteel, Jamadoba	
		TataSteel, Noamundi	
		TataSteel, West Bokaro	

	IV B. Tech MLE + DD	Tata Steel, Sukhinda	
		RINL, Visakapatnam	
		IMMT, Bhubaneswar	
		SAIL, Iron Ore Mines, Kiriburu	
		SAIL, Iron Ore Mines, Dalli Rajhara	
		Bhojudih Coal Washery, BCCL	
		Mahuda Coal Washery, BCCL	
		Moonidih Coal Washery, BCCL	
		Sudamdih Coal Washery, BCCL	
		Dugda Coal Wsahery, BCCL	
		Bailadila Iron Ore Mines, NMDC	
		Jaduguda, Uranium Corporation of India, Ltd	
		Technical University, Berlin	
	VI B. Tech MLE + DD	McNally Sayaji Engg. Co. Ltd.	
		Metso Minerals	
		M N Dastur	
		JSPL, Raigarh	
		IREL, Chhatrapur	
		JSW, Bellary	
		NMDC, Hyderabad	
		HZL, Udaipur	
		TataSteel, Sukinda	
		Tata Steel, Bhelatand Coal Washery	
		Hindustan Zinc Ltd.	
		Kiriburu Iron Ore Mines, SAIL	
		Bhojudih Coal Washery	
		Dugda Coal Washery, BCCL	
		Sudamdih Coal Washey, BCCL	
		Moonidih Coal Washery, BCCL	
		Mohuda Coal Washery, BCCL	
		SGS India, Dhanbad	
		Bhushan steel, Sahibabad	
		Sarda Mines Pvt. Ltd., Barbil	
		CDE ASIA, Kolkata	

3.11.2 BRIEF LIST OF ON-GOING R&D PROJECTS (PROJECT VALUE Rs. 5,00,000/- AND ABOVE

Project Title	Sponsoring Agency	Coordinator(s)	Project Value (lakhs)	Date of Commencement	Date of Completion	Objective	Status	Findings
Beneficiation of low grade iron ore and tailings by selective flocculation	Ministry of Mines, Govt. of India	Prof. N.R. Mandre (PI) & Prof. R. Venugopal (CI)	Rs. 25.82 Lakhs	31/3/2013	-----	Selective flocculation of low grade iron ore and tailings using various polymers. The study also aims at formation of flocculation scheme for their beneficiation. Developing correlation between various processing parameters.	Ongoing	Newly sanctioned
ii) Characterization, Beneficiation and coke making of Low volatile medium Coking Coals'	UGC	Dr Shalini Gautam, Coordinator Prof. N. Suresh, Co-Coordinator	Rs. 9.56 Lakhs	1/02/2011	31/01/2014	To study the possibility of Low Volatile Medium Coking Coal use for coke making and to optimize the properties of coke required for metallurgical purposes.	Ongoing	In progress

3.11.3 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS. 5,00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value INR
Simultaneous DTA-TGA/DSC	Research	March 2013	40.00 Lakhs

3.11.4 RESEARCH PUBLICATIONS

3.11.4.1 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Dwarapudi, Srinivas., Ghosh, K.Tamal., Tathvadkar, Vilas., Denys, B. Mark., Bhattachary, D. and Venugopal, R.	2012	Effect of MgO in the form of magnesite on the quality and microstructure of hematite pellets	International Journal of Mineral Processing	Vol. 112-113	pp. 55-62
2.	Singh, Veerendra., Tathvadkar, Vilas., Denys, B.Mark. and Venugopal, R	2012	Application of quartz inversion phenomenon in mineral processing A case study of siliceous manganese ores	Mineral Engineering	Vol. 32	pp. 8-11
3.	Saha, S., Shahu, G., Dutta, S., Chavan, P., Sharma, B. K. and Sharma, T.	2013	Studies on CO ₂ gasification reactivities of high ash Indian coals	International Journal of Emerging Technology and Advanced Engineering	Vol. 3	pp. 29-33
4.	Chavan, P., Dutta, S., Saha, S., Shahu G. and Sharma, T.	2012	Influence of high ash Indian coals in fluidized bed gasification under different rating conditions	Solid Fuel Chemistry	Vol. 46	pp.108-113
5.	Tiwari, H. P., Saxena, V. K., Banerjee, P. K.	2012	Study on heating behavior of coal during carbonization in non-recovery oven	Int. Journal of Metallurgical Engineering	Vol. 1(6)	pp. 105-112

6.	Sripriya, R., Suresh, Nikkam., Chandra, Sanjay and Bhattacharjee, Debashish	2013	The Effect of Diameter and Height of the Inserted Rod in a Dense Medium Cyclone to Suppress Air-Core	Minerals Engineering	Vol. 42	pp. 1-8
7.	Angadi, Shivakumar I., Jeon Ho-Seok., Suresh, Nikkam.	2012	Experimental analysis of solids and water flow to the coal flotation froths	Minerals Processing	Vol. 110	pp. 62-70

3.11.4.2 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Bhattacharya, S.	2012	Coal in India has no reject preferably no middling; it has coal and rock + clay	Journal of the CPSI	No. 9	pp 37-43
2.	Bhattacharya, S.	2012	Benchmarking the only way forward for the thermal coal preparation in India	Journal of the CPSI	No. 9	pp 16-22
3.	Suresh, Nikkam	2012	Need for Training and Skill Development in Coal Preparation	Journal of the CPSI	Vol. IV No. 10	pp: 37- 41
4.	Bhargava, Pramit., Venkatesh, A.S. and Mandre, N.R.	2012	Beneficiation of low grade iron ore by flotation	Journal of society of Geoscientist and Allied Technologists	Vol. 13, No. 2	pp. 13-17
5.	Gupta, Mohit., Venkatesh, A.S. and Mandre, N.R.	2012	Beneficiation of low grade iron ore slimes	Journal of the society of Geoscientist and Allied Technologists	Vol. 13, No. 2	pp. 123-128
6.	Saha, S., Shahu, G., Sharma, T. and Sharma, B. K.	2012	Variation of CO ₂ gasification reactivity in gravity separated coal samples	Mines Metals and Fuels	July Aug	pp.156-161

3.11.4.3 Papers presented/published in International Seminars/Conferences

- 1) Mandre, N.R. and Behra, U.K., 2012. 'Selective flocculation of low grade iron ore fines', XXVI International Mineral Processing Congress, September 22-28, Delhi, pp 687-691.
- 2) Kumar, C. Raghu., Mohanan, Srijith., Tripathy, Sunil Kumar., Bhoja, Sharath Kr., Kumar, Ashok., Venugopalan, T., Suresh, Nikkam., 2012. 'Classification Performance Studies in a Floatex Density Separator', XXVI International Mineral Processing Congress, Delhi Paper No 530.
- 3) Tripathy, Sunil Kumar., Singh, V., Ramamurthy, Y., Tathavadkar, V., Banerjee, P. K., Suresh, N., 2012. 'Particle characterisation and magnetic separation behaviour of iron bearing minerals in Sukinda chromite ores', XXVI International Mineral Processing Congress, Delhi. Paper No 838.
- 4) Gajbhiye, Pratima., Singh, Jayant. K., Kumar, Anil., 2012. 'Synthesis of PVA Based Membranes Modified by Benzimidazole Group for Direct Methanol Fuel Cells', Topical Conference on Process Safety, Advanced Fossil Energy Utilization, Houston, Texas, pp 2-5 (ISBN: 978-1-62276-567-6).
- 5) Gajbhiye, Pratima., Joshi, Pranjal., Singh, Jayant. K. and Kumar, A., 2012. 'Operation and Controls of Operating Direct Methanol Fuel Cells with PVA Based Modified by Benzimidazolium Groups', Topical Conference on Process Safety' Advanced Fossil Energy Utilization, Houston, Texas, pp 6-8. (ISBN: 978-1-62276-567-6)
- 6) Gajbhiye, Pratima., Joshi, Pranjal., Singh, Jayant. K. and Kumar, A., 2012. 'Operation and Controls of Operating Direct Methanol Fuel Cells with PVA Based Membranes Modified by Benzimidazolium Groups', Topical Conference on Process Safety, 15th Topical on Refinery Processing, Houston, Texas, pp 279-281 (ISBN: 978-1-62276-561-4).
- 7) Dwarapudi, Srinivas., Kumar, Sandeep. T.K., Tathvadkar, Vilas., Denys, Mark. B., Bhattachary, D. and Venugopal, R., 2012. 'Quality and microstructure of hematite pellets with magnesite as fluxing agent', Asia Steel conference, Beijing, w133-26.
- 8) Bhattacharya, S. and Pathak, A., 2012. 'Silica The future energy mineral of India', XXVI International Mineral Processing Congress, Delhi, pp. 508 -517.
- 9) Choudhary, A. S., Bhattacharya, S. and Kumar, Narendra. I., 2012. 'Sink Float Tests of coal: Sampling and Washability Data Validation Issues', XXVI International Mineral Processing Congress, Delhi, pp. 942 -951.

- 10) Anupam, Anand., Agarwal, Ashish. and Suresh, Nikkam., 2012. 'Studies on Application of Dense Medium Cyclones for Beneficiation of 2mm +0.1mm Size range Coal Obtained from an Open Cast Mine of Jharia Coalfields, India', XXVI International Mineral Processing Congress, Delhi, pp 215-222.

3.11.4.4 Papers presented/published in National Seminars/Conferences

- 1) Kumar, Shravan., 2012. 'General Approach to Design a Fluorspar (CaF₂) Beneficiation Plant', Investment opportunities in mines and steel sectors of India by 2030, pp 32-36.
- 2) Bhattacharya, S. and Saxena, V. K., 2012. 'Usage of washed coal for power generation in India: Issues and Challenges', National Workshop on Management of Coal Supply to Power Plants', Kolkata, pp 19-24.
- 3) Anand, Kumud., Biswas, Anushree. and Bhattacharya, S., 2013. 'Challenges in the processing of iron ores in India', Workshop on I&S Making in India (Invited Talk), Jadavpur University, Kolkata.
- 4) Bhattacharya, S., 2012. 'MMDR Bill (2011) Certain issues which need to be addressed', Planning Commission Workshop, GOI, Delhi, pp 20-32.
- 5) Gautam, Shalini, 2012. 'Influence of binder concentrator on the characteristics of coke and its micro strength', Koyla Upayog: Drishti 2025.

3.11.5 SEMINAR, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

National Workshop on 'Flotation' sponsored by X-strata Technologies, Australia in Kolkata	8-9 th December 2012

3.11.6 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof. S. Bhattacharya	Workshop on Benchmarking of Coal Washing Technology and Reject Management	14 th April 2012	CMPDI, Ranchi
Prof. Nikkam Suresh	Brain Storming Session 'Geology & Mining, Coal and Mineral Utilization in NE Region'	7 th August 2012	CSIR-NEIST, Jorhat

Prof. S. Bhattacharya	GOI Planning Commission Workshop, on MMDR Bill (2011)	24 th August 2012	Delhi
Prof. V. K. Gupta Prof. R. Venugopal Prof. N. Suresh Prof. S. Bhattacharya Prof. N. R. Mandre and Shri Anand Anupam	XXVI International Mineral Processing Congress	24-28 th September, 2012	Delhi
Prof. S. Bhattacharya and Prof. V. K. Saxena	National Workshop on 'Management of Coal Supply to Power Plants'	14 th October 2012	Delhi
Prof. Nikkam Suresh	66th Annual Technical Meet and the 50th National Metallurgists' Day	14 th October 2012	Delhi
Shri Shravan Kumar	National Seminar: 'Investment opportunities in mines and steel sector of India by 2030'	14 th October 2012	Delhi
Prof. S. Bhattacharya	Workshop on I&S Making	22 nd February 2013	Jadavpur University, Kolkata

3.11.7 TESTING SERVICES (LAB FACILITIES AVAILING FOR TESTING IN THE DEPARTMENT/CENTRE)

Facilities in the Department of Fuel and Mineral Engineering

Broad Areas	Name of Equipment (Make And Model No.)	Applications
Comminution	Laboratory Jaw Crushers (Multiple Units)	
	Laboratory Roll Crusher (Multiple Units)	
	Vertical Rotary Crusher (Sturtevant Engg. Co. Ltd., UK)	
	Sizer (MMD)	
	Laboratory Ball Mills (Multiple Units)	
	Laboratory Vibrating Mill	
Sample	Sampling Facility	Reduction in sample quantity
Preparation	Coal and Ore Pulverising Facilities	Fine Grinding

Analysis	Cyclosizer (Warman International, MK5)	Sub-sieve size analysis
	Screen and Sieve Analysis Facilities (20µm to 150 mm)	Dry and Wet Size Analysis
	Bond Work Index Ball Mill	Grindability Determination
	HGI Apparatus (Multiple Units)	
	Simultaneous TG-DTA/DSC Apparatus (NETZSCH-Gerätebau GmbH, STA 449 F3 Jupiter)	Thermal Analysis
	Proximate Analysis Facility	Coal Characterisation
	CHNS & O Element Analyser (Vario, EL III)	Ultimate Analysis of Coal
	Bomb Calorimeter (Leco, AC-350)	Calorific Value Determination of Coal
	Low Temperature Gray King Assay Furnace	Coking Coal Characterisation
	Shatter Index Apparatus	Coke Characterisation
	Micum Index Apparatus	
	Drum Test Apparatus	
	Atomic Absorption Spectroscope (AAS) (Under Installation)	Quantitative Chemical Analysis
	Float-Sink/ Heavy Liquid Separation Test Facility (for all particle sizes)	Determination of Washability of Coal and Ore
	Chemical Analysis Facility	Estimation of grade of ore
	Davis Tube Magnetic Separator (Electromag Devices)	Magnetics Content Determination
	Zeta Potential Analyser (Zetameter, 3.0+)	Zeta Potential Measurement
Size Separation	Vibrating Screen	Classification
	Hydrocyclone with Test Rig (custom made)	
Beneficiation	Coal Jig (KHD Humboldt Wedag, MN922/4)	Laboratory testing for Beneficiation of Coal and/or Ore
	Mozley Mineral Separator (Richard Mozley Ltd.)	
	Bartles-Mozely Laboratory Vanner (Bartles {Carn Brea}Ltd., BMV-132)	

3.11.8 SPECIAL LECTURES BY DISTINGUISHED GUESTS

1.	Dr. Nawshad Haque, Scientist-CSIRO, Australia delivered lecture on 'Life cycle assessment of mining mineral processing and metal production'.	Guest Lecture on 30 th September 2012
2.	Mr. Sujoy Maity, DGM-Design, McNally Bharat Engg. Co. Ltd. delivered lecture on 'Conveyor belt selection, plant layout and selection of material handling equipment'.	Guest Lecture under TEQUIP II on 13-14 th October 2012
3.	Mr. Saurav Majumdar, AGM-Design, McNally Bharat Engg. Co. Ltd. delivered lecture on 'Piping system design and layout'.	Guest Lecture on 8-9 th February 2013
4.	Prof. A. Chattopadhyay delivered lecture on 'Construction, operation, maintenance and selection of belt conveyor'.	Guest Lecture under TEQUIP II on 23 rd -24 th March 2013

3.11.9 MISCELLANEOUS

- At the initiative of the Department of Fuel and Mineral Engineering, a MoU was signed between ISM-Dhanbad and CSIR-NEIST, Jorhat on 24th December 2012 to collaborate and jointly work on different research areas related to mining and beneficiation of minerals of NE region, and also to collaborate on various other topics of interest.

3.12 Department of Humanities and Social Sciences

The Department of Humanities and Social Sciences is one of the first departments of Indian School of Mines started in the year 1926. It is essentially inter-disciplinary Department to make budding engineers and technologists linguistically communicative, socially aware and ethically conscious individuals. The Department also offers M.Phil. in English and Ph.D. in the emerging areas of Humanities and Social Sciences.

3.12.1 BEST PRACTICES IN THE DEPARTMENT

All the courses at UG and PG level have bias towards skills development and Professional performances.

3.12.2 BRIEF LIST OF ON-GOING R&D PROJECTS (PROJECT VALUE Rs. 5,00,000/- AND ABOVE

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement / Date of Completion	Objective	Status	Findings
Poetics of Tension: Contempo-rary Indian English Women's Poetry	UGC, New Delhi	PI: Dr. Rajni Singh Co- PI: Prof. R.K. Singh800/-	Rs. 8,55,000/-	1.7.2012 to 1.7.2014	To bring the women poets from margin to centre	Ongoing	Collecti-on of primary text is still going on while the theoretic-al analysis and poetry reading is going on

3.12.3 RESEARCH PUBLICATION

3.12.3.1 Books Published

1. Singh, R.K. 2012. New and Selected Poems Tanka and Haiku. New Delhi: Authors Press.
2. Singh, Rajni and Ram Krishna Singh (eds). 2012. Indian Poetry in English: In Search of Identity. New Delhi: Authors Press.
3. Singh, Rajni. Anxiety of Influence: Tennysonian Echoes in T. S. Eliot. Lambert Publishing House, Germany, 2012.

3.12.3.2 Book Reviews/Contribution of chapters in a book

1. Singh, R.K. 2012. Keki N. Daruwalla: The Poet and Novelist (by Asha Viswas). The Journal of Indian Writing in English, Vol. 40, No.1.
2. Singh, R.K. 2012. A Dictionary of Indian English Litterateurs: 1894-2010 (comp. & ed. Mahendra S. Rana). Indian Book Chronicle, Vol. XXXVII, No. 10-11.
3. Singh, R.K. 2013. Blossoming Blossoms of Poetry: Selected Poems (Hsu ChiCheng). Poetcrit, vol. XXVI, No.1. and The World Poets Quarterly, Vol. 69, February 8, (Chinese/English).
4. Singh, R.K. and Rajni Singh. 2012. The Growth of a Genre: Indian English Poetry. Indian Poetry in English: In Search of Identity. New Delhi: Authors Press.
5. Jamal, Sadaf and R.K. Singh. 2012. Mamang Dai: A Study of her Poetic Art . Multi-Ethnic Poetry in English from North-East India: A Critical Spectrum, Vol. 1, Indu Swami (ed.), Germany: LAP.
6. Singh, R.K. 2012. Preface. Significance of the Insignificant: A collection of short poems by Linda L Ashok. Allahabad: Cyberwit.net.
7. Singh, R.K. 2012. 'R.K.Singh: An Indian English Poet Explores the Senses Creatively...' Proceedings of International Conference on Role and Responsibilities of Humanities and Social Sciences in Technical Education (eds. Vijay Kumar Roy and Upendra Gami). New Delhi: Alfa Publications.
8. Singh, R.K. 2013. Wisdom of the Body: Some Reflections. SenSexual: A Unique Anthology, Vol.1 (ed: Susana Mayer), USA: SenSexual Press.

9. Singh, Rajni. Review of Asim Kumar Mukherjee's Frown of Freedom in Indian Book Chronicle, Vol. XXXVII, No. 4, April 2012, p. 2.
10. Aravind, Aju. 2012. 'Vihang A Naik: A Distant Voice from the Land where Sabarmati was Burned.' Indian Poetry in English: In Search of Identity Ed. Rajni Singh & Ram Krishna Singh . New Dehli: Authorspress, 134-141.
11. Aravind, Aju. 2012. 'Between Ugly Faces and Innocence: Representation of Blacks in Tom and Jerry Cartoons.' African and Afro-American Literature: Insights and Interpretations. Ed. K.V. Dominic. New Dehli: Authorspress, 320-341.
12. Aravind, Aju. 2013. Review of M. L. Kaul. The Quest for Peace. And M. L. Kaul. God is Now Here in. POETCRIT Vol.XXVI No. 1. pp 153-155.
13. Aravind, Aju. 2013. Review of Hamza Hassan Sheikh. Museum of Reminiscence. in POETCRIT Vol.XXVI No. 1 Pp. 150-152.
14. Aravind, Aju. 2013. Review of Binayendra Chowdhuri. Loneliness and Monologue. in Impressions of Eternity Vol.3-4. pp. 136-138

3.12.3.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Kumari, Priya and M. Mojibur Rahman	2012	A Needs Analysis of Underprivileged Technical Students at Indian School of Mines, Dhanbad, India'	The Asian ESP Journal	Vol. 8, Issue 4	pp. 93-124
2.	Singh, Rajni	2012	Teaching Oral Presentation Skills to Petroleum Engineering Students at Indian School of Mines: A Study	GSTF, Journal of Law and Social Sciences, Singapore	Vol. 2, No.1	pp. 240-244
3.	Singh, Rajni	2012	The Binary Poles of Existence: Contemporary Indian English Women's Poetry	The Marginal Voice: International Journal of Humanities and Social Sciences	Vol. I	pp. 64-75.

4.	Singh, Rajni	2012	Orientalism Revisited: India in Edward Said's Mind	International Journal of Linguistics and Literature (IJLL)	Vol.1, Issue 2	pp. 25-30
5.	Singh, Rajni	2013	Woman as the 'Other': A Study of Shauna Singh Baldwin's What the Body Remembers	International Journal of Humanities and Social Sciences (IJHSS)	Vol.2, Issue 1	pp. 57-64,
6.	Aravind, Aju	2012	(Auto)/Biographical elements in the Animated Cartoon Tom and Jerry	Lapis Lazuli - An International Literary Journal (LLILJ)	Vol.2/ No.2/ Autumn	pp. 1-5.

3.12.3.4 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Singh, R.K	2012	Teaching English for Communicative Performance and Business communication	University News Indian Book Chronicle	Vol. 50, No. 21 Vol. 37, No. 5-6	pp. 10-14 pp. 3-7
2.	Thakur, Ram Kulesh and R.K. Singh	2012	Decoding the Poetry of I.K. Sharma A New Perspective	Poetcrit	Vol. XXV. No.1	
3.	Singh, Rajni	2012	Feminine Sensibility in the Poetry of Asha Viswas: A Study	Indian Book Chronicle	Vol. XXXVII, No. 5-6 ISSN- 0970-468	pp. 13-18
4.	Singh, Rajni	2013	When Poetry Becomes Prayer: A Study of the Works of Pashupati Jha	The Indian Journal of English Studies	Vol. L	pp. 348-360
5.	Singh, Rajni	2012	Materialisation of the Body/Womb in Fay Weldon's Puffball	Subaltern Speak	Vol.I, No. III	pp. 59-64
6.	Singh, Rajni	2012	Representation of Female Sexuality in the Novels of Manju Kapur	Subaltern Speak	Vol.I, No. III	pp. 76-84

3.12.3.5 Papers presented/published in International Seminars/Conferences

1. Singh, Rajni. "Shaw's Women and the Concept of Androgyny in the Indian Philosophic Tradition: A Study", International Conference on G.B. Shaw, 'G.B. Shaw Back in Town' at University College Dublin , Dublin, Ireland, May 29th-June 1st 2012.
2. Singh, Rajni. "Teaching Oral Presentation Skills to Petroleum Engineering Students at Indian School Of Mines: A Study", Annual International Conference on 'Language, Literature and Linguistics (L 3 2012), Singapore, 9-10 July 2012.
3. Aravind, Aju. 2012 The Little Fuehrer: The Jewish Question in the Animated cartoon Tom and Jerry International Conference on Social Sciences (ICSS) organized by the Social Sciences Research Society, Izmir, Turkey. 05-07 Oct.

3.12.3.6 Papers presented/published in National Seminars/Conferences

1. Singh, R.K. 2012. Teaching English for Communicative Performance & Business Communication. AICTE sponsored Staff Development Programme on 'Emerging Trends in Business English and the Methods of Teaching' at National Institute of Science and Technology, Berhampur, Odisha, March 2012.
2. Behura, A. K. , "An Understanding of Man from Gandhian Perspective", in the 87th Session of Indian Philosophical Congress, LNM University, Darbhanga, November 7-10, 2012.
3. Behura, A. K. , "Moral Implications of Technology" on the occasion of World Philosophy Day, Sponsored by Indian Council of Philosophical Research, Ravenshaw University, Cuttack, January 4th, 2013.
4. Singh, Rajni. "Quintessential Quest in Shashi Deshpande's That Long Silence", 57th All India English Teachers' Conference on "Emerging Areas in English Studies" at Department of English, Sardar Patel University, Vallabh Vidyanagar, Gujrat, 21-23 December 2012.
5. Singh, Rajni. "Discovering the Metamorphosis of the Female 'Self' in Monica Ali's Brick Lane", 57th All India English Teachers' Conference on "Emerging Areas in English Studies" at Department of English, Sardar Patel University, Vallabh Vidyanagar, Gujrat, 21-23 December 2012.

6. Aravind, Aju. 2012. "Election and Electoral Process: A Gimmick or Curse to Democracy". UGC Sponsored National Conference on Challenges to Democracy organized by Department of Political Science, P.K. Roy Memorial College, Dhanbad. 17-18 May 2012.

3.12.4 MAJOR ACADEMIC CONTRIBUTION

- 1 Professor R. K. Singh guest edited a special issue of Poetcrit, vol. 25, No.2, July 2012 on Contemporary Poetry in English.
- 2 Professor R. K. Singh was also a special guest and invitee to read his poetry and interact with the audience as part of the celebration of National Book Week- 2012 held on 20 November 2012 at Bidhan Chandra College, Asansol, West Bengal.
- 3 In recognition of his contribution to world poetry, Professor R. K. Singh was also honored with Distinguished Membership of The International Association of Poets, Writers & Artists (IAPWA), Tirana, Albania w.e.f. November 03, 2012.
- 4 Prof. R. K. Singh evaluated two Ph.D. theses, one each from Allahabad University and Aligarh Muslim University.
- 5 Dr. Aju Aravind editorial member of Journal of Popular Culture, Department of English, Michigan State University, USA.
- 6 Dr. Aju Aravind editorial member of African Journal of History & Culture, Nairobi.

3.12.5 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINAR / CONFERENCES

Dr. A. K. Behura	World Educational Congress	June 29 th - 30 th 2012	Taj Lands End, Mumbai
Dr. A. K. Behura	UGC Sponsored National Conference on "Challenges to Democracy"	17-18 May 2012	Department of Political Science, P.K. Roy Memorial College, Dhanbad

Dr. Rajni Singh	International Conference on G.B. Shaw, 'G.B. Shaw Back in Town'	May 29 th June 1st 2012	University College Dublin , Dublin, Ireland
Dr. Rajni Singh	Annual International Conference on 'Language, Literature and Linguistics (L 3 2012)	9-10 July 2012	Singapore
Dr. Rajni Singh	57 th All India English Teachers' Conference on "Emerging Areas in English Studies"	21-23 December 2012	Department of English, Sardar Patel University, Vallabh Vidyanagar, Gujarat
Dr. Aju Aravind	International Conference on Social Sciences	05-07 Oct 2012	Izmir, Turkey
Dr. Aju Aravind	UGC Sponsored National Conference on Challenges to Democracy College,	17-18 May 2012	Department of Political Science, P.K. Roy Memorial Dhanbad

3.12.6 MISCELLANEOUS:

1. Dr. Rajni Singh evaluated four Ph. D theses, three from Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu and one from Lalit Narayan Mithila University, Darbhanga.
2. Dr. A. K. Behura delivered two Special lectures on
 - i. 'Ethics and Professionalism' at Thiruvalluvar Learning Centre, IIM Ranchi (29th July 2012)
 - ii. 'Ethics and/of Technology' at NIAS, IISC Campus, Bangalore (21st December 2012)

3.13 Department of Management Studies

3.13.1 ABOUT THE DEPARTMENT

Realizing the need of the combined strength of Engineering and Management in the year 1970s, ISM established Department of Industrial Engineering and Management in 1977. The Department was one of the first few which offered the program of M.Tech Industrial Engineering & Management to cater to the need of imparting both technical and managerial education.. Keeping pace with the need of the changing times, the Department of Industrial Engineering and Management (IE&M) was restructured and rechristened as Department of Management Studies in 1997, given its expertise and experience. The Department of Management Studies of Indian School of Mines, Dhanbad became only the second institute in the country to offer M. Tech IEM and MBA from the same department. The Department currently offers M.Tech (Industrial Engineering & Management), MBA (2 year full time) and Executive MBA (3 year Part time) programmes. It also offers Ph.D programme in Industrial Engineering & Management; Ph.D programme in Management is also offered by the Department.

3.13.2 INTRODUCTION OF NEW COURSES AND PROGRAMMES

The Department of Management Studies started offering Executive MBA (Master of Business Administration) programme, from the academic session 2012-15. This part-time course has been designed especially for working executives. The programme is of three years duration.

3.13.3 BRIEF LIST OF ON-GOING R & D PROJECTS: (PROJECT VALUE Rs. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement / Date of Completion	Objective	Status	Findings
Technology Forecasting and Assessment of Fly-Ash Utilization in Indian Mining Sector.	Deptt. of Science & Tech., Govt. of India	Prof. Kampan Co-PI: Prof.Chandan Bhar, Prof. Phalguni Sen, Dr. Sandeep Mondal	Rs.14,30,000/-	--	Forecasting of Fly-ash utilization in Indian mining sector during next 5,10,15, and 20 years.	On going	--
Developing the e content for training and development modules for Managerial and Non managerial Personnel	MHRD	Coordinators- Dr Saumya Singh, Co Coordinator- Prof Pramod Pathak	Rs 6,30,000	1.03.2010 - 31.03.2013	Developing the e content for training and development modules for Managerial and Non-managerial Personnel in Organisational Behaviour Area.	Completed	--

3.13.4 RESEARCH PUBLICATIONS

3.13.4.1 Book Published

- 1 Das, N (2013). 'Key Drivers of Entrepreneurial Success in India- A Study of Jharkhand, LAP Lambert Academic Publishing AG & Co.KG, Germany
- 2 Pandey, M. (2012). "Celebrity Endorsements: The Name Game" Himalaya Publications Pvt. Limited, New Delhi.
- 3 Pandey, M. (2012). "Wake Up Dear Consumer: A Study of Awareness And Responsiveness of Indian Consumers Towards Their Rights" Lap-Lambert Academic Publishing, Germany

3.13.4.2 Book Review/Contribution of chapters in a book

Book Reviews:

- 1 Pathak, P. (2012). In Search of Oneness, Moosa Raza, Book Review Published in The Sunday Pioneer, December 2, 2012
- 2 Pathak, P. (2012). Seriously Strange, Sudhir Kakar, Book Review Published in The Sunday Pioneer, October 14, 2012
- 3 Pathak, P. (2012). Religion for Atheists, Allen De Botton, Book Review Published in The Sunday Pioneer, July 1, 2012
- 4 Pathak, P. (2012). The difficulty of being good (Hindi Version), Gurcharan Das, Book Review published in India Today (Hindi) July 25, 2012.
- 5 Pathak, P. (2012) Power Thinking by Dr Ujjwal Patni published in Indian Today, June 27, 2012 pp 63.

Contribution of Chapters in a book:

- 1 Nag, D. & Das, N. (2013). "Development of Microenterprises in India: Review of Initiatives and Trends" in the Sasi Mishra, et.al., edited Proceedings of Tenth Biennial Conference on Entrepreneurship organized by EDI, Ahmedabad at EDI from February 20-22, 2013, Vol. 2, pp.763-776.
- 2 Pandey, M. (2012). "Use of Humor in Indian Advertisements: Can it help Mar Competition in Emerging Markets?" In Rai et al, Integrated

Marketing Communications: a research Agenda, Global Publishing House, pp 80-91.

- 3 Pandey, M. & Singh P. (2012). "The Use and effectiveness of Augmented Reality Advertising Targeted at the Youth" published in Proceedings of 1st International Conference on Marketing in Emerging Economies: An Agenda for the Next Decade, 2012, pp 25-32.
- 4 Rashmi & Das, N. (2013). 'Developing a Framework for Effective Environmental Management in India' in the 10th AIMS International Conference on Management organized by AIMS International at IIM, Bangalore from January 6-9, 2013, pp.1765-1774.
- 5 Yadav, R. B. & Pathak, G.S. (2012). Concern about Environment and Intervention Strategies. In Rai, U.K., et. al. (Eds), Emerging Marketing Paradigms. Excel India Publishers: New Delhi, p. 115-122.
- 6 Yadav, R.B. & Pathak, G. S. (2012) Awareness about Environmental Issues: A Study of Female Students. Tenth AIMS International Conference on Management, January, 6-9, 2013, p. 2938-2942

3.13.4.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Dasgupta, M, Bhar, C and Biswas, G.P.	2013	Design of network topology based on delay - cost sink tree	International Journal Communication Networks and Distributed Systems	Vol. 10, No. 2,	pp. 146-162
2.	Das, N.	2012	Impact of Globalization on Sustainable Development in Indian Economy	International Business and Management	Volume 2, Issue No.7	pp. 120-129
3.	Das, N. & Pattanayak, J.K.	2012	Effect of Corporate Fundamental Factors on Stock Market- A Case Study of Indian Stock Market	Finance and Investment Analysis, International Scientific Press.	Vol.1, No.3	pp.1-33

4.	Das, N.	2012	'Internet Banking- The Gateway for Enhancing Customer Satisfaction in Banking Services	Global Advanced Research Journal of Management and Business Studies	Volume 1, Issue No.5	pp. 141-147
5.	Das, N. & Pattanayak, J.K.	2012	Effect of Corporate Fundamental Factors on Stock Market- A Case Study of Indian Stock Market	Journal of Finance and Investment Analysis, International Scientific Press	Vol.1, No.3	pp.1-33
6.	Mondal, S., and Mukherjee, K.	2012	Simulation of tyre retreading process - an Indian case study	International Journal of Logistics System and Management	Vol. 13, No. 4	pp.525-539
7.	Pandey, M. & Giri, A.	2012	Impact of 'Yoga' on the School Students and Guardians in West Bengal: An Empirical Analysis	International Journal of Multidisciplinary Research (IJMR)	Vol.1, Issue 6	pp-1-4
8.	Pandey, M. & Giri, A.	2012	Indian Ayurveda Industry: A Brief Study On Key Market Players Of This Sector	International Journal of Business Management & Social Sciences (IJBMS)	Vol.II, Issue 3(I),	pp-54-57
9.	Pandey, M. & Sur, S.	2013	Exploring Factors Affecting the Adoption of IPTV: A Literature Review	International Journal of Advanced Research in Management and Social Sciences	Vol. 2, No. 2	pp 48-66

10.	Sinha, G. K., Bhar, C and Pattanayak, J.K.	2012	CO2 Emission by Power Sector in India : A Comparative Study of Government Sector and Private Sector with Special Reference to the climate Change in Global Perspective	4d International Journal of Management and Science	Vol.2, Issue 1	pp. 116-134
11.	Singh B. K, Bhar, C. and Pandurangan, V.	2012	Lean Manufacturing Initiatives to Ensure TQM	International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS)	Volume I Issue, X Dec,	pp. 195-201.

3.13.4.4 Papers published in National Journal

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Barnwal S K, Pathak, P, Pathak, G.S.	2012	e- Governance Innovations in State Administration A Case Study of Jharkhand Prisons,	Management Insight	Vol VIII, No. 2	pp 33-39
2.	Chandra, B. and Pattanayak, J.K.	2012	Do Indian Higher Educational Institutions (HEIs) require an ABM framework? - A study	AIMT Journal of Management (The journal of Army Institute of Management & Technology)	Vol. I, No.2,	pp 02-15
3.	Chattopadhyay S, Singh S,	2012	Exploring the Significance of Physical resources in B School Selection Decision in West Bengal	Journal of Management Research in Emerging Economies	Vol. 2, No. 1	pp 66-87
4.	Das, N. and Pattanayak, J.K.	2012	Impact of Corporate Fundamental Factors on Indian Stock Market- A Comparative Study of Sensex and Nifty	Indian Accounting Review	Vol.16, No.2	pp.15-33

5.	Kumar A, Pathak P,	2012	Political Advertising in India: A Perspective	Management Insight	Vol VIII, No. 1	pp 15-29
6.	Mukherjee, K. and Behera, P.K.	2012	An overview on supply chain coordination (SCC) schemes focusing on classification and influencing factors	LBS Journal of Management and Research	Vol. 10	pp. 14-27
7.	Mukherjee, K	2012	Identification of key influencing factors relevant to selecting supply chain coordination schemes - A Structural Modeling approach	The Alternative - Journal for Management Studies and Research	Vol XI, No. 2	pp. 66-86
8.	Pandey, M.	2012	Change though painful Yet all embrace: A Case Study	BVIMR Management Edge	Vol.5, No.1	pg20-26
9.	Pandey, M.	2012	In Television Serial Advertising: A Nouveau Attempt of Embedded Advertising	Anvesa: An Interdisciplinary Research Journal of Fakir Mohan University	Vol 7, issue1, June, 2012	pp 88-95
10.	Pathak P,	2012	A Study of Factors Influencing Bank Employees: A Study	Adhyayan	Vol 2, No 2	pp 1-15
11.	Pathak, P & Singh S	2012	Creating High Performance Organisations Critical Factors	Growth	Vol 40, No 1	pp 47-54
12.	Tudu P N, & Pathak P	2013	Managing Executive Stress in Organisations A Critical Appraisal	Social Science International	Vol. 29, No. 1	pp 1-10
13.	Singh S, & Chattopadhyay S,	2012	Understanding the preference basket of Industry vis-à-vis specialization opted by the management students in West Bengal	Research Journal of Economics and Business Studies	Vol. 1, No 8	pp 16-19
14.	Sinha, A., Mondal, S. and Mukherjee, K.	2013	Evaluating automobile remanufacturing options in India using AHP	Vishwakarma Business Review	Vol: III, Issue 1	pp. 30-34

15.	Sinha, G. K, Bhar, C and Pattanayak, J.K	2012	Potential of Clean Development Mechanism (CDM) for Generating Carbon Credit: Present Status in India,	SYNERGY: I.T.S. Journal of I.T. & Management	Vol. 10, No. 2	pp. 29-40

3.13.4.5 Papers presented/published in International Seminar/Conferences

- 1 Pathak, G. S. (2012). Entrepreneurial Self-Efficacy & Entrepreneurial Intention in India: A Comparative Study of Professional Students. Paper presented at the XXXth International Congress of Psychology, organized during July 22-28 at the Cape Town International Convention Centre, Cape Town, South Africa
- 2 Behera, P.K. and Mukherjee, K. (2012), " Structural modelling through empirical study on decision making relating to supply chain coordination", Compendium from XVI Annual International Conference of Society of Operations Management held at IIT Delhi, Vol. 1, pp. 148-155.
- 3 Daizy, Sen, M. and Das, N (2013). 'Corporate Sustainability Reporting: Review of Initiatives and Trends' in the 11th International Accounting Conference on Sustainability: Corporate Governance, Environment & Business Reporting organized by Indian Accounting Association Research Foundation, Kolkata from January 5-6, 2013.
- 4 Kumar, A. and Mukherjee, K. (2012), " Indian Pharmaceutical Supply Chain: Strategies for Optimisation and Performance Measurement" in XVI Annual International Conference of Society of Operations Management held at IIT Delhi during 21st to 23rd December, 2012.
- 5 Kumari, P. and Pattanayak, J.K. (2013), Impact of corporate governance on level of earnings management and overall firm performance - A review" in Eleventh International Accounting Conference on Sustainability, Corporate Governance, Environment and Business Reporting organized by Indian Accounting Association Research Foundation during January 5-6, 2013.
- 6 Mahapatra, B, Mukherjee, K. & Bhar, C, (2012) " Supply Chain Performance Management - an extensive review" in XVI Annual International Conference of Society of Operations Management held at IIT Delhi during 21st to 23rd December, 2012.

- 7 Nag, D. & Das, N. (2013). "Development of Microenterprises in India: Review of Initiatives and Trends" in the Tenth Biennial Conference on Entrepreneurship organized by EDI, Ahmedabad at EDI from February 20-22, 2013
- 8 Pathak. P. (2013) 'e-Governance in India A Critical Appraisal' in International Conference on Innovation and Information Management (ICIIM 2013) during 18-19 January 2013 in Singapore
- 9 Rashmi & Das, N. (2013). 'Developing a Framework for Effective Environmental Management in India' in the 10th AIMS International Conference on Management organized by AIMS International at IIM, Bangalore from January 6-9, 2013.
- 10 Singh P.K. & Pattanayak, J.K. (2013). 'A Study of Brand Equity Factors Affecting Shareholder's Value' in the 10th AIMS International Conference on Management organized by AIMS International at IIM, Bangalore from January 6-9, 2013.
- 11 Singh, S. (2013) 'Consumer Buying Behaviour and e- Business An Indian Perspective' in International Conference on Innovation and Information Management (ICIIM 2013) during 18-19 January 2013 in Singapore.
- 12 Srivastava, N.K. & Mondal, S. (2012), 'Predictive Maintenance of Overhead Cranes Using NHPP Models', Proceedings of XVI Annual International Conference of the Society of Operations Management, December 21-23, 2012, IIT Delhi, India.
- 13 Srivastava, N.K. & Mondal, S. (2012), 'Predictive Maintenance Program for a CNC Machine in a Cylinder Manufacturing Company', Proceedings of 6th International Conference on Decision Sciences for Performance Excellence, during December 27-29, 2012, at IBS Hyderabad, India.
- 14 Srivastava, N.K. & Mondal, S. (2013), "Predictive Maintenance of Coal Pulverizing Mill Using FMECA Method", Tenth AIMS International Conference on Management held on January 6-9, 2013, IIM Bangalore, pp. 2793-2797.
- 15 Yadav, R. B. & Pathak, G. S. (2012) Awareness about Environmental Issues: A Study of Female Students. Tenth AIMS International Conference on Management held at IIM Bangalore, during January, 6-9, 2013,

- 16 Yadav, R. B. & Pathak, G. S. (2012) Awareness about Environment & Intervention Strategies: A Study. Paper presented at the International Conference on 'Marketing Paradigms in Emerging Economies' held at Faculty of Management Studies, Banaras Hindu University, Varanasi during December 4-5, 2012.

3.13.5 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINAR/ CONFERENCES ETC

J.K. Pattanayak	11 th International Accounting Conference on Sustainability: Corporate Governance, Environment & Business Reporting organized by Indian Accounting Association Research Foundation (IAARF)	January 5-6, 2013	Taj Bengal, Kolkata
Sandeep Mondal	XVI Annual International Conference of the Society of Operations Management	December 21-23, 2012	IIT Delhi
Niladri Das	11 th International Accounting Conference on Sustainability: Corporate Governance, Environment & Business Reporting organized by Indian Accounting Association Research Foundation (IAARF)	January 5-6, 2013	Taj Bengal, Kolkata

3.13.6 MISCELLANEOUS

'Lifetime Achievement in Operations Management Award' was conferred to Prof Kampan Mukherjee by Society of Operations Management of India during XVI Annual International Conference of Society of Operations Management jointly organised by IIT Delhi, IIM Lucknow and Grand Valley State University of USA and held at IIT Delhi during 21st to 23rd December, 2012 for his distinguished contribution in the field of Operations Management

Prof K Mukherjee chaired a session in XVI Annual International Conference of Society of Operations Management held at IIT Delhi during 21st to 23rd December, 2012.

Prof P. Pathak organized Pandit Madan Mohan Malaviya National Workshop cum lecture series on 'Need for Promoting Values in the Indian Society' on July 27,

2012 and November 8, 2012 as a part of the year long lecture series to commemorate 150th birth anniversary year of Malaviya ji.

Prof P. Pathak organized two certificate courses on 'Leadership development' for the students of ISM.

Prof C. Bhar. delivered an invited lecture on "Productivity Assessment of a Coal Mine" in the seminar on "Productivity & Innovation for Sustainable Development" organized by Production Department, South Eastern Coalfields Limited, Bilaspur on February 18, 2013.

Prof C. Bhar delivered an invited lecture on "Information System and its Application in Management Decision Making" in Fourth Refresher Course in ICT organized by Academic Staff College, Burdwan University, Burdwan, West Bengal on March 13, 2013.

Dr N Das et al (**2013**) received the Best Paper Award for the paper titled 'Corporate Sustainability Reporting: Review of Initiatives and Trends' in the 11th International Accounting Conference on Sustainability: Corporate Governance, Environment & Business Reporting organized by Indian Accounting Association Research Foundation (IAARF) held in Taj Bengal, Kolkata from January 5-6, 2013.

Prof G.S. Pathak reviewed research papers as Member (Editorial Board) for the Journal 'Management Wisdom' The Journal of Sree Saraswathi Thyagaraja College, Coimbatore, India

Prof J.K. Pattanayak, J.K. and Dr N. Das reviewed research papers for International Journal of Emerging Markets, Emerald Group, U.K.

Prof G.S. Pathak was invited to contribute a paper in the Invited Symposium on Advances in Organizational Behaviour based on his empirical research in the XXII Annual Convention of the National Academy of Psychology (NAOP) India on the Theme: Psychology in India: Emerging Trends in Theory, Research and Practice hosted at Department of Psychology, Christ University, Bangalore, Karnataka during December 10-12, 2012.

3.14 Department of Mechanical Engineering & Mining Machinery Engineering

The Department of Mechanical Engineering and Mining Machinery Engineering is the offshoot of the original Engineering Department that existed since the time of establishment of the institute. The Department offers B.Tech. programmes, M.Tech. programmes and Ph.D. programmes. The Department strives to maintain a high standard of teaching and research at all the levels.

3.14.1 Field Visits/Excursions/Training Programmes undertaken by students

Particulars	Batch of students	Place of visit	Period of visit
Field visit undertaken for the U/G students	3rd year Mining Machinery students	Kusunda open cast project	One day
Field visit undertaken for the U/G and P/G students	35 students of U/G course of Mechanical and Mining Machinery Engg. disciplines	Maithon Hydro Power station	One day
ASME ISM Quiz Competition 26th August 2012	For all ISM students	Dept. of ME & MME	One day
ASME Student Design Competition 3rd October 2012	For all ISM students	Dept. of ME & MME	One day
ASME Case study competition 4th October 2012	For all ISM students	Dept. of ME & MME	One day
ASME CAD Modelling Competition 5th Oct. 2012	For all ISM students	Dept. of ME & MME	One day
CATIA Workshop 13th March 2013 - 20th March 2013	For all ISM students	Dept. of ME & MME	Eight days

3.14.2 Introduction of New Courses and Programmes, if any (give course outline).

New course for M.Tech in Mechanical Engineering (with specialization in Manufacturing Engineering) has begun from July 2012.

3.14.3 BRIEF LIST OF ON-GOING R&D PROJECTS (PROJECT VALUE Rs. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value (lakhs)	Date of Commencement	Date of Completion	Objective	Status	Findings
Current status, enablers and barriers of implementation of cellular manufacturing system in Indian industries	DST	Dr A R Dixit	Rs.7.2 Lakhs	03.2.2010	03.2.2013	To help the Indian manufacturing organizations to develop a coherent strategy for improving the manufacturing competitiveness. to identify factors that these organizations find important in order to enhance the performance of their operations in the future.	Completed	The results and finding of this project provided the suggestive guidelines for those Indian industries that are planning to Implement cellular manufacturing systems in order to augment their productivity and improve the competitiveness.
Construction of 3D surface from incompatible curves	UGC	Dr. K. Jha	Rs. 6.8 Lakh	02.01.2010	April, 2013	To construct surface from incompatible curves	Completed	GUI is developed to construct surface from incompatible curves. Branching problem has been solved.
Fault diagnosis of a servo system using analytical redundancy	DST	Dr. S.K. Ghoshal	Rs.17.4 Lakh	17.03.2009	--	To localize faulty components particularly for flow control valves and pressure relief valves of a hydrostatic transmission system with pump loading.	Ongoing (PCR submitted)	Faults are isolated using a developed methodology.
Vibration and stability analysis of spinning thin plates	UGC	Dr. Vinayak Ranjan	Rs. 5.67 Lakh	01.02.2011	01.02.2014	To analyze the spinning isotropic and orthotropic /anisotropic thin plate for transverse vibration and stability for different ranges of rotational speeds and numerical validation of the results with commercial FEA softwares.	Ongoing	Stability analysis of a spinning annular circular plate is done.

3.14.4 Important Collaborative Works

Organisation/laboratory	Nature of Interaction
Acoustic Transducers Laboratory, University of South Florida, USA	Fabrication and characterization of PZT deposition on Si/SiO ₂ wafer for vibration energy harvesting

3.14.5 Important New Equipment acquisitioned (above Rs.5,00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value (₹)
Metallurgical Microscope	For conducting experiments related to manufacturing for UG/ PG and PhD students	2013	Rs. 32 Lakh
Computer Controlled Universal Testing Machine	To test the MODE I and MODE II test for for UG/PG and PhD students	24.05.2012	Rs. 6.73 Lakh
Thermographic Camera	Thermal Imaging of Weldments for UG/PG and PhD students	25.05.2012	Rs. 7.86 Lakhs
HMT High Speed Precision Lathe NH22/1500	Fine machining for UG/PG and PhD students	15.01.2013	Rs. 10.72 lakh
Computerized 4-Cylinder 4-Stroke Petrol Engine	UG, PG practical classes and R&D purposes	July 2012	Rs. 8 Lakh
Twin Rotor MIMO System	UG, PG practical classes and R&D purposes	May 2012	Rs. 5.23 Lakh (6264 GBP)
Digital Inverted Pendulum	UG, PG practical classes and R&D purposes	May 2012	Rs. 5.28 Lakh (6333 GBP)

3.14.6 RESEARCH PUBLICATIONS

3.14.6.1 Books published

1. Das, J. (2012) Control of an Electrohydraulic Actuation System, ISBN: 978-3-659-31292-2, Lap Lambert Academic Publishing, Germany.

3.14.6.2 Book reviews/contribution of chapters in a book

1. Shibayan Sarkar reviewed one book: K Subramanya (2013) Hydraulic Machines, McGraw Hill Comp.
2. Ghosh A., Chattopadhyaya S. and Singh N. K. (2012): “Assessment of Heat Affected Zone of Submerged Arc Welding Process through Digital Image Processing” (Chapter), Numerical Analysis of Heat and Mass Transfer in Porous Media, Advanced Materials Research Vol. 27, pp. 209-228, Springer- Verlag, Heidelberg.

3.14.6.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	P. S. Shinde, K. K. Singh, P.K.Sarkar	2012	Fracture Toughness of Thin Aluminum Sheets Using Modified Single Edge Notch Specimen	International Journal of Engineering and Innovative Technology (IJEIT)	Vol. 1(5)	pp. 283-288
2.	R. S. Sinha and A K Mukhopadhyay	2013	Analysis of failure statistics for cone crusher maintenance vis-a-vis operational reliability assessment	International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)	Vol. 3(1)	pp. 125-132
3.	Anirban Sur and R. K. Das	2013	Thermal analysis of Silica Gel-Methanol adsorption refrigeration system	International journal of Mechanical Engineering and Research	Vol. 3 (3)	pp. 231-235
4.	Manoj Kumar, P.S. Mukherjee, N.M.Mishra	2013	Advancement and current status of wear debris analysis for machine condition monitoring: a review	Industrial Lubrication and Tribology, (Impact Factor 0.6)	Vol. 65	pp. 3-11
5.	Kailash Jha	2012	A new method for Reconstruction of Smooth Branching Surface from Contours	CAD/CAM	Vol. 12(1)	

6.	Prithviraj Mukhopadhyay, Somnath Chattopadhyaya	2013	Prediction of weld bead parameters in Gas Metal Arc Welding Process using curve fitting techniques and graphical methods	Int. J. of Advanced Materials, Transtech Publications Inc., Zurich, Switzerland	Vols. 652-654	pp. 2352-2356
7.	Vinay Sharma, Sanjeev Kumar, Somnath Chattopadhyaya	2012	A comparative analysis of internal environmental management performance between Indian small and medium sized enterprises for implementation of sustainable supply chain	Int. J. of advanced Manufacturing Systems	Vol. 14, Issue 2	pp. 49-61
8.	Aniruddha Ghosh, S. Chattopadhyaya, Sergej Hloch	2012	Prediction of Weld Bead Parameters, Transient temperature distribution & HAZ width of Submerged Arc Welded Structural Steel Plates	Technical Gazette,	Vol.19, No 3	pp. 617-620
9.	Sanjeev Kumar Somnath Chattopadhyaya, Vinay Sharma	2012	Developing green supply chain system for Indian enterprises	Int. J. Business Excellence	Vol. 6, No. 3	
10.	Sanjeev Kumar, S. Chattopadhyaya, Vinay Sharma	2012	Sustainable supply chain: vendor and customer participation	International Journal of Modelling in Operations Management	Vol. 2, No. 4	
11.	Sanjoy K. Ghoshal; Subrata Samanta; Arun K. Samantaray	2012	Robust fault detection and isolation of hybrid systems with uncertain parameters	Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engg.	Vol. 226, Issue 8	pp. 1013-1028
12.	Subrata Samanta, Sanjoy K. Ghoshal	2012	Online model based fault diagnosis with a case study of belt conveyor system	Int. Journal of Advanced Computer Engg. and Architecture	Vol. 2, No. 2	pp. 211-221

13.	Abhijeet Chatterjee and Vinayak Ranjan	2012	Free Vibration Analysis of Radial Pneumatic Tire Using FEM	International Journal of Emerging Technology and Advanced Engineering	Volume 2, Issue 8	pp. 22502459
14.	Vates U K, Singh R V and Singh N K	2012	Effective Enhancement for MRR surface smoothness in wire electric discharge machining: a review	International Journal of Production and Quality Engineering (IJPQE), International Science Press	Vol. 3 (2)	pp. 13-26
15.	Vates U K, Singh R V and Singh N K	2012	Process parameter optimization of MRR during EDM Process	International Journal of Materials Processing Science and Technology	Vol.3 No.1	pp 35-40
16.	P. Mukhopadhyay, S. Chattopadhyaya, S Bhatia, N K Singh, AK Mukhopadhyay	2013	Prediction of weld parameters in Gas Metal Arc Welding Process using curve fitting techniques and graphical methods	Advanced Materials Research	Vols. 652-654	PP 2352-2356
17.	V.B. Ugale, K. K. Singh, N. M. Mishra & Prashant Kumar	2013	Experimental studies on thin sandwich panels under impact and static loading	Journal of Reinforced Plastics and Composites	Vol. 32 (06)	pp. 420-434
18.	K. K. Singh & Sayantan Chattopadhyay	2012	Optimization of Electrical Parameters for Production of Carbon Nanotubes	Journal of Minerals & Materials Characterization & Engineering (JMMCE)	Vol. 11	pp. 961-964
19.	P. S. Shinde, K. K. Singh, et. al.	2012	Fracture Toughness of Thin Aluminum Sheets Using Modified Single Edge Notch Specimen	International Journal of Engineering and Innovative Technology (IJEIT)	Vol. 1(5)	pp. 283-288

20.	P. S. Shinde, K. K. Singh, et. al.	2012	Critical J-Integral of Thin Aluminium Sheets Employing a Modified Single Edge Plate Specimen	International Journal of Modern Engineering Research (IJMER),	Vol. 2(3)	pp. 1360-1365
21.	Ojha, K., Garg, R.K., Singh, K.K.	2012	An investigation into the effect of Nickel micro powder suspended dielectric and varying triangular shape electrodes on EDM performance measures of EN-19 steel	International Journal of Mechatronics and Manufacturing Systems,	Volume 5, No. 1	pp 66-92
22.	Subrata K. Ghosh, P. S. Mukherjee, Sunil K. Sarangi	2012	Development of Bearings for a Small High Speed Cryogenic Turboexpander	Industrial Lubrication and Tribology,	Vol. 64	pp. 3-10
23.	Prithawi Raj, Animesh Biswas, Subrata K. Ghosh	2013	Phasor analysis of two-stage gm-type pulse tube refrigerator	International Journal of Emerging Technology and Advanced Engineering	Volume 3, Special Issue 3	pp. 376-381
24.	I. Hassan Rizvi, Ayush Jain, Subrata Kr. Ghosh, P. S. Mukherjee	2013	Mathematical modelling of thermal conductivity for nanofluid considering interfacial nano-layer	Heat and Mass Transfer	Vol. 49	pp. 595-600
25.	Mahato P.K., Maiti D.K.	2012	Active vibration control of smart composite structures in hygro-thermal environment	Structural Engineering and Mechanics	Vol. 44(2)	pp. 127-135
26.	D. Devarasiddappa, M. Chandrasekaran, Amitava-Mandal	2012	Artificial Neural Network Modelling for prediction surface roughness in end milling of Al-SiCp metal matrix composites and its evaluation	Journal of Applied Sciences	Vol. 12 (10)	pp. 955-962

27.	Rakesh Kumar, Jayesh. P and Niranjan Sahoo	2012	Analysis of One Dimensional Inverse Heat Conduction Problem: A Review	International Journal of Mechanical and Industrial Engineering (IJMIE), ISSN No. 2231-6477	Vol. 2, Issue -1	
28.	Rakesh Kumar and Niranjan Sahoo	2012	Design Fabrication and Sensitivity Analysis of the Resistance Temperature Detector Thin Film Sensors	International Journal of Mechanical and Industrial Engineering (IJMIE), ISSN No. 2231 -6477	Vol. 2, Issue 4	
29.	P.Velmurugan, L.A.Kumaraswamidhas and K. Sankaranarayanan	2012	Influence of road surfaces on whole body vibration for suspended cabin tractor semitrailer drivers	Journal of low frequency noise, vibration and active control	Vol. 31 No. 2	pp. 75-85
30.	L.A. Kumaraswamidhas, B. Sudharsan, S. Girish Krishna and P. Velmurugan	2012	Modelling and simulation of non-linear vibration absorber attached to automotive system	Int. J. Vehicle Systems Modelling and Testing	Vol. 7, No. 4	pp. 390-404
30.	L.A. Kumaraswamidhas, B. Sudharsan, S. Girish Krishna and P. Velmurugan	2012	Modelling and simulation of non-linear vibration absorber attached to automotive system	Int. J. Vehicle Systems Modelling and Testing	Vol. 7, No. 4	pp. 390-404
31.	Dixit A.R. and Mishra P.K.	2012	Dynamic cellular manufacturing design and its sensitivity analysis	Int. J. of Applied Management Science	Vol. 4	Issue 3
32.	Das, A.K. and Saha, P.	2013	Analysis on fabrication of micro-tools by micro-electrochemical machining process	Int. J. of Nanomanufacturing	Vol.9, No.1	pp. 66-76

33.	Ghosh A, Chattopadhyaya S and Singh N K	2012	Assessment of Heat Affected Zone of Submerged Arc Welding Process through Digital Image Processing	Journal of Trans Tech Publication, Durnten-Zurich Switzerland. Defect and Diffusion Forum	Vol. 326-328	pp 400-404
34.	Ghosh A, Chattopadhyaya S and Singh N K	2012	Prediction of Weld Bead Parameters, Transient Temperature Distribution and HAZ (Heat Affected Zone) width of Submerged Arc Welded Structural Steel Plates	Journal of Trans Tech Publication Durnten -Zurich Switzerland. 'Defect and Diffusion Forum	Vols. 326-328	pp 405-409
35.	Tripathi B N , Singh N K and Vates U K	2012	GA modelling and Optimization of surface roughness process parameter during honing of cylinder linear	International Journal of Manufacturing Science and Engineering	Vol.3 No.2	pp. 33-37

3.14.6.4 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	B. Bhattacharjee, J. Nag, S. Singh, M. Chandrasekaran, S. Sarkar	2013	Simulation of water pipe network of a small urban area using EPANET	Journal of Multi Disciplinary Engineering Technologies	Vol. 7, No. 1, ISSN-0974-1771,	

3.14.6.5 Papers presented/published in International Seminars/Conferences

1. Das, A.K. & Saha, P., 'Experimental Investigations on Machining of Through-Slots by Electrochemical Micromachining Process'. Proceedings of 4th International & 25th AIMTDR Conference 2012, 14th - 16th December, pp 127-128.

2. Sur, Anirban. & Das, R. K., 2013, 'Mathematical approach of heat and mass transfer of silica gel water at adsorption phase' Int. Conf. on Advancements and Futuristic Trends in Mechanical and Materials Engineering (Oct. 5-7, 2012) Punjab Technical University, Kapurthala, Punjab-144601 (INDIA)
3. Sur, Anirban & Das, R. K., 2012, 'Thermal analysis of Silica Gel-Methanol adsorption refrigeration system', World Congress on frontiers of mechanical aeronautical and automobile engg. 2 - 3 Feb. 2013, IIT Delhi.
4. Kumar, M & Das R. K., 2012, thermodynamic investigation of diffusion absorption refrigeration cycle', Int. Conf. on Advancements and Futuristic Trends in Mechanical and Materials Engineering (October 5-7, 2012) Punjab Technical University, Kapurthala, Punjab-144601 (INDIA)
5. Animesh Biswas, Prithawi Raj, Nipun Jain & Subrata kr. Ghosh, "CFD analysis of single stage g-m type pulse tube refrigerator", International Conference on Energy Resources and Technologies for Sustainable Development, February 2013, BESU, Howrah, India.
6. S.K. Ghoshal & S. Samanta (2012): System identification and qualitative fault detection and isolation of a hydrostatic transmission system: A bond graph approach, paper accepted in International congress on computational mechanics and simulation [ICCMS 2012], to be held at IIT Hyderabad during 09-12 December, 2012.
7. S. K. Ghoshal & Subrata Samanta (2013): Single fault isolation of a power hydraulic system using unknown input observer, in the 2nd International Conferences on Engineering and Applied Science (ICEAS 2013) in Tokyo, Japan, held on 15 17 March, 2013, pp. 1176-1183.
8. Sanjoy K. Ghoshal & Akshay Kamath (2013): Stability Analysis of Articulated Vehicle using Root Locus Approach: A Simulation Study, in First International Conference on Instrumentation, Communication, Control And Automation-ICICCA-2013, held on January 4th 5th, 2013, at Kalasalingam University, Tamil Nadu, INDIA.

3.14.6.6 Papers presented/published in National Seminars/Conferences

1. Brajesh Kumar, Alok Kumar Das & Amit Rai Dixit (2012) "Study of Surface Integrity of Surfaces Machined by Electrochemical Machining Process", Proceedings of National Seminar on "Mining Equipment: Challenges & Application" (MENTCA-2012), ISM, Dhanbad, India.

2. Vikram Sharma, Amit Rai Dixit & Mohd. Asim Qadri (2013) "Statistical Analysis of Survey Data to Establish Strategies for Manufacturing Excellence", National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013) during Feb., 14-16, 2013 at ISM Dhanbad, India
3. Amitava Mandal, Amit Rai Dixit, Biswanath Doloi & Dipankar Bose (2013) "Parametric Analysis for Optimization of Machining Characteristics Using Statistical Technique in Non-Traditional Machining Process" National Conference on Recent Advances in Mathematics and Its Applications (RAMA-2013) during Feb., 14-16, 2013 at ISM Dhanbad.
4. Mayukh Sarkar, Subrata Kr. Ghosh & P. S. Mukherjee (2013), "Role of Corrective Maintenance on reducing wear phenomena in un-lubricated areas of excavator bucket", National Conference on Mechanical Engineering: Retrospect and Prospect, BIET, Suri, WB, 2013.
5. Vimal Kr. Pathak, Shavetabhra Shukla, Subrata Kr. Ghosh & P. S. Mukherjee (2013), "Fluid flow analysis through nozzle injector by using CFD", National Conference on Mechanical Engineering: Retrospect and Prospect, BIET, Suri, WB, 2013.
6. Shavetabhra Shukla, Vimal Kr. Pathak, Subrata Kr. Ghosh & P. S. Mukherjee, "Modeling of Internal Flow and Cavitation in Diesel Injector Nozzle", National Conference on Mechanical Engineering : Retrospect and Prospect, BIET, Suri, WB, 2013.
7. Mohammad Sikandar Azam & Vinayak Ranjan, Free vibration response of a thin plate with attached discrete mass at 100th Indian Science Congress during 3-7 Jan, 2013 at Kolkata.
8. Anuradha Pandey, Ratnesh Ranjan & Vinayak Ranjan, Measuring Academic Achievement of Science Students using Inquiry Training Model at 100th Indian Science Congress during 3-7 Jan, 2013 at Kolkata.
9. Vinayak Ranjan, Design of a piezoelectric T cross section beam for actuators, National Conference on "Advances in Lasers and Spectroscopy (ALS-2012)" November 01-03, 2012 at Department of Applied Physics, Indian School of Mines, Dhanbad.
10. Atul & Vinayak Ranjan, Synthesis, characterization, and applications of ZnO thin films by Sol Gel Method: A Review. National Conference on

“Advances in Lasers and Spectroscopy (ALS-2012)” November 01-03, 2012 at Department of Applied Physics, Indian School of Mines, Dhanbad.

11. Ashok Kumar, Ritesh Mandal, Gulshan Prakash & Vinayak Ranjan, Effect of geometry of the grooves on the mixing of Fluids in micro mixer channel, COMSOL conference, Bangalore, 2-3 Nov, 2012.

3.14.7 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Name of the Faculty	Conference/Seminar	Date	Venue
Dr Vinayak Ranjan	2012 GELS International Symposium on Piezoelectrics	July 6-July 27, 2012	University of South Florida, St Peterburg USA
Dr Vinayak Ranjan	100th Indian Science Congress during.	3-7 Jan, 2013	Kolkata

3.14.8 VISITS OF FACULTY MEMBERS ABROAD (INFORMATION REPEATED)

Dr Vinayak Ranjan visited Acoustic Transducers Laboratory, University of South Florida, USA for working on collaborative project on “Design, simulation and characterization of piezoelectric membrane for vibration energy harvesting applications” during June- July 2012.

3.14.9 Special Lectures by Distinguished Guests

Prof S. Bandopadhyay, Univ. of New South Wales, Australia delivered a Lecture on “Nanocomposites”	14 th January 2013

3.15 Department of Mining Engineering

The Department of Mining Engineering was established in 1926 with founding of the School in that year. It enjoys the flagship department status in the institute. It has wide spread activities in both coal and non-coal metalliferous mining sectors.

The Department has been recognized as a QIP Centre for the faculty members of other Mining Engineering Department of the country to pursue higher studies. It has also been recorded the status of 'Centre of Advanced Studies' in Mining Engineering by the University Grants Commission in recognition of its high standard of teaching, research and services to the mining industry.

The Department is currently running one 4-year B.Tech. programme in Mining Engineering, two 5-year Dual Degree programmes, four 2-year M.Tech. programmes and Ph.D. programmes.

3.15.1 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY THE STUDENTS

Particulars	Batch of students	Place of visit	Period of visit
Local Excursion	III Sem. B. Tech (ME) & Dual degree	CIMFR (Explosive and Blasting Division)	04.09.2012 and 05.09.2012
	III Sem. B. Tech (ME) & Dual degree	Sendra Bansjora Colliery, BCCL	03.09.2012 and 04.09.2012
	IV Sem. B. Tech (ME) & Dual degree	Putki Balihari Project, BCCL	10.12.2012; 11.12.2012 : 12.12.2012 and 13.12.2012
	IV Sem. B. Tech (ME) & Dual degree	Nudkhurki OCP, BCCL	10.12.2012; 11.12.2012 and 12.12.2012
	IV Sem. B. Tech (ME) & Dual degree	Godhar Colliery, BCCL	13.12.2012 and 14.12.2012
	V Sem. B. Tech (ME) & Dual degree	Moonidih Project, BCCL	30.08.2012; 31.08.2012 and 01.09.2012
	V Sem. B. Tech (ME) & Dual degree	Sonepur Bazari OCP, ECL	30.08.2012; 31.08.2012 and 01.09.2012
	VII Sem. B. Tech (ME) & Dual degree	Sudamdih Colliery, BCCL	27.08.2012; 28.08.2012 and 29.08.2012

Local Excursion	VII Sem. B. Tech (ME) & Dual degree	Rescue Station, Dhansar, BCCL	27.08.2012; 28.08.2012 and 29.08.2012
	VIII Sem. B. Tech (ME) & Dual degree	Jogta Mine Fire Area, BCCL	04.12.2012 ; 05.12 2012 & 06.12.2012
Metal Mining (Singhbhum) Excursion	VIII Sem. B. Tech (ME) & Dual degree IV Sem. B. Tech (ME) & Dual Degree	Bhelatand Coal Washery, TATA STEEL Jaduguda (UCIL), Noamundi (TATA Steel) & Jhinkpani (ACC) Mines	
Annual Mine Surveying Camp	VI Sem. B. Tech (ME) & Dual Degree IInd M.Tech (Geomatics)	Longwall Gallery & ISM Campus	10 .12.2012 to 29 .12.2012

3.15.2 BEST PRACTICES OF THE DEPARTMENT

- Teaching in undergraduate and post graduate classes is supplemented by practical case examples generated from different R&D and Consultancy Projects undertaken by the department.

3.15.3 LIST OF ONGOING R & D PROJECTS

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement / Date of Completion	Objective	Status	Findings
Conservation of Energy in Main Mine Ventilation Fans	Petro-leum conservation research association, Ministry of Petro-leum & Natural Gas, Govt. of India	Prof. D. C. Panigrahi, Principal Investigator; Dr. D. P. Mishra, Co-Principal Investigator & Dr. M. K. Singh, Team Member	₹ 34.51	October 2008	To develop, design and implement an innovative concept for reducing the energy consumption in main mine ventilation fans.	ongoing	Mathematical and physical modelling exercises using several blade profiles and finally FRP bladed fans have been designed and developed. The FRP bladed fans have been installed in two coal mines of Tata Steel Ltd. and have been used both as main and booster fans.
Development of Self Advancing (Mobile) Goaf Edge Supports (SAGES) for Depillaring Operations in Under-ground Coal Mines	Ministry of Coal, Govt. of India	Prof. U. K. Singh, Dr. Dheeraj Kumar Mr. N.V.N. Reddy, (JBEPL)	₹ 197.75	September 2010	Design and develop Self Advancing Goaf Edge Support (SAGES) for depillaring operations in under-ground coal mines.	ongoing	2 nos. of SAGES are fabricated and deployed for field trials at Bastacola Mine, BCLL.
Development and validation of coupled Thermo-Hydro-Mechanical (THM) models for radioactive waste repositories in fractured rocks	DST	Dr. A. K. Verma	₹ 35.0	05.02.2013	Prediction of thermal, mechanical and hydrological effects on jointed rock mass due to heat released by spent nuclear fuel	ongoing	--
FIST project to strengthen teaching facilities in the areas "Geomatics & Under-ground Space Technology"	FIST, DST	Prof. V.M.S.R. Murthy Dr. Dheeraj Kumar	₹ 257	06.06.2012	Strengthening PG teaching and research facility in the Department of Mining Engineering	ongoing	--
Development of Under-ground Coal Gasification Technology in India.	Council of Scientific and Industrial Research (CSIR)	Prof. D. C. Panigrahi Prof. S.Chaudhuri Dr. D.P.Mishra Shri P.K.Behera Prof. R.K.Das Prof. A.K.Verma Prof. V.K.Saxena	₹ 91.60	March 2013	Geological, Petrological, physical mechanical, elemental and thermal behavior characterization of coal samples. Sub-surface and environmental monitoring and modeling.	ongoing	--

3.15.4 IMPORTANT COLLABORATIVE WORKS

a) Centre of Excellence in Mining Technology at ISM

A delegation of academics from Laurentian University, Western Ontario University, Queens University and University of Toronto under the initiative from Ministry of Mines, Ontario Province, Canada, Ministry of Mines, Govt. of India visited ISM on 26th and 27th July 2012 and discussed various areas of mutual collaboration. Blasting in mines and Mining Machinery were the initial focus apart from geological and geophysical studies with latest tools and technologies. A few joint courses and student exchange programmes were also the issues under discussion.

b) Erasmus Mundus India 4EU II

Organisation/laboratory	Nature of Interaction
DITAG, Politecnico di Torino, Torino, Italy	Joint research on “Development of rock characterization and simulation facilities for dimension stone cutting using diamond wire saw technology in granite.” under Erasmus Mundus India 4EU II Project.
Central Institute of Mining and Fuel Research, Dhanbad	Joint research on “Development of Underground Coal Gasification Technology in India.”

3.15.5 IMPORTANT NEW EQUIPMENT ACQUIRED (ABOVE RS. 500, 000/-)

Name of Equipment	Purpose	Value (₹)
Geomedia Professional with Geomedia Grid & Terrain v6.1	For PG Programme M.Tech (Geomatics)	Rs 5,52,563

3.15.6 RESEARCH PUBLICATION

3.15.6.1 Books Edited

Bahuguna, P.P. and Kumar D. 2012, “Modern Trends in Mine Surveying, Proceedings of Indian Conference on “Mine Surveying”, organized by Deptt. of Mining Engineering, ISM Dhanbad, during October 29-30, 2012 at ISM, Dhanbad

3.15.6.2 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	H.B.Sahu, S.S. Mahapatra, and D.C. Panigrahi	2012	Fuzzy c-means clustering approach for classification of Indian coal seams with respect to their spontaneous combustion susceptibility	Fuel Processing Technology	Vol. No.104	115-120
2.	R.D. Lokhande , V.M.S.R. Murthy and K. B. Singh	2013	Pot-hole subsidence in underground coal mining: Some Indian experiences	Springer, Geotechnical and Geological Engineering	Vol. No 31 No.2	
3.	A.K.Raina, V.M.S.R. Murthy and A.K.Soni	2013	Relevance of Shape of Fragments on Flyrock Travel Distance: An Insight from Concrete Model Experiments Using ANN.	Electronic Journal of Geotechnical Engineering	Vol. No.18	899-907
3.	A.K.Raina, V.M.S.R. Murthy and A.K.Soni	2013	Relevance of Shape of Fragments on Flyrock Travel Distance: An Insight from Concrete Model Experiments Using ANN.	Electronic Journal of Geotechnical Engineering	Vol. No.18	899-907
4.	Amar Prakash , V.M.S.R. Murthy and K.B.Singh	2013	Performance simulation of surface miners with varied machine parameters and rock conditions: Some investigations.	Journal of Geology and Mining Research	Vol. No.5(1)	12-22
5.	P. Rai , H. S. Yang and B. S. Choudhary	2012	Formation of Slot Cut for Creating Free Face in Solid Limestone Bench-A Case Study.	Int. Jour. Powder Technology	Vol. No.228	327-333
6.	A. K. Mishra	2013	Unlocking Possibility of Blasting Near Residential Structure Using Electronic Detonators	Journal of Geological Society of India (Springer Journal)	Vol. No.81	429-435

7.	A. K. Mishra, Awadh. K. Mishra & M. Rout.	2012	Blast-Induced Caving from Surface over Continuous Miner Panel at a 110m Cover in an Indian Mine	Arabian Journal for Science and Engineering (Springer Journal)	On line	429-435
8.	K.V.V. Govind, K.Jain and A.Gairola.	2013	A Study and Simulation of Cloudburst event Over Uttarkashi Region using River Tool and Geomatic Techniques	Int .J. Soft Computing and Engineering	Vol.No.3	121-126
9.	K.V.V. Govind, D.Pratap and R.K. Venkata.	2013	Updation of Cadastral maps using High Resolution Remeotely Sensed Data.	Int.J Engineering and Advanced Technology	Vol.No.2.	50-54
10.	P.S. Paul	2012	Safety in Indian Coal Mines Where Do WE Go from Here	International Research Journal of Commerce, Business and Social Science	Vol.1 Issue 9 (1)	19-26
11.	D.P. Mishra and S.K. Das	2012	One-Dimensional Consolidation of Sedimented Stowed Pond Ash	Geotechnical and Geological Engineering, (Springer Journal)	Vol. No. 30 Issue 4	685-695
12.	D.P.Mishra and S.K. Das	2013	Application of polymeric flocculant for enhancing settling of the pond ash particles and water drainage from hydraulically stowed pond ash	International Journal of Mining Science and Technology, Elsevier	Vol. No.23 Issue 1	21-26
13.	R K Sinha, M Jawed and S Sengupta	2013	Influence of Anisotropic stress condition on design of development workings in bord and pillar mining.	Springer, Geotechnical and Geological Engineering	Vol. No 31 No.2	

14.	S.K.Ray, D.C. Panigrahi and G. Udaybhanu	2012	Effect of Moisture on smouldering combustion characteristics of Indian Coals.	Journal of Sustainable Energy Engineering	Vol. 1 No.2	169-179
15.	Pandey, N. K. Mohalik, R. K. Mishra, A. Khalkho, D. Kumar & V. K. Singh	2012	Investigation of the Role of Fire Retardants in Preventing Spontaneous Heating of Coal and Controlling Coal Mine Fires	Fire Technology (Springer)	Vol. 46, No.1	

3.15.6.3 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	R.Verma. and D.P.Mishra.	2012	Alternate support system for hydraulic stowing barricades	Journal of Mines, Metals & Fuels	Vol.No. 60 No.5	75-80
2.	V.M.S.R. Murthy and Anand Gautam	2013	Role of geology and special rock mechanics tests in TBM tunnelling a perspective	ISRM (India) Journal	Vol. 2 No.1	4-15
3.	Kaushik Dey and Phalguni Sen.	2012	Planning and designing with surface miners some issues.	Planning and designing with surface miners some issues	Nov.Dec.	294-296 & 309
4.	A.K. Mishra	2013	Technological advancements in surface drilling rigs for mines and construction	Journal of Mines, Metals & Fuels	Vol.61 No.1&2	1-4
5.	M. Jawed	2012	Legal, Environmental and Techno-economic Issues related to purposeful utilization of power plant coal ash in Indian Coal Mining Industry.	The Indian Mining & Engineering Journal	Nov. 2012	

6.	Shankar D.Kumar and Narsimha Rao	2012	Application of Ground Based LIDAR for Monitoring & Stability Analysis of Dump Slope in Opencast Coal Mine: A Case Study	Mining Engineering Journal	Vol.14, No.9	17-27

3.15.6.4 Paper presented/published in International Seminars/Conferences

1. Kaushik Dey and V.M.S.R.Murthy(2012), Monitoring ground vibrations for predicting overbreak threshold levels in underground drivages, Fragblast 10, New Delhi, November 26-29, pp 787-791.
2. Raina, A.K, A.K.Soni and V.M.S.R.Murthy (2012), Spatial distribution of fly rock using EDA: An insight from concrete model tests, Fragblast 10, New Delhi, November 26-29, pp 563-570.
3. A.Prakash, V.M.S.R.Murthy and K.B.Singh (2012), Production evaluation of surface miner from rock/ rock mass properties: Some investigations, 2nd International conference on surface miners = An innovative technology for minerals sector, 17-18, August.
4. Choudhary B.S., Rai P. and Sharma S.K., 2013; Stemming Plug and Its Effect on Fragmentation and Muckpile Shape Parameters A Case Study, Int. Conf. of Development in best practices in surface and underground mining and innovation in mining machinery, JMMF,Kolkata, pp 29-31
5. Mishra, A. K., Sen, A. and Sain, D., 2013, Innovative Developments in Drilling & Blasting Techniques for Rapid Excavation of Drivages in Mines, Proceeding of International conference on Developments in best practices in surface and underground mining and innovative developments in mining machinery, 29-31 January, Journal of Mines, Metals & Fuels, Kolkata.
6. Mishra, A. K., and Mallik, D K, 2012, Analysis of blasting related accidents with emphasis on flyrock and its mitigation in surface mines, Proceedings of 10th International Symposium on Rock Fragmentation by Blasting, Fragblast10, New Delhi, India, 26-29 November, pp 555-562.
7. Mishra, A. K., and Gupta, R. N., 2012, Rapid excavation of tunnels using innovative drilling and blasting techniques, Tunnelling in Rock by Drilling and Blasting, Eds- Spathis & Gupta, Taylor & Francis Group, London, pp 15-22.

8. Mishra, A. K., Ramana Rao, K. V., Rao, B. E., and Joshi, D., 2012, Underground cavern excavation using underground bulk explosivesan Indian case study, *Performance of Explosives and New Developments*, Eds-Mohanty & Singh, Taylor & Francis Group, London, pp 91-96.
9. Mishra, A. K., Sinha, M., and Rout, M., (2012), Cast blasting for improved mine economics, *Blasting in Mines-New Trends*, Eds-Ghose & Joshi, Taylor & Francis Group, London pp 73-80.
10. Govind, K.V.V, Reddy, P.M. and Parida., 2012 “Identification of Accident Black Spots for National Highway Using GIS”, Int Conf on Emerging Trends in Engineering and Technology at Teerthanker Mahaveer University, Moradabad.
11. Sinha R.K, Jawed M and Sengupta p; “Influence of Anisotropic Stress Conditions on Design of Development Workings in Bord and Pillar mining.” International seminar on Ground Control and Improvement; Organised by International Society of Rock Mechanics (India); 20-21 September, New Delhi
12. M.P Roy, P K Singh, V K Singh, G Senapati, A K Mishra and M Jawed; “Concept of effective explosive weight per delay for prediction of vibration in open-pit blasting”; 10th International Symposium on Rock Fragmentation by Blasting.; 24-29 November, 2012, Vigyan Bhawan, New Delhi (India).
13. Singh U K and Singh, G S P (2012), Numerical Modelling based Feasibility Study for Extraction of Bord and Pillar Panels under a Built-Up Area - A Case Study, EUROCK 2013, Stockholm, Sweden, May 28-30, 2012.
14. Mishra, D.P. (2012), “Characterization of Coal Combustion By-Products and Their Utilization in Mine Stowing”, Proc. Annual International Conference on Geological and Earth Sciences (GEOS 2012), Singapore, 3-4 December, pp. 107-112. (DOI information: 10.5176/2251-3361_GEOS12.67).
15. Panigrahi, D.C. & Varma, A.K. (2013), “ Petrographical and Technological controls of Shale Gas and their environmental implications.” Keynote presentation in Int. Conference on World Petrocol Congress, New Delhi 15-17 February 2013.
16. Malladi, S.V.V.N and Kumar D. (2012), BPNN and ANFIS Models for Prediction of Floor Bearing Characteristics of Weak Rock Foundations, 1st

International Conference on Recent Advances in Information Technology, RAIT 2012, [10.1109/RAIT.2012.6194453](https://doi.org/10.1109/RAIT.2012.6194453), IEEE Explore, 2012, pp.398 -403.

17. Kumar D. (2012), Detection and Delineation of Coal Fire Affected Area of Jharia Coalfields Using Remote Sensing Techniques and Differential Global Positioning System (DGPS), Geospatial World Forum 2012, 23-27 April 2012, Amsterdam, the Netherlands
18. Roy M.P, Singh P K, Mishra, A K and Jawed M : “ Optimum blast interval between blast holes vis-à-vis vibration prediction.”; Mintech !!: Mining Technology for sustainable development; 18-19 Nov, 2011; Raipur

3.15.6.5. Papers presented/published in National Seminars/Conferences

1. Keshari, S. and Mishra, D.P. (2012), “Characterization of coal combustion by-products for utilization as mine fire suppressant”, in: V.K. Rai, P. Mishra, K. Kumar (Eds.), Proc. National Conference on Advances in Laser and Spectroscopy (ALS-2012) organised by Department of Applied Physics, Indian School of Mines, Dhanbad during 1-3 Nov., 2012, Allied Publishers Pvt. Ltd., New Delhi, pp. 196-205.
2. Kumar, P. and Mishra, D.P. (2012), “Wavelength/frequency modulation spectroscopy based methane gas detection for safety monitoring in underground coal mines”, in: V.K. Rai, P. Mishra, K. Kumar (Eds.), Proc. National Conference on Advances in Laser and Spectroscopy (ALS-2012) organised by Department of Applied Physics, Indian School of Mines, Dhanbad during 1-3 Nov., 2012, Allied Publishers Pvt. Ltd., New Delhi, pp.184-200.
3. Kumar, P. and Mishra, D.P. (2013), “Methane layering in underground coal mines: beauties and hazards”, in: S. K. Palei, S. Gupta. N. C. Karmakar, A. Jamal, A. Kumar and B. K. Shrivastava (Eds.), Proc. National Conference on Present Technology and Safety Scenario in Mining and Allied Industries (PTSM-2013) organised by Department of Mining Engineering, Indian Institute of Technology (BHU), Varanasi during 25-27 Feb., 2013, pp. 135-144.
4. Ritesh Lokhande, V.M.S.R.Murthy and K.B.Singh (2012), Pot-hole subsidence due to underground coal mining A case study, Indian Conference on Mine Surveying, October 29-30, pp 255-262.
5. Choudhary B. S. & Patidar I. ,2012; Computer Aided Coal-Seam Modeling and Design of a Mine, National Conference on Mine Surveying(ICMS) organized by ISM, Dhanbad, pp:227-237.

6. Choudhary B.S. and Tudi B.L. 2013; Blasting practices in hot coal strata conditions-a case study, Present Technology and Safety Scenario in Mining and Allied Industries, organized by IIT (BHU), pp: 187-196.
7. Govind, K.V.V., Jain, K., 2012. "Monitoring and Analysis of CloudBurst Region using Geomatic Techniques", 13th ESRI user conference, NewDelhi.
8. Govind, K.V.V., Jain, K. and Suresh, M., 2012. "Development of Sub pixel Data Based on Colorimetric Approach", National Conference on Space Technology for Food & Environmental Security by Indian Society of Remotesensing Conference and Indian Society of Geomatics.
9. Paul, P. S. & Sen, Phalguni (2011) "Safety Status of Mineral Industry in India" has been accepted by the review committee for oral presentation" Proceedings of the UGC Sponsored National Seminar on "Mining: Impact Assessment on Ecology, Technology, Polity and Society organized by Sankardev College, Shillong, at Shillong during September 27-28, 2012, pp 1-7.
10. Kunar B.M., Mudgal Keshav, Gupta Neel, Kumar S., (2012): "Development of a GIS based 3-dimensional spatial information system- A case study", Proceedings of the 2nd National Seminar on "Indian Conference on Mine Surveying (ICMS-2012)" hosted by Indian School of Mines, 29-30 October, 2012, Dhanbad, pp.101-109.
11. D. Kumar, V. Agarwal, Kunar B.M., (2012): "Study of opencast coal mines for land reclamation using Remote sensing and GIS technique", Proceedings of the 2nd National Seminar on "Indian Conference on Mine Surveying (ICMS-2012)" hosted by Indian School of Mines, 29-30 October, 2012, Dhanbad, pp.71-77.
12. Kalpesh Agrawal, Rahul Kawale and Dheeraj Kumar (2012), Application of Modern Instruments in Tunnel Surveying, Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012.
13. Sunil Kumar, S. K. Chaudhary, Dheeraj Kumar and P. P. Bahuguna (2012), Monitoring the Land Use/Land Cover Changes in Jharia Coalfield using Remote Sensing, , Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012

14. R. K. Mishra, J. Pandey, M. Srivastav, Dheeraj Kumar, P. P. Bahuguna and V. K. Singh (2012), Comparative Study of Supervised and Unsupervised Classification of Jharia Coalfield using Remote Sensing Technique, Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012.
15. G. Singh, U. Khandelwal and Dheeraj Kumar (2012), A Review of Different Terrestrial Laser Scanners and their use in Surface Mines, Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012
16. Vikram Shankar, Vikas Bajpai and Dheeraj Kumar (2012), Potential Applications of Modern Surveying Instruments & Techniques in Mines, Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012.
17. Ashish Kumar Kediya, Vivek Shankar and Dheeraj Kumar (2012), An Analysis of Errors Adjustment in Surface Traversing, Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012.
18. P. P. Bahuguna, Dheeraj Kumar, P. K. Zaminder and Sunil Kumar (2012), Orientation Survey and Depth Measurement in Deep Mine Shaft using Modern Instruments, Advances in Mine Surveying, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012
19. Anuj Gupta, Shubham Maheshwari and Dheeraj Kumar (2012), A Review of Various Methods of Mine Subsidence Monitoring, Proceedings of Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad. October 29 30, 2012.
20. Pandey, J. Kumar, D. Mishra, R.K., Khalkho, A., and Singh, V.K. Integrated Approach for Detection and Monitoring of Coal Mine Fire in Jharia Coal Field (JCF). National Symposium 'Present Technology and Safety Scenario in Mining & Allied Industries (PTSM-2013) organized by Department of Mining Engineering, IIT BHU ,25-27 February 2013.

21. Gupta, N. Mudgal, K. and Kumar, D. Automation and Communication in Mining. National Symposium 'Present Technology and Safety Scenario in Mining & Allied Industries (PTSM-2013) organized by Department of Mining Engineering, IIT BHU ,25-27 February 2013.

3.15.7 MAJOR ACADEMIC CONTRIBUTIONS

1. Prof. D. C. Panigrahi was conferred National Design Award in Mining Engineering 2012 by Institution of Engineers (India) on 14.12.2012 for outstanding contribution in the field of Mine Environmental Engineering Design.
2. Prof. D. C. Panigrahi was conferred SBI Best Researcher Award for the year 2011-2012 during XXXV Convocation of the Institute on 23.02.2013.
3. Prof. D. C. Panigrahi was nominated as an expert member by the Department of Science and Technology, Govt. of India, for reviewing the development of sensor hub at Central Glass and Ceramic Research Institute (a CSIR Lab), Kolkata.
4. Prof. D. C. Panigrahi was conferred Debadutta Memorial Best Academic Management Excellence Award for the year 2011-12 on 11th May 2012 during National Technology Day celebration of the Indian Mineral Industry Journal, at Bhubaneswar.
5. Prof. D. C. Panigrahi has been invited by the Ministry of Labour and Employment, Govt. of India to be the Chairman of the Sectoral Innovation Council on Occupational Safety and Health under National Innovation Council constituted by the Prime Minister of India.
6. For the sixth consecutive year Prof. D. C. Panigrahi has been elected by the Committee of Mining, the Polish Academy of Sciences as a member of the International Advisory Board for the publication of International Journal on Archives of Mining Sciences, for his significant contribution in field of Mine Ventilation Engineering.
7. Prof. D. C. Panigrahi, as the Chairman of International Mine Ventilation Committee for the duration 2009-2014, is at the helm of affairs for organization of Tenth International Mine Ventilation Congress in South Africa.
8. Prof. D. C. Panigrahi is a member of the prestigious Statutory Committee of Govt. of India constituted under Section 12 of Mines Act, 1952. This

Committee is chaired by the Secretary / Addl. Secretary to Govt. of India, Ministry of Labour and Employment.

9. Prof. D. C. Panigrahi is a member of the Expert Committee to enquire into the causes of the disaster in Anjan Hill Mine, South Eastern Coalfields Ltd. on 06.05.2010.
10. Prof. D. C. Panigrahi is nominated as the Honorary Editor for the publication of the Journal of Coal Mining Technology and Management published by Indian Institute of Coal Management, Ranchi.
11. Prof. D. C. Panigrahi is the judge for Tata Talent Search award for carrying out innovative work by the officers of Tata Group of Companies.
12. Prof. D. C. Panigrahi is an expert member of Bureau of Indian Standards, Govt. of India for reviewing the standards related to Mines Safety in the country.
13. Prof. M. Jawed was a Member, National Organising Committee of FRAGBLAST, 2012.
14. Prof. M Jawed was appointed as member of the UGC Expert Committee to interview the candidates in the field of Science, Engineering and Technology for Commonwealth Academic Staff Fellowship & Commonwealth Split-site Doctoral Scholarship held in New Delhi on 21.11.2012
15. Prof. U. K. Singh was selected as a Member of Revision of Syllabus under Coal Mines Regulation, 1957 & Metalliferous Mines, Regulation, 1961, DGMS, Dhanbad.
16. Prof. U. K. Singh has been selected as a Member of Advisory Committee of CAS, Dept. of Mining Engineering, IT-BHU, Varanasi.
17. Prof. U. K. Singh is a Member of Syllabus Review committee, BIT, Sindri,
18. Dr. A.K. Mishra was a member of Selection Committee for engagement of Project Assistant Level I & II at CIMFR.
19. Dr. B.M. Kunar was selected as (Subject Matter Experts) SME panel for creation and Review of Mining Engineering Question Paper for Merit Track Service Private Limited, Bangalore.

20. Dr. B.M. Kunar was selected as a Reviewer in Sadhana-Academy Proceedings in Engineering Sciences published by Springer (Impact factor-0.259)
21. Dr. B.M. Kunar was selected as a Reviewer in Arabian Journal of Geosciences published by Springer (Impact factor-1.14)
22. Dr. D. P. Mishra was conferred with 1st State Bank of India Best Researcher Award for the year 2011-12 in the 35th Annual Convocation of ISM held on 23 February, 2013 for maximum research generation for the institute in the financial year 2011-12.

3.15.8 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT./CENTRE

Indian Conference on Mine Surveying (ICMS - 2012), Organized by Department of Mining Engineering, ISM Dhanbad., October 29 30, 2012.

3.15.9 PARTICIPATION OF FACULTY IN SEMINARS / WORKSHOPS / CONFERENCES

Prof. M. Jawed Prof. V.M.S.R. Murthy Dr. Dheeraj Kumar	5 th Mineral congress & Exhibition	February 2 nd 2013	ISM Dhanbad
Dr. P.S. Paul	International Research Symposium on Interdisciplinary Approaches in Management, Engineering and Technology Singapore	December 7-8, 2012	Singapore
Prof. U.K. Singh	International Symposium EUROCK 2013	May 28-30, 2012	Stockholm Sweden
Dr. D.P. Mishra	National Conference on Advances in Laser and Spectroscopy (ALS-2012)	November 1-3, 2012	ISM Dhanbad
Dr. D.P. Mishra	Annual international Conference on Geological and Earth sciences (GEOS 2012)	December 3-4.2012	Singapore
Prof. V.M,S.R.Murthy Dr. A.K.Mishra	10 th International Symposium on Rock Fragmentation by blasting. FRAGBLAST 10	November 26-29,2012	New Delhi

Dr. A.K. Mishra	Workshop on 10 th International Symposium on Rock Fragmentation by blasting	November 24-25,2012	New Delhi
Dr. B.S. Choudhury	Int. Conf. of Development in best practices in surface and underground mining and innovation in mining machinery	January 29-31, 2013,	Kolkata
Dr. B.S. Choudhury	National Symposium on Present Technology and Safety Scenario in Mining and Allied Industries	February 25-27, 2013,	IIT(BHU) Varanasi
Prof. V.M,S.R.Murthy Dr. Dheeraj Kumar Dr. B.M.Kunar <i>Dr. B.S. Choudhury</i>	Indian Conference on Mine Surveying(ICMS-2012)	October 29-30, 2012	ISM Dhanbad
Prof. P. Sen	2nd International Conference on “Surface Miners An Innovative Technology for Mining Sector” 8	August 17th 2012	Fortune Select Loudon, Kolkata
Prof. P. Sen	Interactive Discussion/ Workshop on “ Fly Ash Utilization in Coal and Mining Sector	August 29 th 2012	CMPDI Ranchi

3.15.10 VISIT OF FACULTY MEMBERS ABROAD

1. Prof. M. Jawed, HOD (ME) visited Kabul, Afghanistan from 22nd June 2012 to 26th June 2012 as a follow up action of Prime Minister's Commitment on Capacity Building Programmes for Afghanistan, which he announced during his visit to Kabul in the month of May, 2011. The visit of Prof. M. Jawed along with Prof. N.M. Mishra was sponsored by Ministry of External Affairs, GOI.

On return from Kabul, a report was submitted to MEA. MEA acted upon the proposal submitted and as a result twelve courses have been sanctioned to train 180 participants from Afghanistan through different short courses at ISM, Dhanbad. Other proposals are under pipe line.

2. Dr. D. P. Mishra visited Bangladesh during 4-7 September, 2012 as an expert member of ISM Team for execution of the prestigious “Mines and Minerals Development Project” for the Hydrocarbon Unit of Govt. of Bangladesh.

3. Dr. D. P. Mishra visited Singapore during 1-5 December, 2012 to attend the Annual International Conference on Geological and Earth Sciences (GEOS 2012).
4. Dr. P.S.Paul visited Singapore during 7-8 December, 2012 to present a technical paper in the International Research Symposium on Interdisciplinary Approaches in Management, Engineering and Technology.
5. Prof. U.K.Singh visited Stockholm, Sweden during 28-30 May, 2012 to present the technical paper in ISRM Symposium EUROCK 2013.

3.15.11 TESTING SERVICES

Department of mining engg has state of the art facilities for characterisation and determination various properties of rocks and minerals, analysis and estimation of various gaseous element, calibration of instruments for mine ventilation, mine surveying etc.

3.15.12 DISTINGUISHED VISITORS TO THE DEPARTMENT/ SCHOOL (INDICATING OCCASION/PURPOSE)

Name of the Vistors	Purpose
Dr. R.C Boruah, Director (Acting) NEIST, Jorhat, Prof. T. C. Rao, Advisor CSIR NEIST and Dr. P. G. Rao Ex-Director NEIST and Advisor NE region development.	Visited Dept. of Mining Engg. to see the facilities of the department and scope for future cooperation.
Dr. Olle Wijk, Head Sandvik Group R&D, Mr. S. Banerjee, President Sandvik Mining India, Dr. S. Basu, Corporate Advisor, Sandvik Asia and Mr. S. Das Vice President Coal Mining Business.	Visited Dept. of Mining Engg. to interact with ISM students & faculty members of Mining followed by presentation of Sandvik Activities.
Prof. Tihomir Knezicek, Head of Surface Mining Department, Mining, Geology & Civil Engineering, University of Tuzla, Bosnia and Herzegovina.	Visited Dept. of Mining Engg. to see the facilities of the department and scope for possible academic and research collaboration.
Mr. V.P. Raja, Formerly with Atomic Energy Commission with team of BCCL officials	Visited Dept. of Mining Engg. to see the facilities of the department

Prof. Fatick Nath & Prof. Tareq-Uz-Zaman, Chittagong University of Engg. & Technology, Bangladesh.	Visited Dept. of Mining Engg. to see the facilities of the department and scope for possible academic and research collaboration
Dr. Nawshad Haque, Scientist, CSIRO, Australia	Visited Dept. of Mining Engg. to see the facilities of the department
Dr. Bibhu Mohanty, Dr. L.Mansinha, Dr. L.Daneshmand & Dr. R.Subhramanian, Faculty advisor from Canada.	Visited Dept. of Mining Engg., interact with faculty members under Indo Canadian collaboration on Global Mining initiative

3.15.13 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Sri S.C. Bhowmick, General Manager UCIL, delivered a lecture on "Underground Metalliferous Mining."	March 2013
Prof. R.N.Gupta, formerly Director NIRM, Bangalore delivered a lecture on "Underground Blast design" to VI Sem, Mining Engg. Students.	February 2013
Dr. Olle Wijk, Head (R&D), Sandvik Global, Sweden delivered a lecture on "Advances in Mining Technology" to Mining and Mining Machinery students.	February 2013

3.15.14 MISCELLANEOUS

1. Prof M Jawed was appointed by the Ministry of Coal, GOI as a Technical Member on Standing Committee for Approval of Mining Plans and Mine Closure Plan, March, 2013
2. Dr. A.K.Mishra delivered a talk on "IT Application in Mining Industry and ISM capability in Earth Sciences" at IBM Annual Conference, Kolkata on 23.08.2012.
3. Dr. A.K.Mishra delivered a talk on "Mining Tourism in Jharkhand in "Jharkhand: A rediscovered tourist's paradise" at Ranchi, on 18.08.2013.
4. Dr. A.K.Mishra delivered a talk on "New Technology in Drilling and Blasting" at DGMS, Dhanbad, on 02.10.2012.
5. Dr. A.K.Mishra delivered a talk on " Longwall Mining Technology" at DGMS, Dhanbad, on 08.10.2012

6. Dr. Dheeraj Kumar delivered several talks at DGMS Dhanbad during 2012-13 on the topics related to slope monitoring, statutory requirements of Plans & Sections and Modern surveying tools and techniques.
7. Dr. P.S.Paul chaired a Technical Session of an International Research Symposium on Interdisciplinary Approaches in Management, Engineering and Technology held in Singapore during December 07-08, 2012.
8. Dr. D. P. Mishra was invited to chair the first Technical Session of Day 2 of the Annual International Conference on Geological and Earth Sciences (GEOS 2012) held in Singapore during 3-4 December, 2012.
9. Dr. D. P. Mishra is nominated as Associated Editor of GSTF Journal on Geology and Earth Sciences (JGES), Global Science and Technology Forum (GSTF), Singapore.
10. Dr. D. P. Mishra is nominated as member of the GEOS 2013 Programme Committee of the 2nd Annual International Conference on Geological and Earth Sciences (GEOS 2013) to be held at Phuket, Thailand during 28-29 October, 2013.
11. Dr. D. P. Mishra reviewed a research paper titled "Mineral Analysis of an Artificial Pond Sediment Samples from Western Cape, South Africa" for the International Journal of Physical Sciences.
12. Dr. D. P. Mishra reviewed a research paper for the Materials Sciences and Applications journal.
13. Dr. D. P. Mishra reviewed a research paper for the Journal of Geology and Mining Research.
14. Prof. V.M.S.R.Murthy reviewed an article on "surface miner performance analysis" for International Journal of Mining and Geological Research.

3.16 Department of Petroleum Engineering

The Department of Petroleum Engineering was established in the year 1957, and has developed rapport with institutes and universities in India and abroad. It has collaborated in the past with universities like Kansas University, USA, Imperial College of Science and Technology, London, Herriot- Watt University, U.K, University of Miskole, Hungary, for various research works.

The Department currently offers one 4-years B. Tech. in Petroleum Engineering, one 5-years Dual Degree B. Tech. in Petroleum Engineering and M. Tech. in Petroleum Management and one 2-years M. Tech. in Petroleum Engineering. In addition to these, the department also has research based full time and part time doctoral degree programs. The student strength (514) of the department in the period of April 2012 March 2013 includes 391 undergraduate, 79 Dual degree, 30 post-graduate and 14 full time research students. The ex-students of the department have occupied top positions in the Govt. Departments as well as Oil industries both in India and abroad. The department has 15 regular faculty members (4 Professors (1 on lien), 4 Associate Professors and 7 Assistant Professors).

There are 09 ongoing R&D projects in the department worth Rs. 190.296 lakhs sponsored by UGC, CSIR and Ministry of Coal GOI in the area of reservoir engineering, enhanced oil recovery, formation damage, hydraulic fracture, application of polymer, eco-friendly drilling fluids, coal bed methane and gas hydrates. The faculty members of Petroleum Engineering Department have published 15 technical papers in international journals and have presented 9 research papers in international conferences and 4 research papers in national conferences. The faculty members of the department have represented various committee of different institute of the country like board of courses and selection committee. The department has very active interaction with hydrocarbon industry and academic institutions. The faculty members of the department have conducted 15 inter-departmental consultancy programs and 3 specialized training programs for industry.

The Department of Petroleum Engineering has developed industry academia interface under which the tie-up programs Academic Connect MOU and CIIP with Cairn Energy Ltd. to organize special lectures, Internship and field training for students and onsite training programs for faculty were organized. The department has also signed MOU with ONGC CBM Bokaro regarding the research data sharing in the area of Coal Bed Methane for the Ph.D. research work. The students and faculty members of the department have actively participated in various events organized by the industry and academic institutions. The SPE chapter of ISM received 'Gold Status' by the International body SPE. The Petrotech chapter of ISM was felicitated with the best Chapter Award and the runner up shield was awarded to the students of Petroleum Engineering Department in inter-chapter paper presentation of the country. Two faculty members were awarded merit certificates for their technical papers.

The department welcomed 15 distinguished visitors in different activities like delivering special lecturers organized by SPE Chapter of ISM, Petrotech Chapter of ISM and by Petroleum Engineering Society.

3.16.1 FIELD VISITS/EXCURSION/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of students	Place of visit	Period of visit
Summer Training	IV B.Tech PE	ONGC Mehsana Asset ONGC Ahmedabad Asset ONGC Assam Asset Sibsagar Nazira CMPDI Ranchi IDT Dehradun ONGC Chennai WSS ONGC Ahmedabad ONGC Hazira Gas Processing Plant ONGC Uran Processing Plant Essar Energy CIMFR Dhanbad B.J. Services, Andheri East, Mumbai Oil India Ltd, Duliajan	21.05.2012 15.06.2012
Summer Training	II M.Tech PE.	ONGC Ankleshwar ONGC Hazira Gas Processing Plant	21.05.2012 15.06.2012
Summer Internship	VI B.Tech PE	Gujrat State Petroleum Corporation Ltd. Baker & Huges, Andheri East, Mumbai GEOLOGIX Cairn Energy Reliance India Ltd Schlumberger Weatherford Shell Technology, India Halliburton	21.05.2012 15.06.2012
Field Work	VI B.Tech PE	Regional Training Institute Panvel Well Stimulation Services ONGC Chand Kheda Ahmedabad IRS Ahmedabad IOGPT Panvel Navi Mumbai	21.05.2012 15.06.2012
Winter Training	VI B.Tech PE	IOGPT Panvel Navi Mumbai IDT Dehradun KDMIPE Dehradun ONGC Mehsana Asset ONGC Ahmedabad Asset ONGC Ankleshwar Asset CMPDIL Ranchi RIL CBM Asset Shahdol	10.12.2012 05.01.2013

Field Work	VI B.Tech PE	Gujrat State Petroleum Corporation Ltd. IOGPT Panvel Navi Mumbai IRS Ahmedabad Weatherford Oil Tool Middle East Limited	10.12.2012 05.01.2013
Excursion	VIII B. Tech PE	CIMFR Dhanbad	12.04.2013
Excursion	IX Dual Degree PE	IEL Gomia	01.09.2012
Excursion	II M.Tech PE	IEL Gomia	01.09.2012
Excursion	VI B.Tech PE	CBM ONGC Talgaria Bokaro	15.01.2013 & 24.01.2013
Excursion	II M.Tech PE	CBM ONGC Talgaria Bokaro	15.01.2013 & 24.01.2013

3.16.2 INTRODUCTION OF NEW PROGRAMMES:

Department of Petroleum Engineering had proposed a new 5 year Dual Degree course in B.Tech Petroleum Engineering and M.Tech Petroleum Engineering. The course was introduced in session 2012-13.

3.16.3 BEST PRACTICES OF THE DEPARTMENT OF PETROLEUM ENGINEERING:

Department of Petroleum Engineering has local chapters of Petroleum Engineering Professional Societies for students i.e. SPE, PETROTECH, and Petroleum Engineering Society. All UG & PG students are active members of these Societies and organize a number of events like paper contest, guest lectures, and quiz & poster competitions to update the students with latest know-how of the Industry. A few examples of the events organized in the year 2012-13 are:

1. HALLIBURTON WORKSHOP ON ADVANCED FRACKING AND CEMENTING
2. SPE Sub regional Paper Contest
3. SHELL SOFTSKILLS WORKSHOP

3.16.4 BRIEF LIST OF ONGOING R&D PROJECTS (PROJECT VALUE Rs. 5,00,000/- AND ABOVE)

Project Title	Sponsoring Agency	Coordinator(s)	Project Value	Date of Commencement /Date of Completion	Objective	Status	Findings
Efficient Extraction of Hydrocarbon Resources	UGC - SAP	Prof. S. Laik, Prof. V.P. Sharma	Rs. 39.50 lakhs + Rs 5.76 Lakhs	2008-13	To study the nucleation of Gas Hydrates. To study Water-shut off and EOR	DPS 1 st phase completed DPS 2 nd phase On going	The studies are being extended with new chemicals and improvised equipments Design of suitable chemical EOR Processes on the basis of information gathered from various literatures and also observing the Indian Oil field production problems
Creating First Grade Infrastructure	UGC	Prof. S. Laik	Rs. 40.00 Lakhs	2008-13	To create first grade infrastructure and upgrade the departmental teaching and research activities	On going	A number of laboratories have been renovated and upgraded
Promoting Culture of Research	UGC	Prof. S. Laik	Rs. 15.00 Lakhs	2008-13	To create first grade infrastructure and upgrade the departmental teaching and research activities	On going	Ten undergraduate students have been selected and projects are allocated to them.
Development and Optimization of Coal Bed Methane Recovery Process by CO ₂ Sequestration	Minist-ry of Coal, GOI	Dr. Keka Ojha-PJ Prof. A. K. Parthak Dr. Ajay Mandal	Rs 26.98 Lakhs	2010-2012	to study the characteristics of Coal Bed Methane adsorption in Coal Cleats and to enhance the Production of Coal Bed Methane by Carbon Dioxide Sequestration method	Report submitted in November ¹²	Gas content of coal and effect of various parameters on gas content of coal have been studied on samples collected from various coal fields. Feasibility of CO ₂ injection in Indian CBM field (Gondwana Basin) and its effect on Enhancement of recovery of methane has been studied.
Studies on improved recovery of oil by surfactant induced wettability alteration and interfacial tension (IFT) reduction	UGC	Dr. Ajay Mandal, Prof. T. Kumar Dr. Keka Ojha	Rs. 5.568 lakhs	2010-13	To study the effect of IFT and wettability on recovery of oil from reservoir.	On going	Effects of various surfactants on IFT change on recovery of oil have been studied. Effect of adsorption also has been studied. Some combination of alkali-oil and surfactant found to show good effect on oil recovery process.
Characterization of nano-particle stabilized emulsion and its use in Enhanced Oil Recovery	Oil India Ltd.	Dr. Ajay Mandal	Rs. 24.2 Lakhs	2012-14 Started in Dec, 2012	Enhance oil recovery by emulsion flooding from Oil field of OIL.	On going	Characterization of microemulsion and effects on EOR is started

Carbon dioxide sequestration using microalgae in a photo bioreactor.	UGC - ISM	Dr. Chandan Guria, Prof. A.K.Pathak	Rs. 10.0 lakhs	2010 - 13	To find out Micro algae for Carbon dioxide sequestration	On going	Started. Culture of Micro algae is in progress
Carbon dioxide sequestration and simultaneous bio-fuel generation using micro algae in a photo bioreactor	DST	Dr. Chandan Guria-PI Prof. A.K.Pathak Co-PI	Rs. 14.398 lakhs	2013-16 Started in Feb'13	Sequestration of CO2 using algae and synthesis of bio-diesel from the same algae	On going	Started

3.16.5 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS. 5,00,000)

All the instruments are mainly used in R & D work by the M. Tech and Research Scholars and a few B. Tech students working under projects.

Name of Equipment	Purpose	Value (₹)
Spinning drop tensiometer	Studying interfacial tension of solutions used in oil fields	12.85 Lakh
FTIR	Determining functional groups of various chemicals	15,79,513/-
High resolution microscope	Structural analysis and image analysis of solid and liquid samples	6,59,329/-
TPH Analyser	Analytical work	5,98,439/-

3.16.6 RESEARCH PUBLICATIONS:

3.16.6.1 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Keka Ojha, Ajay Mandal, Bibhas Karmakar, A. K. Pathak, A. K. Singh	2013	Studies on Estimation & prospective recovery of coal bed methane from Rangigunj Coalfield, India	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	Vol. 35 (5)	pp. 426-437
2.	C. Guria, K. Rajesh & P. Mishra	2013	Rheological analysis of drilling fluid using Marsh Funnel	Journal of Petroleum Science and Engineering	Vol. 105	pp. 62-69
3.	Vikash Kumar Saw, Ajay Mandal, G. Udayabhanu, and Sukumar Laik	2013	Methane Hydrate Formation and Dissociation in presence of Bentonite Clay Suspension	Chemical Engineering & Technology (Published Online)	Vol. 36, Issue 5,	pp. 810-818

4.	Abhijit Samanta, Keka Ojha, Ajay Mandal and Ashis Sarkar	2013	Extraction and Characterization of an Eco-Friendly Surfactant for Its Use in Enhanced Oil Recovery	Journal of Petroleum Engineering & Technology	Vol. 3, Issue 1	pp. 20-29
5.	Ankit Agarwal, Bibhas Karmakar, Ajay Mandal and Keka Ojha	2013	Modeling and Performance Prediction for Water Production in CBM wells of an Eastern India Coalfield	Journal of Petroleum Science and Engineering	Vol. 103	pp. 115-120
6.	Achinta Bera, Keka Ojha, T. Kumar and Ajay Mandal	2012	Mechanistic Study of Wettability Alteration of Quartz Surface Induced by Nonionic Surfactants and Interaction between Crude Oil and Quartz in Presence of Sodium Chloride Salt	Energy & Fuels	Vol. 26	pp. 3634-3643
7.	Vikash Kumar Saw, Iqbal Ahmad, Ajay Mandal, G. Udayabhanu, and Sukumar Laik	2012	Methane Hydrate Formation and Dissociation in Synthetic Sea Water	Journal of Natural Gas Chemistry	Vol. 21, Issue 6	pp. 625-632
8.	Abhijit Samanta, Achinta Bera, Keka Ojha, and Ajay Mandal		Comparative Studies On Enhanced Oil Recovery By Alkali Surfactant And Polymer Flooding	Journal of Petroleum Exploration and Production Technology (Springer)	Vol. 2	pp. 6774
9.	Abhijit Samanta, Keka Ojha, Ashis Sarkar and Ajay Mandal	2013	Mobility Control and Enhanced Oil Recovery using Partially Hydrolyzed Polyacrylamide	Int. J. Oil, Gas and Coal Technology	Vol. 6, No. 3	pp. 245-258

10.	Achinta Bera, Keka Ojha, T. Kumar, and Ajay Mandal	2012	Water Solubilization Capacity, Interfacial Compositions and Thermodynamic Parameters of Anionic and Cationic Microemulsions	Colloids and Surfaces A: Physico- chemical and Engineering Aspects	Vol. 404	pp. 70-77
11.	Achinta Bera, Keka Ojha, T. Kumar, and Ajay Mandal	2012	Phase Behavior and Physicochemical Properties of (Sodium Dodecyl Sulfate + Brine + Propan-1-ol + Heptane) Microemulsions	J. Chem. Eng. Data	Vol.57 (3),	pp. 1000-1006
12.	Neetha V. Thampi, Keka Ojha, G. Udayabhan	2012	An Overview of Recent Advances in Viscoelastic Surfactant based Fracturing Fluid Technology	Journal of Petroleum Engineering and Technology	Vol. 2(2)	pp. 30-41
13.	B. Singha, T. K. Naiya, A. K. Bhattacharya and S. K. Das	2012	Cr (VI) Ions Removal from Aqueous Solutions Using Natural Adsorbents FTIR Studies	J. Env. Prot.	Vol. 2	pp. 729-735
14.	T. K. Naiya, B. Singha, S. N. Mandal, A. K. Bhattacharya and S. K. Das	2012	Removal of Pb (II) from Aqueous Solutions using Fuller's Earth	World Academy Sci. Eng. Technol	Vol. 67	pp. 153-157
15.	A. Guria, S. Mandal, C. Guria & M. Maiti	2012	A new petrol/diesel pricing model and optimal inventory control in petrol -diesel retailing station with permissible delay in payment.	Int J Oper Res	Vol. 15	pp. 424-447
16.	J. Sreenadhan & C. Guria	2012	Rapid monitoring of bis phenol A diglycidyl ether formation through by product estimation: A study by Fourier transform infrared spectroscopy.	J Appl Polym Sci	Vol. 123	pp. 2894-2905

17.	C. Guria & A. K. Pathak	2012	An improved generalized three-parameter cubic equation of state for pure fluids.	J Petrol Sci & Eng	Vol. 96-97	pp. 79-92
18.	M. Sharma, C. Guria, A. Sarkar & A. K. Pathak	2012	Recycling of Waste Fly Ash: A Rheological Investigation.	Int J Sci Env Tech	Vol. 1	pp. 285-301
19.	T. Kumar, Achinta Bera, Ajay Mandal	2012	Physicochemical Properties of Microemulsions and their uses in Enhanced Oil Recovery	World Academy of Science, Engineering and Technology	Vol. 64	pp. 1114-1119
20.	Ajay Mandal and Achinta Bera	2012	Surfactant Stabilized Nanoemulsion: Characterization and Application in Enhanced Oil Recovery	World Academy of Science, Engineering and Technology	Vol. 67	pp. 21-26
21.	A. K. Pathak and K. Ojha	2012	Estimation of Methane emission from Hydrocarbon Exploration and Production in India	World Academy of Science, Engineering and Technology	Vol. 64	pp. 1183-1186
22.	Mahto Vikas, Shrikanth, P. and Krishna, B.V.	2013	Development of non-damaging and inhibitive water based oil well drilling fluids	Journal of Petroleum Science and Technology	31:7	pp. 721-726
23.	Yadav, U.S. and Mahto, Vikas	2013	Experimental Studies, Modelling and Simulation of Partially Hydrolyzed Polyacrylamide- Hexamine-Pyrocatechol Polymer Gel System for Profile Modification Jobs	International Journal of Advanced Petroleum Engineering and Technology	Vol. 1, Issue 1	pp. 1-16

3.16.6.2 Papers presented/ published in International Seminars/Conferences.

- [1] Shivanjali Sharma, Vikas Mahto, V. P. Sharma “To study the effect of flow improvers on indian waxy crude oil” presented in Second International Conference on “Drilling Technology 2012 (ICDT-2012) held in December 6-8, 2012, at IIT Chennai. ISBN: 978-93-80689-13-5
- [2] Achinta Bera, Ajay Mandal, T. Kumar, and Keka Ojha, “Influences of Sodium Chloride Concentration and Ethylene Oxide Number of Nonionic Surfactants on Wettability Alteration of Glass Surface”, presented in International Conference on Emerging Trends in Engineering and Technology, 2012, April 6-7, 2012, at Teerthanker Mahaveer University, Moradabad, India.
- [3] A K Pathak and Keka Ojha, “Estimation of Methane emission from Hydrocarbon Exploration and Production in India” presented in International conference of World Academy of Science, Engineering and Technology, 25-26 April, 2012, Paris.
- [4] T. Kumar, Achinta Bera, Ajay Mandal, “Physicochemical Properties of Microemulsions and their uses in Enhanced Oil Recovery”, presented at International conference of World Academy of Science, Engineering and Technology, 25-26 April, 2012, Paris.
- [5] Ajay Mandal, Achinta Bera, K. Ojha, and T. Kumar, “Characterization of Surfactant Stabilized Nanoemulsion and Its Use in Enhanced Oil Recovery”, Paper SPE 155406, presented at the SPE International Oilfield Nanotechnology Conference, 12-14 June, 2012, Noordwijk, The Netherlands.
- [6] Ajay Mandal and Achinta Bera, “Physicochemical Properties of Microemulsions and their uses in Enhanced Oil Recovery”, presented at International Conference on Nanoscience and Nanotechnology, 5-6 July, 2012, Zurich, 2012.
- [7] Vikash Kumar Saw, Manoj Kumar Gudala, G. Udayabhanu, Ajay Mandal, Sukumar Laik, “Kinetics of Methane Hydrate Formation and its Dissociation in Presence of Non-ionic Surfactant Tergitol” in International Conference on Developing Unconventional Oil and Gas Resources “DUOG 13” during 1-3 March, 2013.
- [8] Neetha V Thampi , Keka Ojha, G. Udayabhanu, “Micelles and its combinations Concept of clean hydraulic fracturing fluid” presented in 3rd

BIT's annual congress, on Well stimulation and EOR (WSEOR) during April 25-27, 2012 held in Xi'an, China.

- [9] Archana and Kusum Kumari, "Advancement in sand Control" in 3rd BIT's annual congress, on Well stimulation and EOR (WSEOR) during April 25-27, 2012 held in Xi'an, China.
- [10] A K Pathak and Keka Ojha "Estimation of methane emission from Hydrocarbon exploration and production in India" presented in International conference WASET, held in Paris, France during April 25-26, 2012.
- [11] Amit Saxena, R. Mude, A. K. Pathak, and Keka Ojha Physicochemical characterization of polymer-surfactant based aqueous system for foambased drilling fluid" presented in Second International Conference on "Drilling Technology 2012 (ICDT-2012) held in December 6-8, 2012, at IIT Chennai. ISBN: 978-93-80689-13-5
- [12] Mahto, Vikas, Yadav, U. S., Kumar, Ajay and Sharma, V. P. "Effect of Time and Temperature on the Rheological Behavior of Partially Hydrolyzed Polyacrylamide-Hexamine-Pyrocatechol Gel System" presented in the 19th Annual India Oil & Gas Review Summit & International Exhibition (IORS-2012) to be held during September 06-07, 2012 in Mumbai.
- [13] Mahto, Vikas and Sharma, V.P. " Study the effect of additives on the differential pipe sticking caused by water based drilling fluid" presented in International conference on Oil, Gas and Petrochemical Issues held during August 11-12, 2012 at Phuket, Thailand

3.16.6.3 Papers presented/ published in National Seminars/Conferences

- [1] Mahto, Vikas, Siddique, Hamid and Pathak, A.K. "Application of High Power Laser in Oil and Gas Well Drilling: An Overview" in National Conference on Advances in Lasers and Spectroscopy (ALS-2012) to be held during November 1-3, 2012 at ISM Dhanbad.
- [2] Sharma, Shivanjali, Mahto, Vikas and Sharma, V.P. "Production, Transportation and Handling of Waxy Crude Using Chemical Methods" presented in "National Seminar on Chemistry In Our Lives" at Bilaspur, Chhattisgarh during 1-2 February, 2013.

3.16.7 MAJOR ACADEMIC CONTRIBUTIONS

1. Prof. S.Laik delivered 2 session special lectures in off-campus training program at NIT Durgapur during 07.01.2013 11.01.2013.
2. Prof. S.Laik has been appointed as member of Board of Courses and Studies at RGIPT Raebareli and at BIT Mesra Ranchi.
3. Prof. V.P.Sharma has been appointed as member of Board of courses & studies for Petroleum Engineering at BIT Mesra and for Petroleum Engineering at Rajasthan Technical University.
4. Prof. A.K.Pathak has been appointed as member of Board of courses & studies for Petroleum Engineering at BIT Mesra.
5. Prof. A.K.Pathak is Technical member of Sub-Committee on POL Depot & Terminals appointed by Petroleum & Natural Gas Regulation Board, GOI.
6. Prof. A.K.Pathak has been appointed as member of "Sectoral Innovation Council for Petroleum and Natural Gas" constituted by Government of India.
7. Prof A.K.Pathak was appointed as member of Diamond Core and Water Well Drilling Sectional Committee BIS and attended its 13th meeting on 11.01.2013 at BIS New Delhi.
8. Prof. A.K.Pathak delivered 2 session special lectures in off-campus training program at NIT Durgapur during 07.01.2013 11.01.2013.
9. Dr. Ajay Mandal is Recipient of SPE Faculty travel grant 2012.
10. Dr. Ajay Mandal has been reviewer of 11 manuscripts of different international journals during the session.
11. Dr Keka Ojha delivered 2 session special lectures in off-campus training program at NIT Durgapur during 07.01.2013 11.01.2013.
12. Dr Keka Ojha received Faculty Travel grants-2013 from Society of Petroleum Engineers, USA for attending conference in Middle East region.
13. Dr. Keka Ojha has been reviewer of 03 manuscripts of different international journals during the session.

14. Dr Keka Ojha reviewed Lectures of “National Programme on Technology Enhanced Learning” on Advanced mass Transfer, Chemical Engineering
15. Dr Keka Ojha has been appointed as examiner for PhD dissertation evaluation and Viva Voce at IIT Guwahati.
16. Dr Vikas Mahto delivered invited guest lecture on “Petroleum Drilling and Production Operations” during September 9-12, 2012 at G.I.E.T. Gunupur (Orissa).
17. Dr Vikas Mahto attended One week field training at Mangala Processing Plant and Mangala/Bhagyam oil field located at Barmer, Rajasthan (11.06.2012-17.06.2012) under CIIP of Cairn Energy.
18. Dr Vikas Mahto Developed testing facilities for flow assurance problems
19. Dr Chandan Guria attended One week field training at Mangala Processing Plant and Mangala/Bhagyam oil field located at Barmer, Rajasthan (11.06.2012-17.06.2012) under CIIP of Cairn Energy.

3.16.8 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE:

Department of Petroleum Engineering has local chapters of Petroleum Engineering Professional Societies for students i.e. SPE, PETROTECH, and Petroleum Engineering Society. All UG & PG students are active members of these Societies and organize a number of events like paper contest, guest lectures, and quiz & poster competitions to update the students with latest know-how of the Industry. A few examples of the events organized in the year 2011-12 are:

Events:

Title	Date
SPE Sub-regional paper meet for India-Bangladesh Sub-region.	8-9 Nov., 2012.
Mr. Mithilesh Kumar from GELOGIX LIMITED presented a guest lecture on the new software, “WITSML” which has gained attention of the petroleum experts in the recent times	April 13, 2012
Halliburton workshop on advanced fracking and cementing by Mr. Jyotaditya Singh (Associate technical professional, cementing section, HALLIBURTON) and Mr. Amanpreet Singh (Associate technical professional, Production Enhancement section, HALLIBURTON)	7 th August 2012

Oil field Familiarization to first and second year students	7 th October 2012
Technical presentation competition for 3 rd year B.Tech & Dual Degree students on “Water Influx” organized by Petrotech Socieity.	21 st October 2012
Panel Discussion on the topic "Enhanced Oil Recovery versus the Unconventionals" by Shri B.N. Talukdar (Director, Oil India Limited) was the chief guest of the panel discussion and the other panellists were Mr. John Hoppe (Discipline Manger, Shell India), Shri Brij Prasad (Production Line Manager, Weatherford), Mr. Sukanta Dey (Dy. Manager, Adani), Prof. G.P. Karmakar (Director, PDPU), and Shri Anand Kumar Jha (Sales Manager, Schlumberger)	November 9, 2012
SHELL SOFTSKILLS WORKSHOP conducted by Shell India. This extravaganza event was hosted by Mr. Akash Biswas and Mr. Manish Chaudhary From Shell India.	23 rd November 2012, GJLT, ISM
Two-Day Technical Workshop on “Well Test Analysis” by Oil India Experts under TEQIP-II.	October 11-12, 2012
Inter-Departmental Energy Quiz Competition by Petrotech Socieity	21 st Jan'13, GJLT, ISM
Cairn India Institute Interaction Programme (CIIP). Guest lecture on “coil tubing intervention” by Mr. Aditya Nikam is a senior engineer in Cairn Energy India Ltd.	27 th January, 2012
Guest Lecture on Shale Gas by Dr. Hemanta Mukherjee, President & Principal Consultant, iPOINT LLC, Canada	31 st January, 2013

3.16.9 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC.

Name of the faculty	Conference/Seminar	Date	Venue
Prof. T Kumar	WASET, Paris	25-26 April, 2012	Paris, France
Prof. S Laik	Indian Mineral Congress, 2013	February 3, 2013	ISM, Dhanbad
Prof. V P Sharma	Indian Mineral Congress, 2013	February 3, 2013	ISM, Dhanbad
Prof. A.K.Pathak	Indian Mineral Congress, 2013	February 3, 2013	ISM, Dhanbad
Prof. A.K.Pathak	WASET, Paris	April 25-26, 2012	Paris, France
Prof. A.K.Pathak	World Petrocoal Congress 2013	Feb 15-17, 2013	New Delhi
Prof. A.K.Pathak	World Petrocoal Congress 2013	Feb 15-17, 2013	New Delhi
Dr. Ajay Mandal	SPE conference	December 8-10, 2012	Kwait City, Kuwait

Dr. Ajay Mandal	International Conference on Nanoscience and Nanotechnology	5-6 July, 2012, Zurich	Zurich, Swizerland
Dr. Ajay Mandal	Indian Mineral Congress, 2013	February 3, 2013	ISM, Dhanbad
Dr. Keka Ojha	Indian Mineral Congress, 2013	February 3, 2013	ISM, Dhanbad
Dr. Keka Ojha	Conference on Well Stimulation and Enhanced Oil Recovery (WSEOR-2012), Xian, China	April 25-27, 2012	China
Dr. Keka Ojha	Attended 5 th Petrotech Annual Convention, 2013.	March 22, 2013	PDPU, Gujarat
Dr. V Mahto	Indian Mineral Congress, 2013	February 3, 2013	ISM, Dhanbad
Dr. V Mahto	ALS-2012	November 1-3, 2013	ISM Dhanbad India
Dr. V Mahto	International Conference on Oil, Gas and Petrochemical Issues	August 11-12, 2012	Phuket (Thailand)
Dr. T K Naiya	Attended 5 th Petrotech Annual Convention, 2013.	March 22, 2013	PDPU, Gujarat
Shri Vinay Rajak	Attended IADC Conference	October 27-18, 2012	Mumbai
Ms. Archana	Conference on Well Stimulation and Enhanced Oil Recovery (WSEOR-2012), Xian, China	April 25-27, 2012	China
Ankit Hanotia	Attended SPE Applied Technology Workshop on "IOR& EOR: Right Step for the Left Oil"	5-7 December, 2012	New Delhi, India
	Attended 8th proficiency course on "MODERN PRACTICES IN PETROLEUM EXPLORATION	3rd 7th SEPTEMBER, 2012	Dehradun India
Neetish K Maurya	Attended SPE Applied Technology Workshop on "IOR& EOR: Right Step for the Left Oil"	5-7 December, 2012	New Delhi, India
	Attended 8th proficiency course on "modern Practices In Petroleum Exploration	3rd 7th SEPTEMBER, 2012	Dehradun India

3.16.10 VISITS OF FACULTY MEMBERS ABROAD

1. Dr Keka Ojha visited Xian, China, to attend and present paper on “Micelles and its combinations Concept of clean hydraulic fracturing fluid” in 3rd BIT's annual congress, on Well stimulation and EOR (WSEOR) during April 25-27, 2012 held in Xi'an, China.
2. Ms. Archana, visited Xian, China, to attend and present paper on “Advancement in sand Control” in 3rd BIT's annual congress, on Well stimulation and EOR (WSEOR) during April 25-27, 2012 held in Xi'an, China.
3. Prof. A K Pathak visited France to present paper on “Estimation of methane emission from Hydrocarbon exploration and production in India” presented in International conference WASET, held in Paris, France during April 25-26, 2012.
4. Prof. T. Kumar visited France to present paper on Physicochemical Properties of Microemulsions and their uses in Enhanced Oil Recovery, presented at International conference of World Academy of Science, Engineering and Technology, 25-26 April, 2012, Paris.
5. Dr. Ajay Mandal visited Zurich to present paper on “Physicochemical Properties of Microemulsions and their uses in Enhanced Oil Recovery” at International Conference on Nanoscience and Nanotechnology, 5-6 July, 2012, Zurich, 2012.
6. Dr. Ajay Mandal visited Kuwait to attend SPE conference at Kuwait city under SPE faculty support program for the Middle East Region in December, 2012
7. Dr Vikas Mahto Visited Thailand to present a research paper entitled “Study the effect of additives on the differential pipe sticking caused by water based drilling fluid” in the technical session of International Conference on Oil, Gas and Petrochemical Issues during August 11-12, 2012 at Phuket, Thailand

3.16.11 TESTING SERVICES (LAB FACILITIES AVAILABLE FOR TESTING IN THE DEPARTMENT):

- Petroleum Production and Product Testing Lab: Red Wood Viscosity Saybolt Viscosity, Carbon Residue, Ash Content, Gross Calorific Value, Demulsification Number, Acid Content, Water Content, Copper Strip

Corrosion, Fire Point, Flash Point, Cloud Point, Octane Number, Cetane Number, Smoke Point, Refractive Index.

- CBM Laboratory: Canistar desorption testing, Adsorption isotherm testing, gas testing in GC.
- Drilling Fluid and Cement Laboratory: Plastic Viscosity, Gel Strength, Filtration Loss, Sand Content, Marsh Funnel Viscosity, Setting Time of Cement, Rheological Properties of Cement Slurry, Consistency Index of Cement Slurry.
- Reservoir Engineering Laboratory: Porosity, Gas Permeability, Liquid Permeability, Resistivity of Cores.
- LCA Laboratory: Permeability of Long Core samples and EOR studies using chemicals as displacing fluid.
- Gas Hydrate Laboratory: Gas Hydrate reactor with photographic attachment for constant visualization, Physica MC1 rheometer for rheological analysis of various fluids with shear and temperature control systems.
- EOR Laboratory: Core flooding systems, Brookfield rheometer for rheological analysis, pH meter, Conductivity meter, Interfacial surface tension measuring instruments.

3.16.12 DISTINGUISHED VISITORS TO THE SCHOOL

Sl No.	Guest	Purpose
1.	Shri Sudhir Vasudeva, CMD, ONGC	To receive ISM-Basant Samman, and interaction with Department
2.	Shri B.N. Talukdar, Director, Oil India Ltd	Chief guest, SPE sub-regional paper contest-valedictory session.
3.	Mr. John Hoppe (Discipline Manger, Shell India),	To conduct Shell Day and selecting students for summer internship
4.	Dr. Hemanta Mukherjee, President & Principal Consultant, iPOINT LLC, Canada	Guest Lectures on Shale Gas
5.	Shri N K Mitra, Ex Director (Offshore) ONGC	Guest Lectures on Offshore Drilling & Production Practices

6.	Shri Brij Prasad	Guest SPE sub-regional paper meet
7.	Mr. Sukanta Dey	Guest SPE sub-regional paper meet
8.	Prof. G.P. Karmakar, Professor PDPU Gandhinagar	Guest SPE sub-regional paper meet
9.	Shri Anand Kumar Jha (Sales Manager, Schlumberger).	Guest SPE sub-regional paper meet
10.	Mr. Akash Biswas (Reservoir Engineer), Shell India	Deliver Guest lecture to students
11.	Mr. Manish Chaudhary, (Reservoir Engineer), Shell India	Deliver Guest lecture to students
12.	C S Singh, Oil India Ltd.	To Conduct 2 days Workshop in Well Testing
13.	A. N. Pandey, Oil India Ltd.	To Conduct 2 days Workshop in Well Testing

3.16.13 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Sl.No.	Speaker	Topic	Date
1.	Dr. Hemanta Mukherjee, President & Principal Consultant, iPOINT LLC, Canada	Guest Lecture on Shale Gas by	31 st January, 2013
2.	Shri A K Mandal, Ex ED, ONGC	Lectures on Petroleum Production problems	March 2013
3.	Shri Sushanta Sarkar	Tubing Stress Analysis, Completion Equipments & Production/ Injection well sizing	03.09.2012 07.09.2012
4.	C S Singh, Oil India Ltd.	Well Test Analysis	11.12.2012 12.12.2012
5.	A. N. Pandey, Oil India Ltd.	Well Test Analysis	11.12.2012 12.12.2012
6.	Mr. Manish Chaudhary, (Reservoir Engineer), Shell India	Deliver lecture to students	23.11.2013
7.	Shri N K Mitra, Ex Director (Offshore) ONGC	Offshore Drilling & Production Practices	Jan 21 25, 2013
8.	Prof T Kumar, Director, NIT Durgapur	Work over and Well Stimulation	01.08.2012 04.08.2012

9.	Prof B P Pandey, Adjunct Professor Petroleum Engineering	Reservoir Engineering	17.04.2012 19.04.2012
10.	Prof B P Pandey, Adjunct Professor Petroleum Engineering	Reservoir Engineering	15.11.2012 19.11.2012
11.	Ashok Kr Singhal, USA	One Day Workshop on Enhanced Oil Recovery	04.02.2013

3.16.14 MISCELLANEOUS

Other Information about Faculty Members:

Prof. S. Laik :

- Member, Research Advisory Committee for Gas Hydrate Programme constituted by Dept. of Ocean Development under Ministry of Science and Technology, Govt. of India.
- Life Member, Institute of Engineers, India

Prof. V P Sharma:

- Invited as examiner for PhD dissertation to Punjab Technical University in January 2012.

Dr. A. K. Pathak:

- Member of Society of Petroleum Engineers.
- Life Member of ISTE.
- Life Member of Society of Surface Science and Technology.
- Life Member of NASc Allahabad.
- Member of Board of faculty planning & Development at Pandit Din Dayal Institute of Petroleum Technology Gandhinagar, Gujrat.
- Reviewer of Journal of Scientific Journals Internationals.

Dr. Ajay Mandal:

- Member in the Editorial board of International Journal of Petroleum Engineering (IJPE).
- Reviewed 11 manuscripts from of the following journals:

Journal of Surfactants and Detergents

Journal of Petroleum Engineering & Technology.

Energy & Fuels

Journal of Experimental Nanoscience.

International Journal of Oil, Gas and Coal Technology (IJOGCT)

Colloids and Surfaces A: Physicochemical and Engineering Aspects

Journal of the Taiwan Institute of Chemical Engineers

Industrial & Engineering Chemistry Research

Energy Conversion and Management

Dr. Keka Ojha:

- Recipient, SPE Faculty Travel Grant, 2013.
- Reviewer:
 - ✓ Chemical Engineering Data-Journal
 - ✓ Advances in Sustainable Petroleum Engineering Science
 - ✓ Separation-purification Technology
- Reviewer of Lectures of “National Programme on Technology Enhanced Learning” on Advanced mass Transfer, Chemical Engineering.
- Invited as examiner for PhD dissertation to IIT Guwahati in December 2012.
- Member, SPE-USA
- Life Member, MGMI-India

- Member, Editorial board of International Journal of Petroleum Engineering, Inder Science.

Dr. Vikas Mahto:

- Associate Editor of International Journal of Chemical Research
- Associate Editor of Environmental System: Theory & Applications, Canada.
- Member, Editorial board of International Journal of Petroleum Engineering, Inder Science.
- Member, Editorial Board of Scientific Journals Internationals.

Dr. C Guria

- Member, ACS, USA

Students' Achievement:

- Arvind Kumar, VI B. Tech PE won STAR Scholarship of US\$ 5000 p.a. from Asia Sub region by SPE, USA in 2011 till completion B Tech.
- Siddhant Shankar Bathas, won STAR Scholarship of US\$ 5000 p.a. from Asia Sub region by SPE, USA in 2012 till completion B Tech.
- Shubham Sharma won STAR Scholarship of US\$ 5000 p.a. from Asia Sub region by SPE, USA in 2012 till completion B Tech.
- Soham Mukhopadhyay won Best presentation award in **9th Biennial International conference, SPE Hyderabad, 2012**
- Petrotch Students chapter received 2nd best chapter award in 2013.
- Student team received Second Best presentation award.
- SPE student Chapter won the “Gold Standard” award for its activity 2012.

Participation of Petroleum Engineering Students in National and International Seminar / Conferences:

Sl. No.	Date	Title/Topic	Meeting Type	Name	Comments
1.	6-8 December 2012	Physicochemical characterization of polymer-surfactant based aqueous system for foambased drilling fluid	International Conference, IIT Chennai	Amit Saxena	Presented paper. Received first prize in presentation
2.	6-8 December 2012	To study the effect of flow improvers on indian waxy crude oil	International Conference, IIT Chennai	Shivanjali Sharma	Presented paper. Received second prize in presentation
3.	6-8 December 2012	Shale Gas and its future prospects	STPC-2012, IIT Chennai	Vineet kumar Sameer khare	Presented paper. Received first prize in presentation
4.	6-8 December 2012	Shale Gas Extraction By Different Aqueous And Non-Aqueous Fracturing Technologies	STPC-2012, IIT Chennai	Nakul Kumar, Kumar Sanjeev, Lovely Sharma, Jitendra Nayan	Presented paper. Received second prize in presentation
5.	August 27-28, 2012		IADC Meet, Mumbai	Fourth Yr: Abhijeet Anand, Ujjwal Nand, Kunal Paliwal, Third Yr: Shubham Sharma, Prateek Bharadwaj, Mayank gupta, Saurabh Singhal, Rishabh Prateek, Saurabh Verma	Invited to attend the conference
6.	14-17 October, 2012		PETROTECH conference	Rachit Vijay, Kunal paliwal, Lovely Sharma, Vikram Sai	Participated in various events for students
7.	26-28th, March, 2013.	Presented paper in SPE conference	IPTC, Beijing, China	Sidhanth Shankar Batsas	

8.	26-28th, March, 2013.		IPTC, Beijing, China	Abhijeet Anand	Invited to attend Education Week
9.	December 2012		SPE Sub Regional Paper Meet 2012, ISM	Subham Mishra	Won first prize
10.	April 2013		SPE conference at Middle East Paper meet 2013 held at Cairo, Egypt.	Subham Mishra	represented India & Bangladesh
11.	October 8-12, 2012	Suitability of Horizontal, Inclined, and Vertical Wells on an Indian Offshore Platform Using Pressure Transient Analysis	ATCE, SPE conference	Abhijeet Anand presented a paper at SPE ATCE 2012 held at San Antonio, USA	Presented paper
12.	30 April-3 May 2012	Artificial Neural Network as a Tool for Reservoir Characterization and its Application in the Petroleum Engineering	Offshore Technology Conference, Houston, Texas, USA	Arvind Kumar	Presented paper
13.	6-8 December 2012	Petrotech Youth Forum	PETROTECH Youth Forum, New Delhi	Sumit Brijwani Ankit Gupta Pulkit Jain Shubham Gupta Bhupendrapal Singh	Participated in various events organized by Petrotech.
14.	22nd March PR2013	“Vision 2030: Emerging Energy Basket-Challenges & opportunities”	5 th Petrotech Annual Convention	Shaktim Dutta Kunal Paliwal Lovely Sharma Vikram Sai Saurabh Singhal Shubham Sharma Shubham Gupta Vineet Kumar Paresh Agarwal	Won second best presentation award

4.0 STUDENTS' ACTIVITIES

Annual Report of Cultural Scientific Literary Society

The Cultural Scientific Literary Society (CSLS) has been an active students' society of Indian School of Mines. This year, the Society conducted many activities for instance, a famous comic satire, “**Tajmahal Ka Tender**” penned down by National School of Drama. The play was performed on 26th August 2012 by the **Abhay Dramatics Club** of ISM. Also, a group of 18 students of Dance Club represented the CSLS in the **Western Dance Competition** in Antaragni at IIT Kanpur. Abhay Dramatics Club performed another English play, “**Is He Dead**” by Mark Twain on 14th October 2012, which was applauded by students and faculties of the School.

The Winter Semester started with a seminar on **Art of Harnessing Power** and a workshop on **Leading Meaningful Lives** on 15th and 20th of January respectively. It aimed at reducing mental stress and teaching time management techniques to the students. Once again, the CSLS was represented by a group of 15 students of Dance Club in **Group Dance Competition** in Spring Fest at IIT Kharagpur.

Pratibimb 2013, the Intra-College festival witnessed an overwhelming participation of the CSLS hobby clubs like Literary Club, Abhay Dramatics Club, and Dance Club. Mime, One Act Play, Nukkad Natak, Dance competitions were the common platforms where the CSLS society excelled with bright colours. On 17th February **Inter School and Inter College Quiz Competition** was organised, where students from ISM and outside participated with full enthusiasm. The same day, a **Ted Talk competition** called **ISM TALKS** was organised to hone the presentation skills of students by the Literary Club of the CSLS.

In Srijan 2013, the Cultural festival of ISM, the CSLS faced tough competitions from outside college students in events like solo and group dance competitions, still the society bagged prizes in all events. Besides this, all clubs like Literary, Abhay Dramatics and Dance organised various competitions like **Resolved, Literary Olympiad, Solo and Group Dance competitions** and many more. Overwhelming participation was seen in all the events including students from outside too. Recently in association with Chaianika Sangh, the CSLS celebrated **150th Anniversary of Swami Vivekananda** on 7th and 8th April. **Vad-Vivad Pratiyogita** and **Art Exhibition Competitions** received participation from both the college students and nearby school.

Moreover, regular meetings were conducted by the CSLS club to enhance the skills of students. The Society also received furniture and other equipment for Student Activity Centre (SAC) rooms of the CSLS and soon it will perform its activities in SAC.

CHAYANIKA SANGH ACTIVITIES

- A new team of Chayanika Sangh was selected with Miss Surabhi, 3rd year, Mineral Engineering as the secretary for the year 2012-2013. Under her leadership, activities like Hindi debate competition/pantomime were organized in which a large number of students took part.
- Chayanika Sangh took active part in organizing the Hindi Pakhwada in which many events such as essay writing competition, a Hindi skit and Nukkad Natak were conducted. The skit and the Nukkad Natak were performed by Asmita group, a leading drama group of India and were appreciated by the audience. The Hindi Pakhwada was a huge success with many participants.
- In the closing ceremony of Hindi Pakhwada the Hindi magazine of Chayanika Sangh 'Ankur' was released.
- The ISS finalized the budget for Chayanika Sangh and allocated the fund for facilitation of organizing of the event and the promotion of Hindi as a language.
- The Chayanika Sangh was allotted an office in the Students' Activity Centre (SAC) for carrying out its activities and meetings. This office was subsequently furnished.
- During the annual school fest, Srijan (March 14 - 16), Chayanika Sangh organized a Nukkad Natak. It witnessed a huge participation of teams from ISM as well as of teams from other colleges.

CONCETTO'12

Concetto'12, the annual technical festival of ISM was from 4-6 October, 2012. The techfest was attended by more than 700 students from leading engineering and management institutes like IIT Khargpur, IIT Patna, IIT Bhubaneswar, NIT Durgapur, NIT Jamshedpur, NIT Rourkela, BIT Mesra, BIT Sindri among others. The function was inaugurated by the Chief Guest, Shri Sanjay Kumar Singh, General Manager, Tata Steel, Jharia Collieries Division, Jamadoba on October 3, 2012 at GJLT. The other eminent persons present on the occasion were Prof. D. C. Panigrahi, Director, ISM, Prof. S. Laik, Dean, Students Welfare, and Prof. Chandan Bhar, Associate Dean, Students Welfare along with Dr. Dheeraj Kumar, Convener, Concetto-2012, Dr. Niladri Das, Co-Convenor and Mr. Neel Gupta, Student Coordinator, Concetto-2012. There were numerous technical events and workshops organized for the students during the techfest from 4-6 October, 2013. With an overall

theme of 8-bit gaming, there were a total of 61 events providing a platform to shoot the “technical me” of everyone. Apart from the various Robotics and Coding events, this time Concetto also presented some industrial interaction via case studies and panel discussions which were organized by companies such as TATA STEEL, DGMS, ONGC and Reliance Industries.

To develop the technical skills among the students, workshops on Ethical Hacking, Intelligent Machine Robotics (Imacbotz), Lean Sigma and 3-d game design & scripting were also organized. Also, various guest lecturers were delivered. The eminent personalities involved were Mr. Amit Raj, Mr. Harsh Snehanshu, Mohd. Akram Feroz and Dr. Abhijit Chakrabarti.

There was a cultural function organized in association with Spic Macay and Music Society by renowned Rajasthani Sufi artist, Ghazi Khan and his troupe and various Rajasthani folk dance forms on October 5, 2012 at Penman Auditorium. The Congress ended with a valedictory function cum prize distribution ceremony on October 6, 2012. It was attended by Shri G C Mrig, Ex CMD, BCCL who was the Chief Guest for the function and Shri C Diwakar, Ex GM, Tata Steel, Jharia Collieries Division, Jamadoba. The overall championship trophy was bagged by IIT Patna. The function ended with a laughter show by renowned laughter challenge artist, Shri Raju Rancho.

CYBER SOCIETY ACTIVITIES

The Cyber Society of Indian School of Mines was actively involved in creating Cyber awareness among the students of the institute through various events during the academic session 2012-2013. All such events were selected that benefitted the student of all branches of the school. The society provided the students a wonderful platform for mutual learning and discussions led by the senior students. This helped in forming a strongly connected network among the students for knowledge exchange and discussions.

A brief summary of the events held is given below:

1. **C-Programming Workshop (October 2012):** This workshop was conducted for the first year students. It involved discussions about various programming constructs and application of simple data structures like arrays, structures, linked lists, etc.
2. **Workshop on Autonomous Robotics (October 2012):** This workshop involved discussion on microcontrollers, sensors and their application in autonomous robotics. It also involved a demonstration of some of the common autonomous robots. The students also got a good exposure to programming in assembly language.

3. **Robotics Expo (2012):** The first of its type to be organised in ISM, this witnessed massive participation from students as well as faculty, from visiting the stalls to demonstrations on robots in LHC.
4. **Coding Competitions (February and March 2013):** The competitions were held overnight, thus triggering enthusiasm among all the years. Questions ranged from very easy to very tough, and were put up on SPOJ, an online server. This gave students a good exposure on coding, mainly in C, C++ and JAVA languages.

MUSIC SOCIETY

1. The ISM Music Society in association with the Cultural Scientific and Literary Society (CSLS) had organized an event "Talent Hunt" on 13 April, 2012, to discover potential talents in (a) eastern singing competition "ISM IDOL" and (b) a solo dance competition "STEP UP". Mr. Indranil Mitra, a famous tabla player of Dhanbad and a student of renowned table exponent Pandit Kumar Bose, was the judge for the event. The event "ISM IDOL" was won by Debishree Khan, a JRF of ISM. Aheli Bhattacharya of M.Sc. Tech 1st year won the second prize and Urbi Chatterjee of M.Tech. 1st year won the third prize. Band Orchestra led by Mr. Mrityunjoy Bhattacharjee accompanied the participants during ISM IDOL.

The event "STEP UP" was won by Ravi Teja of Mining Engineering (1st year B.Tech). The 2nd prize and 3rd prize went to Robin and Gopal respectively (both from 1st year B. Tech).

2. ISM Music Society in association with SPICMACAY organized Shehnai performance by Shankar brothers on 07 August, 2012. They explained popular Indian ragas through their performance. The program was appreciated by the audience.
3. ISM Music Society in association with SPICMACAY organized Rajasthani Folk and dance performance by Ghazi Khan Barna and his troupe on 05 October, 2012. This program was incidentally a part of the cultural evening of CONCETTO 2012 and consequently the program was attended by participants from various other Institutions from various parts of the country. Ghazi Khan and his troupe started their vocal performance with traditional Rajasthani folks. They also had shown excerpts on their traditional instruments. They illustrated the glimpses of their traditional culture through dances namely 'ghoomar' and 'kalbelia'. At the end of the performance there was a question-answer session which helped the audience to connect with the nation's rich culture.

4. ISM Music Society in association with SPICMACAY had organized Kathak dance performance by Padmasree and Sangeet Research Academy awardee Dr. Mrs. Shovana Narayan on 18 January, 2013. The program started with a short introductory speech by the President of Music Society, ISM, explaining the objectives, roles and duties of SPICMACAY and Music Society of ISM. The speech also covered a concise introduction on various Indian dance forms including Kathak. Mrs. Narayan started her performance with her explanation on various gestural and postural aspects of the Kathak dance form. Then she gave her performance in the form of short pieces expressing and explaining various mythological stories based on Srikrishna leela, Mahabharata etc. She had a question answer session with the audience after the completion of her performance.

NATIONAL SERVICE SCHEME

A General Body meeting of all the members of NSS, Dhanbad Unit took place on 14th April, 2012. The first event of NSS was a Group Discussion held on 26th July, 2012 followed by Poster Making Competition held on 25th August. In order to test the awareness of the students to the social issues of the society article and essay writing completion was conducted on 15th August. NSS was formally launched on 24th September 1969, the birth centenary year of the Father of the Nation. This day is celebrated every year as NSS Day.

During Basant, the annual Alumni Reunion, National Service Scheme had put up its stall to promote its objectives and working ethics to the Alumni of ISM. It also organized a blood donation camp in association with Bloodline wherein 85 units of blood were donated by the students. Furthermore, the member of NSS organized a Green Marathon on 21st March, 2013 to promote the essence of sustainable development and greener future. It also installed large number of dustbins at strategic locations in ISM. These activities were carried out by Dr. Vikas Mahto, Faculty Co-ordinator and Shailesh Prakash, Student Secretary.

PHOTOGRAPHIC SOCIETY

The first event organized under the aegis of the photographic society was “The Colors of the Festive Season”. The students were asked to submit a panorama of four snapshots depicting the colors of one of the most widely celebrated festivals of India DIWALI in the month of November. Association in SRIJAN 2013 was another milestone of the Photographic Society this year in which for the first time participation from various Institutes of India was seen. The event named “SNAPPERS ISM” was a part of the promotional material for Srijan where students had to submit snapshots on particular themes as released for the week. A 2 day workshop was conducted by the Photographic Society on 4th and 5th of April, 2013 on Post Processing of Images and Animation by the use of Renowned software: Adobe Photoshop, Adobe After Effects and MAXON CINEMA

4D; on which many Blockbuster movies like Final Destination and Transformers was made. A 2 day workshop on Basic Digital Photography was organized under the aegis of Photographic Society by the name of “Digital Vision” on 6th and 7th April, 2013 at ISM Dhanbad. The students were taught the finest skills of handling a DSLR and other finer aspects of Digital Photography.

These activities were carried out by **Prof Shalivahan**, Faculty Co-ordinator and Shailesh Prakash, Student Secretary.

SRIJAN 2013

SRIJAN 2013 the socio-cultural festival of Indian School of Mines, Dhanbad was held from 14-16 March 2013. The fest was inaugurated on 14th March 2013 by Prof. D.C. Panigrahi, Director, Indian School of Mines. The inaugural function was attended by Prof. S. Laik, Dean Students Welfare, Dr. T.H. Syed, Convener SRIJAN'13 and Dr. AjuAravind, Co-Convener, SRIJAN'13 amongst others.

The city of Dhanbad saw three-days of excellent display of talent, competitive spirit and excitement during SRIJAN-13. Nothing was missing from the three day carnival; right from dance to music, drama, fashion show, DJ night, Street Dance, Street play, Artist Performance, Rangoli, face-painting, Mr & Miss Srijan and so on. Team SRIJAN, under the active leadership of the Conveners, the General Secretary Mr. Aritra Gupta and Joint Secretary Mr. Vikas Rai took a lead in organizing various activities like Blood Donation Camp, cleaning the Campus, educating people on various social and health related issues.

On the first day of the fest the participants showed off their skills in a plethora of stage events. Participants from various educational institutions from across the country actively participated and showcased their abilities in various dance, dramatic, literary and artistic creativity. The crowd was also enthralled by the grooving tunes played by the participating bands. After the fun packed day-one, day-two started with the on-stage and gaming events. MUN, Youth to Business Forum, Prom Night and many other events enthralled the crowd again. This was followed by the much awaited Mr. & Miss Srijan, where students of ISM showcased their talent, confidence, intelligence and wit. On the day third day i.e., 16th March 2013, the city of Dhanbad witnessed a crowd which was totally new, more than five thousand students, over 500 participants from different institutions across the country, and hundreds of invited guests, witnessed the amazing performances of the students which was followed by a breath taking performance by the famous playback singer K.K.

5. PLACEMENT OF STUDENTS

The Training & Placement Section maintains active association and excellent contacts with the industry and corporate sector. The students are properly trained and assisted in securing job through in-campus and off-campus interviews. A Comparative Statement of the students selected during last five years is stated below:

4-Years B.Tech Programme					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	223	363	311	357	501
Campus Placement	197	339	289	321	407
Placement after the course completion	08	05	05	17	NA
No Information	18	19	17	19	NA
% of selected students	91.93	94.77	94.53	94.68	81.24

5-Years Dual Degree Programmes					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	NA	NA	37	35	43
Campus Placement	NA	NA	30	34	34
Placement after the course completion	NA	NA	4	0	NA
No Information	NA	NA	3	1	NA
% of selected students	NA	NA	91.67	97.14	79.07

5-Years Integrated M.Sc. Programmes					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	NA	NA	12	15	16
Campus Placement	NA	NA	9	11	06
Placement after the course completion	NA	NA	2	3	NA
No Information	NA	NA	1	1	NA
% of selected students	NA	NA	91.67	93.33	37.50

5-Years Integrated M.Sc. Tech Programmes					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	NA	NA	10	21	24
Campus Placement	NA	NA	5	19	11
Placement after the course completion	NA	NA	5	0	NA
No Information	NA	NA	0	2	NA
% of selected students	NA	NA	100.00	90.48	45.83

Integrated M.Tech Programme (M&C)					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	NA	NA	NA	NA	10
Campus Placement	NA	NA	NA	NA	6
Placement after the course completion	NA	NA	NA	NA	NA
No Information	NA	NA	NA	NA	NA
% of selected students	NA	NA	NA	NA	60.00

3-Years M.Sc.Tech Programmes (AGL & AGP)					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	60	39	71	82	102
Campus Placement	42	30	44	36	30
Placement after the course completion	1	8	15	38	NA
No Information	17	1	12	8	NA
% of selected students	71.67	97.44	83.10	90.24	29.41

2-Years M.Sc. Programmes					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	46	60	80	81	99
Campus Placement	13	7	10	9	1
Placement after the course completion	26	33	20	42	NA
No Information	7	20	50	30	NA
% of selected students	84.78	66.67	37.50	62.96	1.01

2-Years M.Tech Programmes					
Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	88	99	157	130	157
Campus Placement	16	24	56	84	29
Placement after the course completion	48	47	25	16	NA
No Information	24	28	76	30	NA
% of selected students	72.73	71.72	51.59	76.92	18.47

2-Years MBA Programme

Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	31	36	41	59	55
Campus Placement	13	15	20	40	13
Placement after the course completion	9	0	5	1	NA
No Information	9	21	16	18	NA
% of selected students	70.97	41.67	60.98	69.49	23.64

1-Year M.Phil Programme

Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	NA	25	26	10	30
Campus Placement		1	0	0	0
Placement after the course completion	0	0	0	NA	NA
No Information	0	0	0	NA	NA
% of selected students	0	4.00	0	0	0

GRAND TOTAL

Session	2008-09	2009-10	2010-11	2011-12	2012-13
Total Strength	448	622	745	790	1037
No. of selected students	373	509	544	671	537
% of selected students	83.26	81.83	73.02	84.94	51.78

Salary Package (Rs. In Lakhs PA) 2012-13 Batch		
Session	UG	PG
Maximum	56	18
Minimum	3	3
Average	8.18	6.59

6.0 INSTITUTE-INDUSTRY INTERACTION

6.1 CONSULTANCY SERVICES

The institute offers its consultancy services to the industry practically in all subject areas of geological and geophysical prospecting engineering geology, petroleum engineering, surface mining and its problems, underground mining its problems, mine surveying blasting vibration and blast design, mine fires, detailed mine planning, mine ventilation and mine environment engineering, design of mine supports, mine transport system, problems of corrosion, mineral beneficiation studies, and system design of electronic instrumentation, software development etc. Problems of system optimization industrial engineering and operations research information system design etc. relating to pollution are carried out and computer models for various operations developed. Detailed Project Reports of mine projects, coke and mineral beneficiation plants etc. are prepared and assistance in problems of manpower development and training are rendered.

Major clients for whom consultancy projects carried out include Furgo Nexterra Geophysics Ptd. Ltd., Kolkata, Chennai Metro Rail Project, Brinckerhoff, Hutti Gold Mines Co. Ltd, Raichur, CIMFR World Bank Project Ministry of Mines, Kabul, Afganistan, DVC Bokaro CCL, TISCO, SCCL, BCCL, MCL, WCL, SECL, NCL, ECL, UCIL Jadugoda Mines, West Bengal Mineral Development & Trading Corporation Ltd., SGS India Pvt. Ltd., Kolkata, Essar Oil Ltd., Durgapur, FCI Aravali Gypsum and Minerals India Ltd., Jodhpur, SAIL, IEL, MEKON International, Jharkhand Government Monnet Ispat. The value of Consultancy projects undertaken during the year amounted to **Rs. 5,56,59,115/-**.

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
1.	CONS/1758/2012-13	Processing and Interpretation of TDEM Data	Prof. Shalivahan, CI Prof. P. R. Mohanty, CO-CI	Fugro Nexterra Geophysics Pvt. Ltd. Kolkata
2.	CONS/1759/2012-13	Sampling and Analysis of Sudamdih Coal Washery Slurry	Prof. T. Sharma, CI	BCCL, Dhanbad
3.	CONS/1760/2012-13	Sampling and Analysis of Slurry of Pathardih Coal Washery	Prof. T. Sharma, CI	BCCL, Dhanbad
4.	CONS/1761/2012-13	Stability of stability and suggest alternatives measures for stabilization of XV Seam development washing beneath open cast Railway line at Mudidih Colliery	Prof. M. Jawed, CI Shri P. K. Benera, CO-CI	Mudidih Colliery, BCCL
5.	CONS/1762/2012-13	Sampling and Analysis of Bhojudih Coal Washery Project	Prof. T. Sharma, CI	BCCL Koyla Nagar
6.	CONS/1763/2012-13	Determination of Mechanical Properties of Some Rocks Identified Along The TBM Tunnel Alignment	Prof. V.MSR Murthy, CI Shri P. K. Behera, CO-CI	Chennai Metro Rail Project Persons Brinckerhoff
7.	CONS/1765/2012-13	Study on Impact of Re-routing of Barki Nadi over backfilled area of North Dhadhu Coal Block	Prof. Gurdeep Singh, CI	North Dhadhu Mining Company Private Ltd. , Kolkata-17
8.	CONS/1766/2012-12	Petrographic Analysis of Coal Samples	Prof. A. K. Verma, CI Prof. AS Venkatesh, CO-CI	Aditya Aluminium Sambalpur
9.	CONS/1767/2012-13	Evaluation of Performance and Behavior of gas detectors of Khottadih Colliery	Prof. D. C. Panigrahi, CI	ECL Kottadih Colliery
10.	CONS/1768/2012-13	Analysis and Interpretation of Mine air Samples of Kumardhubi Colliery	Prof. D. C. Panigrahi, CI	ECL Kumardhubi Colliery

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
11.	CONS/1769/2012-13	Determination of Incubation Period of Seam II and III of Milupara Coal Mines	Prof. D. C. Panigrahi, CI	Monet Ispat & Energy Ltd
12.	CONS/1770/2012-13	Evaluation of Performance and Behaviour of gas detectors of Sodepur (R) Colliery	Prof. D. C. Panigrahi, CI	ECL Sodepur (R) Colliery
13.	CONS/1771/2012-13	A study of performance and Behaviour Dust Ioniser of PVR Ishield Bituminous Pvt. Ltd.	Prof. D. C. Panigrahi, CI	PVR Inshield Bituminous Pvt. Ltd.
14.	CONS/1772/2012-13	A study of Performance and Behaviour of Dust ioniser of Calcutta Mining Sealants Pvt. Ltd.	Prof. D. C. Panigrahi, CI	Calcutta Mining Sealants Pvt. Ltd.
15.	CONS/1773/2012-13	Evaluation of Performance and Behaviour of gas detectors of Mekon International	Prof. D. C. Panigrahi, CI	Mekon International
16.	CONS/1774/2012-13	Evaluation of Performance and Behaviour of gas detectors of Orient Colliery MCL,	Prof. D. C. Panigrahi, CI	MCL Orient Colliery
17.	CONS/1775/2012-13	Determination of Some Chemical Properties of quick Setting Cement Capsules of Jhagrakhand Group of Mines, SECL,	Prof. D. C. Panigrahi, CI	SECL, Korea
18.	CONS/1776/2012-13	Evaluation of Performance and Behaviour of gas detectors of Jarangdih Colliery CCL,	Prof. D. C. Panigrahi, CI	CCL, Jarangdih Colliery
19.	CONS/1777/2012-13	Off Campus "Offshore Oil Well Drilling"	Prof. S. Laik, CI Prof. V. P. Sharma, CO-CI	DGMS, Dhanbad
20.	CONS/1778/2012-13	Off Campus "Offshore Oil Well Drilling"	Prof. S. Laik, CI Prof. V. P. Sharma, CO-CI	DGMS, Dhanbad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
21.	CONS/1779/2012-13	Evaluation of Performance and Behaviour of gas detectors of Hirakhand Bundia Mine MCL	Prof. D. C. Panigrahi, CI	MCL, Orient Area
22.	CONS/1781/2012-13	Evaluation of Performance and Behaviour of gas detectors of Govindpur Area and Damoda Colliery	Prof. D. C. Panigrahi, CI	BCCL Govindpur Area
23.	CONS/1782/2012-13	Testing of Heavy Metals from PVR Inshield bituminous Pvt. Ltd. As Ba, Col, Cr, Pb, Hg, Sc & Ag,	Prof. A. K. Pal, CI	PVR Inshield Bituminous Pvt. Ltd. Bardwan
24.	CONS/1783/2012-13	Testing of Heavy Metals from PVR Inshield bituminous Pvt. Ltd.	Prof. A. K. Pal, CI	Calcutta Mining Sealants Pvt. Ltd., Burdwan
25.	CONS/1784/2012-13	Field Investigations, Modelling and redesign of ventilation systems for Hutti God Mines of the Hutti Gold Mines Co. Ltd.	Prof. D. C. Panigrahi, CI Dr. D.P. Mishra, CO-CI	Hutti Gold Mines Co. Ltd., Raichur
26.	CONS/1785/2012-13	Testing of Ground Water Samples for Heavy Trace Metals Fe, Mn, As & F ,	Dr. Alok Sinha, CI Prof. A. K. Pal, CO-CI	CGWB Patna
27.	CONS/1786/2012-13	Proximate analysis of 3 Coal Samples	Dr. Shalini Goutam, CI	BCCL, Lodna Colliery
28.	CONS/1787/2012-13	Determination of Bond's Work Index of the 4 Iron Ore Samples	Prof. N. Sures, CI Prof. V. K. Gupta, Co-CI	SGS India (P) Ltd.
29.	CONS/1788/2012-13	Evaluation of performance and Behaviour of gas detectors of Bagdigi Colliery	Prof. D. C. Panigrahi, CI	BCCL Bagdigi Colliery Lodna area.
30.	CONS/1789/2012-13	Evaluation of performance and Behaviour of gas detectors of Kanhan Area WCL,	Prof. D. C. Panigrahi, CI	WCL, Damuna Nandan Area

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
31.	CONS/1790/2012-13	Evaluation of performance and Behaviour of gas detectors of MRS Ramgarh	Prof. D. C. Panigrahi, CI	CCL Ramgarh
32.	CONS/1791/2012-13	Evaluation of performance and Behaviour of gas detectors of Tetulmari Colliery	Prof. D. C. Panigrahi, CI	BCCL Tetulmari
33.	CONS/1792/2012-13	Evaluation of performance and Behaviour of gas detectors of Sirka Group	Prof. D. C. Panigrahi, CI	CCL Sirka Group
34.	CONS/1793/2012-13	Characterisation of Coal from KN2 Yamuna Nagar TPS & CCL Dhori Area	Prof. T. Sharma, CI	CCL Dhori Area
35.	CONS/1794/2012-13	Determination of Cerchar Hardness Index and Cerchar Abrasivity Index of Some rock Samples,.	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
36.	CONS/1795/2012-13	Determination of Cerchar Hardness Index and Cerchar Abrasibity Index of Some rock Samples.	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
37.	CONS/1796/2012-13	Determination of Cerchar Hardness Index and Cerchar Abrasibity Index of Some rock Samples.	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
38.	CONS/1797/2012-13	Off-campus Course on Managing Social & Environmental Issues in the mining Sector	Prof. Gurdeep Singh, CI Prof. A. K. Pal, CO-CI	World Bank Project on Sustainable Dev. of Natural Resources, Ministry of Mines Kabul, Afghanistan
39.	CONS/1798/2012-13	Evaluation of Perform-ance and Behavior of gas detectors of Burragarh and Simlabahal Colliery	Prof. D. C. Panigrahi, CI	BCCL Burragarh Colliery

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
40.	CONS/1799/2012-13	Evaluation of Performance and Behavior of gas detectors of Gopalichuck and Hurriladih Colliery	Prof. D. C. Panigrahi, CI	BCCL Gopalichuck PB Area
41.	CONS/1800/2012-13	Evaluation of Performance and Behavior of gas detectors of Bhowrah (South) Colliery	Prof. D. C. Panigrahi, CI	Bhowrah BCCL
42.	CONS/1801/2012-13	Evaluation of Performance and Behavior of gas detectors and Analysis and Interpretation of air samples Digwadih Colliery Tata Steel	Prof. D. C. Panigrahi, CI	Tata Steel, Digwadih Colliery
43.	Cons/1802/2012-13	Grading of Referee Coal Sample of BCCL for UP Thermal Power Plants	Prof. T. Sharma, CI	BCCL Koyla Nagar
44.	Cons/1803/2012-13	Gravity Survey for Chromite Deposit in Loase Area	Prof. Shalivahan, CI Prof. P.R. Mohanty, CO-CI	M/s Balasore Alloys Ltd.
45.	Cons/1804/2012-13	Evaluation of Performance and Behavior of gas detectors of NECL Assam	Prof. D. C. Panigrahi, CI	NECL Margherita
46.	Cons/1805/2012-13	Evaluation of Performance and Behavior of gas detectors of Jharia UG Mines SECL	Prof. D. C. Panigrahi, CI	SECL Jiria UG Mines
47.	Cons/1806/2012-13	Evaluation of Performance and Behavior of gas detectors of Ramnagar Sub Area SECL	Prof. D. C. Panigrahi, CI	SECL Malanga Colliery
48.	Cons/1807/2012-13	Sieve Sizing of Fire Iron Ore Samples	Prof. N. Suresh, CI	CDE Asia Ltd
49.	Cons/1808/2012-13	Evaluation of Performance and Behavior of gas detectors of Bhagabandh Colliery	Prof. D. C. Panigrahi, CI	Bhagabandh Colliery, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
50.	Cons/1809/2012-13	Evaluation of Performance and Behavior of gas detectors of KB 10/12 Colliery PB Area	Prof. D. C. Panigrahi, CI	KB 10/12 Colliery, BCCL
51.	Cons/1810/2012-13	Evaluation of Performance and Behavior of gas detectors of Ghusick (R) Colliery	Prof. D. C. Panigrahi, CI	Sripur Area ECL
52.	Cons/1812/2012-13	Grading of Referee Coal Sample of CCL and UTPS	Prof. T. Sharma, CI	CCL Ranchi
53.	Cons/1813/2012 -13	Evaluation of Performance and Behavior of gas detectors of Jhanjra Project Colliery and MRS, Dhansar, BCCL	Prof. D. C. Panigrahi, CI	Mines Rescue Station BCCL
54.	Cons/1814/2012-13	Evaluation of Performance and Behavior of gas detectors of Halibari UG Project	Prof. D. C. Panigrahi, CI	SECL West Jhagarkhand Colliery
55.	Cons/1815/2012-13	Rapid EIA/EMP for Dungri-Petia Sand Leases, Tata Steel	Dr. Biswajit Paul, CI	Tata Steel Ltd.
56.	Cons/1816/2012-13	Rapid EIA/EMP for Tetangabad Sand Leases, Tata Steel	Dr. Biswajit Paul, CI	Tata Steel Ltd.
57.	Cons/1817/2012-13	Monitoring of Environmental Parameters in respect of Ambient air, Stack Monitoring Noise Level & Effluent of DVC, BTPS 'B'	Dr. Alok Sinha, CI Dr. S.K. Gupta, CO-CI	DVC, Bokaro
58.	Cons/1818/2012-13	Sampling and Grading of Coal Sample of Ana & Damagoria Mines of BCCL	Prof. T. Sharma, CI	BCCL Koyla Nagar
59.	Cons/1819/2012-13	Evaluation of Performance and Behaviors of gas detectors of Parbelia Colliery ECL	Prof. D. C. Panigrahi, CI	ECL Parbelia Colliery

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
60.	Cons/1820/2012-13	Evaluation of Performance and Behaviors of gas detectors of Tawa mine and Baheraband Mine WCL & SECL	Prof. D. C. Panigrahi, CI	SECL Baherabandh sub area. WCL
61.	Cons/1821/2012-13	Evaluation of Performance and Behaviors of gas detectors of Mecon International, Talcher	Prof. D. C. Panigrahi, CI	Mecon International Talchar
62.	Cons/1822/2012-13	Evaluation of Performance and Behaviors of gas detectors of Bhelatand A Colliery	Prof. D. C. Panigrahi, CI	Tata Steel Bhelatand A Colliery
63.	Cons/1823/2012-13	Size Analysis of Three Iron Samples	Prof. N. Suresh, CI	CDE Asia Ltd.
64.	Cons/1824/2012-13	Bond Work Index Determination of Manganese Ore Sample of Joda Managanese Mines of Tata Steel	Prof. V.K. Gupta, CI Prof. N. Suresh, CO-CI	R&D and SS Tata Steel
65.	Cons/1825/2012-13	Quality Assement of rejects at Dugda Coal Washery	Prof. T. Sharma, CI	BCCL Dugda Coal Washery
66.	Cons/1826/2012-13	Sampling and analysis of Tailing lying at Dugda Coal Washery	Prof. T. Sharma, CI	BCCL Koyla Bhawan
67.	Cons/1827/2012-13	To study the suitability of three Polymers and Bentonite Clay as Oil Well drilling fluid	Prof. V.P. Sharma, CI Dr. Vikash Mahato, CO-CI	Satguru Agro Industries, Mumbai
68.	Cons/1828/2012-13	Study into Present Atmospheric Conditions Including the conditions of fire areas for improving Safety in Sijua Colliery Tata Steel Ltd	Prof. D. C. Panigrahi, CI	Sijua Colliery Tata Steel Ltd.
69.	Cons/1829/2012-13	Evaluation of Performance and Behaviours of gas detectors of North Tisra Colliery BCCL	Prof. D. C. Panigrahi, CI	North Tisra Colliery, BCCL

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70.	Cons/1830/2012-13	Sieve Sizing of five Iron Ore Samples supplied by CDE Asia	Prof. N. Suresh, CI	Tecpro Systems Ltd.
71.	Cons/1831/2012-13	A study into delineation of fire in 11 and 12 seams at New Akashkinaree Colliery in North Side of DC Railway Line Govindpur Area BCCL	Prof. D. C. Panigrahi, CI Prof. S. Choudhari, CO-CI	BCCL
72.	Cons/1832/2012-13	Evaluation of performance and Behaviour of gas detectors of Rescue Room, Chirimiri, Area	Prof. D. C. Panigrahi, CI	SECL
73.	Cons/1833/2012-13	Mines and Mineral Development project (Coal Sector) for Govt. of Bangladesh Providing Consultancy Services to PWC, Hyderabad Unit.	Prof. D. C. Panigrahi, CI Prof. S. Choudhari, CO-CI	PWC, Hyderabad
74.	Cons/1834/2012-13	Field Investigations Modelling and Simulation Studies for designing ventilation systems of UCIL Mines	Prof. D. C. Panigrahi, CI	UCIL, Jaduguda Mines.
75.	Cons/1835/2012-13	Evaluation of Performance and Behavior of gas detectors of Chinakuri Mine No.1 ECL	Prof. D. C. Panigrahi, CI	ECL Chinakuri Mines
76.	Cons/1836/2012-13	Determination of Cerchar Hardness Index and Cerchar Abrasivity Index of some rock samples	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
77.	Cons/1837/2012-13	Determination of Cerchar Hardness Index and Cerchar Abrasivity Index of some rock samples	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
78.	Cons/1838/2012-13	Off-campus training programme on EIA/ Auditing for NMDC Executives	Prof. Gurdeep Singh, CI	M/s NMDC, Hyderabad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
79.	Cons/1839/2012-13	Analysis of Coal Samples	Prof. V. K. Saxena, CI	CIMFR, Dhanbad
80.	Cons/1840/2012-13	Written Test for Tata Steel Employees (IL6 Process)	Prof. P.S. Gupta, CI Prof. Chandan Bhar, CO-CI Prof. JK. Pattanayak, CO-CI	Tata Steel
81.	Cons/1841/2012-13	Evaluation of performance and Behavior of gas detectors of Rampur Sub Area	Prof. D.C. Panigrahi, CI	MCL Rampur Sub Area.
82.	Cons/1842/2012-13	Size analysis of Three Iron Ore Samples Supplied by CDE Asia	Prof. N. Suresh, CI	CDE Asis Ltd.
83.	Cons/1844/2012-13	Evaluation of performance and behavior of gas detectors of Joyrampur Colliery	Prof. D.C. Panigrahi, CI	Jayrampur Colliery Lodna area, BCCL
84.	Cons/1845/2012-13	Evaluation of performance and behavior of gas detectors of Many Enterprises, Dhanbad	Prof. D.C. Panigrahi, CI	Many Enterprises, Dhanbad
85.	Cons/1846/2012-13	Investigation into degree of gassiness of IV Top seam of north Tisra Colliery Lodna Area	Prof. D.C. Panigrahi, CI	North Tisra Colliery, BCCL
86.	Cons/1847/2012-13	Evaluation of performance and behavior of gas detectors of Sawang Colliery, CCL	Prof. D.C. Panigrahi, CI	Sawang Colliery CCL
87.	Cons/1848/2012-13	Evaluation of performance and behavior of gas detectors of Mudidih Colliery BCCL	Prof. D.C. Panigrahi, CI	Mudidih Colliery, BCCL
88.	Cons/1849/2012-13	Evaluation of performance and behavior of gas detectors of Gourandih-Begunia Colliery, ECL	Prof. D.C. Panigrahi, CI	Gourandi-. Begunia Colliery ECL
89.	Cons/1850/2012-13	Evaluation of performance and behavior of gas detectors of PB Project Colliery, BCCL	Prof. D.C. Panigrahi, CI	PBP Colliery, BCCL

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90.	Cons/1851/2012-13	Analysis and Interpretation of air Samples of Kurasia Colliery, SECL	Prof. D.C. Panigrahi, CI	Kurasia Colliery, SECL
91.	Cons/1852/2012-13	Sampling and Analysis for grading of Slurry of Madhuban Coal Washery	Prof. T. Sharma, CI	BCCL Block II Area
92.	Cons/1853/2012-13	Calibration of 500 KN Proving Ring	Shri P. K. Behera, CI	Muva Industries Ltd., Kolkata
93.	Cons/1854/2012-13	Evaluation of Performance and Behavior of gas detectors of Pathakhera Colliery	Prof. D. C. Panigrahi, CI	Patharkhera Colliery WCL
94.	Cons/1855/2012-13	Evaluation of Performance and Behavior of gas detectors of Sobhapur Colliery WCL	Prof. D. C. Panigrahi, CI	Sobhapur Colliery, WCL
95.	Cons/1856/2012-13	Evaluation of Performance and Behavior of gas detectors of Mine No.1 & 2, Orient Colliery MCL	Prof. D. C. Panigrahi, CI	Mine No. 1 & 2, Orient Colliery, MCL
96.	Cons/1857/2012-13	Evaluation of Performance and Behavior of gas detectors of Shyampur Colliery B, ECL	Prof. D. C. Panigrahi, CI	Shyampur Colliery, ECL
97.	Cons/1858/2012-13	Evaluation of Performance and Behavior of gas detectors of Alkusa Colliery, BCCL	Prof. D. C. Panigrahi, CI	Alkusa Colliery, BCCL
98.	Cons/1859/2012-13	Analysis of Coal Sample of Moonidih Coal Washery, CCL	Prof. T. Sharma, CI	Moonidih, BCCL
99.	Cons/1860/2012-13	Evaluation of Performance and Behavior of gas detectors of Sudamdih Incline Mine, BCCL	Prof. D. C. Panigrahi, CI	Sudamdih, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
100.	Cons/1861/2012-13	Evaluation of Performance and Behavior of gas detectors of Kapildhara Mine, SECL	Prof. D. C. Panigrahi, CI	Kapildhara Mine
101.	Cons/1863/2012-13	Evaluation of Performance and Behavior of gas detectors of Jitpur Colliery ISP-SAIL	Prof. D. C. Panigrahi, CI	SAIL, Jitput Colliery
102.	Cons/1864/2012-13	Evaluation of Performance and Behavior of gas detectors of Khottadih Colliery, ECL	Prof. D. C. Panigrahi, CI	Khottadih Colliery, ECL
103.	Cons/1865/2012-13	Evaluation of Performance and Behavior of gas detectors of Roy Bachra Colliery, CCL	Prof. D. C. Panigrahi, CI	Roy Bachra Colliery, CCL
104.	Cons/1866/2012-13	Calibration of 500 Kn Force Measuring device	Shri P. K. Behera, CI	Pre-Stressed Udyog (Ind.) Pvt. Ltd
105.	Cons/1867/2012-13	Evaluation of Performance and Behavior of gas detectors of Kankanee Colliery, BCCL	Prof. D. C. Panigrahi, CI	Sijua area V BCCL Kankanee Colliery
106.	Cons/1868/2012-13	Evaluation of Performance and Behavior of gas detectors and other Safety instruments of Salanpur Colliery ECL	Prof. D. C. Panigrahi, CI	Salanpur Colliery ECL
107.	Cons/1869/2012-13	Evaluation of Performance and Behavior of gas detectors of Busserya Colliery BCCL	Prof. D. C. Panigrahi, CI	Busserya Colliery BCCL
108.	Cons/1870/2012-13	Evaluation of Performance and Behavior of gas detectors of Mekon International Dhanbad	Prof. D. C. Panigrahi, CI	Mekon International, Dhanbad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
109.	Cons/1871/2012-13	Evaluation of Performance and Behavior of gas detectors of gas SCSRS of Moonidih Colliery	Prof. D. C. Panigrahi, CI	SCSRS of Moonidih Colliery, BCCL
110.	Cons/1872/2012-13	Evaluation of Performance and Behavior of gas Begunia Project BCCL	Prof. D. C. Panigrahi, CI	Beguniya Project BCCL
111.	Cons/1874/2012-13	Characterisation of Lime Stone for Decrepitation Shatter & Tumbler Indices.	Prof. T. Sharma, CI	Superintendence Co of India (P) Ltd.
112.	Cons/1875/2012-13	Analysis of CHN Parameters of Coal Samples.	Prof. V. K. Saxena, CI	SGS India (P) Ltd.
113.	Cons/1876/2012-13	Analysis and Interpretation of Mine air samples of Bagdigi Colliery.	Prof. D. C. Panigrahi, CI	Bagdigi Colliery, BCCL
114.	Cons/1877/2012-13	Analysis and Interpretation of Mine air Samples of Bhelatand A Colliery Tata Steel Ltd.	Prof. D. C. Panigrahi, CI	Tata Steel Ltd., Dhanbad
115.	Cons/1878/2012-13	Evaluation of Performance and Behavior of gas detectors Begunia Sijua Colliery Tata Steel Ltd.	Prof. D. C. Panigrahi, CI	Sijua Colliery Tata Steel Ltd.
116.	Cons/1879/2012-13	Functional Ability test of Self Rescuers of five Colliery Viz Mudidih, Bansjora, Tetulmari Loyabad and Kankanee Collierys BCCL	Prof. D. C. Panigrahi, CI	Sijua Area, BCCL
117.	Cons/1880/2012-13	Evaluation of Performance and Behavior of gas detectors of Kumardhubi Colliery ECL	Prof. D. C. Panigrahi, CI	Kumardhubi Colliery, ECL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
118.	Cons/1881/2012-13	Evaluation of Performance and Behavior of SCSRS of Murulidih Colliery.	Prof. D. C. Panigrahi, CI	WJ Area, BCCL, Murulidi 20/21 Pits Colliery
119.	Cons/1882/2012-13	Evaluation of Performance and Behavior of gas detector of Khoodia Colliery.	Prof. D. C. Panigrahi, CI	Khoodia Colliery, ECL
120.	Cons/1883/2012-13	Evaluation of Performance and Behavior of gas detector of Mine No.3 Orient Area and Beharaband Colliery of MCL and SECL	Prof. D. C. Panigrahi, CI	SECL Baherabandh U/G Project
121.	Cons/1884/2012-13	Evaluation of Performance and Behavior of gas detectors of Rik Sales and Services	Prof. D. C. Panigrahi, CI	Rik Sales & Services, Dhanbad
122.	Cons/1885/2012-13	Evaluation of Performance and Behavior of gas detector of Chapapur Colliery.	Prof. D. C. Panigrahi, CI	Chapapur Colliery, ECL
123.	Cons/1886/12-13	Grading of Coal Slurry of BCCL	Prof. T. Sharma, CI	BCCL, Dugda Coal Washery
124.	Cons/1887/12-13	Evaluation of Performance of NVE dust Suppression Model EEIL DS 160 mm blast hole drill of EMICO Elecon (India) Ltd.	Prof. D.C. Panigrahi, CI	BCCL, Dugda Coal Washery
125.	Cons/1888/12-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Kanhan Area WCL.	Prof. D.C. Panigrahi, CI	Kankan Area WCL
126.	Cons/1889/12-13	Functional Ability test of Self Rescuers of Katras Area BCCL	Prof. D.C. Panigrahi, CI	Katras Area BCCL
127.	Cons/1890/2012-13	Geophysical Exploration for Mapping Traps in Suri, West Bengal	Dr. U.K.Singh, CI Dr. S.K.Pal, Co-CI Prof. Shalivahan, Co-CI Prof. P.R.Mohanty, Co-CI	West Bengal Mineral Development & Trading Corp. Ltd.

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128.	Cons/1892/2012-13	Geophysical Survey for Magnetite deposits at Thana Area of Giridih	Dr. U.K.Singh, CI Dr. S.K.Pal, Co-CI Prof. Shalivahan, CO-CI Prof. P.R.Mohanty, CO-CI	Karuna Devi Agarwala
129.	Cons/1893/2012-13	Evaluation of Performance and Behavior of gas detectors of Lodna Colliery	Prof. D. C. Panigrahi, CI	Lodna Colliery, BCCL
130.	Cons/1894/2012-13	Evaluation of Performance and Behavior of gas detectors of Bastacola Colliery	Prof. D. C. Panigrahi, CI	Bastacola Colliery, BCCL
131.	Cons/1895/2012-13	Analysis of CHN Parameters of Coal Samples.	Prof. V. K. Saxena, CI	SGS India Pvt. Ltd.
132.	Cons/1896/2012-13	Analysis of CHN Parameters of Coal Samples	Prof. V. K. Saxena, CI	SGS India Pvt. Ltd.
133.	Cons/1897/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Sarni Mine Pathakhara Area WCL	Prof. D. C. Panigrahi, CI	Patherkhera Area WCL
134.	Cons/1898/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Patmohana Colliery ECL	Prof. D. C. Panigrahi, CI	Patmohana Colliery, ECL
135.	Cons/1899/2012-13	Determination of Cerchar hardness Index and Cerchar Abrasivity Index of Some rock samples.	Prof. VMSR Murthy, CI Dr. BM Kunar, CO-CI	CIMFR, Dhanbad
136.	Cons/1900/2012-13	Determination of Cerchar Hardness and Abrasivity Index of some rock samples.	Prof. VMSR Murthy, CI	CIMFR, Dhanbad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
137.	Cons/1901/2012-13	Determination of Cerchar Hardness and Abrasivity Index of some rock samples	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
138.	Cons/1902/2012-13	Determination of Cerchar Hardness and Abrasivity Index of some rock samples	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
139.	Cons/1903/2013-13	Ore characterization of low grade Iron Ores, BHJ and Laterite Per location basis Part - I	Prof. AS Venkatesh, CI Prof. A. K. Verma, CO-CI	SGS India Pvt. Ltd., Kolkata
140.	Cons/1904/2012-13	Characterisation, Benefication and Development of the flowsheet for 3 Iron Ore Samples Part- II	Prof. N. Suresh, CI	SGS India Pvt. Ltd., Kolkata
141.	Cons/1905/2012-13	Determination of some physical and chemical properties of quick setting cement capsules of Moonidih Colliery	Prof. D. C. Panigrahi, CI	Moonidih Colliery, BCCL
142.	Cons/1906/2012-13	Determination of compressive and Anchorage Strength of quick setting cement capsule of Moonidih Colliery	Shri P. K. Behera, CI	Moonidih Colliery, BCCL
143.	Cons/1907/2012-13	Evaluation of Performance and Behavior of SCSRS of Sudamdih shaft Mine EJ Area BCCL	Prof. D. C. Panigrahi, CI	EJ Area BCCL
144.	Cons/1908/2012-13	Conversion of Mine Plans of Chasnalla & Tasra Colliery IISCO-58, SAIL From 1: 12000/1:1200 Scale to 1:4000/1:5000	Dr. Dheeraj Kumar, CI Prof. P.P. Bahuguna, CO-CI	SAIL, Chasnalla
145.	Cons/1911/2012-13	Analysis of Coal Sample of Washed Coal (Power) of Mahuda Coal Washery	Prof. V.K.Saxena, CI	Mahuda Coal Washery, BCCL
146.	Cons/1912/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Rajnagar Sub Area.	Prof. D. C. Panigrahi, CI	SECL Rajnagar Sub Area

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
147.	Cons/1913/2012-13	Evaluation of Performance and Behavior of gas detectors of Simlabahal Colliery	Prof. D. C. Panigrahi, CI	Simlabahal Colliery, BCCL
148.	Cons/1914/2012-13	Evaluation of Performance and Behavior of gas detectors of Bhawra (s) Colliery	Prof. D. C. Panigrahi, CI	Bhawra(s) Colliery, BCCL
149.	Cons/1915/2012-13	Analysis and Interpretation of Air Samples of Lodna Colliery	Prof. D. C. Panigrahi, CI	Lodna Colliery, BCCL
150.	Cons/1916/2012-13	Sampling and Analysis of Slurry Lying at Sudamdih Coal Washery	Prof. T. Sharma, CI	Sudamdih Washery, BCCL
151.	Cons/1917/12-13	Functional Ability test of Self Rescuers of Lodna Area.	Prof. D. C. Panigrahi, CI	Lodna Area, BCCL
152.	Cons/1918/2012-13	Evaluation of Performance and Behavior of gas detectors of Churi Colliery , CCL	Prof. D. C. Panigrahi, CI	Churi Colliery, CCL
153.	Cons/1919/2012-13	Evaluation of Performance and Behavior of gas detectors of MRS Dhansar BCCL	Prof. D. C. Panigrahi, CI	MRS Dhansar, BCCL
154.	Cons/1920/2012-13	Evaluation of Performance and Behavior of gas detectors of MRS Ramgarh , CCL	Prof. D. C. Panigrahi, CI	MRS Ramgarh, CCL
155.	Cons/1921/2012-13	Determination of compressive and Anchorage Strength of quick Setting cement capsule of North Tisra Colliery	Shri P. K. Behera, CI	North Tisra Colliery, BCCL
156.	Cons/1922/2012-13	Determination of some physical and Chemical Properties of quick Setting Cement Capsule of North Tisra Colliery	Prof. D. C. Panigrahi, CI	North Tisra Colliery, BCCL
157.	Cons/1923/2012-13	Sampling and Grading of Reject Coal of Moonidih Coal Washery	Prof. T. Sharma, CI	BCCL Moonidih Coal Washery

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
158.	Cons/1924/2012-13	Grading of Coal Slurry at Patherdih Washery	Prof. T. Sharma, CI	BCCL Patherdih Washery
159.	Cons/1928/2012-13	Designing Pattern of holes for stone drift blasting having dimension 6.0 m X 3.0 m in Dhansar Industry Colliery	Dr. A. K. Mishra, CI Prof. M. Jawed, CO-CI	BCCL, Dhansar Industry Colliery
160.	Cons/1929/2012-13	Field Investigations, Modelling and design of Ventilation System for Improving the U/G Workplace Environment on short term as well as long term basis for Balaghal Mine, MOIL Ltd. Part (B)	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra, CO-CI	MOIL Ltd. Nagpur
161.	Cons/1930/2012-13	Field Investigations, Modelling and design of Ventilation System of Sindesar Khurd Mine HZL (Phase-III)	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra, CO-CI	Hindustan Zinc Ltd.
162.	Cons/1931/2012-13	Designing of Artificial Cooling System for Improvement of Workplace Environment in Longwall face and Roadheader Development faces of XV seam Monidih Colliery Indu Projects Ltd. Hyderabad	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra, CO-CI	Indu Project Ltd., Hyderabad
163.	Cons/1932/2012-13	Modelling and Simulation Studies for designing the Ventilation System of XV Seam, Moonidih Colliery Indu Projects Ltd, Hyderabad	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra, CO-CI	Indu Project Ltd., Hyderabad
164.	Cons/1933/2012-13	Evaluation of Performance and Behavior of Gas detector of Malga Colliery, SECL	Prof. D. C. Panigrahi, CI	SECL Malga Colliery
165.	Cons/1934/2012-13	Evaluation of Performance and Behavior of gas detectors of Shaft Mine, Sudamdih BCCL	Prof. D. C. Panigrahi, CI	BCCL, Sudamdih

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
166.	Cons/1935/2012-13	Evaluation of Performance and Behavior of gas detector and Analysis of Air Samples of Sawang Colliery CCL	Prof. D. C. Panigrahi, CI	Sawang Colliery CCL
167.	Cons/1936/2012-13	Evaluation of Performance and Behavior of gas detectors of Bararee Colliery	Prof. D. C. Panigrahi, CI	Bararee Colliery, BCCL
168.	Cons/1937/2012-13	Evaluation of Performance and Behavior of gas detectors Many Enterprise, Dhanbad	Prof. D. C. Panigrahi, CI	Many Enterprises, Dhanbad
169.	Cons/1938/2012-13	Evaluation of Performance and Behavior of gas detectors Brijuri Colliery	Prof. D. C. Panigrahi, CI	Bijuri Colliery, SECL
170.	Cons/1939/2012-13	Evaluation of Performance and Behavior of gas detectors of perbelia Colliery, ECL	Prof. D. C. Panigrahi, CI	Perbelia Colliery, ECL
171.	Cons/1940.2012-13	Evaluation of Performance and Behavior of gas detectors of Rajur Incline Colliery WCL	Prof. D. C. Panigrahi, CI	Rajur Incline Colliery WCL
172.	Cons/1941.2012-13	Evaluation of Performance and Behavior of gas detectors of Somna Colliery, SECL	Prof. D. C. Panigrahi, CI	Somna Colliery, SECL
173.	Cons/1942/2012-13	Evaluation of Performance and Behaviour of gas detectors of Chinakuri Colliery Mine No.1	Prof. D. C. Panigrahi, CI	Chinakuri Mine No.1, ECL
174.	Cons/1943/2012-13	Evaluation of performance and Behaviour of gas detectors of Bhagaband Colliery	Prof. D. C. Panigrahi, CI	Bhagaband Colliery, BCCL
175.	Cons/1944/2012-13	Functional Ability test of Self contained Self Rescuar of Bhawra Colliery and Moonidih Colliery	Prof. D. C. Panigrahi, CI	Bhawra South Colliery and Moonidih Colliery BCCL
176.	Cons/1945/2012-13	Analysis of CHN Parameters of Coal Samples	Prof. V. K. Saxena, CI	SGS India Pvt. Ltd., Kolkata

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
177.	Cons/1946/2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments of Churi Colliery, CCL	Prof. D. C. Panigrahi, CI	Churi Colliery, CCL
178.	Cons/1947/2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments of Jhanjra Project Colliery, ECL	Prof. D. C. Panigrahi, CI	Jhanjra Project Colliery, ECL
179.	Cons/1948/2012-13	Evaluation of Performance and Behaviours of Mine Safety Instruments and air Sample Analysis of Jarangdih Colliery	Prof. D. C. Panigrahi, CI	Jarangdih Colliery, CCL
180.	Cons/1949/2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments of Bagdigi Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bagdigi Colliery, BCCL
181.	Cons/1950./2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments, Analysis of gas samples, and Measurement of Dust and Noise in Jitpur Colliery, ISP, SAIL (Part - 1)	Prof. D. C. Panigrahi, CI	Jitpur Colliery, SAIL
182.	Cons/1951/2012-13	Evaluation of Performance and Behaviours of SCSRS of Begunia Project, BCCL	Prof. D. C. Panigrahi, CI	Beguniya Project BCCL
183.	Cons/1952/2012-13	Evaluation of Performance and Behaviours of SCSRS of Sudamdih Incline Mine BCCL	Prof. D. C. Panigrahi, CI	Sudamdih Incline Mine BCCL
184.	Cons/1953/2012-13	Evaluation of Performance and Behaviours of SCSRS of Bhawrah(N) UG Mine BCCL	Prof. D. C. Panigrahi, CI	Bhowra(N) UG Mine, BCCL
185.	Cons/1955/2012-13	Preparation of Environmental Management Report for DVC Mines.	Dr.B. Paul, CI Dr. S. K. Gupta, CO-CI	DVC, Bokaro
186.	Cons/1956./2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments and air samples Analysis of Gopalichuk Colliery, BCCL	Prof. D. C. Panigrahi, CI	Gopalichuk Colliery, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
187.	Cons/1957/2012-13	Functional Ability test of Self Rescuers of Alkusa Colliery	Prof. D. C. Panigrahi, CI	Alkusa Colliery, BCCL
188.	Cons/1958/2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments of Baheraband Colliery, SECL	Prof. D. C. Panigrahi, CI	Baheraband, SECL
189.	Cons/1959/2012-13	Determination of degree of gassiness of V/VI Seam of Lodna Colliery BCCL	Prof. D. C. Panigrahi, CI	Lodna Colliery, BCCL
190.	Cons/1960/2012-13	Evaluation of Performance and Behaviour of mine Safety Instruments of P.B. Project Colliery, BCCL	Prof. D. C. Panigrahi, CI	PB Project Colliery, BCCL
191.	Cons/1961/2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments Sodepur ® Colliery, ECL	Prof. D. C. Panigrahi, CI	Sodepur ® Colliery, ECL
192.	Cons/1962/2012-13	Analysis and Interpretation of Mine air Samples of Anjan Hill Mine, SECL	Prof. D. C. Panigrahi, CI	Anjan Hill Mine, SECL
193.	Cons/1964/2012-13	Functional Ability Test of Self Rescuers of Hurriladih Colliery BCCL	Prof. D. C. Panigrahi, CI	Hurriladih Colliery, BCCL
194.	Cons/1965/2012-13	Evaluation of Performance and Behaviour of Mine Safety Instruments Hurrilidih Colliery, BCCL	Prof. D. C. Panigrahi, CI	Hurriladih Colliery, BCCL
195.	Cons/1966/2012-13	Testing of Integrated Steel Cog of 30t Capacity	Prof. U. K. Singh, CI	Shanti Udyog
196.	Cons/1967/2012-13	Evaluation of Performance and Behavior of Mine Safety instruments K.B. Colliery, BCCL	Prof. U. K. Singh, CI	Evaluation of Performance and Behavior of Mine Safety instruments K.B. Colliery, BCCL
197.	Cons/1968/2012-13	Analysis of Coal Samples	Prof. V. K. Saxena, CI	CIMFR, Dhanbad
198.	Cons/1969/2012-13	Reduction Behaviour of Iron Ore by Coal Samples	Prof. T. Sharma, CI	M/s K.C. Sharma & Co

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
199.	Cons/1973/2012-13	Evaluation of Performance and behavior of Mine Safety Instruments of Murlidih Colliery	Prof. D. C. Panigrahi, CI	Murlidih Colliery BCCL
200.	Cons/1974/2012-13	Evaluation of Performance and behavior of Mine Safety instruments of Bararee Colliery	Prof. D. C. Panigrahi, CI	Barraree Colliery, BCCL
201.	Cons/1975/2012-13	Evaluation of Performance and Behavior of Mine Safety Instruments of Lodna Colliery	Prof. D. C. Panigrahi, CI	Lodna Colliery, BCCL
202.	Cons/1976/2012-13	Analysis and Interpretation of Mine air Sample of Chapapur Colliery	Prof. D. C. Panigrahi, CI	Chapapur Colliery, ECL
203.	Cons/1977/2012-13	Functional ability test of Self Rescuers of Godhar Colliery, BCCL	Prof. D. C. Panigrahi, CI	Godhar Colliery, BCCL
204.	Cons/1978/2012-13	Analysis and Interpretation of air Samples and Calibration of Safety Instruments of Jarangdih Colliery, CCL	Prof. D. C. Panigrahi, CI	Jarangdih Colliery, CCL
205.	Cons/1979/2012-13	Evaluation of Performance and Behaviours of SCSRS of Bussereya Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bussereya Colliery, BCCL
206.	Cons/1980/2012-13	MCQ for Data Entry Operators	Prof. P. Pathak, CI Dr. S. Singh, CO-CI	BCCL, Koyla Bhawan
207.	Cons/1981/2012-13	Size Analysis of TwoSilica Sand Samples	Prof. Nikkam Suresh, CI	CDE Asia Ltd.
208.	Cons/1982/2012-13	Independent Evaluation and Assessment of Major Central Sector Scheme Promotional Exploration Scheme of Ministry of Coal	Prof. S. Choudhari, CI Prof. D. C. Panigrahi, CO-CI	Ministry of Coal, New Delhi
209.	Cons/1986/2012-13	Evaluation of Performance and Behavior of Mine Safety instruments of MRS Ramgarh, CCL	Prof. D. C. Panigrahi, CI	MRS, Ramgarh, CCL
210.	Cons/1987/2012-13	Evaluation of Performance and Behavior of Mine Safety instruments of Dubeswari Colliery, ECL	Prof. D. C. Panigrahi, CI	MRS, Ramgarh, CCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
211.	Cons/1988/2012-13	Evaluation of Performance and Behavior of Mine Safety instruments of Hasdeo Area, SECL	Prof. D. C. Panigrahi, CI	Hasdeo Area, SECL
212.	Cons/1989/2012-13	Off-Campus on Best Blasting practices for improved Productivity in U/G Metal Mines for HZL Executives	Dr. A. K. Mishra, CI	HZL
213.	Cons/1990/2012-13	Flotation Workshop 2012	Prof. S. Bhattacharya, CI	Xstra Technology
214.	Cons/1991/2012-13	Functional Ability test of Self Rescuers of Bera Colliery	Prof. D. C. Panigrahi, CI	Bera Colliery, BCCL
215.	Cons/1992/2012-13	Analysis and Interpretation of air Samples of Parbatpur Colliery	Prof. D. C. Panigrahi, CI	Electrosteel Casting Ltd., Bokaro
216.	Cons/1993/2012-13	Analysis and Interpretation of air Samples of Khoodia Colliery	Prof. D. C. Panigrahi, CI	Khoodia Colliery, ECL
217.	Cons/1994/2012-13	Evaluation of Performance and Behavior of gas detectors of Pandavesar Area, ECL	Prof. D. C. Panigrahi, CI	Pandavesar Area ECL
218.	Cons/1995/2012-13	Evaluation of Performance and Behavior of gas detectors of Bagdigi Colliery and Govindpur Area, BCCL	Prof. D. C. Panigrahi, CI	Bagdigi Colliery & Govindapur Area, BCCL
219.	Cons/1996/2012-13	Evaluation of Performance and Behavior of gas detectors and Analysis of air Samples of Sawang Colliery, CCL	Prof. D. C. Panigrahi, CI	Sawang Colliery, CCL
220.	Cons/1997/2012-13	Evaluation of Performance and Behavior of gas detectors of Kanhan Area WCL	Prof. D. C. Panigrahi, CI	Kanhan Area WCL
221.	Cons/1998/2012-13	Evaluation of Performance and Behavior of gas detectors of Tawa 1 and Chhtrapur Colliery, WCL	Prof. D. C. Panigrahi, CI	Tawa 1 and Chhtrapur, Colliery, WCL

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222.	Cons/1999/2012-13	Astudy of Parameters for determining the Execution of Measures for dust control in Bartarai Colliery Amadand Sub Area J & K Area SECL	Prof. D. C. Panigrahi, CI	Bartarai Colliery Amadand Sub Area J & K Area SECL
223.	Cons/2000/2012-13	Evaluation Studies of the Promottonal scheme of M/s MECL.	Prof. B. C. Sarkar, CI Dr. M. K. Mukherjee, CO-CI	Mineral Exploration Corporation Ltd. Nagpur
224.	Cons/2001/12-13	Functional Ability test of Self Rescuers of KB 10/12 Pit Colliery BCCL.	Prof. B. C. Sarkar, CI Dr. M. K. Mukherjee, CO-CI	KB 10/12 Pit Colliery BCCL
225.	Cons/2002/2012-13	Evaluation of performance and Behavior of Mine Safety instruments of Mekon International	Prof. D. C. Panigrahi, CI	Mekon International, Dhanbad
226.	Cons/2003/2012-13	Determination of Cerchar Hardness and Abrasivity Index of Some coal Measure rocks	Prof. V.M.S. R. Murthy, CI	CIMFR, Dhanbad
227.	Cons/2004/2012-13	Determination of degree of gassiness of SP Bottom Seam of Kumardhubi Colliery, ECL	Prof. D. C. Panigrahi, CI	Kumardhubi, Colliery, ECL
228.	Cons/2005/2012-13	Evaluation of Performance and Behavior of gas detectors and Analysis of air Samples of Gopalichuk Colliery, BCCL	Prof. D. C. Panigrahi, CI	Gopalichuk Colliery, BCCL
229.	Cons/2006/2012-13	Evaluation of Performance and Behavior of gas detectors of Tawa Mine II WCL	Prof. D. C. Panigrahi, CI	Tawa Mine-II, WCL
230.	Cons/2007/2012-13	Evaluation of Performance and Behavior of gas . detectors of Joyrampur Colliery, BCCL	Prof. D. C. Panigrahi, CI	Joyrampur Colliery, BCCL
231.	Cons/2008/2012-13	Evaluation of Performance and Behavior of gas detectors of KB 10/12 Pits Colliery, BCCL	Prof. D. C. Panigrahi, CI	KB 10/12 Pit Colliery BCCL

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232.	Cons/2009/2012-13	Factional Ability test of Self Rescuers of PB Project Colliery BCCL	Prof. D. C. Panigrahi, CI	PB Project Colliery BCCL
233.	Cons/2010/2012-13	Evaluation of Performance and Behavior of gas detectors of Burragarh Colliery, BCCL	Prof. D. C. Panigrahi, CI	Burragarh Colliery, BCCL
234.	Cons/2011/2012-13	Evaluation of Schemes of Geological Survey of India (GSI) Taken up During XI Plan Period and Continuing into the XII Plan Period.	Prof. B.C. Sarkar, CI Prof. A. S. Venkatesh, CO-CI	Geological Survey of India
235.	Cons/2012/2012-13	Blast design for Safe Blasting and Determination of Safe maximum charge at Gondudih Khas Kusunda Colliery, BCCL	Dr. A. K. Mishra, CI Dr. B.S. Choudhary CO-CI	Gondudih Khas Kusunda Colliery, BCCL
236.	Cons/2013/2012-13	Extraction of Potosh from Glauconite	Prof. T. Sharma, CI	FCI Aravali Gypsum and Minerals India Ltd. Jodhpur
237.	Cons/2014/2012-13	Size Analysis of Three Iron Ore Samples.	Prof. N. Suresh, CI	CDE Asia Ltd.
238.	Cons/2015/2012-13	Land Subsidence Study at Essar Raniganj CBM Block at Durgapur (RG-(E)-CBM-2011/1 Block.	Prof. Phalguni Sen, CI Dr. Dheeraj Kumar, CI	Essar Oil Ltd. Durgapur
239.	Cons/2016/2012-13	Proxiand Ultimate Analysis of Coal Samples	Prof. N. Suresh, CI Prof. V. K. Saxena, Co-CI	Godrej Waterside - Tower-I, Kolkata
240.	Cons/2017/2012-13	Evaluation of Performance and Behavior of gas detectors and Analysis of air Samples of North Tisra Colliery BCCL.	Prof. D. C. Panigrahi, CI	North Tisra Colliery, BCCL
241.	Cons/2018/2012-13	Evaluation of Performance and Behavior of gas detectors of Bera Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bera Colliery, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
242.	Cons/2019/2012-13	Analysis and Interpretation of Mine air Samples of Mudidih Colliery, BCCL	Prof. D. C. Panigrahi, CI	Mudidih Colliery, BCCL
243.	Cons/2020/2012-13	Field Investigations, Modelling and Design of Ventilation System of Kayar Mine HZL Phase - II.	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra, CO-CI	Kayar Mine, HZL Ltd. Phase-II
244.	Cons/2021/2012-13	Field Investigations, Modelling and design of Ventilation System to Improve for Rampura Agucha Lead Zinc Mine HZL.	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra, CO-CI	Rampura Agucha lead Zinc Mine, HZL
245.	Cons/2022/2012-13	Grindability Studies of Iron Ore, Limestone, Pyrronite divine and nut-Coke.	Prof. R. Venugopal, CI Prof. N.R. Mandre, CO-CI	Tata Steel
246.	Cons/2023/2012-13	Evaluation of Performance and Behavior of Chandrapur Area WCL	Prof. D. C. Panigrahi, CI	Chandrapur Area, WCL
247.	Cons/2024/2012-13	Evaluation of Performance and Behavior of gas detectors of Rajnagar R.O. Colliery SECL.	Prof. D. C. Panigrahi, CI	Rajnagar R.O. Colliery, SECL
248.	Cons/2025/2012-13	Evaluation of Performance and Behavior of gas detectors of Amalgamated Kathalpur WM Colliery. BCCL	Prof. D. C. Panigrahi, CI	Amalgamated Kathalpur WM Colliery, BCCL
249.	Cons/2026/2012-13	Evaluation of Performance and Behavior Safety Instruments of Roy-Bachra Colliery, CCL	Prof. D. C. Panigrahi, CI	Roy Bachra Colliery, CCL
250.	Cons/2027/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Burragarh Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Buragarh Colliery, BCCL
251.	Cons/2028/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety instruments of Rajur Incline WCL.	Prof. D. C. Panigrahi, CI	Rajur Incline, WCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
252.	Cons/2029/2012-13	Evaluation of Performance and Behavior of Ventilation and safety Instruments of Baikunthapur Area, SECL.	Prof. D. C. Panigrahi, CI	Baikunthapur Area, SECL
253.	Cons/2030/2012-13	Evaluation of Performance and Behavior of SCSRs of Bhagaband Colliery, BCCL	Prof. D. C. Panigrahi, CI Dr. D. P. Mishra Co-CI	Bhagaband Colliery, BCCL
254.	Cons/2031/2012-13	Analysis and Interpretation of air Samples of Bhagaband Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Bhagaband Colliery, BCCL.
255.	Cons/2032/2012-13	Size Analysis of the Samples Using Cyclosizer.	Prof. N. R. Mandre, CI Dr. Anand Anupam, Co-CI	CDEI Asia Ltd.
256.	Cons/2033/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Bhawra(W) Colliery.	Prof. D. C. Panigrahi, CI	Bhawra (W) Colliery, BCCL
257.	Cons/2034/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Moonidih Colliery.	Prof. D. C. Panigrahi, CI	Moonidih Colliery, BCCL
258.	Cons/2035/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Haripur Colliery, ECL.	Prof. D. C. Panigrahi, CI	Haripur Colliery, ECL
259.	Cons/2036/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Palkimara Incline and Haldibari UG Project.	Prof. D. C. Panigrahi, CI	Palkimara incline and Haldibari UG Project, SECL.
260.	Cons/2038/2012-13	Testing of Water Sample from PB Area of BCCL.	Mr. B. K. Mishra, CI	BCCL, PB Arera
261.	Cons/2039/2012-13	Functional Ability test of Self Rescuers of Dhansar Colliery.	Prof. D. C. Panigrahi, CI	Dhansar Colliery, BCCL
262.	Cons/2040/2012-13	Evaluation of Performance and Behavior of gas detectors Dhansar Rescue Station and Patherdih Colliery. BCCL.	Prof. D. C. Panigrahi, CI	Patherdih Colliery, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
263.	Cons/2041/2012-13	Hydrogeological Study for Milupara Coalfields Mand, Raigarh.	Prof. M.K. Mukherjee, CI Prof. B. C. Sarkar, Co-CI	Monnet Ispat & Energy Ltd., New Delhi
264.	Cons/2042/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Dhemomine Colliery, ECL.	Prof. D. C. Panigrahi, CI	Dhemomine Colliery, ECL
265.	Cons/2043/2012-13	Off Campus Mine Electrical Engineering for the Management Trainees/Executives Engineers of Tata Steel, Jamadoba from 20.02.13	Prof. T. K. Chatterjee, CI Dr. Kalyan Chatterjee, CO-CI	Tata Steel
266.	Cons/2044/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Bera Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Bera Colliery, BCCL
267.	Cons/2045/2012-13	Monitoring of Underwater Drilling and Blasting Process for Controlling ground vibration and Air Overpressure During The deepening of the Entrance Channel.	Prof. V.M.S. R. Murthy, CI	Vishakhapatnam Port Trust
268.	Cons/2046/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Talcher Colliery, MCL.	Prof. D. C. Panigrahi, CI	Talcher Colliery, MCL
269.	Cons/2047/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Dhori Colliery, CCL	Prof. D. C. Panigrahi, CI	Dhori Colliery, CCL
270.	Cons/2048/2012-13	Analysis and Interpretation of mine air samples of Dhori (K) Colliery, CCL	Prof. D. C. Panigrahi, CI	Dhori (K) Colliery, CCL
271.	Cons/2049/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Tetulmari Colliery, BCCL	Prof. D. C. Panigrahi, CI	Tetulmari Colliery, BCCL
272.	Cons/2050/2012-13	Analysis of Coal Sample from Anpara Thermal Power Station.	Dr. Shalini Gautam, CI	Anara Thermal Power Station, Sonebhadra

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
273.	Cons/2051/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Dhansar Colliery, BCCL	Prof. D. C. Panigrahi, CI	Dhansar Colliery, BCCL
274.	Cons/2052/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Mekon International	Prof. D. C. Panigrahi, CI	Mekon International, Dhanbad
275.	Cons/2053/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Ningah Group of Mines, ECL.	Prof. D. C. Panigrahi, CI	Ningah Group of Mines, ECL
276.	Cons/2054/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Govindpur Area BCCL.	Prof. D. C. Panigrahi, CI	Govindpur Area, BCCL
277.	Cons/2055/2012-13	Technical Advisory on setting up of Coal Washery - Phase - A	Prof. S. Bhattacharya, CI	Deloitte Touche Tohmatsu India (P) Ltd.
278.	Cons/2056/2012-13	Characterisation of ECL Coal sample for Gasification Behavior of coal.	Prof. T. Sharma, CI Dr. Shalini Goutam, CO-CI	ECL Salanpur Area, ECL
279.	Cons/2057/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Sijua Colliery Tata Steel Ltd.	Prof. D. C. Panigrahi, CI	Sijua Colliery, Tata Steel Ltd.
280.	Cons/2058/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of B.K. Enterprises, Dhanbad	Prof. D. C. Panigrahi, CI	B.K. Enterprises, Dhanbad
281.	Cons/2059/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Alkusa Colliery, BCCL	Prof. D. C. Panigrahi, CI	Alkusa Colliery, BCCL
282.	Cons/2061/2012-13	Sampling & Analysis of Coal Slurry/Tailing.	Prof. N.R. Mandre, CI Mr. Shravan Kumar, CO-CI	B.C.C.L., Koyla Nagar
283.	Cons/2062/2012-13	Preparation of MCQ for Marks Grade III Written Examination	Dr. Sumya Singh, CI Prof. Pramod Pathak, CO-CI	BCCL, Koyla Nagar, Dhanbad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
284.	Cons/2063/2012-13	Determination of Cerchar Hardness and Abrasivity Index of Some Rock Samples.	Prof. V.M.S. R. Murthy, CI	CIMFR, Dhanbad
285.	Cons/2065/2012-13	Environmental audit at OP Jindal Super Power Thermal Power Plant (4 x 250 MW)	Prof. Gurdeep Singh, CI	Jindal Power Ltd.
286.	Cons/2066/2012-13	Coal samples Analysis work for GCV Sodepur Area.	Prof. V.K. Saxena, CI	ECL Sodepur Area
287.	Cons/2067/2012-13	Analysis of Coal Sample of Washed Coal (Power) of Mahuda Coal Washery	Prof. V.K. Saxena, CI	Mahuda Coal Washery, BCCL
288.	Cons/2068/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments and Analysis of air Samples of Joyrampur Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Joyrampur Colliery, BCCL
289.	Cons/2069/12-13	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Sodepur Colliery, ECL	Prof. D. C. Panigrahi, CI	Sodepur Colliery, ECL
290.	Cons/2070/12-13	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Chinakuri Mine No.2, ECL	Prof. D. C. Panigrahi, CI	Chinakuri Mine No.2, ECL
291.	Cons/2071/12-13	Cyclosizing Test Work.	Dr. Anand Anupam, CI	CDE Asia Ltd.
292.	Cons/2072/12-13	Evaluation of performance and Behavior of gas detectors and Analysis and Interpretation of air . Samples	Prof. D. C. Panigrahi, CI	Jayaswal Neco Ltd. Raigarh
293.	Cons/2073/2012-12	Determination of degree of gasiness of R-VIIA seam.	Prof. D. C. Panigrahi, CI	Sankarpur Colliery, ECL
294.	Cons/2074/2012-13	Analysis and Interpretation of air samples of Tetulmari Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Tetulmari Colliery, BCCL
295.	Cons/2075/2012-13	Evaluation of Performance and Behavior of gas detectors of Lohapatti Colliery.	Prof. D. C. Panigrahi, CI	Lohapatti Colliery, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
296.	Cons/2076/2012-13	Evaluation of Performance and Behavior of gas detectors of Bankala Area.	Prof. D. C. Panigrahi, CI	Bankala Area, ECL
297.	Cons/2077/2012-13	Evaluation of Performance and Behavior of gas detectors and analysis of air Samples of Bagdigi Colliery.	Prof. D. C. Panigrahi, CI	Bagdigi Colliery, BCCL
298.	Cons/2078/2012-13	Off-Campus Training programme on EIA/ Auditing for GMDC Executives at Ahmedabad.	Prof. Gurdeep Singh, CI	GMDC, Ahmedabad
299.	Cons/2079/2012-13	Sub-Sieve Size Analysis Using Cyclosizer.	Dr. Anand Anupam, CI	CDE Asia Ltd.
300.	Cons/2080/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments and Analysis of air Samples of Lodhna Colliery.	Prof. D. C. Panigrahi, CI	Lodhna Colliery, BCCL
301.	Cons/2081/2012-13	Coal Seam Analysis Work for GCV on Equilibrated basis.	Prof. V. K. Saxena, CI	Sodepur Colliery, ECL
302.	Cons/2082/2012-13	Water sample testing of DWS Division, Hazaribagh.	Mr. B. K. Mishra, CI	DWS Division, Hazaribagh
303.	Cons/2083/2012-13	Coal Sample Analysis Work for GCV on Equilibrated basis.	Prof. V. K. Saxena, CI	Sodepur Colliery, ECL
304.	Cons/2084/2012-13	Off-Campus Course Mentorship Development Programme .	Prof. P. Pathak, CI Dr. S. Singh, CO-CI	BCCL, Koyla Nagar, Dhanbad
305.		Coal Samples Analysis Work for CHNS.	Pf. V. K. Saxena, CI	SGS India (P) Ltd.
306.	Cons/2086/2012-13	Check Survey of Milupara and Kondekal Underground Mines of MIE.	Dr. Dheeraj Kumar, CI	Monnet Ispat & Energy Ltd.
307.	Cons/2087/2012-13	Evaluation of Performance and behavior of gas detector of MRS Ramgarh, CCL.	Prof. D. C. Panigrahi, CI	Ramgarh, CCL
308.	Cons/2088/2012-13	Evaluation of Performance and behavior of gas detectors of P.B. Project Colliery, BCCL.	Prof. D. C. Panigrahi, CI	PB Project Colliery, BCCL

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
309.	Cons/2089/2012-13	Evaluation of Performance and Behavior of gas detectors of Mines Rescue Station.	Prof. D. C. Panigrahi, CI	Mines Rescue Station BCCL
310.	Cons/2090/2012-13	Evaluation of Performance and Behavior of gas Detector of Sarni Mine, WCL.	Prof. D. C. Panigrahi, CI	Sarni Mine WCL
311.	Cons/2091/2012-13	Evaluation of Performance and Behavior of gas Detector of Pootkee Colliery.	Prof. D. C. Panigrahi, CI	Pootkee Colliery, BCCL
312.	Cons/2092/2012-13	Determination of Some Physical and Chemical Properties of quick Setting Cement Capsule of Chinakuri Mine No.1, ECL.	Prof. D. C. Panigrahi, CI	Chinakuri Mine No.1, ECL
313.	Cons/2093/2012-13	Determination of Compressive and Anchorage Strenght of Quick Setting Cement Capsule of Chinakuri Mine No.1.	Shri P. K. Behera, CI	Sodepur Area ECL
314.	Cons/2094/2012-13	Evaluation of Performance and Behavior of ventilation and Safety Instruments of Methani Colliery, ECL.	Prof. D. C. Panigrahi, CI	Methani Colliery, ECL
315.	Cons/2095/2012-13	Evaluation of Performance and Behavior of ventilation and Safety Instruments of Bararee Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Bararee Colliery, BCCL
316.	Cons/2096/2012-13	Evaluation of Performance and Behavior of ventilation and Safety Instruments of Bussereya Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Bussereya Colliery, BCCL
317.	Cons/2097/2012-13	Evaluation of Performance and Behavior of ventilation and Safety Instruments of B. K. Enterprises.	Prof. D. C. Panigrahi, CI	B. K. Enterprises
318.	Cons/2098/2012-13	Evaluation of Performance and Behavior of ventilation and Safety Instruments of Mekon International, Dhanbad.	Prof. D. C. Panigrahi, CI	Mekon International, Dhanbad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
319.	Cons/2099/2012-13	Evaluation of Performance and Behavior of gas detectors, Analysis and Interpretation of air Samples of Malga and Jhiria Mines, Hansdeo Area SECL.	Prof. D. C. Panigrahi, CI	Jhiria Mines, Hansdeo Area SECL
320.	Cons/2100/2012-13	Testing of Wastewater Samples.	Dr. S. K. Gupta, CI Mr. B. K. Mishra, CO-CI	BCCL, Koylanagar
321.	Cons/2101/2012-13	Mines and Mineral Development project (Coal Sector) for Govt. of Bangladesh Providing Consultancy Services to PWC, Hyderabad.	Prof. D.C. Panigrahi, CI Prof. S. Choudhuri, CO-CI	PWC, Hyderabad
322.	Cons/2102/2012-13	Evaluation of Performance and Behaviour of gas detectors of Tawa Mine-I, WCL.	Prof. D.C. Panigrahi, CI	Tawa Mines No.I, WCL
323.	Cons/2103/2012-13	Evaluation of Performance and Behavior of gas detectors of Kumardhubi Colliery, ECL.	Prof. D.C. Panigrahi, CI	Kumardhubi Colliery, ECL
324.	Cons/2104/2012-13	Testing of Light Weight Acchorage testing Machine.	Prof. U. K. Singh, CI Shri P. K. Behera, CO-CI	Jaya Bharat Equipment Pvt. Ltd.
325.	Cons/2107/2012-13	Evaluation of Performance and Behaviour of Ventilation and Safety Instruments, and Analysis of air Samples of Loyabad Colliery, BCCL	Prof. D. C. Panigrahi, CI	Loyabad Colliery, BCCL
326.	Cons/2108/2012-13	Analysis and Interpretation of mine air Samples of Mandaman Colliery, ECL.	Prof. D. C. Panigrahi, CI	Maudaman Colliery, ECL
327.	Cons/2109/2012-13	Development of Mine Air colling Systems for Mines, Blue Star Ltd.	Prof. D. C. Panigrahi, CI	Blue Star Ltd., Mumbai
328.	Cons/2110/2012-13	Ultimate Analysis of Pelletized Waste Paper.	Prof. V. K. Saxena, CI	Superintendence Company of India (P) Ltd.
329.	Cons/2111/2012-13	Sampling & Analysis/ Gradation of Rejets.	Prof. S. Bhattacharya, CI Mr. Shravan Kumar Co-CI	BCCL, Koyla Nagar, Dhanbad

Sl. No	Consultancy Number	Title of the Project	Coordinator & Team Members	Client
330.	Cons/2112/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Simla Bahal.	Prof. D. C. Panigrahi, CI	Simla Bahal Colliery, BCCL
331.	Cons/2113/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Mekon International.	Prof. D. C. Panigrahi, CI	Mekon International dhanbad
332.	Cons/2114/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Parbelia Colliery, ECL.	Prof. D. C. Panigrahi, CI	Parbelia Colliery, ECL
333.	Cons/2115/2012-13	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Godhar Colliery, BCCL.	Prof. D. C. Panigrahi, CI	Godhar Colliery, BCCL
334.	Cons/2116/2012-13	Study of Illegal Mines in CIL Subsidiaries (ECL, BCCL, CCL).	Dr. Biswajit Paul, CI Dr. Manish Kr. Jain, CO-CI	Coal India Ltd., Kolkata
335.	Cons/2117/2012-13	Study to Evaluate the Schemes of Science and Technology Program of Ministry of Mines.	Prof. U. K. Singh, CI Prof. M. Jawed, CO_CI	Govt. of India Ministry of Mines, New Delhi.
336.	Cons/2118/2012-13	Size Analysis Using Cyclosizer	Mr. Anand Anupam, CI	CDE Asia Ltd.

6.2 PROFESSIONAL DEVELOPMENT PROGRAMME HELD DURING APRIL 2012 TO MARCH 2013

The Continuing Education Wing of Executive Development Centre organized a wide range of activities for meeting the specific objectives of continuing education. During the year **2012-13** Professional Development Programmes (including 04 off-campus courses) have been conducted for executives of various Government, Public Sector and Private Sector companies. Number of Executives trained was **784 (2323 participant-weeks)** and the value of these training programmes was about **Rs. 3,64,29,833/-**. As per the revised Consultancy Rules the Professional Development Programmes are also treated as consultancy projects.

Sl No	Course Number and period	PROGRAMME	COORDINATOR(S) (Department/Centre)	No. of participants	Weeks
1.	CONS/1749/ 2012-13	Advanced Algorithms and their Applications. From 2 - 5 April, 2012	Prof. P.K. Jana, CI Mr. A. Tarachand, CO-CI	10	4 days
2.	CONS/1757/ 2012-13	Rajiv Gandhi Institute of Petroleum Technology Practical Training Program in Petroleum Engg. from 7.5.2012 to 12.5.2012	Prof. A. K. Pathak, CI Dr. Keka Ojha, CO-CI	39	1 week
3.	CONS/1873/ 2012-13	Trackless Mining Equipment Loaders and Transporters used in Underground Mines. 10-12 May, 2012	Prof. A. K. Pathak, CI Dr. Keka Ojha, CO-CI	10	3 days
4.	CONS/1780/ 2012-13	Intensive course on Advances in Mine surveying Technology. From 7.5.2012 to 16.6.2012	Prof. P.P. Bahuguna, CI Dr. Dheeraj Kumar, CO-CI	21	6 weeks
5.	CONS/1797/ 2012-13	Off-campus on social & Environmental Issues in the Mining Sector in Afghanistan form 18 - 28 May, 2012-13	Prof. Gurdeep Singh, CI	12	2 weeks
6.	CONS/1862/ 2012-13	Intensive Training Programme for Management Trainees of E & M and Excavation disciplines Coal India Ltd. From 21 May to 23 June, 2012	Prof. A.K. Mukhopadhyay, CI Prof. P.S. Mukherjee, CI Prof. K. Dasgupta, CO-CI	12	2 weeks
7.	CONS/1927/ 2012-13	"Project Management and Its Application in Coal Mining Industry" SECL Executive.18-22, June, 2012	Prof. Kampan Mukherjee, CI Prof. Chandan Bhar, CO-CI	12	2 weeks

8.	CONS/1811/ 2012-13	Theoretical Training Programme for the Students of UPES Dehradun on Drilling System Design & Directional Drilling and Coal Bed Methane and Gas Hydrates. 28.06.12 to 06.07.12	Prof. A. K. Pathak, CI Dr. Ajay Mandal, CO-CI	8	2 weeks
9.	CONS/1909/ 2012-13	Management Trainees Excavation Cadre from Coal India Ltd. 25.06.12 to 27.07.12	Prof. A. K. Mukhopadhyay, CI Prof. PS Mukherjee, CI Prof. K.Dasgupta, CI	31	5 weeks
10.	CONS/1843/ 2012-13	Training Programme on EIA Auditing for NMDC Executives from M/s NMDC, Hyderabad. From 09.07.12 to 04.08.12	Dr. Dheeraj Kumar, CI Prof. U. K. Singh, CO-CI	29	4 weeks
11.	CONS/1954/ 2012-13	Intensive Training Programme for management Trainees of E & M Cadre from CIL 30.07.12 to 31.08.12	Prof. A. K. Mukhopadhyay, CI Prof. PS Mukherjee, CI Prof. K.Dasgupta, CI	29	5 weeks
12.	CONS/1891/ 2012-13	Reservoir Engineering for Executives of Oil India Ltd. From 27 - 31 August, 12	Dr. Ajay Mandal, CI Dr. Keka Ojha, CO-CI	18	1 week
13.	CONS/1984/ 2012-13	Intensive Training Programme for Management Trainers from CIL from 3.9.2012 to 5.10.2012	Prof. A. K. Mukhopadhyay, CI Prof. PS Mukherjee, CI Prof. K.Dasgupta, CI	31	5 weeks
14.	CONS/1963/ 2012-13	Overall Project Planning for NHPC Executives 10-14 Sept. 2012.	Prof. Chandan Bhar, CI Prof. Kampal Mukherjee, CO-CI	12	1 week
15.	CONS/1838/ 2012-13	Off campus course on EIA / Audition for NMDC Executives at Hyderabad from 07-09-12 to 09.09.12	Prof. Gurdeep Singh, CI	27	3 days
16.	CONS/1910/ 2012-13	Advanced Training on Mining Operations for HZL, Young Underground Mining Engineering 17.9.12 to 13.10.12	Dr. Dheeraj Kumar, CI Prof. U. K. Singh, CI	31	4 weeks
17.	CONS/1985/ 2012-13	Practical Mine Surveying for Mine Surveyors and Apprentice in Mine Surveying 17.9.12 to 13.10.12	Prof. P.P. Bahuguna, CI Dr. Dheeraj Kumar, CO-CI	11	4 weeks
18.	CONS/1925/ 2012-13	"A Primer on Geostatistics for Atomic Minerals Directorate for Exploration and Research Hyderabad 01 - 12 Oct.2012	Prof. B. C. Sarkar, CI Dr. M. K. Mukherjee, CO-CI	10	2 weeks

19.	CONS/1970/ 2012-13	Junior & Middle level Executives of DWSD Ranchi Water & Waste Water Treatment & Management 7 - 9 November, 2012.	Dr. S.K. Gupta, CI Dr. Alok Sinha Co-CI	14	3 days
20.	CONS/1926/ 2012-13	Drills & Driling Mineral Resources 12 - 23 Nov. 2012	Prof. A.K. Mukhopadhyay, CI Dr. S. Chattopadhyaya, CO-CI	10	2 weeks
21.	CONS/2037/ 2012-13	Intensive Training Program for Management Trainees of E & M Cadre from CIL 29.10.2012 to 30.11.2012.	Prof. A. K. Mukhopadhyay, CI Prof. PS Mukherjee, CI Prof. K.Dasgupta, CI	28	5 weeks
22.	CONS/1971/ 2012-13	Mine Legislation and Related Issues (AMD Course) from 26.11.12 to 07.12.12	Prof. M. Jawed, CI Dr. P.S. Paul Co-CI	10	2 weeks
23.	CONS/1972/ 2012-13	Evaluation of Water Resources and Its management from 10.12.12 to 12.12.12	Dr. P. K. Singh, CI Dr. M.K. Jain, CO-CI	20	3 days
24.	CONS/1983/ 2012-13	Power Hydraulics in HEMM from 17 - 21 Dec. 2012	Prof. K. Dasgupta, CI Dr. A.R. Dixit, CO-CI	24	1 week
25.	Cons/2155/ 2013-14	Inensive Training Programme for management Trainees for CIL from 17-12-2012 to 18-01-2013	Prof. A. K. Mukhopadhyaya, CI Prof. P. S. Mukherjee, CI Prof. K. Dasgupta, CI	35	5 weeks
26.	Cons/2120/ 2013-14	Overall Project Planning for NHPC Executives 14-01-2013 to 18-01-2013 January.	Prof. Chandan Bhar, CI Prof. K. Mukherjee, Co-CI	8	5 days
27.	Cons/2105/ 2012-13	Drilling & Blasting Technology from 14-01-2013 to 17-01-2013.	Prof. V.M.S.R. Murthy, CI Dr. B. S. Choudhary, CO-CI	9	4days
28.	Cons/2060 /2012-13	Rock Engineering for Tunnelling for DRDO Executives. From 25.1.2013-31.1.2013	Prof.V.M.S.R. Murthy,CI Dr. B.S. Choudhury, CO-CI	15	2 weeks
29.	Cons/2156/ 2013-14	5 weeks Intensive Trining Programme for management Trainees (E&M Cadre) from CIL on 21.1.2013 to 22.2.2013	Prof. A. K. Mukhopadhyaya, CI Prof. P. S. Mukherjee, CI Prof. K. Dasgupta, CI	25	5 weeks
30.	Cons/2157/ 2013-14	5 weeks Intensive Trining Programme for management Trainees (Excavation Cadre) from CIL on 21.1.2013 to 22.2.2013	Prof. K. Dasgupta, CI Prof. A.K. Mukhopadhyay, CI	29	5 weeks

31.	Cons/2064/ 2012-13	Wireless communication and Environment Monitoring in Underground Mines - Possibilities and Implementation. From 21.02.13 - 23.02.13	Dr. Tanmoy Maity, CI Prof. Somnath Pan, CO-CI	14	5 days
32.	Cons/2078/ 2012-13	Off-Campus Trg. Programme on EIA & Auditing for GMDC Executives at Ahmedabad. From 01 - 02 March, 2013	Prof. Gurdeep Singh, CI	26	2 days
33.	Cons/2106/ 2012-13	Importance of Survey & Investigation in Hydropower Projects for NHPC. From 18-21, March, 2013	Prof. V. M.S.R. Murthy, CI Dr. B. M. Kunar, CO-CI	5	4 days
34.	Cons/2177/ 2013-14	5 weeks Intensive Trining Programme for management Trainees (E&M Cadre) from CIL on 04.03.2013 to 06.04.2013	Prof. A. K. Mukhopadhyaya, CI Prof. P. S. Mukherjee, CI Prof. K. Dasgupta, CI	33	5 weeks
35.	Cons/2178/ 2013-14	5 weeks Intensive Trining Programme for management Trainees (Excavation Cadre) from CIL on 04.03.2013 to 06.04.2013	Prof. K. Dasgupta, CI Prof. A.K. Mukhopadhyay, CI	23	5 weeks

Four Special in-campus courses were conducted. The details is given below

1.	DST/05/MATH/ 2012-13	Undergraduate Training Programme in Linear Algebra and Analysis-2012 under Mathematical Sciences Programme of SERC from 28.05.12 to 06.06.12	Dr. S. P. Tiwari, CI Dr. M. K. Singh, CO-CI	34	1 week
2.	DST/06/MS/ 2012-13	Enterpreneurship Awareness and Development. From 4 - 8 March, 2013	Dr. Niladri Das, CI Dr. Mitali Sen, Co-CI	17	5 days
3.	DST/07/MS/ 2012-13	Research Methodology and Data Analysis for Scientists and Technologist from 21-25 january, 2013.	Dr. Sandeep Mondal, CI Prof.K. Mukherjee, Co-CI	23	5 days
4.	DST/08/MS/ 2012-13	Management of R & D Projects for Scientists and Technologists working in Government Sector During 11 - 15 Feb. 2013.	Prof. Kampan Mukherjee, CI Dr. Sandeep Mandal, CO-CI	17	5 days

7.0 INFRASTRUCTURE FACILITIES

CENTRAL LIBRARY

The Central Library is part and parcel of Indian School of Mines with direct connections to all departments. Surrounded with greenery, the library provides a silent environment for study. The library served the library users for reference services, semester exam preparations, project writing and research. There are the following sections of the library:

- Circulation Desk cum Central Reading Area
- Reference cum SRB Section
- Newspaper - magazine Section
- Journal Section
- Book Acquisition Section
- Technical Processing Section
- Photocopy Section
- Open Reading Hall

During the academic year 2012-13 the library served about 500 users a day. Generally, the library opened for seven days a week except for closed holidays. The library followed a convenient working hours from 9 am to 9 pm on weekdays, and 9 am to 8 pm on Saturdays and Sundays. The Open Reading Hall was kept open from 9 am to 11 pm except in summer vacation. The library remained open from Monday to Saturday for the period from 9 am to 6 pm during the summer vacation.

The Central Library is an automated library in terms of records management, information retrieval and service delivery. Over the years the library has developed several databases of books, journals, theses/ dissertations, reference books, conference proceedings, Indian standards, etc. It has about 107990 books, 35,371 bound volumes of journals, 320 current journals, 8,500 theses and dissertations. The CD/DVD collection is more than 1,600 comprising books, abstracts, journals, teaching aids and so on. During this academic period, 7122 books were added to the library holding. All documents have been bar-coded. In addition, Central Library started attaching magnetic tapes and RFID tags to library books to put in place enhanced document security, faster circulation of books and records management.

All records of library collection are accessible online through Online Public Access Catalogue (OPAC) touch-screen kiosks connected to the library's LAN. 'Browse', 'Search', and many more facilities in the OPAC module of LIBSYS Library Management Software enabled the users to find out records on their own, thereby saving their time. The library maintained its electronic databases of its printed sources -- books, reference books, journal loose issues cum bound volumes, theses, dissertations, NCD, conference proceedings, standards and journal articles. All these databases also remained available over the Internet through the library's official website. The speed of searching enhanced reference service delivery.

All processes at Book Acquisition Section ordering, bill processing, etc. were done through Libsys Library Management Software. At Technical Processing Section books, dissertations, PhD theses, etc. were labeled with system-generated barcodes, spine slips and book cards. The library enrolled new members -- students as well as faculty-- handing out new bar-coded membership cards. The Central Library ensured error-free barcode based circulation system, quick posting of library dues and fast settlement of no-dues to out-going students.

All documentation jobs including data entry of old journal bound volumes through 'Accessioning' and processes of journal subscription at the Journal Section proceeded through Libsys Library Management Software. The section rendered reference services out of current and old print journals and online journals. The library provided online access to online journals with full text-image articles to the faculty members, students and research scholars through 13 online journal database links namely IEL Online, Springer Link, Science Direct, ACM Digital Library, AIP (Journal of Applied Physics), APS Journals, American Chemical Society, One Petro, JCCC-INDEST, ASME, ASCE, EBSCO Business Source Premier cum LISTA, and Nature to facilitate academic and research activities. The library renewed the subscription to Science Direct Freedom Collection journal database for the year 2013. With coverage across all subjects it continued to facilitate research and academic activities of ISM. The links to online journals and databases accessible were available through library's website. All these e-journal databases became useful. Inter-library loan service through JCCC@INDEST link remained as popular as ever among the users. This link enabled the users to download articles at ISM as well as to register their requests for hardcopies to IITs, IISc Bangalore and IIMs. Reference helps from Journal Desk and Circulation Desk facilitated the study and academic activities of the school. The Central Library also started book circulation services on Saturday and Sunday for two hours (5 PM-7 PM) especially for the Executive MBA students.

The Central Library organized a Publishers Book Exhibition in the library for the ISM students, faculty members and research scholars during September 18-20, 2012. The exhibition displayed books published by the reputed publishers of India.

The Central Library organized the Library Advisory Committee meeting on January 11, 2013, represented by different departments of ISM. The meeting provided a platform to discuss about the further growth, prospects and problems of the library.

As the library allowed its readers open access to the documents it regularly organized its printed resources on racks and shelves for better access. The library staff secured the library documents from theft and pilferages. Finally, the library tried to maintain a clean and convenient study and work environment despite space and seating capacity crunch and less no. of library staff.

COMPUTER CENTRE

The Computer Centre supports campus wide fibre optic LAN (4800 nodes) that connects all the academic departments/centres, central library, hostels and administrative sections. Internet access is provided to all the users through the link provided by BSNL under the project NMEICT of Govt. of India.

The Centre was established in the year 1987. The Centre is a central facility and caters to the computing needs of the ISM community. It provides mainly two types of services namely network services and lab services.

The Centre has number of state-of-the-art servers, Linux and Windows labs. Computer practical classes of undergraduate/postgraduate are being conducted here. The Centre conducts computer training programmes for ISM staff members from time to time. Online tests for placements of students are also arranged here. Institutional jobs like Students Attendance Monitoring, Computer Maintenance Monitoring are done here. Web access is provided through proxy servers. The Centre is running a DHCP server for its campus users. Users need not assign a static IP to their system, but configure it to get IP address automatically.

The Centre provides internet services 24 hours a day, 365 days a year. It supports campus wide fiber optic LAN (4800 nodes) that connects all the academic departments/centres, central library, hostels, administrative sections, residence of faculty members and officers. Departments and hostels are connected to Computer Centre through Gigabit switches, whereas residential connectivity is provided through ADSL. Internet access is provided to all the users through the link provided by BSNL under the project NMEICT of Govt. of India.

Central Workshop

The workshop of the School has a wide range of manufacturing facilities catering to the needs of undergraduate and postgraduate students as well as research scholars. It provides good facilities for Forging, Carpentry, Fitting and Sheet Metal working. It also

provides excellent facilities for Welding, Casting and Machining. Induction melting furnace, Gear hobbing and Gear shaping machines, Surface Planer machine, Tool & Cutter grinding machine, Band Saw (Wood cutting machine), TIG, MIG, SAW welding machines Template based gas cutting machine and Power Press machine are important facilities. There is a sophisticated Computer Aided Manufacturing laboratory consisting of latest CAM Software, CNC turning (trainer) and CNC milling (trainer) machines. There is Flexible Manufacturing System {CNC Lathe machine fitted with AGV (Automatic Guided Vehicle)}. There is also a Dimensional Metrology Laboratory in which variety of linear, angular, surface flatness (Auto Collimator)/ surface roughness (Surface Roughness Tester) measuring instruments, gear tooth thickness (Gear Tooth Vernier Calipers) /circular pitch (Flange Micrometer) measuring instruments, Variable Microscope and Metallurgical microscope are important measuring instruments.

Every year around 925 first year undergraduate students are imparted hands-on training on basic manufacturing facilities, around 120 students of pre-final year Mechanical and Mining Machinery and 21 students of M Tech first year are imparted hands-on training on advanced manufacturing and dimensional measuring facilities. Each year a number of students also carry out B. Tech and M. Tech projects related to the manufacturing in the workshop. Research scholars of the different departments also fabricate equipments and components for their research work.

Many students fabricate various equipments e.g. robots, air tunnels etc. for national level competitions. Sometimes short-term training courses for engineers/ officers/ executives related to manufacturing process/ workshop technology are also conducted on demand. Consultancy services are also provided by the faculty members to industries according to their needs.

Various types of furniture, fixtures and components (of machines and equipment) of different departments of the School are also repaired and manufactured in the workshop on demand.

A new workshop building is fully operational. The training on Fitting, TIG and MIG Welding machines as well as on dimensional measuring instruments is being provided to B. Tech UG students in the this building. HMT high precision Sliding Surface & Screw Cutting lathe, Polishing Machine and Hot Mounting Press as well as Compact RIO Controller hardware have been procured. The procurement for various manufacturing facilities like Coordinate Measuring Machine (CMM), Rapid prototyping machine(3-D Printer), CNC Turn-Mill Centre, Cutting Force Dynamometer, Abrasive Cut-off machine,, CNC Controlled Plasma Cutting machine, Die-Sinking EDM, Non-contact type Profilometer Welding Fume Extraction Down Draft table and Extrusion Die casting machine etc. has been started.

ISM Health Centre

ISM Health Centre provides medical care to students, teachers, officers and staff including their dependant family members. From the year 2000 onwards retired employees with their spouses have also been included for medical treatment. In addition to the SMO and LMO, following Specialists visit the ISM Health Centre periodically: two Homoeopaths, a Dental Surgeon, an Eye Specialist, a Gynaecologist, an Orthopaedic Surgeon, an ENT Specialist, a Cardiologist, a Psychiatrist, two Pathologists, a Physiotherapist and Dr. J. Kumar. In absence of the SMO/LMO, Dr. J. Kumar visits ISM Health Centre in both the shifts, morning as well as evening.

Apart from this, in critical cases patients are also referred to the following hospitals for their treatment:

(A) Local Hospitals **at Dhanbad**

1. Jalan Hospital, Dhanbad
2. JIMS Hospital, Dhanbad
3. Pragati Hospital, Dhanbad
4. Asarfi Hospital, Dhanbad
5. Patliputra Nursing Home, Dhanbad

(B) Hospitals **at Ranchi:**

1. **Dr. Alam Hospital & Research Centre, Ranchi** (for General Treatment)
2. Apollo Hospital, Ranchi (for General Treatment)
3. Kashyap Eye Hospital, Ranchi - for Ophthalmological treatment

(C) Hospitals **at New Delhi:**

1. Centre of Sight (for Ophthalmological treatment)
2. Delhi Heart & Lung Institute (for Cardiological/Pulmonary treatment.
3. Max Devki Devi & other Hospital chain in Max Hospital at Delhi (for treatment of Cardiological Problems and other general diseases)
4. Mohinder Hospital (for General treatment).

5. Sukhmani Hospital, New Delhi (for specialized treatment).
6. Sir Ganga Ram Hospital, New Delhi (for specialized treatment).

(D) Hospitals **at Kolkata:**

1. Peerless Hospital, Kolkata (for general purpose).
2. Disha Eye Hospital, Barrackpore, Kolkata (for Eye treatment only)
3. Ruby General Hospital, Kolkata (for general purpose).
4. CMRI, Kolkata (for general purpose)
5. R.N. Tagore Hospital, Kolkata (for general purpose)

(E) Hospital **at Durgapur:**

1. The Mission Hospital, Durgapur.

On an average 200-250 patients visit ISM Health Centre daily. Medicines are dispensed from the Health Centre. For medicines that are not available in the Centre, reimbursement is made. Investigations required for the patients are carried out at reputed centres from the list of approved panel. During the year patients were referred to the different Centres for specialised treatment as mentioned above.

In situations where a second opinion is necessary, the cases are referred either to Central Hospital (BCCL) or PMCH, Dhanbad for Indoor/Outdoor treatment. For patients who prefer Ayurvedic treatment, they are referred to Ayurvedic Dispensary (BCCL), Dhanbad. Complicated cases are referred to CMCH, Vellore, Sankara Nethralaya, Chennai, AIIMS, New Delhi, SGPGIMS, Lucknow, BGH Bokaro, Govt.Hospital Kolkata viz. Bangur Institute of Neurology & SSKM, Kolkata, RMCH, Ranchi, IGIMS, Patna and CIP, Ranchi PGI Chandigarh etc. on advice of CHD/Specialists and as per decision of the Medical Board. This is applicable also to all retired Employees. Narayana Hrudayala, Bangaluru & Ruby Hall Clinic, Pune are also under process for inclusion in ISM panel for treatment of ISM employees.

Sports and Physical Education Centre

Like previous years, Sports and Physical Education Centre organised all its internal tournaments like Inter Year Football Tournament, Inter Year Volleyball Tournaments, Basketball Tournaments, Badminton Tournaments, Tennis Tournaments, Handball Tournaments, Annual Gym Competition and Annual Squash Competition

The results of the Internal Tournaments are as follows:

Sl. No.	Tournaments	Results
1.	Table Tennis	B. Tech. III rd Year beat B. Tech 1 st Year by 3-1 INDIVIDUALS / OPEN: Siddhant Jain Winner Akash Bagra 1 st Runners up Vibhor Agarwal 2 nd runners up
2.	Tennis Open Tournament	Winner - Abhishek Biswas (2012JE1016), B.Tech PE/1 st Yr. Runners up - Sanjay Shukla (2008JE0424), B. Tech Mineral engineering+M.tech Dual Degree in Resource Management/5 th Yr.
3.	Volleyball Tournament	1 st year B.Tech won the championship and 3 rd year B. Tech. clinched the runners up position
4.	Basketball Tournament	B. Tech 3 rd year won the championship and B. Tech 4 th year declared runners up
5.	Open Squash Championship	Prashant Jha, B. Tech 4 th year won the championship and Sukhendra Reddy, B. Tech 3 rd year, Jagan, B. Tech 3 rd year & Gaurav Chauhan, B.Tech 2 nd year declared 1 st , 2 nd & 3 rd runner up respectively.
6.	Boxing Championship	Deewan Singh, B.Tech 1 st yr, Sandeep Bohra, B. Tech 2 nd yr, M. Narahari, B.Tech 3 rd yr, Nikhil Swami, B. Tech. 4 th yr, Kumar Abhishek, B. Tech 1 st yr, Sanjay Arya, B. Tech 2 nd yr declared winner respectively.
7.	Badminton Championship	Top ten Participants were selected such as Suman Paul, Research Scholar, Kunal Sharma, B. Tech. 1 st Year, Abhishek Dubey, M.Tech 1 st year, Sanjay Shukla, B. Tech Dual Degree 4 th year, Rohan Bindal, B. Tech 1 st year, Anil Kumar, B. Tech 2 nd year, Md. Faizan Ali, B.Tech 3 rd year, Rajesh Ranjan, B. Tech 3 rd year, Anshul Rawat, MBA 2 nd year and Ashish Kumar, B.Tech 1 st year
8.	Handball	Winners B. Tech. Final Year Runners B. Tech. 3 rd Year

9.	Cricket	Three Teams participated namely B. Tech 1 st yr. "A", B. Tech 1 st yr. "B" and B. Tech 2 nd yr. In which B. Tech 1 st yr. "A" beat B. Tech 2 nd yr. by 6-4 goals.
10.	Annual Gym Competition	Annual Gym Competition held on 9 10 th March 2013 and winners were awarded with trophies.

We successfully organized **84th Annual Sports Meet** on 18th and 19th January 2013. Shri Sanjay Kumar Singh, General Manager, Jharia division, Tata Steel Ltd. inaugurated the meet where thousands of students, faculties, officers and staff participated.

In the Men section 3rd Yr. B. Tech emerged as overall champion and 2nd Yr. B. Tech emerged Runners up. In the Women section M.Sc. Tech emerged overall champion and 3rd Yr. B. Tech emerged Runners up.

Shri. V. Murahari of 3rd Yr. B. Tech emerged best MEN Athlete and Miss Indumathi E of 3rd Yr. B. Tech was declared the best WOMEN Athlete.

In the closing ceremony medals, prizes, trophies were presented to the winners by Shri Ashok Sarkar, Director (Technical) Project & Planning, BCCL in presence of Director, Prof. D.C. Panigrahi and many distinguished faculty & guests.

Badminton Tournament for GIRLS' students was organised during the month of January 2013. In the finals Vartika Singh of Integrated M.Sc. emerged as winner and Aparna of MBA emerged as runners up.

Special Sessions

YOGA classes were held in the evening at Upper Ground and Lower Ground from 02.04.12 till the commencement of Semester Exam where hundreds of students learnt the different asanas from yoga expert, Shri Ajay Narayan from Hirapur. Special Assessment cum year wise and open competition separately for boys and girls was also organized at Lower Ground from 01.10.12 to 19.10.12.

A special **NSO** programme was organised round the year in the morning and evening where our regular coach, Shri N. K. Sadhukhan along with experts from outside taught the skills of Sports and Games like Basketball, Volleyball, Football, Badminton, Cricket, Athletics, Table Tennis, Tennis etc. apart from Physical Conditioning.

Regular **Basketball** practices were organized under an honorary coach, Shri Kallol Samanta.

Boxing/Wushu classes were conducted regularly by an honorary coach, Shri Dhananjoy Goutam.

Regular **Squash** practices were also organized under an honorary coach, Shri Abhisekh Pandey.

Regular **Athletics** practices were organized under the regular coach, Shri N. K. Sadhukhan along with honorary coach Ms. Sujapa Thakur.

Regular **Cricket** practices were held under an honorary coach, Shri Kishor Kumar.

Volleyball practices were also conducted under an honorary coach, Kartick Mukhopadhyay, SAI Volleyball Coach.

A **summer coaching** camp was organised for campus children during the summer vacation of 2012 for games such as Volleyball, Tennis and Athletics.

Teams Participation in Extramural Competitions:

ISM **Basketball** Team took part in All India Inter University Championship held at Kalyani University, Kalyani from 13th October to 16th October 2012.

The school **Athletes** namely, Shri V Murahari, Shri I V Reddy, Shri P Mahesh and Shri P Madhu participated in the 73rd All India Inter University Athletic Meet 2013 organised by Kalyani University, Kalyani from 22nd January 2013 to 26th January 2013.

Our **Athletes** namely, Shri V Murahari, Shri I V Reddy, Shri Milan Kumar and Shri Shakti Singh had been selected to represent Dhanbad District in Jharkhand State Athletic Championship held at Ranchi from 20th to 21st March'2013 where Shri V. Murahari won the Bronze Medal in 100 M men's final and Silver Medal in 4 x 100 M relay.

Our four **Cricket** Teams have been taking part in Dhanbad District Cricket Leagues where they are in the fray to reach A division.

Our **Squash** players Shri Prashant Jha, B. Tech 4th year, Shri Sukhendra Reddy, B. Tech 3rd year and Shri K. Jagan, B. Tech 3rd year participated in 60th Senior National Squash Championship 2012 held at Calcutta Racket Club, Kolkata from 18th to 23rd December 2012.

ORGANISING OF SPORTS FESTIVAL - PARAKRAM 2013

Parakram, the All India Inter College Sports Fest was organised at ISM Dhanbad between 14 and 17th February 2013. This year the fest witnessed unprecedented participation of more than 650 students, out of which 478 students were from colleges other than ISM.

Prof. B. B. Bhattacharya former Director ISM, presently Distinguished Prof. S. N. Bose National Centre for Basic Sciences, Kolkata was the chief guest who declared the event open after the demonstration of Yoga, Karate and Wushu. Three days of continuous games (indoor and outdoor) in which a total of 14 events Cricket, Tennis, Boxing, Squash, Gym, Football, Basketball, Volleyball, Badminton, Table Tennis, Athletics, Carom board, Chess, Virtual Gaming for men and women were held in Lower Ground, Upper Ground, Sports Complex, Student Activity Centre (SAC) and Examination hall of LHC. The closing-cum-prize distribution ceremony was held on 17th February 2013 amidst the august presence of Prof. D. C. Panigrahi, Director, ISM, Prof. S. Laik, Dean (Student welfare) and Prof. B. C. Sarkar, President, SPEC.

Apart from ISM, the 22 participating Institutes were GGSESTC Bokaro, NIT Patna, MERI Kolkata, BCET Durgapur, St Xaviers College Ranchi, Asansol Engineering College, Jabalpur Engineering College, Calcutta Institute of Engineering and Management, Heritage Institute of Technology Kolkata, NIT Durgapur, Marwadi College Ranchi, Calcutta Institute of Engg. & Management, Academy of Technology Kolkata, NITMUS Kolkata, Camellia Institute of Technology Kolkata, NIFFT Ranchi, JEC Jabalpur, VSSUT Burla, Marwari college, Ranchi Budge Budge Institute of Technology, KIIT Bhubaneswar, HBTI Kanpur and Ranchi College, Ranchi.

The overall championship was bagged by Team ISM. The overall result for different games is given below :

Basketball (G): St. Xaviers -22 Vs ISM -12, St. Xaviers Won,

Basketball (B): ISM - 47 Vs St. Xaviers -33, ISM Won,

Table Tennis: CIEM Vs ISM 3-0, CIEM Won,

Individuals Winners

1. Saptarishi Ghosh (CIEM) - 1st

2. Kanahaiya (CIEM) 2nd

3. Akash Bagra (ISM) 3rd

Badminton: BSSUT Burla Vs ISM 3, ISM Won (B & G)

Volleyball: ISM Vs MERI Kolkata, ISM Won (B & G)

Cricket: JEC Vs ISM, ISM Won By 35 Runs,

Squash: Prashant Jha (ISM) Vs Ashish Banerjee (Marwari College) Ranchi) 11-8, 11-13, 7-11, 11-13 Prashant Jha (ISM) Won

Football: ISM 4 Vs MERI-0, ISM Won

Athletics: Varun Reddy got Boys championship and in Girls, Indumathi E got Championship from ISM and Overall Championship won by team ISM.

In Tennis, Boxing, Gym Events most of the prizes were achieved by ISM players only.

Indoor games also went on for 3 continuous days in which from ISM won in **Chess**, MERI Kolkata won the finals of **Carrom board** and virtual gaming was also held.

The event was partially organised on the basis of sponsorship from different companies like Madras Cement Limited, IMR Resources and Vayunandana Power Limited. And most of the part is sponsored by ISM and Registration fee was taken from the each college students who came to take part in PARAKRAM' 13.

The convener of event was Professor B. C. Sarkar, President of Sports and Physical Education Centre; and the co-convener was Shri D. N. Acharya, Sports Officer ISM Dhanbad.

HINDI CELL

The Hindi Cell of ISM Dhanbad is playing a significant role to make Rajbhasha an important part in ISM. As per the orders of the Government of India, Home Ministry the section organizes meetings of official language implementation Committee, ensures progressive use of Hindi in day-to-day official work. The cell also performs all type of translation work. All letters received in Hindi from individuals as well as Government of India are replied in Hindi as per the administrative instructions. According to bilingual policy, every employee of ISM is requested to encourage their Hindi knowing staff to use Hindi for their notes and simple drafts.

The main function of Hindi cell is to provide translation of English version of annual reports, annual audit report. The Hindi section maintains papers, files and circulars relating to the work conducted by it, issued from time to time by University/UGC/MHRD/GOI. Moreover the Hindi cell sends reports at the end of every quarter to the Ministry.

In compliance with the orders issued by the Government of India the home ministry Rajbhasha Vibhag 'Hindi Pakhwara' was organized in the first two weeks of September 2011. It was organized for students, officers, and staff members as well. The participants actively engaged themselves in events, such as, Hindi debate competition and essay writing competition. The activities were organized for both Hindi and non-Hindi groups. To encourage the participants, Prize Distribution Ceremony was organized on the 14th of September as 'Pakhwara Samapan Samaroh'.

8.0 ACTIVITIES UNDER INTERNATIONAL RELATIONS AND ALUMNI AFFAIRS (IRAA)

In its endeavor to serve the cause of education and research ISM stepped up to establish linkages with internationally acclaimed academic and research institutions alongwith fostering relations with the alumni who are the brand ambassadors of ISM nationally and globally.

For realizing the objectives and establishing new linkages an IRAA Group (represented by faculty members of different Departments) was formed and these members are the contact points related to IRAA activities from the respective Departments. At the end of each financial year a concise report on the IRAA activities is submitted by each Department to Associate Dean(IRAA) for needful compilation.

A) INTERNATIONAL RELATIONS

(1) CENTRE OF EXCELLENCE IN MINING TECHNOLOGY (CEMT) AT ISM

A delegation of academics from Laurentian University, Western Ontario University, Queens University and University of Toronto under the initiative from Ministry of Mines, Ontario Province, Canada and Ministry of Mines, Govt. of India visited ISM on 27 and 28.07.2012 and discussed various areas of mutual collaboration. Blasting and Mining Machinery were the initial focus apart from geological and geophysical studies with latest tools and technologies to be added in due course. A few joint courses and student/faculty exchange were also discussed. This visit was in continuation to the 2nd collaborative workshop held on 25.07.2012 between India and Ontarian Universities in New Delhi under the aegis of Ministry of Mines, Govt. of India.

(2) ERASMUS MUNDUS ACTION 2 PROJECT-INDIA4EUII-EACEA/42/11

Indian School of Mines, Dhanbad has been selected for funding under Erasmus Mundus Project submitted under India 4EUII Framework based on the proposal submitted by Department of Mining Engineering in the month of April 2012. The project is being coordinated by Politecnico di Torino, Italy and co-coordinated by Amrita University, India. The programme envisages mobilities (student and staff outflows) for higher education and research to ten partners' universities in Europe. European Commission funds such initiatives for the development of HEI (higher educational institutions) located particularly in the backward regions mentioned under BRGF (backward regions grant fund programme) of Govt. of India.

The primary objective of this international programme is to offer opportunities to the third world countries to participate in the joint research and higher education at European partner universities.

The European partner universities involved are Polito-Italy, Aalto-Finland, ECN-France, GINP-Grance, KTH-Sweden, UGOE-Germany, UNIBO-Italy, UNITR-Italy, UP- Portugal and UPM-Spain. The Indian partner universities are Amrita, ANCP-Patna, Anna-Chennai, Centre of Environmental Planning and Technology-Ahmedabad, IIT-Delhi, ISI-Kolkata, ISM-Dhanbad, Jadavpur-Kolkata, Kakatiya University-Warangal and University of Pune.

The first kick-off meeting was held during 8-9, November 2012 in Amrita University, Coimbatore to discuss the objectives, scope, actions, mobilities envisaged under different categories (undergraduate, post-graduate, doctoral, post-doctoral and staff) and their management. ISM has been awarded 9 Erasmus Mundus Fellowships (EMF) initially under the above categories in the fields of Engineering and Technology, Sciences, Management and Social Sciences. These are under Target Group 1 and to ISM exclusively. Total funding to ISM students and faculty under the project (assuming that all the fellowships are utilized) would be about 100 lakhs for the mine fellowships awarded.

(3) VISITORS FROM ABROAD FOR POSSIBLE COOPERATIONS

(a) **Prof. Tihomir Knezicek**, Head of Surface Mining Department, University of Tuzla, Bosnia and Herzegovina visited Department of Mining Engineering on **20.08.2012** for possible cooperation in surface mining and faculty exchange. Prof. P.Sen and Dr. A.K.Mishra, of the Department took the initiative.

(b) **Participation of ISM in the Indo-Global Academic Summit and Expo-2012**

Expo-2102 was held in Hyderabad during **September 7-9, 2012**. A presentation on ISM was made and discussions were held with 10 different universities which have shown immediate response during the summit. Names of some of the universities are RWTH Aachen University, Germany, University of California, Berkeley, USA, University of Johannesburg, South Africa, Northern Arizona University, USA, University of Hawaii, USA, Tel Aviv University, Israel and Nanyang Technological University, Singapore. Dr. Sanjay Mandal, Deptt. of Electrical Engg., lead the initiative.

- (c) **Dr. Fatick Nath and Tareq-Uz-Zaman**, Faculty members from Chittagong University of Engg. & Technology (CUET), Bangladesh visited during **October 4-9, 2012** for possible cooperation with Department of Petroleum Engg. and Mining Engineering for course curriculum development and faculty exchange.
- (d) **Visit of Jacopo Seccatore, LAPOL, University of Sao Paulo, Brazil**

Mr. Jacopo visited Department of Mining Engg. on 03.12.2012 to discuss the possibilities of developing some collaborations in the field of Mine Planning and Optimization. Prof. V.M.S.R.Murthy and Dr. B.S.Choudhary of the Department lead the initiative.

- (e) **Visit of Dr. Olle Wijk, Sandvik AB, Sweden**

Prof. Olle Wijk, Senior Vice President and of Group R & D, Sandvik AB, Sweden visited ISM on 7th and 8th February, 2013. Other members of the team were Dr. Sanjay Basu, Corporate Advisor and R&D Coordinator, Shri Soumitra Banerjee, President, Sandvik Mining, India, and Shri Subhasis Das, Vice President, Coal Mining. A presentation to students and faculty members on global activities of Sandvik was made and they also highlighted the role of ISM in building a mutually beneficial partnership. An interaction session was held on the need of underground mine mechanization involving the students of Mining, Mining Machinery and Mineral Engineering. A visit to these departments alongwith Environmental Science and Engg. was also organized to showcase the relevant sections of their interest. Prof. V.M.S.R.Murthy led the initiative.

(4) INSTITUTE-INDUSTRY INTERACTION PROGRAMME ORGANIZED

An Institute -Industry Interaction Program (IIIP 2013) was organized on March 9, 2013 to bring people from Industry and Research Laboratories to formulate and strengthen technical ties with them.

(5) OTHER ACTIVITIES INITIATED

It was proposed to set up the Centre of Excellence in Safety, Occupational Health and Disaster Management. Preliminary drawing of the Centre was presented and agreed upon. The individual laboratory space bifurcation and special arrangements if any for major equipment are being obtained.

(6) SKILL DEVELOPMENT TRAINING

On the request of NCSD, Govt. of India and Govt. of Odisha, for contributing in the national skill development mission in mining domain, ISM has responded immediately and attended two meetings in Bhubaneswar **28.08.2012 and 05.10.2012** for discussing the different modules developed for supervisory level training.

(B) ALUMNI AFFAIRS

ISM Alumni Association (ISMAA) plays a vital role in nourishing the aspirations of students, guiding them in their various walks of life apart from supporting their endeavours to scale new heights. It also plays a supportive role in some of the activities of the Institute. Some notable initiatives in terms of institution of ISMAA Awards are the award for the best student and teacher talent and support through SIT grant for students desirous to travel abroad for presenting their research work. The scheme under ISMAA, provides financial assistance to the students of ISM for presenting a research paper or chairing a session or delivering a keynote address in an international scientific event (conference/seminar/symposium). This covers the registration fees, boarding and lodging and travel cost subject to a limit of Rs.50,000/-. The eligibility and other details can be seen by logging into ISM web site under alumni affairs link. IMC and Basant, building ISMAA Office in ISM, Dhanbad were some of the activities accomplished in this year jointly in close coordination with ISM.

(1) 5TH INDIAN MINERAL CONGRESS & EXHIBITION, IMC 2013

IMC 2013 was organized by ISM Alumni Association in association with Indian School of Mines, Bharat Coking Coal Limited, Directorate General of Mines Safety and Central Institute of Mining & Fuel Research, Dhanbad on 2nd February 2013 at ISM, Dhanbad with a focal point on issues related to the integration of need based CSR and ecological restoration for sustainable development of mineral resources with a vision 2050 and beyond. More than 230 delegates from all over the country attended the Congress. The Chief Guest of the Congress was Prof. Harsh K. Gupta, Member of National Disaster Management Authority and 1963 ISM Alumnus.

(2) BASANT SAMMAN AWARDS

ISM Basant, the nostalgic re-union of ISM Alumni was, celebrated on 3rd February, 2013. The 1963 Batch of alumni rejoiced this Basant as Golden jubilee year of passing out from the institute. The celebration was started with sport events in the ISM sport complex. About 400 alumni along with their family members enjoyed the reunion function. There were some lighter

events like kite flying along with technical display of sports car designed by ISM mechanical engineering students. In the evening there was a fete organized by ISM ladies club along with exhibition by ISM Kartavya and other social clubs organized by the present ISM Students. Several posters depicting the student's life during their period of study at ISM, rejuvenated the memories of the alumni. In the evening the 87 year old Heritage building was decorated with colourful lights in tune with the glittering cultural events by Indian Idols Debojit Saha and Manisha Karmakar. Amidst these musical events former professors, illustrious alumni and industrialists were awarded the ISM Basant Samman and Distinguished Alumnus Awards.

The ISM Basant Samman -2013 was received by Padma Shree Prof Harsh K Gupta, Dr.D.K.Paul, Former Director, ISM, Shri S.Narsing Rao, Chairman Coal India and Shri Sudhir Vasudeva, Chairman ONGC and Shri David Pichamuthu, Former Director, Tata Steel, for their contribution towards Mineral Industry and Academia. The Distiguished Alumnus Award-2012 was received by Shri N.N.Gautam, former Director, CIL and Shri T.K.Lahiry, CMD BCCL & NCL.

9. PERSONNEL

9.1 ACADEMIC ADMINISTRATION

Director	: Prof. D. C. Panigrahi
Dean (Research & Development)	: Prof. R. Venugopal
Dean (Faculty & Planning)	: Prof. P. S. Gupta
Dean (Academic)	: Prof. A. Chattopadhyay
Dean (Students' Welfare)	: Prof. Chandar Bhar
Professor-in-Charge (Training & Placement) & Professor of Continuing Education	: Prof. V. P. Sharma
Associate Dean (Academic & Research)	: Prof. S. Mohanty
Associate Dean (Students' Welfare)	: Prof. J. Manam
Associate Dean (International Relation & Alumni Affairs)	: Prof. V.M.S.R. Murthy
Associate Dean (Projects & Infrastructure Development)	: Prof. T. K. Chatterjee

9.2 ACADEMIC

PROFESSOR (As on 31.03.2013)

Sl No.	Name	Designation	Department
1	Prof. D C Panigrahi	Professor (HAG)	M E
2	Prof. Gurdeep Singh	Professor (HAG)	ESE
3	Prof. R Venugopal	Professor (HAG)	FME
4	Prof. U K Singh	Professor (HAG)	M E
5	Prof. T Kumar (on deputation)	Professor (HAG)	PE
6	Prof. P S Gupta	Professor (HAG)	A Physics
7	Prof. A Chattopadhyay	Professor (HAG)	A Maths
8	Prof. S Laik	Professor (HAG)	PE
9	Prof. Kampan Mukherjee	Professor (HAG)	MS
10	Prof. R K Singh	Professor (HAG)	HSS
11	Prof. A K Basu	Professor (HAG)	ME & MME
12	Prof. Y R Dhar	Professor	AGL
13	Prof. M Jawed	Professor	M E
14	Prof. Phalguni Sen	Professor	ME
15	Prof. P K Sarkar	Professor	ME & MME

16	Prof. S K Paul	Professor	Electronics Engg.
17	Prof. V P Sharma*	Professor	PCE
18	Prof. V. K Srivasatava	Professor	AGP
19	Prof. A Basu.	Professor	A Phy
20	Prof. G S Seth	Professor	A Maths
21	Prof. T Sharma	Professor	FME
22	Prof. P P Bahuguna	Professor	M E
23	Prof. V Kumar	Professor	Electronics Engg
24	Prof. S Mohanty	Professor	AGL
25	Prof. B C Sarkar	Professor	AGL
26	Prof. A Sarkar	Professor	A Chem
27	Prof. A K Pathak	Professor	Pet. Engg
28	Prof. P Pathak	Professor	M S
29	Prof. Chandan Bhar	Professor	M S
30	Prof. T K Chatterjee	Professor	E E
31	Prof. J Manam	Professor	A Phy
32	Prof. N Suresh	Professor	FME
33	Prof. K Dasgupta	Professor	ME & MME
34	Prof. A K Mukhopadhyay	Professor	ME &MME
35	Prof. V M S R Murthy	Professor	M E
36	Prof. P C Pal	Professor	A Maths
37	Prof. Sumantra Bhattacharya	Professor	FME
38	Prof. J K Pattanayak	Professor	M S
39	Prof. P R Mohanty	Professor	AGP
40	Prof. A K Varma	Professor	AGL
41	Prof. D Asthana	Professor	AGL
42	Prof. V Priye	Professor	Electronics Engg
43	Prof. V K Saxena	Professor	Chem Engg
44	Prof. N R Mandre	Professor	FME
45	Prof. G P Biswas	Professor	CSE
46	Prof. Subrata Bhattacharya	Professor	Electronics Engg
47	Prof. N M Mishra	Professor	A Chem
48	Prof. G Udayabhanu	Professor	A Chem
49	Prof. A K Pal	Professor	ESE
50	Prof. S Gupta	Professor	A Maths
51	Prof. G N Singh	Professor	A Maths
52	Prof. Somnath Pan	Professor	E E
53	Prof. D D Pathak	Professor	A Chem.

54	Prof. A S Venkatesh	Professor	AGL
55	Prof. P K Jana	Professor	CSE
56	Prof. Shalivahan	Professor	AGP
57	Prof. (Mrs) D Mitra	Professor	Electronics Engg
58	Prof. P K Sadhu	Professor	E E
59	Prof. R K Das	Professor	ME & MME
60	Prof. R K Upadhyay	Professor	A Maths
61	Prof. (Mrs) B Mukherjee	Professor	A Maths
62	Prof. S K Maiti	Professor	ESE
63	Prof.. P S Mukherjee	Professor	ME & MME
64	Prof. G S Pathak	Professor	M S
65	Prof. A K Nirala	Professor	A Phy

ASSOCIATE PROFESSOR

(As on 31.03.2013)

Sl No.	Name	Designation	Department
1	Shri P K Behera	Associate Professor	M E
2	Dr. Kailash Jha	Associate Professor	ME &MME
3	Dr. (Mrs.) Rima Chatterjee	Associate Professor	AGP
4	Dr. Biswajit Paul	Associate Professor	ESE
5	Dr. A K Mishra	Associate Professor	M E
6	Dr. S Chattopadhyay	Associate Professor	ME &MME
7	Dr. S N Singh	Associate Professor	ME & MME
8	Dr. Chiranjeew Kumar	Associate Professor	CSE
9	Dr. Vinayak Ranjan	Associate Professor	ME &MME
10	Dr. (Mrs.) Saumya Singh	Associate Professor	M S
11	Dr. M K Singh	Associate Professor	A Maths
12	Dr. S Chatterjee	Associate Professor	A Maths
13	Dr. K Chatterjee	Associate Professor	Electrical Engg.
14	Dr. S K Gupta	Associate Professor	ESE
15	Dr.(Mrs.) Keka Ojha	Associate Professor	P E
16	Dr. Vikash Mahato	Associate Professor	P E
17	Dr. Ajay Mandal	Associate Professor	P E
18	Dr. P K Singh	Associate Professor	ESE
19	Dr. Dheeraj Kumar	Associate Professor	M E
20	Dr. P K Khan	Associate Professor	AGP
21	Dr. R K Dubey	Associate Professor	AGL
22	Dr. A K Behura	Associate Professor	HSS
23	Dr. Md. Mojibur Rahman	Associate Professor	HSS

24	Dr. S K Sharma	Associate Professor	A Physics
25	Dr.(Mrs.) Rajni Singh	Associate Professor	HSS
26	Dr. M K Jain	Associate Professor	ESE
27	Dr. P N Singha Roy	Associate Professor	AGP
28	Dr. Mahendra Yadav	Associate Professor	A Chemistry
29	Dr. S Mukhopadhyay	Associate Professor	CSE
30	Dr. B Bhattacharya	Associate Professor	Electrical Engg.
31	Dr. M K Mukherjee	Associate Professor	AGL
32	Dr. Sandeep Mandal	Associate Professor	M S
33	Dr. Akhilesh Prasad	Associate Professor	A Maths
34	Dr. S P Tiwari	Associate Professor	A Maths
35	Dr. Sanjay Kumar Ghoshal	Associate Professor	ME &MME
36	Dr. Biswajit Choudhury	Associate Professor	A Chemistry
37	Dr. Rohit P John	Associate Professor	A Chemistry
38	Dr. N K Singh	Associate Professor	ME & MME
39	Dr. Upendra Kumar Singh	Associate Professor	AGP
40	Dr. Nitai Pal	Associate Professor	Electrical Engg.
41	Dr. Sukanta Dey	Associate Professor	AGL
42	Dr. Vineet Kumar Rai	Associate Professor	A Physics
43	Dr. Asit Kumar Kar	Associate Professor	A Physics
44	Dr. Sanjoy Mandal	Associate Professor	Electrical Engg.
45	Dr. Jitendra Kumar	Associate Professor	ECE
46	Dr. Bobby K Antony	Associate Professor	A Physics
47	Dr. Syed Tajdardul Hassan	Associate Professor	AGL
48	Dr. Lakshmi Annamalai Kumaraswamidhas	Associate Professor	ME & MME

ASSISTANT PROFESSOR

(As on 31.03.2013)

Sl No.	Name	Designation	Department
1	Dr. Mukul Kumar Das	Assistant Professor	ECE
2	Dr. (Ms) Mitali Sen	Assistant Professor	MS
3	Dr. Hari Om	Assistant Professor	CSE
4	Dr. Chandan Guria	Assistant Professor	P E
5	Dr. A R Dixit	Assistant Professor	ME & MME
6	Dr. Alok Sinha	Assistant Professor	ESE
7	Dr. Vivekananda Mukherjee	Assistant Professor	Electrical Engg.
8	Dr. Pentyala Srinivasa Rao	Assistant Professor	A Maths
9	Dr. Tanmoy Maity	Assistant Professor	Electrical Engg.
10	Dr. Shushanta Sarangi	Assistant Professor	AGL
11	Dr. Haider Banka	Assistant Professor	CSE
12	Dr. Partha Sarathi Paul	Assistant Professor	M E
13	Dr. Sagar Pal	Assistant Professor	A Chemistry
14	Dr. Kalyan Kumar Singh	Assistant Professor	ME & MME
15	Dr. Ajoy Kumar Bhaumik	Assistant Professor	AGL
16	Dr. Santanu Dwari	Assistant Professor	ECE
17	Dr. Swapan Dey	Assistant Professor	A Chemistry
18	Dr. Pankaj Mishra	Assistant Professor	A Physics
19	Dr. Subindu Kumar	Assistant Professor	ECE
20	Dr. Sushrut Das	Assistant Professor	ECE
21	Dr. V K Singh	Assistant Professor	A Physics
22	Dr. Subrata Kr. Ghosh	Assistant Professor	ME & MME
23	Dr. Anshumali	Assistant Professor	ESE
24	Dr. (Ms) Mrinalini Pandey	Assistant Professor	M S
25	Dr. Niladri Das	Assistant Professor	M S
26	Dr. Ram Bilash Choudhary	Assistant Professor	A Physics
27	Dr. Badam Singh Kushvah	Assistant Professor	A Maths
28	Dr. Devi Prasad Mishra	Assistant Professor	M E
29	Dr. Bijay Mihir Kunar	Assistant Professor	M E
30	Dr. Sachin Tripathi	Assistant Professor	CSE
31	Dr. Anurag Jayswal	Assistant Professor	A Maths
32	Dr. (Mrs) Abha Rani	Assistant Professor	A Maths
33	Dr. Alok Kumar Das	Assistant Professor	ME & MME
34	Dr. (Mrs) Shalini Gautam	Assistant Professor	FME
35	Dr. M Shashi	Assistant Professor	ME
36	Dr. Sahendra Singh	Assistant Professor	AGL

37	Shri Bhanwar Singh Choudhary	Assistant Professor	M E
38	Dr. Gnananandh Budi	Assistant Professor	M E
39	Dr. Abhay Kumar Singh	Assistant Professor	A Maths
40	Dr. Vipin Kumar	Assistant Professor	ESE
41	Dr. Sanjeev Kr. Raghuwanshi	Assistant Professor	ECE
42	Dr. Tarun Kr. Naiya	Assistant Professor	P E
43	Dr. Somnath Yadav	Assistant Professor	A Chemistry
44	Dr. Aju Aravind	Assistant Professor	HSS
45	Dr. Prashanta Kr. Mahato	Assistant Professor	ME & MME
46	Shri Amgoth Tarachand	Assistant Professor	CSE
47	Shri Annavarapu Chandra Sekhara Rao	Assistant Professor	CSE
48	Shri Vinay Kumar Rajak	Assistant Professor	P E
49	Shri Rajendra Pamula	Assistant Professor	CSE
50	Ms Archana	Assistant Professor	P E
51	Dr. Sukanta Das	Assistant Professor	Electrical Engg.
52	Shri Mrinal Sen	Assistant Professor	ECE
53	Shri Rajeev Kumar Ranjan	Assistant Professor	ECE
54	Shri Shatrughan Soren	Assistant Professor	FME
55	Shri Gauri Shankar	Assistant Professor	Electrical Engg.
56	Shri Sukomal Pal	Assistant Professor	CSE
57	Shri Bhukya Krishna Naick	Assistant Professor	Electrical Engg.
58	Dr. Santimoy Kundu	Assistant Professor	A Maths
59	Md. Sikandar Azam	Assistant Professor	M E
60	Dr. Hari Pada Nayek	Assistant Professor	A Chemistry
61	Shri Kashinath Pal	Assistant Professor	M E
62	Dr. Suresh Pandian E	Assistant Professor	ESE
63	Shri Brijesh Kumar Mishra	Assistant Professor	-do-
64	Dr. Kaushal Kumar	Assistant Professor	A Physics
65	Shri Hemant Kumar	Assistant Professor	M E
66	Shri Niranjana Kumar	Assistant Professor	ME & MME
67	Shri Dharavath Ramesh	Assistant Professor	CSE
68	Shri Ankit Hanotia	Assistant Professor	P E
69	Shri Devendra Chack	Assistant Professor	ECE
70	Smt. Pratma Gajbhiye	Assistant Professor	FME
71	Dr. Shibayan Sarkar	Assistant Professor	ME & MME
72	Shri Amitesh Kumar	Assistant Professor	ECE
73	Shri Jaisingh Thangaraj	Assistant Professor	ECE
74	Dr. Arup Kr. Pal	Assistant Professor	CSE

75	Shri Amitava Mandal	Assistant Professor	ME & MME
76	Md. Tanweer Alam	Assistant Professor	ME& MME
77	Dr. Sarun P. M	Assistant Professor	A Physics
78	Dr. Ganesh Chandra Nayak	Assistant Professor	A Chemistry
79	Smt. Sushila Maheshkar	Assistant Professor	CSE
80	Dr. Shukha Ranjan Samadder	Assistant Professor	ESE
81	Dr. Sumanta Kumar Sahu	Assistant Professor	A Chemistry
82	Shri K Priya Ajit	Assistant Professor	ME & MME
83	Dr. Pramod Kumar Kewat	Assistant Professor	A Maths
84	Dr. Sanjit Kumar Pal	Assistant Professor	ME & MME
85	Shri Dinkar Brajesh Kumar Kishorilal	Assistant Professor	ME & MME
86	Shri Kartick Chandra Jana	Assistant Professor	Electrical Engg.
87	Dr. Pranab Das	Assistant Professor	AGL
88	Dr. Ravi Kumar Gangwar	Assistant Professor	ECE
89	Dr. (Mrs) Prabha Bhola	Assistant Professor	MS
90	Dr. Gajendra Kumar Vishwakarma	Assistant Professor	A Maths
91	Dr.Sanjeew Anand Sahu	Assistant Professor	A Maths
92	Shri Madan Lal Chandravanshi	Assistant Professor	ME & MME
93	Devara Vijaya Bhaskar	Assistant Professor	Electrical Engg.
94	Shri Suresh Kumar Yatirajula	Assistant Professor	Chemical Engg.
95	Dr. Prashant Kumar Sharma	Assistant Professor	A Physics
96	Dr. Rajalingam Thangavel	Assistant Professor	-do-
97	Dr. Sridhar Sahu	Assistant Professor	-do-
98	Dr. Jayanta Das	Assistant Professor	ME & MME
99	Dr. K S Thyagaraj	Assistant Professor	MS
100	Shri Anand Anupam	Assistant Professor	FME
101	Shri Neetesh Kumar Maurya	Assistant Professor	P E
102	Shri Shravan kumar	Assistant Professor	FME
103	Dr. (Ms) Rashmi Madhuri	Assistant Professor	A Chemistry
104	Shri Kaushik Mazumdar	Assistant Professor	ECE
105	Shri Rakesh Kumar	Assistant Professor	ME & MME
106	Dr. Amit Kumar Verma	Assistant Professor	ME

Group 'A' Officer As on 31.03.2013

Sl No.	Name & Designation	Designation	Department/Section
1	Col (Retd) M K Singh	Registrar	RG's Sectt.
2	Shri Y P K Murthy	Dy. Registrar	Estt. Section
3	Shri A Ghosh	Dy. Registrar	Store & Purchase Section
4	Dr. P Mathur	Dy. Registrar	Exam. Section
5	Shri Anil Kumar	Asstt. Registrar	Internal Audit
6	Shri M S Champia	Asstt. Registrar	Account Section
7	Ms Sukhninder Kaur	Asstt. Registrar	Estt. Section
8	Shri Babulal Rajak	Asstt. Registrar	Account Section
9	Shri Ashok Kumar Gupta	Asstt. Registrar	Store & Purchase Section
10	Shri Shekhar Kumar	Asstt. Registrar	Academic Section
11	Dr. Praveen Kumar	Senior Medical Officer	Health Centre
12	Dr. (Mrs) T Banerjee	Lady Medical Officer	Health Centre
13	Dr. Pratha De	Librarian-in-Charge	Central Library
14	Shri S P Mahato	Asstt. Librarian	Central Library
15	Shri S Mitra	System Manager	Computer Centre
16	Shri Dipankar Ray	Programmer	Computer Centre
17	Shri Anakapalli Kr. Swamy	Programmer	Exam. Section
18	Shri Rajesh Mishra	System Analyst	Computer Science & Engg.
19	Shri Rakesh Soni	System Analyst	Computer Centre
20	Shri K S H Rakhikanta Singh	Campus Engineer	CMU
21	Shri K C Nandi	Asstt. Campus Engineer (Civil)	CMU
22	Shri Anil Kumar Barnwal	Asstt. Engineer (Electrical)	CMU
23	Shri H R Singh	Technical Officer	Applied Geology
24	Shri U P Sharma	Technical Officer	Petroleum Engg.
25	Shri D N Acharya	Sports Officer	Sports office
26	Shri Shailendra Bhatia	Asstt. Workshop Superintendent	Workshop
27	Dr. L K Verma,	Research Officer	Fuel & Mineral Engg.
28	Shri Rahul Kumar, SEO	Security-cum-Estate Officer	C A Section

Recruitment during 01.04.2012 to 31.03.2013

Sl No.	Name	Designation	Department/Sec	Date of Joining
1.	Dr. Pranab Das	Asstt. Professor	AGL	02.04.2012
2.	Dr. K C Jana	Asstt. Professor	Electrical Eng.	01.06.2012
3.	Dr. Ravi Kumar Gagwar	Asstt. Professor	Electronics Eng	05.06.2012
4.	Dr. (Mrs.) Prabha Bhola (Resigned)	Asstt. Professor	MS	21.06.2012
5.	Shri Madan Lal Chandrawanshi	Asstt. Professor	ME & MME	25.06.2012
6.	Dr. Sanjeev Anand Sahu	Asstt. Professor	App. Math	14.06.2012
7.	Shri Devara Vijaya Bhaskar	Asstt. Professor	Electrical Eng.	29.06.2012
8.	Shri Suresh Kr Yatirajula	Asstt. Professor	Chemical Eng.	29.06.2012
9.	Dr. Sridhar Sahu	Asstt. Professor	App. Physics	02.07.2012
10	Dr. Rajalingam Thangavel	Asstt. Professor	App. Physics	02.07.2012
11.	Dr. Prashant Kuamr Sharma	Asstt. Professor	App. Physics	04.07.2012
12.	Dr. Gajendra Kumar Vishwakarma	Asstt. Professor	App. Math	25.06.2012
13.	Dr. Jayanta Das	Asstt. Professor	ME & MME	10.07.2012
14.	Dr. K.S. Thangaraj	Asstt. Professor	MS	11.07.2012
15.	Shri Neetish Kr Maurya	Asstt. Professor	PE	16.07.2012
16.	Shri Anand Anupam	Asstt. Professor	FME	16.07.2012
17.	Shri Shravan Kumar	Asstt. Professor	FME	01.08.2012
18.	Dr. (Mrs.) Rashmi Madhuri	Asstt. Professor	App. Chemistry	08.08.2012
19.	Shri Kaushik Mazumdar	Asstt. Professor	Electronics Eng.	22.08.2012
20.	Dr. L A Kumaraswamidhas	Associate Professor	ME & MME	27.08.2012
21.	Shri Rakesh Kumar	Asstt. Professor	ME & MME	02.09.2012
22.	Shri Amit Kumar Bhaumik	Prof. (Uranium Chair)	ME	03.12.2012
23.	Dr. Amit Kumar Verma	Asstt. Professor	ME	18.03.2013
24.	Dr. (Smt) Sarita Kar	Asstt. Professor	HSS	18.03.2013
25.	Shri Lutukurthi DNVV Konda	Asstt. Professor	Chemical Eng.	24.03.2013
26.	Shri Pankaj Kr. Jain	Asstt. Professor	FME	18.03.2013

There was not recruitment of non teaching staff in the financial year 2012-13.

Retirement during the period from 01.04.2012 to 31.03.2013

Sl No.	Name	Designation	Department/Sec	Date of Retirement
1.	Prof. Y R Dhar	Professor	Applied Geology	31.08.2012
2.	Prof. P P Bahuguna	Professor	Mining Engineering	30.11.2012
3.	Dr. P K Chakraborti	Associate Professor	Management Studies	31.12.2012
4.	Shri D P Singh	Technical Assistant	ME &MME	30.04.201
5.	Shri Fatenus Ansari	Head Mali	C A Section	30.04.2012
6.	Shri R D Kumbhkar	Lab. Attendant	Pet. Engg.	30.04.2012
7.	Shri Laxman Rawani	Head Cook	Sr. Aced. Hostel	31.05.2012
8.	Shri D D Mandal	UDC	Mining Engineering	30.06.2012
9.	Shri Bachu Prasad	Assistant	Lecturer Hall	31.07.2012
10.	Shri C C Laha	LDC	ESE	31.07.2012
11.	Shri B Pramanik	UDC	AGL	31.08.2012
12.	Shri D K Sarkar	Comp. Operator	Comp. Centre	31.10.2012
13.	Shri Abdul Gani Ansari	Mech-B	Workshop	31.12.2012
14.	Shri Panchanan Mahato	Peon	Vehicle Section	31.12.2012
15.	Shri Om Prakash	Section Officer	Internal Audit	31.12.2012
16.	Shri Bhawani Mandal	Peon	Central Library	31.01.2013
17.	Smt. Manti Devi	Safai Mazdoor	C A Section	31.01.2013
18.	Md. Ibrahim	Mech-B	Workshop	28.02.2013
19.	Shri S K Singh	Assistant	Accounts Section	28.02.1013
20.	Shri Sahodar Roy	Lab. Attendant	AGL	31.03.2013
21.	Shri Sanichar Mahato	Peon	Estt. Section	31.03.2013

Voluntary Retirement during the period from 01.04.2012 to 31.03.2013

Sl No.	Name	Designation	Department/Sec	Date of Voluntary Retirement
1.	Shri Ganesh Hari	Peon	Electronics Engg.	15.03.2013
2.	Shri Kamal Ram	Safai Mazdoor	C A Section	15.03.2013

Resigned during the period from 01.04.2012 to 31.03.2013

Sl No.	Name	Designation	Department	Date of Resignation
1	Dr. M Shashi	Assistant Professor	Mining Engg.	27.04.2012
2	Dr. (Mrs) Prabha Bhola	Assistant Professor	Mgmt. Studies	27.12.2012
3	Shri K Rahikanta Singh	Campus Engineer	CMU	23.11.2012
4	Shri Shekhar Kumar	Assistant Registrar	Academic Section	01.09.2012 (Terminated)
5	Shri Prakash Kumar	Technical Assistant	Electrical Engg	03.08.2012
6	Dr. Dinesh Kr. Prasad	Hindi Officer	Hindi Cell	30.11.2012
7	Shri Jhasaketan Biswal	Semi Professional Asstt.	Central Library	25.10.2012
8	Shri Rabindra N.Raul	Technical Assistant	Electrical Engg.	14.03.2013

Expired during the period from 01.04.2012 to 31.03.2013

Sl No.	Name	Designation	Department/Sec	Date on which died
1	Late Dr. (Ms) Mitali Sen	Assistant Professor	Management Studies	06.01.2013
2	Late Shri B K Sharma	UDC	Dean (WS)	06.07.2012
3	Late Shri Rameshwar Gope	Peon	FME	21.01.2013
4	Late Shri Kuldeep Ram	Head Zamadar	C A Section	04.02.2013
5	Late S Jhampaty	Mech-C	Workshop	16.02.2013

10. MEMBERS OF GENERAL COUNCIL, EXECUTIVE BOARD & FINANCE COMMITTEE [Period: 1.4.2012 to 31.3.2013]

MEMBERS OF GENERAL COUNCIL

Chairman

Shri P K Lahiri, IAS (Retd)
Chairman, ISM GC & EB
8/2, Sarv Priya Vihar
New Delhi 110016

Representative of Ministry of HRD (Deptt. of Higher Education)

Ms Amita Sharma
Additional Secretary to the Govt of India
Ministry of HRD
Department of Higher Education
Shastri Bhawan, New Delhi 110 115

Director, ISM (Ex-officio)

Prof D C Panigrahi
Indian School of Mines
Dhanbad

Representative of Parliament

Shri Sanjay Bhoi
Member of Parliament Lok Sabha
13/601, East End Apartments
Mayur Vihar, Ph-I Extn
Delhi 110 096

Shri Pashupati Nath Singh
Member of Parliament, Lok Sabha
B-402, M.S.Flats, B K S Marg
New Delhi 110 001

Representation from Rajya Sabha - Vacant

Nominees of Central Government

Vacant -1

Prof T C Rao

C/o Mr K Sanat Kumar
501, Jagdish Residency,
Road No. 5
Ramkrishan Puram, Nagole
Hyderabad 500 035

Prof P B Sharma

Vice Chancellor
Delhi Technological University
Shahbad Daultpur
Delhi- 110 078

Dr Ranjeet Singh

Executive Secretary, ISTE
D-42, Ayudh Vihar,
Plot No. 3
Sector 13, Dwarka
New Delhi 110 078

Prof Hamid Ali

Department of Petroleum Studies
Aligarh Muslim University
Aligarh 202 002

Representative of All India Council for Technical Education (AICTE)

Vice Chancellor, JNTU
Kukatapally
Hyderabad 500 085

Representative of University Grants Commission

Prof N. S. Gajbhaiye
Vice-Chancellor
Dr. Harisingh Gour Vishwavidyalaya
Sagar 470 003

(up to 10.05.2012)

Representative of Council of Scientific & Industrial Research

Dr Amalendu Sinha

Director

Central Institute of Mining & Fuel Research

Barwa Road

Dhanbad 826 001

Representative of Coal, GOI

Vacant

Representative of Mines, GOI

Vacant

Director General of Mines Safety

Shri Satish Puri

upto 31.1.2013

Director General of Mines Safety

DGMS

Dhanbad 826 001

Shri Rahul Guha

from 1.2.2013

Director General of Mines Safety

DGMS

Dhanbad 826 001

Representative of Geological Survey of India

Director General

Geological Survey of India

27, J.N.Road

Kolkata 700 016

Representative of ONGC

Dr Tarun Chakraborty

GGM-HOI ONGC Academy

KDMIPE Campus

Kaulagarh Road,

Dehradun 248 195

Representative of NMDC

Shri C S Verma

Chairman-cum-Managing Director
NMDC

(from 10.10.2012)

Khanij Bhavan 10-3-311/A, Castle Hills
Masab Tank, Hyderabad 500 173

Chairman-cum Managing Director, CMPDI

Shri Ashok Kumar Singh

(up to July 2012)

Chairman-cum Managing Director
Central Mine Planning & Design Institute Ltd
Gondwana Place, Ranchi 834 008

Shri A K Debnath

(from February 2013)

Chairman-cum Managing Director
Central Mine Planning & Design Institute Ltd
Gondwana Place, Ranchi 834 008

Controller General of Indian Bureau of Mines

Shri C S Gundewar

Controller General
Indian Bureau of Mines
Indira Bhawan, Civil Lines
Nagpur 440 102

Representative of Hindustan Copper Limited

Shri Muteshwar Kundu

Dy General Manager (Mines)
Hindustan Copper Limited
Head Office, Tamra Bhawan
1, Ashutosh Chowdhury Avenue,
P.B.No. 10224, Kolkata 700 019

Representative of Central Ground Water Board

Shri Sanjib Chakraborty

Hydrogeologist
General Ground Water Board
Eastern Region, “ Bhujalika”
Section V, CP Block -6
Salt Lake City, Kolkata 700 091

Representative of Indian Mines Managers' Association

Dr Vinod P. Sinha

President

Indian Mine Managers' Association

703, Panchwati Garden

Beside Honda Showroom

Bariatu, Ranchi 834 009, Jharkhand

Representative of MGMI

Vacant

Representative of the Industry body such as CII, FICCI, ASSOCHAM

Vacant

Representative of Ministry of Finance

Ms Sarita Mittal

Joint Secretary & Financial Advisor

to the Govt of India, Ministry of HRD

(Integrated Finance Division)

Shastri Bhawan

New Delhi 110 115

Representative of Ministry of Steel

Shri A C R Das

Industrial Advisor

Ministry of Steel

Room No. 190-A,

Udyog Bhavan, New Delhi

Representative of Ministry of Labour & Employment

Shri Rash Bihari Chakravorty

(up to 25.06.2012)

Deputy Director General

DGMS

CGO Complex Block

6th Floor Seminary Hills Nagpur

Western Zone

Nagpur 440 006

Shri B P Ahuja

(from 18.10.2012)

Deputy Director General

DGMS

North-Western Zone, Udaipur

Jhamarkotra Main Road

Sector- 6, Hiranmagri

Udaipur 303 002

Representative of Petroleum & Natural Gas

Vacant

Head of Faculty Department

Prof M Jawed

Head Deptt. of Mining Engineering

ISM, Dhanbad

Prof B C Sarkar

(upto 31.12.2012)

Deptt. of Applied Geology

ISM, Dhanbad

Prof A K Varma

(from 1.1.2013)

Head, Deptt. of Applied Geology

ISM, Dhanbad

Prof P R Mohanty

(upto 7.8.2012)

Head, Deptt. of Applied Geophysics

ISM, Dhanbad

Prof Shalivahan

(from 8.8.2012)

Head, Deptt. of Applied Geophysics

ISM, Dhanbad

Prof A K Pathak

Head, Deptt. of Petroleum Engineering

ISM, Dhanbad

Prof N Suresh

(up to 1.7.2012)

Head, Deptt. of Fuel & Mineral Engineering

ISM, Dhanbad

Prof Sumantra Bhattacharya
Head, Deptt. of Fuel & Mineral Engineering
ISM, Dhanbad

(from 2.7.2012)

Prof K Dasgupta
Head, Deptt. of Mechanical Engg. & Mining Machinery Engg.
ISM, Dhanbad

Prof S Pan
Head, Deptt. of Electrical Engineering
ISM, Dhanbad

Prof P K Jana
Head, Deptt. of Computer Science & Engineering
ISM, Dhanbad

Prof V Kumar
Head, Deptt. of Electronics Engineering
ISM, Dhanbad

(up to 15.08.2012)

Prof Vishnu Priye
Head, Deptt. of Electronics Engineering
ISM, Dhanbad

(from 16.08.2012)

Prof J K Pattanayak
Head, Depatt. of Management Studies
ISM, Dhanbad

Prof G S Seth
Head, Deptt. of Applied Mathematics
ISM, Dhanbad

Prof J Manam
Head, Deptt. of Applied Physics
ISM, Dhanbad

Prof G Udayabhanu
Head, Deptt. of Applied Chemistry
ISM, Dhanbad

Prof A K Pal
Head, Deptt. of Environmental Sc. & Engineering
ISM, Dhanbad

Dr A K Behura
Head, Deptt. of Humanities & Social Sciences
ISM, Dhanbad

Prof V K Saxena
Head, Deptt of Chemical Engineering
ISM, Dhanbad

Prof B C Sakar (from 30.01.2013)
Head, Deptt. of Civil Engineering
ISM, Dhanbad

Nominee from Associate Professors

Dr P K Chakraborty (upto 31.12.12)
Associate Professor
Deptt. of Management Studies
ISM, Dhanbad

Dr Kailash Jha (from 26.02.13)
Associate Professor
Deptt. of ME&MME
ISM, Dhanbad

Registrar & Secretary

Col (Retd) M K Singh
Registrar
ISM, Dhanbad

MEMBERS OF EXECUTIVE BOARD

Shri P K Lahiri, IAS (Retd)

Chairman, ISMGC & EB

8/2, Sarv Priya Vihar

New Delhi 110016

Representative of MHRD, GOI
(Department of Higher Education)

Ms Amita Sharma

Additional Secretary to the Govt of India

Ministry of Human Resource Development

Dept of Secondary & Higher Education

Shastri Bhawan

New Delhi 110115

Director, ISM

(Ex-officio Member)

Prof D C Panigrahi

Director

ISM, Dhanbad-826004

Representative of UGC

Dr Sunil Kumar Sarangi

(up to Dec 2012)

Director

NIT, Rourkela

Representative of AICTE

Vice Chancellor, JNTU

Kukatapally

Hyderabad 500 085

Nominee of General Council

Prof Hamid Ali

Chairman of the Petroleum Studies

Aligarh Muslim University

Aligarh 202002

**Representative of Ministry of Finance, GOI
(Integrated Finance Division)**

Ms Sarita Mittal

Joint Secretary & Financial Advisor to Govt of India
Ministry of HRD (Integrated Finance Division)
Shastri Bhawan
New Delhi 110115

Director General of Mines Safety (Ex-officio)

Shri Satish Puri

upto 31.1.2013

Director General of Mines Safety
DGMS
Dhanbad 826 001

Shri Rahul Guha

from 1.2.2013

Director General of Mines Safety
DGMS
Dhanbad 826 001

Nominee of Ministry of Coal, GOI

Vacant

Nominee of Ministry of Mines, GOI

Vacant

Chairman-cum-Managing Director, CMPDI (Ranchi)

Shri Ashok Kumar Singh

(up to July 2012)

Chairman-cum Managing Director
Central Mine Planning & Design Institute Ltd
Gondwana Place, Ranchi 834 008

Shri A K Debnath

(from Feb. 2013)

Chairman-cum Managing Director
Central Mine Planning & Design Institute Ltd
Gondwana Place, Ranchi 834 008

Professor's Representative

Prof Gurdeep Singh

(up to 07.09.2012)

Deptt. of Environmental Sc. & Engineering
ISM, Dhanbad

Prof P S Gupta
Deptt. of Applied Physics
ISM, Dhanbad

(from 08.09.2012)

Nominee from Associate Professors

Dr P K Chakraborty
Associate Professor
Deptt. of Management Studies
ISM, Dhanbad

(up to 31.12.2012)

Dr Kailash Jha
Associate Professor
Deptt. of Mechanical Engineering & Mining Machinery Engineering
ISM, Dhanbad

(from 26.02.2013)

Nominees of Central Government

Shri A C Wadhawan
Former CMD, HZL/ Chairman, PESB
3, Kautilya Marg
Chanakyapuri
New Delhi 110021

Shri B K Saha, IAS (Retd)
Flat 12J, Tower-4, South City
375 Prince Anwar Shah Road
Kolkata 700 068

Registrar & Secretary

Col (Retd) M K Singh
Registrar
ISM, Dhanbad

MEMBERS OF FINANCE COMMITTEE

Shri P K Lahiri, IAS (Retd) : Chairman
Chairman, ISM GC & EB
8/2, Sarv Priya Vihar
New Delhi 110016

**Representative of MHRD, GOI
(Department of Higher Education)**

Ms Amita Sharma
Additional Secretary to the Govt of India
Ministry of Human Resource Development
Dept of Secondary & Higher Education
Shastri Bhawan
New Delhi 110115

**Director, ISM
(Ex-officio Member)**

Prof D C Panigrahi
Director
ISM, Dhanbad-826004

**Representative of Ministry of Finance, GOI
(Integrated Finance Division)**

Ms Sarita Mittal
Joint Secretary & Financial Advisor to Govt of India
Ministry of H.R.D.
(Integrated Finance Division)
Shastri Bhawan, New Delhi 110115

Representative of General Council

Shri Satish Puri
Director General of Mines Safety
DGMS
Dhanbad 826 001

up to 31.1.2013

Shri Rahul Guha
Director General of Mines Safety
DGMS
Dhanbad 826 001

from 1.2.2013

Representative of Executive Board

Shri B K Saha, IAS (Retd)

Flat 12 J, Tower-4, South City

375 Prince Anwar Shah Road

Kolkata 700 068

Registrar & Secretary

Col (Retd) M K Singh

Registrar

ISM, Dhanbad

Financial Statements

Annexure - I

INDIAN SCHOOL OF MINES

DHANBAD



**Annual Accounts for the
Financial Year 2012 - 2013**



INDIAN SCHOOL OF MINES DHANBAD

ANNUAL ACCOUNTS 2012 - 2013

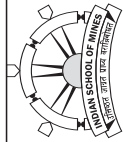
INDEX

SL NO	Contents	Schedule	Page No
1	Balance Sheet		352
2	Income & Expenditure Account		356
3	Receipt & Payment Account		360
4	Capital Fund	I	366
5	Reserve & Surplus	II	367
6	Earmarked/ Endowment Fund	III	368
7	Current Liabilities & Provisions	IV	369
8	Fixed Assets	V	377
9	Investments	VI	378
10	Current Assets, Loans & Advances	VII	378
11	Grants-in-Aid	VIII	380
12	Fees from Students	IX	380
13	Interest Income	X	381
14	Other Income	XI	381
15	Establishment Expenses	XII	382
16	Other Administrative Expenses	XIII	383
17	Significant Accounting Policies	XIV	386
18	Notes on Accounts	XV	388
19	GPF, CPF & DCPS Balance Sheet		392
20	GPF,CPF & DCPS Income & Exp A/c		396
21	GPF,CPF & DCPS Receipt & Payment A/c		397

INDIAN SCHOOL OF MINES DHANBAD



Balance Sheet
as at 31st March - 2013



INDIAN SCHOOL OF MINES, DHANBAD

Balance Sheet for the Year ending 31st March, 2013

CORPUS/ CAPITAL FUND AND LIABILITIES	Sch No.	(Amount in ₹) NON PLAN 2012-13	(Amount in ₹) PLAN 2012-13	(Amount in ₹) PROJECT 2012-13	(Amount in ₹) Total Current Year 2012-13	(Amount in ₹) Total Previous Year 2011-12
CAPITAL FUND	I	88,775,783.70	4,607,719,891.10	193,108,798.89	4,889,604,473.69	3,766,571,491.95
RESERVE AND SURPLUS	II	24,056,807.50	0.00	25,733,449.31	49,790,256.81	34,670,857.81
EARMARKED/ ENDOWMENT FUND	III	494,031,305.47	0.00	116,160,466.62	610,191,772.09	486,160,618.48
CURRENT LIABILITIES AND PROVISIONS	IV	96,022,617.00	23,048,197.36	262,147,632.79	381,218,447.15	566,157,250.67
TOTAL ₹		702,886,513.67	4,630,768,088.46	597,150,347.61	5,930,804,949.74	4,853,560,218.91
ASSETS						
FIXED ASSETS	V	103,045,585.00	1,502,723,149.00	234,737,688.73	1,840,506,422.73	1,293,222,981.06
Less PROVISION FOR DEPRECIATION		76,718,698.56	726,898,291.45	150,587,120.61	954,204,110.62	770,559,106.43
NET BLOCK (FIXED ASSETS)		26,326,886.44	775,824,857.55	84,150,568.12	886,302,312.10	522,663,874.63
INVESTMENTS	VI	401,469,123.00	0.00	483,476,033.00	884,945,156.00	513,124,510.00
CURRENT ASSETS, LOANS, ADVANCES	VII	275,090,504.23	3,854,943,230.91	29,523,746.49	4,159,557,481.63	3,817,771,834.28
TOTAL ₹		702,886,513.67	4,630,768,088.46	597,150,347.61	5,930,804,949.74	4,853,560,218.91
SIGNIFICANT ACCOUNTING POLICIES	XIV					
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS	XV					

(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)

(COL. M.K.SINGH)
REGISTRAR

(PROF. D. C. PANIGRAHI)
DIRECTOR

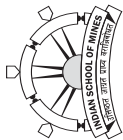
INDIAN SCHOOL OF MINES

DHANBAD



Income & Expenditure Account

for the Year 2012 - 2013



INDIAN SCHOOL OF MINES, DHANBAD

INCOME & EXPENDITURE ACCOUNT FOR THE PERIOD 1.4.2012 TO 31.3.2013

(Amount in ₹)

INCOME	Sch No.	NON PLAN 2012-13	PLAN 2012-13	PROJECT 2012-13	Total Current Year 2012-13	Total Previous Year 2011-12
Grants-in-aid from MHRD, GOI	VIII	539,500,000.00	1,350,000,000.00	0.00	1,889,500,000.00	1,433,100,000.00
Less: Transferred to Capital Fund towards non recurring expenses		1,590,656.00	1,084,931,504.66	0.00	1,086,522,160.66	837,493,213.64
Net Grants in Aid		537,909,344.00	265,068,495.35	0.00	802,977,839.35	595,606,786.36
Fees from Students	IX	117,713,388.00	0.00	0.00	117,713,388.00	105,316,130.00
Interest Income	X	3,115,889.00	10,067,290.00	28,924,049.00	42,107,228.00	57,397,870.27
Other Income	XI	40,493,542.43	0.00		40,493,542.43	22,583,110.00
TOTAL (A)		699,232,163.43	275,135,785.35	28,924,049.00	1,003,291,997.78	780,893,180.63
EXPENDITURE						
Establishment Expenses	XII	493,060,468.00	0.00	0.00	493,060,468.00	424,992,122.00
Educational Expenses	XIII	61,565,346.00	50,921,739.00	0.00	112,487,085.00	71,456,779.00
General Expenses	XIII	74,915,411.00	46,191,894.00	0.00	121,107,305.00	92,178,474.00
Departmental Expenses	XIII	14,855,867.00	724,082.00	0.00	15,579,949.00	12,895,150.00
Miscellaneous / other Expenses	XIII	46,837,803.78	18,941,814.00	28,793.39	65,808,411.17	42,279,643.15
Travelling Expenses	XIII	4,583,149.00	0.00	0.00	4,583,149.00	5,010,255.36
Depreciation	V	5,876,102.26	158,356,256.35	0.00	164,232,358.61	108,012,244.30
TOTAL (B)		701,694,147.04	275,135,785.35	28,793.39	976,858,725.78	756,824,667.81
Excess of Income over Expenditure (A-B)		-2,461,983.61	0.00	28,895,255.61	26,433,272.00	24,068,512.82
Balance being surplus/(Deficit) carried to next financial year 2013-14 (N. Plan). Project surplus transferred to Non Plan Endowment Fund.		-2,461,983.61	0.00	28,895,255.61	26,433,272.00	0.00
Significant Accounting Policies	XIV					
Contingent Liabilities and Notes on Accounts	XV					

(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)

(COL. M.K.SINGH)
REGISTRAR

(PROF. D. C. PANIGRAHI)
DIRECTOR

INDIAN SCHOOL OF MINES

DHANBAD



Receipt & Payment Account
for the Year 2012- 2013

INDIAN SCHOOL OF MINES DHANBAD



RECEIPT & PAYMENT ACCOUNT FOR THE YEAR ENDING 31ST MARCH 2013

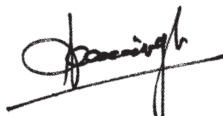
(Amount in ₹)

RECEIPTS	SCH No.	NON PLAN 2012-13	PLAN 2012-13	PROJECT 2012-13	Total Current Year 2012-13	Total Previous Year 2011-12
Opening Balances:						
(a) Cash in Hand	VII	278,157.70	0.00	10,660.00	288,817.70	181,656.70
(b) Cash at Bank	VII	126,986,031.94	41,755,769.91	43,873,576.37	212,615,378.22	143,908,676.34
Grants-in-aid from MHRD (81+14)		682,600,000.00	1,521,200,000.00	0.00	2,203,800,000.00	1,319,100,000.00
Investment Encashed	VI	284,913,197.39	2,023,286,622.00	370,928,966.00	2,679,128,785.39	2,536,822,386.00
Fees from Students	IX	117,713,388.00	0.00	0.00	117,713,388.00	105,316,130.00
Interest from Investments/ Advances	X	3,115,889.00	10,067,290.00	28,924,049.00	42,107,228.00	57,255,317.00
Other Income	XI	40,493,542.43	0.00	0.00	40,493,542.43	22,725,663.27
Statutory & other Receipts/ Recoveries	IV	174,437,126.00	144,304,358.00	93,673,191.10	412,414,675.10	408,060,770.42
Recovery of Advances from Staff/ Suppliers/ Deposits	VII	408,729,598.25	165,385,479.00	3,743,881.00	577,858,958.25	564,330,266.23
Deductions in the Fixed Assets	V	1,345,328.00	28,679,156.00	0.00	30,024,484.00	42,484,159.41
Additions to Earmarked Funds	III	107,670,997.61	0.00	57,120,206.00	164,791,203.61	83,878,011.12
Research and Development Projects	IV	0.00	0.00	90,786,394.00	90,786,394.00	69,653,040.00
Consultancy and Testing	IV	0.00	0.00	81,019,017.25	81,019,017.25	70,511,954.87
Departmental Development Fund	II	0.00	0.00	8,187,553.00	8,187,553.00	4,252,048.10
Fellowship and Associateship	IV	0.00	0.00	0.00	0.00	0.00
Professional Development Fund	II	0.00	0.00	2,046,480.00	2,046,480.00	933,435.67
Additions to Capital/ Other Reserve Funds	I & II	0.00	3,761,777.00	0.00	3,761,777.00	19,233,116.83
TOTAL RECEIPT		1,948,283,256.32	3,938,440,451.91	780,313,973.72	6,667,037,681.95	5,448,646,631.96

PAYMENTS	SCH No.	NON PLAN 2012-13	PLAN 2012-13	PROJECT 2012-13	Total Current Year 2012-13	Total Previous Year 2011-12
Establishment Expenses	XII	465,109,415.00	0.00	0.00	465,109,415.00	398,795,395.00
Educational Expenses	XIII	61,565,346.00	50,921,739.00	0.00	112,487,085.00	71,456,779.00
General Expenses	XIII	74,915,411.00	45,695,544.00	0.00	120,610,955.00	92,178,474.00
Departmental Expenses	XIII	14,855,867.00	724,082.00	0.00	15,579,949.00	12,895,150.00
Travelling Expenses	XIII	4,583,149.00	0.00	0.00	4,583,149.00	5,010,255.36
Miscellaneous/ other Expenses	XIII	33,825,647.48	18,941,814.00	28,793.39	52,796,254.87	42,279,643.15
Investment of Funds/ Renewals	VI	639,832,576.00	2,023,286,622.00	445,229,624.00	3,108,348,822.00	2,499,977,204.00
Advances to Staff/ Suppliers/ Contractors/ Deposits	VII	202,637,402.03	921,807,298.00	15,473,067.00	1,139,917,767.03	1,420,593,344.76
Additions to Fixed Assets	V	3,757,841.00	521,088,395.00	0.00	524,846,236.00	218,337,324.33
Transfer/ payment from Earmarked Funds	III	984,584.00	0.00	2,022,661.00	3,007,245.00	17,803,788.00
Statutory & other payments	IV	235,812,767.00	292,925,824.00	144,787,786.28	673,526,377.28	326,507,072.02
Transfers to Capital Fund/ Rserve:	II			300,000.00	300,000.00	15,535,297.41
Research and Development Projects	IV	0.00	0.00	75,094,954.67	75,094,954.67	63,066,539.09
Consultancy and Testing	IV	0.00	0.00	77,383,866.53	77,383,866.53	50,102,860.92
Departmental Development Fund	II	0.00	0.00	4,031,273.00	4,031,273.00	837,302.00
Fellowship and Associatship	IV	0.00	0.00	0.00	0.00	0.00
Professional Development Fund	II	0.00	0.00	332,031.00	332,031.00	366,007.00
TOTAL PAYMENTS		1,737,880,005.51	3,875,391,318.00	764,684,056.87	6,377,955,380.38	5,235,742,436.04
Closing Balances:						
(a) Cash in Hand	VII	93,949.70	0.00	1,522.00	95,471.70	288,817.70
(b) Cash at Bank/ Post Office	VII	210,309,301.11	63,049,133.91	15,628,394.85	288,986,829.87	212,615,378.22
TOTAL		1,948,283,256.32	3,938,440,451.91	780,313,973.72	6,667,037,681.95	5,448,646,631.96



(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)



(COL. M.K.SINGH)
REGISTRAR



(PROF. D. C. PANIGRAHI)
DIRECTOR

INDIAN SCHOOL OF MINES

DHANBAD



**Schedules Forming Part of Income & Expenditure and
Receipts & Payments Account
for the year 2012-2013**



INDIAN SCHOOL OF MINES DHANBAD

Schedules Forming Part of Balance Sheet, Income & Expenditure A/C and Receipts & Payments A/C for the year ending 31st March 2013

SCHEDULE - I: CAPITAL FUND				(Amount in ₹)	
Sl.No.	PARTICULARS	Current Year : 2012-13		Previous Year : 2011-12	
1 (A) Plan:					
1.1.1	Opening Balance	3,518,205,788.55		2,686,820,067.91	
1.1.2	Add : Previous Year Adjustment	4,582,597.90			
1.1.3	Add : Non-recurring grants-in-aid received during the year	1,084,931,504.65		831,385,720.64	
1.1.4	Sub-total		4,607,719,891.10		3,518,205,788.55
1 (B) Non Plan:					
1.2.1	Opening Balance	78,682,490.70		72,564,281.70	
1.2.2	Add: Non-recurring grants-in-aid received during the year	7,119,654.00		6,118,209.00	
1.2.3	Less: Recritification of error of previous period	0.00		0.00	
1.2.4	Add: Rectification for previous year as per Audit para 2008-09	0.00		0.00	
1.2.5	Less: Deficit of Non-Plan A/c for the year 2010-11 adjusted	0.00	85,802,144.70	0.00	78,682,490.70
1.2.6	Capitlaised fund for Assets	2,973,639.00	2,973,639.00	2,973,639.00	2,973,639.00
1.2.7	Sub-total		88,775,783.70		81,656,129.70
1 (C) Project:					
1.3.1	(a) Capital Fund (Opening Balance)	121,473,812.44		121,473,812.44	
1.3.2	Less : Payments from Old Consultancy Projects (See Notes on Accounts)	300,000.00		0.00	
1.3.3	Less : Transfer for creation of opening balance towards undisbursed consultancy projects (See Notes of Accounts)	0.00	121,173,812.44	0.00	121,473,812.44
1.3.4	(b) Project Endowment Fund	249,515.69	249,515.69	249,515.69	249,515.69
1.3.5	(c) Reserve fund	6,830,829.87	6,830,829.87	6,830,829.87	6,830,829.87
1.3.6	(d) Corpus Fund	4,410,060.50	4,410,060.50	4,410,060.50	4,410,060.50
1.3.7	(e) Capitlaised fund for Assets (Opening Balance)	33,745,356.20		36,479,456.00	
1.3.8	Add: Additions during the year	45,466,924.67		16,124,166.33	
1.3.9	Less: Depreciation on Assets including adjustment for previous years	18,767,700.48	60,444,580.39	18,858,267.13	33,745,355.20
1.3.10	Sub-total		193,108,798.89		166,709,573.70
1.00	Total		4,889,604,473.69		3,766,571,491.95

SCHEDULE - II: RESERVES AND SURPLUS**2 (A) Capital Reserve (Non Plan):**

Sl.No.	PARTICULARS	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
Non-Plan:					
2.2.1	Computer Development Fund	0.00	0.00	0.00	0.00
2.2.2	Departmental Development Fund	133,045.00	0.00	0.00	133,045.00
2.2.3	Donation Fund	2,057,500.00	0.00	0.00	2,057,500.00
2.2.4	Laboratory Development Fund	0.00	0.00	0.00	0.00
2.2.5	Library Development Fund	5,020.00	0.00	0.00	5,020.00
2.2.6	School Development Fund*	8,362,572.50	3,807,940.00	0.00	12,170,512.50
2.2.7	Building Fund*	4,250,000.00	0.00	0.00	4,250,000.00
2.2.8	Student Innovative Project Fund	0.00	5,441,730.00	1,000.00	5,440,730.00
2.2.9	Total Reserves (Non Plan)	14,808,137.50	9,249,670.00	1,000.00	24,056,807.50

2 (B) Department Development Funds(Project):		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
2.3.1	AGL XRF Maintenance Fund	83,270.00	1,000.00	0.00	84,270.00
2.3.2	Applied Chemistry Deptt.	86,607.30	6,300.00	76,500.00	16,407.30
2.3.3	Applied Geology Deptt.	324,995.00	614,421.00	0.00	939,416.00
2.3.4	Applied Geophysics Deptt.	151,280.00	16,391.00	163,890.00	3,781.00
2.3.5	Applied Physics Deptt.	290.00	78,425.00	0.00	78,715.00
2.3.6	Benevolent Fund	0.00	0.00	0.00	0.00
2.3.7	Central Administrative Charges	469,679.00	1,445,353.00	1,247,796.00	667,236.00
2.3.8	Centre for Longwall Mine Mechnsn.	61,476.00	0.00	0.00	61,476.00
2.3.9	Centre for Mining Environment	2,201,675.92	1,505,835.00	34,878.00	3,672,632.92
2.3.10	Chemical Engg Deptt	0.00	3,148.00	0.00	3,148.00
2.3.11	Computer Science & Engg Deptt	142,062.00	5,670.00	0.00	147,732.00
2.3.12	Director Discretionary Fund	416,837.00	0.00	0.00	416,837.00
2.3.13	E.D.C. Development Fund	1,389,083.77	1,214,901.00	1,281,700.00	1,322,284.77
2.3.14	E.D.C. Xeroxing (4000) Fund	259,271.42	65,412.00	20,664.00	304,019.42
2.3.15	Electrical Engineering Deptt	185,937.00	0.00	0.00	185,937.00
2.3.16	Electronics Engineering	9,812.00	0.00	0.00	9,812.00
2.3.17	Fuel & Mineral Engg. Deptt	748,659.25	1,012,456.00	299,012.00	1,462,103.25
2.3.18	Geology Xeroxing (6000) Fund	41,454.00	0.00	0.00	41,454.00
2.3.19	Lab Development Fund	446,396.52	0.00	0.00	446,396.52
2.3.20	Library Dev Fund (including library fine and card charges)	669,256.85	191,372.00	88,158.00	772,470.85
2.3.21	Management Studies Deptt	497,293.50	109,960.00	108,000.00	499,253.50
2.3.22	ME Deptt's Gas chromatograph maintenance fund	2,440.00	0.00	0.00	2,440.00
2.3.23	Mech Engg & Mining Machinery Engg	739,736.40	625,321.00	570,848.00	794,209.40
2.3.24	Mining Engg Deptt	5,783,383.21	1,232,542.00	139,827.00	6,876,098.21
2.3.25	Petroleum Engg Deptt	1,471,769.50	59,046.00	0.00	1,530,815.50
2.3.26	Reprographic Unit	31,553.00	0.00	0.00	31,553.00
2.3.27	Sub-total (DDF)	16,214,218.64	8,187,553.00	4,031,273.00	20,370,498.64

2 (C) Professional Dev. Funds (Project):		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
2.3.31	A Chattopadhyay, ME&MME	32,390.00	0.00	0.00	32,390.00
2.3.32	A Chattopadhyaya	10,285.00	0.00	0.00	10,285.00
2.3.33	A K Basu (PDF) ME&MME	1,750.00	0.00	0.00	1,750.00
2.3.34	A K Mishra, ME	21,330.00	45,699.00	31,000.00	36,029.00
2.3.35	A K Mukhopadhyay, ME&MME	59,475.00	175,692.00	0.00	235,167.00
2.3.36	A K Pal, CME	95,134.00	386.00	0.00	95,520.00
2.3.37	A K Pathak, PE	26,677.00	9,607.00	0.00	36,284.00
2.3.38	A K Varma, AGL	0.00	875.00	0.00	875.00
2.3.39	A L Agrawal	58,203.00	0.00	0.00	58,203.00
2.3.40	A S Venkatesh, AGL	1,229.00	0.00	0.00	1,229.00
2.3.41	A Sarkar, ACH	9,205.67	0.00	0.00	9,205.67
2.3.42	Ajay Mandal, PE	0.00	19,344.00	0.00	19,344.00
2.3.43	Alok Sinha	23,416.00	653.00	0.00	24,069.00
2.3.44	B C Sarkar, AGL	6,586.00	128,625.00	0.00	135,211.00
2.3.45	B M Kumar (PDF)	665.00	0.00	0.00	665.00
2.3.46	B S Chattopadhyaya	10,670.00	0.00	0.00	10,670.00
2.3.47	Chandan Bhar, MS	34,598.00	33,762.00	0.00	68,360.00
2.3.48	D C Panigrahi, ME	886,303.00	319,381.00	27,535.00	1,178,149.00

2.3.49	Dheeraj Kumar, ME	47,082.00	150,366.00	0.00	197,448.00
2.3.50	Dipankar Roy	3,272.00	0.00	0.00	3,272.00
2.3.51	G P Karmakar, PE	840.00	0.00	0.00	840.00
2.3.52	Gurdeep Singh, ESE	363,943.00	435,282.00	0.00	799,225.00
2.3.53	Kabir Dasgupta, MEMME	32,646.00	47,703.00	0.00	80,349.00
2.3.54	Kampan Mukharjee, MS	11,284.00	23,020.00	0.00	34,304.00
2.3.55	Keka Ojha	628.00	0.00	0.00	628.00
2.3.56	L N Jha, FME	1,576.00	0.00	0.00	1,576.00
2.3.57	M K Mukherjee (PDF)	1,028.00	35,000.00	0.00	36,028.00
2.3.58	Manish Kumar Jain (PDF)	38,734.00	1,403.00	0.00	40,137.00
2.3.59	Md Jawed, ME	93,142.00	24,500.00	18,541.00	99,101.00
2.3.60	N R Mandre, FME	42,960.00	0.00	0.00	42,960.00
2.3.61	N Suresh, FME	63,102.00	261,393.00	0.00	324,495.00
2.3.62	P K Behera, ME.	58,877.00	5,075.00	0.00	63,952.00
2.3.63	P K Jana, CSE	0.00	1,890.00	0.00	1,890.00
2.3.64	P P Bahuguna, ME	234,222.00	12,786.00	105,746.00	141,262.00
2.3.65	P P Chakraborty, AGL	800.00	0.00	0.00	800.00
2.3.66	P R Mohanthy, AGP	10,834.00	0.00	0.00	10,834.00
2.3.67	P S Gupta, APH	0.00	78,425.00	0.00	78,425.00
2.3.68	P S Mukherjee, MEMME	0.00	32,187.00	0.00	32,187.00
2.3.69	Phalguni Sen, ME	174,727.00	13,795.00	27,400.00	161,122.00
2.3.70	Pramod Pathak,MS	38,905.00	0.00	0.00	38,905.00
2.3.71	R K Dubey	175.00	0.00	0.00	175.00
2.3.72	R L Malhotra, PE	83,456.00	0.00	0.00	83,456.00
2.3.73	R Venugopal, FME	36,283.00	0.00	0.00	36,283.00
2.3.74	S Bhattacharya, FME	38,789.00	0.00	26,633.00	12,156.00
2.3.75	S K Ghoshal, PDF	0.00	327.00	0.00	327.00
2.3.76	S K Gupta, ESE	55,054.00	5,236.00	29,820.00	30,470.00
2.3.77	S K Maiti, ESE	10.00	0.00	0.00	10.00
2.3.78	S Laik, PE	26,015.00	1,838.00	0.00	27,853.00
2.3.79	S Mohanty, AGL*	8,076.00	0.00	0.00	8,076.00
2.3.80	S N Mukherjee, ME	86,353.00	0.00	0.00	86,353.00
2.3.81	Shalini Gautam	408.00	172.00	0.00	580.00
2.3.82	Shalivahan, AGP	38,230.00	3,247.00	0.00	41,477.00
2.3.83	Somnath Chattopadhyay, MEMME	4,633.00	0.00	0.00	4,633.00
2.3.84	T K Chatterjee, EE	76,531.00	0.00	0.00	76,531.00
2.3.85	T Kumar, PE	9,366.00	0.00	0.00	9,366.00
2.3.86	T Mazumdar, AGL	1,422.00	0.00	0.00	1,422.00
2.3.87	T Sharma, FME	178,547.00	45,392.00	0.00	223,939.00
2.3.88	U K Singh, AGP	0.00	6,650.00	0.00	6,650.00
2.3.89	U K Singh, ME	102,419.00	8,589.00	25,207.00	85,801.00
2.3.90	V K Gupta	10,192.00	17,581.00	0.00	27,773.00
2.3.91	V K Srivastava, AGP	47,539.00	0.00	3,734.00	43,805.00
2.3.92	V Kumar	2,444.00	0.00	0.00	2,444.00
2.3.93	V M S R Murthy, ME	276,139.00	82,663.00	34,500.00	324,302.00
2.3.94	V P Sharma, PE	14,988.00	1,313.00	0.00	16,301.00
2.3.95	V.K.Saxena, FME	48,175.00	15,226.00	0.00	63,401.00
2.3.96	Vikash Mahato	1,083.00	0.00	0.00	1,083.00
2.3.97	Vishnu Priya	4,689.00	0.00	0.00	4,689.00
2.3.98	Y R Dhar, AGL	967.00	1,397.00	1,915.00	449.00
2.3.99	Sub-total (PDF)	3,648,501.67	2,046,480.00	332,031.00	5,362,950.67
2.3.100	Sub-total Project (DDF+PDF)	19,862,720.31	10,234,033.00	4,363,304.00	25,733,449.31
2	Total Reserve & Surplus	34,670,857.81	19,483,703.00	4,364,304.00	49,790,256.81

SCHEDULE - III: EARMARKED/ ENDOWMENT FUNDS:

Non Plan:

S No	Particulars	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
3.2.1	Basant Scholarship Fund	114,114.00	850.00	0.00	114,964.00
3.2.2	Benevolent Fund	2,301,584.00	1,758,158.00	180,000.00	3,879,742.00
3.2.3	Bihar Chief Minister Relief Fund	87,937.00	193,934.00	98,484.00	183,387.00
3.2.4	Budhwanti Mrig Memo. Sch.fund	5,224,300.00	0.00	282,400.00	4,941,900.00
3.2.5	Director's Discretionary Fund	4,267.00	0.00	0.00	4,267.00
3.2.6	Endowment Fund (Corpus fund under	399,871,243.86	91,436,385.61	28,504,135.00	462,803,494.47
3.2.7	HOD Discretionary Fund	81,278.00	0.00	0.00	81,278.00
3.2.8	House Building Revolving Fund*	7,741,437.00	0.00	0.00	7,741,437.00
3.2.9	Ishan Rajbanshi Merit Scholarship	200,000.00	200,000.00	20,000.00	380,000.00

3.2.10	ISM Alumni Award Fund	0.00	2,000,000.00	0.00	2,000,000.00
3.2.11	ISS Scholarship Fund	130,002.00	0.00	15,000.00	115,002.00
3.2.12	Late J D M Dhawan M G Med End Fund	79,447.00	0.00	0.00	79,447.00
3.2.13	Matching grant for Deptt Societies	523,600.00	400.00	339,200.00	184,800.00
3.2.14	Mess Subsidy Fund	5,416,985.00	2,363,000.00	48,500.00	7,731,485.00
3.2.15	Platinum Jubilee Fund	2,500.00	0.00	0.00	2,500.00
3.2.16	Student Aid Fund	114,487.00	0.00	0.00	114,487.00
3.2.17	Student Medical Fund	3,014,925.00	451,600.00	0.00	3,466,525.00
3.2.18	Student Welfare Fund	189,590.00	17,000.00	0.00	206,590.00
3.2.19	Sub-total Non Plan	425,097,696.86	98,421,327.61	29,487,719.00	494,031,305.47

Project: Chair & Scholarship Funds (Earmarked Funds)

S No	Particulars	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013

Scholarship / Award Funds

3.3.1	Atlas Copco Scholarship Fund	544,254.00	57,000.00	60,000.00	541,254.00
3.3.2	Bhaskar Bhattacharya Mem Fund	653,848.00	111,367.00	43,228.00	721,987.00
3.3.3	D N Prasad Memorial Fund	75,494.10	6,040.00	0.00	81,534.10
3.3.4	Indrajit Satyawati Budhward Schr	204,000.00	42,500.00	10,000.00	236,500.00
3.3.5	L J Jhonson Award	253,370.00	21,100.00	31,500.00	242,970.00
3.3.6	Mata Gurdev Kaur Memorial Fund	42,673.00	3,414.00	0.00	46,087.00
3.3.7	NKMukherjee Memorial Fund	57,707.00	4,617.00	0.00	62,324.00
3.3.8	NAA Scholarship Fund	557,500.00	0.00	0.00	557,500.00
3.3.9	Nirja Sahay Memorial Fund	113,402.00	17,064.00	17,000.00	113,466.00
3.3.10	Paritosh & Patikrit End Fund	223,625.00	17,890.00	0.00	241,515.00
3.3.11	Petroleum Deptt Endow Fund	267,128.16	21,370.00	0.00	288,498.16
3.3.12	Platinum Jubilee Fund	340,707.11	27,257.00	0.00	367,964.11
3.3.13	Poonam Khanna Singh Mem End Fund	0.00	1,600,000.00	100,000.00	1,500,000.00
3.3.14	Prof N L Sharma Mem Fund	177,636.00	14,211.00	0.00	191,847.00
3.3.15	Prof S Srinivasan Mem Fund	57,289.00	4,583.00	0.00	61,872.00
3.3.16	Renuka Rajhans Mem End Fund	0.00	320,000.00	0.00	320,000.00
3.3.17	Rolling Scholarship	74,707.00	5,977.00	0.00	80,684.00
3.3.18	S L Sehgal Scholarship	297,499.00	23,800.00	0.00	321,299.00
3.3.19	Smt Snehlata Srivastava Mem Fund	206,879.00	33,412.00	31,500.00	208,791.00
3.3.20	Smt Kaushalia Devi Gold Medal Fund	167,481.00	13,398.00	0.00	180,879.00
3.3.21	Subarna & Shashibhushan Bhattacharjee Mem End Fund	190,501.00	15,239.00	0.00	205,740.00
3.3.22	Total Scholarship/Award funds	4,505,700.37	2,360,239.00	293,228.00	6,572,711.37

Chair Funds:

3.3.23	CIL Chair for Mining Engg Deptt	8,181,359.00	14,324,810.00	991,587.00	21,514,582.00
3.3.24	NMDC Chair Fund	9,784,076.00	14,412,000.00	2,574.00	24,193,502.00
3.3.25	ONGC AMN Ghosh Chair Fund	6,829,148.00	1,054,720.00	0.00	7,883,868.00
3.3.26	Rajeev Gandhi Memorial Chair	9,746,620.25	12,529,106.00	19,233.00	22,256,493.25
3.3.27	SAIL Chair	3,862,752.00	765,234.00	0.00	4,627,986.00
3.3.28	Tata Steel Chair Fund	9,164,863.00	10,712,500.00	468,737.00	19,408,626.00
3.3.29	Uranium Chair Fund	8,988,403.00	961,597.00	247,302.00	9,702,698.00
3.3.30	Total Chair Funds	56,557,221.25	54,759,967.00	1,729,433.00	109,587,755.25
3.3.31	Total Chairs & Scholarship funds	61,062,921.62	57,120,206.00	2,022,661.00	116,160,466.62
3.00	Total Earmarked/ Endowment Fund	486,160,618.48	155,541,533.61	31,510,380.00	610,191,772.09

SCH.- IV: CURRENT LIABILITIES & PROVISIONS

CURRENT LIABILITIES:(Plan)

A	Statutory Liabilities:	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.1.1	Income Tax	0.00	2,973,447.00	2,973,447.00	0.00
4.1.2	Sales Tax	0.00	3,372,537.00	3,372,537.00	0.00
4.1.3	Labour Welfare CESS	0.00	974,249.00	974,249.00	0.00
4.1.4	Sub Total	0.00	7,320,233.00	7,320,233.00	0.00

	Other Current Liabilities:				
4.1.5	Earnest/Security money-contractors	9,448,748.00	10,127,458.00	6,429,622.00	13,146,584.00
4.1.6	Project Control Account	0.00	0.00	140,000.00	(140,000.00)
4.1.7	Licence Fee	3,200.00	6,900.00	10,100.00	0.00
4.1.8	Miscellaneous Receipt	0.00	48,584.00	48,584.00	0.00
4.1.9	Room Rent	0.00	0.00	0.00	0.00
4.1.10	Non Plan Control A/c	162,217,715.36	126,801,183.00	278,977,285.00	10,041,613.36
4.1.11	Sub-total	171,669,663.36	136,984,125.00	285,605,591.00	23,048,197.36
4.1.12	Total Current Liabilities & Provisions (Plan)	171,669,663.36	144,304,358.00	292,925,824.00	23,048,197.36
B	Statutory Liabilities: Non-Plan	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.2.1	Income Tax (TDS) - employees	0.00	30,191,085.00	30,191,085.00	0.00
4.2.2	Income Tax (TDS) - Contractors	0.00	2,108,950.00	2,108,950.00	0.00
4.2.3	Service Tax	0.00	84,743.00	84,743.00	0.00
4.2.4	Sales Tax	0.00	738,460.00	738,460.00	0.00
4.2.5	Labour Welfare	0.00	212,781.00	212,781.00	0.00
4.2.6	Jharkhand State Prof. Tax	0.00	653,664.00	653,664.00	0.00
4.2.7	Sub Total	0.00	33,989,683.00	33,989,683.00	0.00
C	Other Liabilities: Non-Plan				
4.2.8	Accidental Insurance	0.00	500,000.00	500,000.00	0.00
4.2.9	Advance Fee	739,780.00	0.00	0.00	739,780.00
4.2.10	Advance Fee from IIT-JEE	0.00	2,528,988.00	1,159,316.00	1,369,672.00
4.2.11	Alumni Subscription	885,800.00	376,700.00	0.00	1,262,500.00
4.2.12	Backward Scholarship A/c	33,570.00	0.00	0.00	33,570.00
4.2.13	Basant Subscription	45,200.00	246,310.00	282,000.00	9,510.00
4.2.14	Bihar SC/ST Scholarship	49,560.00	0.00	0.00	49,560.00
4.2.15	BRS Liability	0.00	1,163,070.00	0.00	1,163,070.00
4.2.16	Canara Bank SDL Loan Recovery	0.00	5,994,946.00	5,992,616.00	2,330.00
4.2.17	Central Sector Scholarship for ST	445,805.00	951,596.00	1,201,488.00	195,913.00
4.2.18	Central Sector Scholarship for SC	935,920.00	0.00	768,920.00	167,000.00
4.2.19	Children Activity Centre	0.00	86,680.00	80,720.00	5,960.00
4.2.20	Court Attachment Deduction	13,500.00	49,111.00	62,611.00	0.00
4.2.21	CPF Subscription & Loan Recovery	0.00	10,559,500.00	10,559,500.00	0.00
4.2.22	CSLS	9,882.00	0.00	0.00	9,882.00
4.2.23	Cyber Society	20,504.00	0.00	0.00	20,504.00
4.2.24	DCPS Subscription	47,076.00	10,219,528.00	10,266,604.00	0.00
4.2.25	DST Inspire Scholarship	2,274,205.00	13,886,595.00	12,348,587.00	3,812,213.00
4.2.26	EMD from parties	7,487,702.00	15,985,860.00	10,564,518.00	12,909,044.00
4.2.27	Executive MBA	0.00	750,000.00	12,744.00	737,256.00
4.2.28	GIS Premium	114,183.00	1,679,448.00	1,698,097.00	95,534.00
4.2.29	GPF Subscription & Loan Recovery	500	36,573,751.00	36,573,251.00	1,000.00
4.2.30	Hostel Security Deposit	766,000.00	0.00	0.00	766,000.00
4.2.31	IEEE Student Chapter	0.00	0.00	0.00	0.00
4.2.32	Indo-Afghan Scholarship	0.00	878,040.00	878,040.00	0.00
4.2.33	Inspire Internship	0.00	0.00	0.00	0.00
4.2.34	Library Security	820,707.00	0.00	0.00	820,707.00
4.2.35	LIC Premium	876.00	4,812,363.00	4,809,904.00	3,335.00
4.2.36	Miscellaneous Receipts	281,205.00	654,360.00	75,000.00	860,565.00
4.2.37	Muqabla Tournament	1,894.00	0.00	0.00	1,894.00
4.2.38	Music Club	14,420.00	0.00	0.00	14,420.00
4.2.39	NEC Merit Scholarship	10,600.00	0.00	0.00	10,600.00
4.2.40	NPESMD 2011	0.00	0.00	0.00	0.00
4.2.41	Outside scholarship Control A/c	823,320.00	1,870,340.00	1,981,624.00	712,036.00
4.2.42	Outside Travel Assistance	0.00	86,186.00	86,186.00	0.00
4.2.43	Outstanding Expenses	26,196,727.00	27,951,053.00	26,196,727.00	27,951,053.00
4.2.44	Parliament Election Advance 2009	1,200.00	0.00	0.00	1,200.00
4.2.45	PF Control Account	55,984,000.00	6,940,226.00	62,940,226.00	(16,000.00)
4.2.46	Photographic Society	9,548.00	0.00	0.00	9,548.00
4.2.47	Post Office CTD/RD	0.00	405,900.00	405,900.00	0.00
4.2.48	Prakram 11	115,723.00	315,000.00	430,000.00	723.00
4.2.49	RAIT 2012	0.00	0.00	0.00	0.00
4.2.50	Relief fund (DBS)	64,593.00	0.00	0.00	64,593.00
4.2.51	Remuneration of GJLT/ Penman	10,000.00	44,050.00	5,775.00	48,275.00
4.2.52	Scolomin Club	150.00	171,725.00	171,725.00	150.00
4.2.53	Security Deposit from parties	5,130,780.00	7,755,498.00	4,961,883.00	7,924,395.00

4.2.54	SRIJAN	0.00	915,000.00	520,000.00	395,000.00
4.2.55	Staff Recreation Club	0.00	151,150.00	151,100.00	50.00
4.2.56	Student Caution Money	21,574,331.00	9,429,000.00	2,997,500.00	28,005,831.00
4.2.57	Student Insurance Scheme	684,224.00	1,450,422.00	1,158,410.00	976,236.00
4.2.58	Student Loan	0	200,000.00	166,000.00	34,000.00
4.2.59	Student Uniform Deposit	3,725,827.00	2,766,600.00	1,816,112.00	4,676,315.00
4.2.60	Undisbursed Pay	0.00	0.00	0.00	0.00
4.2.61	Unpaid Liability	125,493.00	49,500.00	0.00	174,993.00
4.2.62	Vidhan Sabha Election Advance 2009	2,400.00	0.00	0.00	2,400.00
4.2.63	Sub Total	129,447,205.00	168,398,496.00	201,823,084.00	96,022,617.00
4.2.64	Total Current Liabilities (N Plan)	129,447,205.00	202,388,179.00	235,812,767.00	96,022,617.00
4.2.65	Total Current Liabilities & Provisions (Non Plan)	129,447,205.00	202,388,179.00	235,812,767.00	96,022,617.00

Project: Current Liabilities & Provisions

Sl No	Particulars	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
C	Statutory Liabilities:				
4.3.1	Income tax from Contractor	0.00	295,410.00	295,410.00	0.00
4.3.2	Income Tax from Employee	0.00	10,482,571.00	10,482,571.00	0.00
4.3.3	Sales Tax	0.00	0.00	0.00	0.00
4.3.4	Service Tax	0.00	9,941,783.00	9,941,783.00	0.00
4.3.5	Sub-total	0.00	20,719,764.00	20,719,764.00	0.00

Project : Other Current Liabilities

(a) UGC Sponsored Projects		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.3.6	JRF SRF FELLOWSHIP(UGC)	495,200.00	0.00	68,563.00	426,637.00
4.3.7	Spl. Assistance/CAS Programme (Ph-I) - AGL/AGP/ME	1,034,801.32	0.00	0.00	1,034,801.32
4.3.8	UGC - Unassigned grant	137,161.75	0.00	0.00	137,161.75
4.3.9	UGC(30)/2008-09/218/AM	0.00	0.00	0.00	0.00
4.3.10	UGC(31)/2008-09/219/AM	0.00	0.00	0.00	0.00
4.3.11	UGC(32)/2008-09/220/AM	0.00	0.00	0.00	0.00
4.3.12	UGC(47)/2009-10/245/MS	0.00	110,328.00	110,328.00	0.00
4.3.13	UGC(98)/JRF/F-17-161	0.00	1,033,000.00	932,541.00	100,459.00
4.3.14	UGC/(254)/EE	256,552.00	0.00	80,150.00	176,402.00
4.3.15	UGC/(255)/AM	91,856.00	354,709.00	436,760.00	9,805.00
4.3.16	UGC/(257)/APPL.PHY	14,525.00	305,280.00	315,069.00	4,736.00
4.3.17	UGC/(258)/EE	124,782.00	40,000.00	89,402.00	75,380.00
4.3.18	UGC/(259)/AM	395,986.00	0.00	16,813.00	379,173.00
4.3.19	UGC/(261)/ME&MME	643,113.00	48,000.00	634,584.00	56,529.00
4.3.20	UGC/(51)/2009-10/256/PE	12,317.00	447,680.00	453,430.00	6,567.00
4.3.21	UGC/(55)/2009-10/260/ME&MME	183,665.00	0.00	6,600.00	177,065.00
4.3.22	UGC/(58)/2010-11/270/AC	11,914.00	0.00	11,914.00	0.00
4.3.23	UGC/(59)/2010-11/277/APH	133,885.00	0.00	123,085.00	10,800.00
4.3.24	UGC/(60)/2010-11/278/APH	70,810.00	36.00	67,642.00	3,204.00
4.3.25	UGC/(61)/2010-11/279/EE	194,183.00	0.00	75,127.00	119,056.00
4.3.26	UGC/(62)/2010-11/282/AM	784,329.00	0.00	670,047.00	114,282.00
4.3.27	UGC/(63)/2010-11/283/APH	381,174.00	4,305.00	64,283.00	321,196.00
4.3.28	UGC/(64)/2010-11/284/FME	425,510.00	0.00	87,519.00	337,991.00
4.3.29	UGC/(66)/2010-11/286/AM	324,195.00	0.00	239,040.00	85,155.00
4.3.30	UGC/(67)/2010-11/287/APH	449,061.00	0.00	435,192.00	13,869.00
4.3.31	UGC/(68)/2010-11/285/ME&MME	0.00	0.00	0.00	0.00
4.3.32	UGC/(70)/2010-11/291/ME	373,437.00	0.00	290,741.00	82,696.00
4.3.33	UGC/191 PE	0.00	0.00	0.00	0.00
4.3.34	UGC/192 AC	64,104.00	0.00	0.00	64,104.00
4.3.35	UGC/193 AM	3,700.00	0.00	0.00	3,700.00
4.3.36	UGC/195 AM	85,277.00	0.00	13,606.00	71,671.00
4.3.37	UGC/200 AGP	309,597.00	0.00	0.00	309,597.00
4.3.38	UGC/202 FME	201,192.00	0.00	0.00	201,192.00
4.3.39	UGC/203FME	3,792,780.00	0.00	3,360,564.00	432,216.00
4.3.40	UGC/204 AM	7,653.00	0.00	0.00	7,653.00
4.3.41	UGC/205 PE	480,781.00	0.00	0.00	480,781.00
4.3.42	UGC/206 PE	2,360,383.00	480,000.00	1,767,915.00	1,072,468.00
4.3.43	UGC/208 ME&MME	0.00	0.00	0.00	0.00
4.3.44	UGC/245/MS	0.00	0.00	0.00	0.00
4.3.45	UGC/266/PE	500,000.00	0.00	0.00	500,000.00

4.3.46	UGC/285/AC	79,295.00	800.00	92,000.00	(11,905.00)
4.3.47	UGC/288/MEMME	316,641.00	0.00	231,191.00	85,450.00
4.3.48	UGC/289/HSS	70,998.00	0.00	31,385.00	39,613.00
4.3.49	UGC/292/AM	254,011.00	0.00	101,972.00	152,039.00
4.3.50	UGC/295/APH	1,454.00	32,929.00	34,318.00	65.00
4.3.51	UGC/296/AGP	340,000.00	6,300,000.00	0.00	6,640,000.00
4.3.52	UGC/297/ECE	39,623.00	90,573.00	109,458.00	20,738.00
4.3.53	UGC/298/AM	222,179.00	0.00	206,629.00	15,550.00
4.3.54	UGC/302/ECE	1,370,255.00	0.00	463,824.00	906,431.00
4.3.55	UGC/313/EE/12-13	0.00	855,000.00	0.00	855,000.00
4.3.56	UGC/316/CSE/12-13	0.00	744,300.00	110,871.00	633,429.00
4.3.57	UGC/317/AGL/12-13	0.00	793,800.00	153,816.00	639,984.00
4.3.58	UGC/318/ESE/12-13	0.00	607,600.00	120,887.00	486,713.00
4.3.59	UGC/319/AM/12-13	0.00	620,800.00	204,254.00	416,546.00
4.3.60	UGC/320/HSS/12-13	0.00	642,500.00	99,344.00	543,156.00
4.3.61	UGC/323/APH/12-13	0.00	236,600.00	8,504.00	228,096.00
4.3.62	UGC/33/2008-09/221/EE	9,889.00	0.00	9,889.00	0.00
4.3.63	UGC/34/2008-09/222/MS	7,162.00	14,637.00	0.00	21,799.00
4.3.64	UGC/35/2008-09/224/ME	47,726.00	0.00	0.00	47,726.00
4.3.65	UGC/36/2008-09/227/MEMME	0.00	0.00	0.00	0.00
4.3.66	UGC/37/2008-09/228/MEMME	0.00	0.00	0.00	0.00
4.3.67	UGC/38/2008-09/229/AM	33,386.00	0.00	33,386.00	0.00
4.3.68	UGC/39/2008-9/230/MS	21,099.00	130,664.00	137,993.00	13,770.00
4.3.69	UGC/40/2008-9/231/CSE	66,636.00	0.00	66,636.00	0.00
4.3.70	UGC/41/2008-9/232/AM	204,828.00	0.00	204,828.00	0.00
4.3.71	UGC/42/2008-9/233/AC	12,228.00	78,000.00	90,228.00	0.00
4.3.72	UGC/43/2008-9/214/AM	1,207,403.00	0.00	0.00	1,207,403.00
4.3.73	UGC/44/2009-10/241/MEMME	31,097.00	0.00	31,097.00	0.00
4.3.74	UGC/45/2009-10/242/MS	0.00	0.00	0.00	0.00
4.3.75	UGC/46/2009-10/243/MS	62,468.00	0.00	9,972.00	52,496.00
4.3.76	UGC/48/2009-10/249/MS	360,225.00	0.00	306,839.00	53,386.00
4.3.77	UGC/AM/2010/PSRAO	0.00	0.00	0.00	0.00
4.3.78	UGC/CAS/175/ME/Phase - III	81,491.00	0.00	0.00	81,491.00
4.3.79	UGC/CAS/ME Phase - II	484,687.87	0.00	0.00	484,687.87
4.3.80	UGC/COSIST/AGP	0.00	0.00	0.00	0.00
4.3.81	UGC/HEPSN-TEPSE	418,302.00	0.00	0.00	418,302.00
4.3.82	UGC/Miscellaneous	500,000.00	0.00	0.00	500,000.00
4.3.83	UGC/SAP/139/PE Phase - I	0.00	0.00	0.00	0.00
4.3.84	UGC/SAP/179/AGP/Phase - III	217,006.00	217,006.00	217,006.00	217,006.00
4.3.85	UGC/SAP/207/AM	596,372.00	0.00	596,372.00	0.00
4.3.86	UGC/SAP/AGP Phase - II	190,112.00	0.00	0.00	190,112.00
4.3.87	UGC/SAP/ME&MME Phase - I	0.00	0.00	0.00	0.00
4.3.88	UGC/SC-ST SCHOLARSHIP	147,904.00	0.00	0.00	147,904.00
4.3.89	Sub total (UGC Projects)	21,738,401.94	14,188,547.00	14,023,614.00	21,903,334.94
(b) Other R&D Projects:		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.3.90	AICTE/178/ME	0.00	0.00	0.00	0.00
4.3.91	AICTE/EFIP/PS/ME/2006	110,000.00	0.00	0.00	110,000.00
4.3.92	AICTE/NDF/N/NK/07	217,012.00	0.00	0.00	217,012.00
4.3.93	AICTE/NDF/SHANKER PURBY/MS/04	45,000.00	0.00	0.00	45,000.00
4.3.94	AICTE/PKB/I	16,384.00	0.00	0.00	16,384.00
4.3.95	AICTE/PKB/II	304,250.00	0.00	0.00	304,250.00
4.3.96	CIL/190 AC/ME&MME2007	353,231.00	0.00	0.00	353,231.00
4.3.97	CIL/2/2008-09/236/AGP	1,244,925.00	0.00	1,244,925.00	0.00
4.3.98	CME - 4079	445,269.00	0.00	0.00	445,269.00
4.3.99	CME-ENVIS	72,361.00	432,889.00	319,968.00	185,282.00
4.3.100	CSIR(6)/2007-08/198/PE	0.00	0.00	0.00	0.00
4.3.101	CSIR(8)/2008-09/237/CSE	67,927.00	150,083.00	155,573.00	62,437.00
4.3.102	CSIR(10)/2010-11/267/AM	43,331.00	198,092.00	219,550.00	21,873.00
4.3.103	CSIR(5)/2007-08/197/PE	0.00	0.00	0.00	0.00
4.3.104	CSIR/029	0.40	0.00	0.00	0.40
4.3.105	CSIR/09/085(104)/2010-EMR-I/JRF	95,459.00	0.00	95,459.00	0.00
4.3.106	CSIR/09/2009-10/250/AC	541,645.00	0.00	0.00	541,645.00
4.3.107	CSIR/09/85/(102)/2009-EMR-1	20,514.00	0.00	19,662.00	852.00
4.3.108	CSIR/105/EMR/1	17,147.00	141,333.00	158,480.00	0.00
4.3.109	CSIR/106/EMR-1	0.00	312,973.00	293,704.00	19,269.00
4.3.110	CSIR/108/2012/EMR-1	0.00	312,299.00	284,499.00	27,800.00
4.3.111	CSIR/109/2012/EMR-1	0.00	150,450.00	118,441.00	32,009.00

4.3.112	CSIR/211/PE	103,703.00	24,333.00	128,036.00	0.00
4.3.113	CSIR/227/ME/2012-13	0.00	110,000.00	48,457.00	61,543.00
4.3.114	CSIR/314/CSE/2012-13	0.00	650,000.00	228,057.00	421,943.00
4.3.115	CSIR/ADHOC FellSh. Grant	81,000.00	0.00	0.00	81,000.00
4.3.116	CSIR/Pull/PKK/AGP	0.00	0.00	0.00	0.00
4.3.117	CSIR/R Rano/AC/2007	0.00	0.00	0.00	0.00
4.3.118	DAE/309(2)/2013/AM	0.00	424,000.00	291,514.00	132,486.00
4.3.119	DST(35)/2007-08/214/AC	2,593.00	0.00	0.00	2,593.00
4.3.120	DST(36)/2007-08/215/AM	0.00	0.00	0.00	0.00
4.3.121	DST(37)/2007-08/216/ME	95,341.00	0.00	0.00	95,341.00
4.3.122	DST/(34)/2007-08/213/E&I	0.00	0.00	0.00	0.00
4.3.123	DST/(39)/2008-9/223/AM	25,367.00	0.00	8,132.00	17,235.00
4.3.124	DST/(40)/2008-09/235/E&I	1,095,311.00	0.00	886,338.00	208,973.00
4.3.125	DST/(41)/2008-09/238/AGL	124,413.00	0.00	3,900.00	120,513.00
4.3.126	DST/(42)/2008-09/244/ME&MME	21,811.00	0.00	16,001.00	5,810.00
4.3.127	DST/(43)/2009-10/247/APP.PHY	1,037,704.00	0.00	911,825.00	125,879.00
4.3.128	DST/(44)/2009-10/248/ME	145,800.00	0.00	145,800.00	0.00
4.3.129	DST/(45)/2008-09/251/MEMME	289,268.00	0.00	289,268.00	0.00
4.3.130	DST/(46)/2009-10/253/AGP	0.00	0.00	0.00	0.00
4.3.131	DST/(47)/2009-10/262/AC	30,608.00	230,000.00	237,602.00	23,006.00
4.3.132	DST/(48)/2010-11/264/MS	452,842.00	0.00	67,914.00	384,928.00
4.3.133	DST/(50)/2010-11/269/AP	290,553.00	500,000.00	502,478.00	288,075.00
4.3.134	DST/(51)/2010-11/272/AC	485,517.00	425,000.00	436,630.00	473,887.00
4.3.135	DST/(52)/2010-11/273/AC	97,612.00	400,000.00	431,143.00	66,469.00
4.3.136	DST/(53)/2010-11/274/AM	412,367.00	0.00	341,650.00	70,717.00
4.3.137	DST/(54)/2010-11/275/APH	209,342.00	300,000.00	256,963.00	252,379.00
4.3.138	DST/(55)/2010-11/276/AGL	451,255.00	100,000.00	273,162.00	278,093.00
4.3.139	DST/(56)/2010-11/280/AGP	10,600,000.00	144,057.00	3,058,785.00	7,685,272.00
4.3.140	DST/(57)/2010-11/281/AC	1,169,013.00	0.00	1,167,713.00	1,300.00
4.3.141	DST/05/AM	400,000.00	0.00	400,000.00	0.00
4.3.142	DST/06/MS/2012-13	0.00	122,500.00	122,500.00	0.00
4.3.143	DST/07/MS/2012-13	0.00	700,000.00	188,101.00	511,899.00
4.3.144	DST/08/MS/2012-13	0.00	700,000.00	80,557.00	619,443.00
4.3.145	DST/161/ME&MME	194,409.00	0.00	0.00	194,409.00
4.3.146	DST/194/EE	0.00	0.00	0.00	0.00
4.3.147	DST/201/AGP	0.00	0.00	0.00	0.00
4.3.148	DST/210/Aphy	7,006.00	226,969.00	233,975.00	0.00
4.3.149	DST/212/ME	38,529.00	0.00	0.00	38,529.00
4.3.150	DST/299/APH	1,108,172.00	0.00	959,545.00	148,627.00
4.3.151	DST/300/AGL	570,972.00	0.00	548,107.00	22,865.00
4.3.152	DST/301/AGL	545,875.00	0.00	439,496.00	106,379.00
4.3.153	DST/303/AGL	706,759.00	0.00	481,251.00	225,508.00
4.3.154	DST/304/AGL	507,000.00	0.00	453,955.00	53,045.00
4.3.155	DST/305/AGP	250,000.00	0.00	226,340.00	23,660.00
4.3.156	DST/306/ESE	435,175.00	0.00	261,424.00	173,751.00
4.3.157	DST/310/(65)/2012-13/ME	0.00	23,700,000.00	0.00	23,700,000.00
4.3.158	DST/311/ECE/2012-13	0.00	177,000.00	124,711.00	52,289.00
4.3.159	DST/312/AC/2012-13	0.00	1,502,000.00	327,004.00	1,174,996.00
4.3.160	DST/315/AC/2012-13	0.00	1,732,000.00	143,675.00	1,588,325.00
4.3.161	DST/324/ECE/2012-13	0.00	305,000.00	10,130.00	294,870.00
4.3.162	DST/325/PE/2012-13	0.00	196,800.00	0.00	196,800.00
4.3.163	DST/339/ME&MME/2013-14	0.00	4,500,000.00	0.00	4,500,000.00
4.3.164	DST/479/INSPIRE FELLOWSHIP/2012	0.00	250,400.00	109,419.00	140,981.00
4.3.165	DST/INSPIRE FACULTY/2013-17	0.00	1,900,000.00	112,442.00	1,787,558.00
4.3.166	DST/PAC-ES(Meeting)2007/2	0.00	0.00	0.00	0.00
4.3.167	EC(1)/2008-09/239/AGL	342,183.00	23,526.00	357,528.00	8,181.00
4.3.168	EDP/02/DST/AGL/10-11	373,501.00	0.00	373,501.00	0.00
4.3.169	ICSSR(I)2008-09/239/AGL	0.00	0.00	0.00	0.00
4.3.170	IICP(1)/2007-08/01/FME	573,106.00	0.00	0.00	573,106.00
4.3.171	INSPIRE FELLOWSHIP/DST	254,050.00	13,887,395.00	14,138,595.00	2,850.00
4.3.172	MHRD/137/FME	0.00	0.00	0.00	0.00
4.3.173	MHRD/144	-0.16	0.00	0.00	(0.16)
4.3.174	MHRD/180	274,488.00	0.00	0.00	274,488.00
4.3.175	MHRD/268/MS	368,101.00	0.00	262,153.00	105,948.00
4.3.176	MIT/106/E&I	0.00	0.00	0.00	0.00
4.3.177	MIT/189/CSE	431,642.00	0.00	112,222.00	319,420.00
4.3.178	MOC(7)/2009-10/252/pe	155,641.00	0.00	177,775.00	(22,134.00)
4.3.179	MOC(8)/2010-11/271/ME	6,698,072.00	0.00	4,402,922.00	2,295,150.00
4.3.180	MOC/185/FME	741,114.00	0.00	0.00	741,114.00
4.3.181	MOC/186/APPL PHYSICS	84,114.00	0.00	0.00	84,114.00
4.3.182	MOC/188	0.00	660,200.00	660,200.00	0.00

4.3.183	MOC/188	0.00	0.00	0.00	0.00
4.3.184	MOEF/133/CME	0.00	0.00	0.00	0.00
4.3.185	MOEF/134	0.00	0.00	0.00	0.00
4.3.186	MOEF/135	0.00	0.00	0.00	0.00
4.3.187	MOEF/294/ESE	3,947,095.00	4,000,600.00	4,939,159.00	3,008,536.00
4.3.188	MOES(1)2009-10/240/AGP*	70,383.00	0.00	70,383.00	0.00
4.3.189	MOES(2)2009-10/246/AGP*	171,670.00	5,300.00	176,970.00	0.00
4.3.190	MOES/293/AGP	225,937.00	0.00	202,923.00	23,014.00
4.3.191	MOES/322/12-13/AGP	0.00	1,155,400.00	171,895.00	983,505.00
4.3.192	MOM/329/FME/12-13	0.00	2,186,000.00	0.00	2,186,000.00
4.3.193	MRD(1)2010-2011/290ESE	88,838.00	295,200.00	297,143.00	86,895.00
4.3.194	MSME(1)/09-10/263/DRD/MS	0.00	0.00	0.00	0.00
4.3.195	MWR/184/MIN	97,072.00	0.00	0.00	97,072.00
4.3.196	MWR/307/AGL	12,240,000.00	0.00	0.00	12,240,000.00
4.3.197	MWR/308/ESE/12-13	0.00	1,221,000.00	695,397.00	525,603.00
4.3.198	OIDB/4111	1,871,671.51	0.00	0.00	1,871,671.51
4.3.199	OIL/321/PE/12-13	0.00	602,316.00	45,209.00	557,107.00
4.3.200	Other Projects (Details not available)	15,479,266.80	0.00	844,250.67	14,635,016.13
4.3.201	PCRA(1)/2008-10/225/ME	-19,403.00	0.00	0.00	(19,403.00)
4.3.202	PDP/03/DST/HSS	185,896.00	111,003.00	296,899.00	0.00
4.3.203	SAC/183/AGP	4,425.00	0.00	0.00	4,425.00
4.3.204	TEQIO II	18,056,444.00	436,729.00	5,299,518.00	13,193,655.00
4.3.205	WBMDTCL/98/01	0.00	0.00	0.00	0.00
4.3.206	Sub total (Other R&D Projects)	88,295,079.55	65,602,847.00	51,388,903.67	102,509,022.88

(c) ISM FRS PROJECTS		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.3.207	FRS(1)/2009-10/1/ESE	390,859.00	0.00	125,418.00	265,441.00
4.3.208	FRS(1)/2009-10/2/AC	74,545.00	205,000.00	220,600.00	58,945.00
4.3.209	FRS(1)/2009-10/3/AC	430,162.00	0.00	389,608.00	40,554.00
4.3.210	FRS(1)/2009-10/4/APH	202,000.00	100,000.00	215,616.00	86,384.00
4.3.211	FRS(1)/2009-10/5/EE	332,750.00	115,000.00	446,582.00	1,168.00
4.3.212	FRS(1)/2009-10/6/MEMME	300,000.00	0.00	0.00	300,000.00
4.3.213	FRS(1)/2009-10/7/MEMME	350,000.00	0.00	350,000.00	0.00
4.3.214	FRS(1)/2009-10/8/CSE	425,000.00	0.00	229,803.00	195,197.00
4.3.215	FRS(1)/2009-10/9/CSE	473,000.00	0.00	322,855.00	150,145.00
4.3.216	FRS(10)/2010-2011/AC	403,559.00	0.00	246,365.00	157,194.00
4.3.217	FRS(11)/2010-2011/AC	813,739.00	250,000.00	808,713.00	255,026.00
4.3.218	FRS(12)/2010-2011/AC	971,277.00	0.00	57,869.00	913,408.00
4.3.219	FRS(13)/2010-2011/AGL	365,061.00	50,000.00	396,504.00	18,557.00
4.3.220	FRS(14)/2010-2011/AGP	659,399.00	0.00	531,109.00	128,290.00
4.3.221	FRS(15)/2010-2011	344,693.00	0.00	147,330.00	197,363.00
4.3.222	FRS(16)/2010-2011	339,821.00	0.00	10,058.00	329,763.00
4.3.223	FRS(17)/2010-2011AM	297,278.00	0.00	234,405.00	62,873.00
4.3.224	FRS(18)/2010-2011/APH	686,931.00	0.00	474,691.00	212,240.00
4.3.225	FRS(19)/2010-2011/APH	1,000,000.00	0.00	95,855.00	904,145.00
4.3.226	FRS(20)/2010-2011/EE	1,000,000.00	0.00	0.00	1,000,000.00
4.3.227	FRS(21)/2010-2011/EE	741,911.00	0.00	13,461.00	728,450.00
4.3.228	FRS(22)/2010-2011/ECE	81,438.00	0.00	81,049.00	389.00
4.3.229	FRS(23)/2010-2011/ESE	563,454.00	0.00	510,611.00	52,843.00
4.3.230	FRS(24)/2010-2011/ME&MME	1,100,000.00	0.00	1,093,000.00	7,000.00
4.3.231	FRS(25)/2010-2011/ME&MME	856,920.00	203,000.00	2,018.00	1,057,902.00
4.3.232	FRS(26)/2010-2011/MS	1,210,000.00	0.00	1,127,960.00	82,040.00
4.3.233	FRS(27)/2010-2011/MS	448,955.00	0.00	16,227.00	432,728.00
4.3.234	FRS(28)/2010-2011/PE	956,003.00	200,000.00	972,619.00	183,384.00
4.3.235	FRS(29)/2010-2011/PE	636,273.00	100,000.00	562,111.00	174,162.00
4.3.236	FRS(30)/2012-13/AC	0.00	970,000.00	0.00	970,000.00
4.3.237	FRS(31)/2012-13/AC	0.00	970,000.00	0.00	970,000.00
4.3.238	FRS(32)/2012-13/AC	0.00	705,000.00	0.00	705,000.00
4.3.239	FRS(33)/2012-13/AM	0.00	320,000.00	0.00	320,000.00
4.3.240	FRS(34)/2012-13/AP	0.00	1,000,000.00	0.00	1,000,000.00
4.3.241	FRS(35)/2012-13/EE	0.00	1,000,000.00	0.00	1,000,000.00
4.3.242	FRS(36)/2012-13/EE	0.00	300,000.00	0.00	300,000.00
4.3.243	FRS(37)/2012-13/EE	0.00	387,000.00	0.00	387,000.00
4.3.244	FRS(38)/2012-13/ECE	0.00	800,000.00	0.00	800,000.00
4.3.245	FRS(39)/2012-13/ESE	0.00	800,000.00	0.00	800,000.00
4.3.246	FRS(40)/2012-13/ESE	0.00	940,000.00	0.00	940,000.00
4.3.247	FRS(41)/2012-13/ME	0.00	730,000.00	0.00	730,000.00
4.3.248	FRS(42)/2012-13/PE	0.00	850,000.00	0.00	850,000.00
4.3.249	Sub-total (ISM FRS PROJECTS)	16,455,028.00	10,995,000.00	9,682,437.00	17,767,591.00
4.3.250	Total R&D /UGC/FRS Projects (b)	126,488,509.49	90,786,394.00	75,094,954.67	142,179,948.82

(d) Other Current Liabilities:		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.3.251	AAPG/AGL	0.00	250,000.00	250,000.00	0.00
4.3.252	AICTE Seminar Grant Prof. K Mukherjee	0.00	0.00	0.00	0.00
4.3.253	ALS 2012	0.00	220,000.00	220,000.00	0.00
4.3.254	Athletica 2k2	206.00	0.00	0.00	206.00
4.3.255	Calcio Cup	248.00	0.00	0.00	248.00
4.3.256	CCL Ranchi	0.00	819,963.04	0.00	819,963.04
4.3.257	Certificate Course DMS	46,500.00	171,000.00	201,735.00	15,765.00
4.3.258	Children Activity Centre	675.00	0.00	0.00	675.00
4.3.259	Course Fee French	110,367.00	148,000.00	110,367.00	148,000.00
4.3.260	Course Fee German	108,950.00	65,000.00	107,200.00	66,750.00
4.3.261	Course Fee Spanish	0.00	19,500.00	0.00	19,500.00
4.3.262	CSECS-2010	0.00	0.00	0.00	0.00
4.3.263	DSP System ECE	0.00	70,000.00	0.00	70,000.00
4.3.264	Earnest Money Deposit	166,750.00	0.00	0.00	166,750.00
4.3.265	East Zone Inter University Youth Festival fund	134,373.10	0.00	0.00	134,373.10
4.3.266	Eco Club, ESE	4,500.00	0.00	0.00	4,500.00
4.3.267	Enterprenuer Certificate Course MS	0.00	200,000.00	200,000.00	0.00
4.3.268	FECIL-2011	0.00	0.00	0.00	0.00
4.3.269	HSS Foreign Language Course	0.00	767,000.00	242,438.00	524,562.00
4.3.270	ICMS 2012	0.00	236,000.00	236,000.00	0.00
4.3.271	Indian Mineral Congress 2011	202,952.00	0.00	202,952.00	0.00
4.3.272	Information SECT Course CSE 2012	0.00	158,000.00	5,600.00	152,400.00
4.3.273	International conf. Of MSEM -07	1,538,817.00	0.00	0.00	1,538,817.00
4.3.274	Intl workshop on e-governance	0.00	0.00	0.00	0.00
4.3.275	ISM Alumni Fund	56,980.00	36,600.00	0.00	93,580.00
4.3.276	Linux Certificate Course CSE	0.00	168,000.00	100,000.00	68,000.00
4.3.277	MATLAB Application Electrical Engg	0.00	185,000.00	185,000.00	0.00
4.3.278	Misc. Receipts	53,841.00	157,149.00	0.00	210,990.00
4.3.279	N.S.S. (Regular)	3,537.00	0.00	0.00	3,537.00
4.3.280	Nat. Sem. MTGST - 07	1,721.00	0.00	0.00	1,721.00
4.3.281	Nat. Sem. On E-Gov Awareness	1,778.00	0.00	0.00	1,778.00
4.3.282	National Sem. On Applied Physics	0.00	0.00	0.00	0.00
4.3.283	National Seminar of AGP	0.00	0.00	0.00	0.00
4.3.284	National Seminar on RAIT 2009 (CSE)	0.00	0.00	0.00	0.00
4.3.285	Network Sec Course 2012 CSE	0.00	2,000.00	0.00	2,000.00
4.3.286	NIT Durgapur	233,607.00	0.00	0.00	233,607.00
4.3.287	NPESMD-2011	0.00	0.00	0.00	0.00
4.3.288	NTPC	0.00	49,000.00	0.00	49,000.00
4.3.289	Outside Travel Assistance	0.00	0.00	0.00	0.00
4.3.290	Outstanding Exps.	1,738,686.00	0.00	1,738,686.00	0.00
4.3.291	PENS2012	0.00	0.00	0.00	0.00
4.3.292	RAG-2011	9,000.00	0.00	0.00	9,000.00
4.3.293	RAMA 2013	0.00	110,000.00	110,000.00	0.00
4.3.294	Scolomin Club	3,975.00	1,125.00	0.00	5,100.00
4.3.295	Security Deposit	604,665.85	75,069.00	78,745.00	600,989.85
4.3.296	Soft Computing Methods 2013	0.00	76,000.00	0.00	76,000.00
4.3.297	Unpaid Salary	12,516.75	0.00	0.00	12,516.75
4.3.298	WMMA 2013	0.00	204,000.00	172,392.00	31,608.00
4.3.299	Workshop on NCEP awareness	345.00	0.00	0.00	345.00
4.3.300	Workshop on Pandit M M Malviya	0.00	646,500.00	210,578.00	435,922.00
4.3.301	Workshop on Responsible Minning(CSR)	-123.00	123.00	0.00	0.00
4.3.302	Workshop on TSCC HSS	0.00	50,000.00	50,000.00	0.00
4.3.303	Travel grant	0.00	476,099.00	476,099.00	0.00
4.3.304	PARAKRAM	0.00	147,000.00	147,000.00	0.00
4.3.305	Sub-total	5,034,867.70	5,508,128.04	5,044,792.00	5,498,203.74
Inter-Unit Liailities (Project)		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.3.306	Benevolent Fund	0.00	1,445,358.00	1,445,358.00	0.00
4.3.307	CPF Contribution	-20,000.00	276,777.00	106,500.00	150,277.00
4.3.308	EDC Room Rent	0.00	2,780,100.00	2,780,100.00	0.00
4.3.309	Electricity Charges	0.00	11,747.00	11,747.00	0.00
4.3.310	GJLT Rent	0.00	1,150.00	1,150.00	0.00
4.3.311	Liecenee fee	0.00	12,345.00	12,345.00	0.00
4.3.312	Matching Cont to CPF Members	0.00	0.00	0.00	0.00
4.3.313	Medical Charges	0.00	7,500.00	7,500.00	0.00
4.3.314	Non-Plan Control Account (General)	12,971,644.14	28,143,719.03	41,105,363.17	10,000.00

4.3.315	Non-Plan Control Account (Surplus payable)	38,342,937.08	28,895,255.61	38,342,937.08	28,895,255.61
4.3.316	PF Control Account	443,627.00	11,059,068.00	11,502,695.00	0.00
4.3.317	Room Rent	0.00	0.00	0.00	0.00
4.3.318	SAH Room Rent	0.00	344,459.00	344,459.00	0.00
4.3.319	School Development Fund	0.00	751,940.00	751,940.00	0.00
4.3.320	School Share	0.00	10,395.00	10,395.00	0.00
4.3.321	School Support Charges	0.00	22,515,309.03	22,515,309.03	0.00
4.3.322	Telephone Charges	0.00	0.00	0.00	0.00
4.3.323	Vehicle Charges	0.00	85,432.00	85,432.00	0.00
4.3.324	Sub-total	51,738,208.22	96,340,554.67	119,023,230.28	29,055,532.61
4.3.325	Total Other Current Liabilities (Project)	56,773,075.92	101,848,682.71	124,068,022.28	34,553,736.35
4.3.326	Total Other Current Liabilities & Provisions (Project)	183,261,585.41	213,354,840.71	219,882,740.95	176,733,685.17
(e) Consultancy Projects:		2012-13	2012-13	2011-12	2011-12
4.3.327	Opening Balance	81,778,796.90		61,369,702.95	
4.3.328	Add: Total Receipts during the year	81,019,017.25		70,511,954.87	
4.3.329	Less: Payments from consultancy projects during the year	77,383,866.53		50,102,860.92	
4.3.330	Add: Transfer from Capital Fund for creation of opening balance of Consultancy Projects towards undisbursed amount as on 1.4.2007 /adjustment		85,413,947.62	0.00	81,778,796.90
4.3.331	Balance as on 31 March		85,413,947.62		81,778,796.90
4.3.332	TOTAL CURRENT LIABILITIES (PROJECTS)	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
4.3.333	TOTAL CURRENT LIABILITIES- Current year (Projects)	265,040,382.31	213,354,840.71	281,252,443.90	262,147,632.79
4.00	Total Current Liabilities	566,157,250.67	560,047,377.71	809,991,034.90	381,218,447.15

SCHEDULE - V : FIXED ASSETS									
S No	Particulars	Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Gross Total	Depreciation			Closing Balance as on 31.03.2013
Plan:						Upto 2011-12	Dep. %	For 2012-13	Total Depreciation
5.1.1	Computers, Peripherals & Internet Equipment	130,217,699.00	12,281,046.00	10,489,667.00	132,009,078.00	107,702,470.00	60.00%	14,583,964.80	122,286,434.80
5.1.2	Furniture & Fixtures	23,857,815.00	36,418,107.00	0.00	60,275,922.00	3,762,225.70	10.00%	5,651,369.63	9,413,595.33
5.1.3	Land - Freehold	14,662,250.00	0.00	0.00	14,662,250.00	0	0.00%	0.00	14,662,250.00
5.1.4	Library Books & Journals	131,897,702.00	66,398,050.00	2,951,250.00	197,344,502.00	116,986,730.60	60.00%	48,214,662.84	165,201,393.44
5.1.5	Plant, Machinery & Equipment - Equipment/Lab.Development:	298,485,915.00	96,933,204.00	15,237,784.00	378,181,335.00	159,882,214.85	15.00%	32,744,868.02	192,627,082.87
5.1.6	Roads & Buildings	335,064,102.00	205,493,837.00	0.00	540,557,939.00	153,068,118.00	10.00%	38,748,982.10	191,817,100.10
5.1.7	Power & Water Supply equipments	59,551,369.00	72,541,061.00	0.00	132,092,430.00	13,534,523.90	10.00%	11,855,790.61	25,390,314.51
5.1.8	Student Amenities	12,898,878.00	8,661,414.00	455.00	21,559,837.00	3,968,533.60	10.00%	1,759,130.34	5,727,663.94
5.1.9	Computer Software	1,174,861.00	9,067,108.00	0.00	10,241,969.00	5,048,430.40	60.00%	3,116,123.16	8,164,553.86
5.1.10	Vehicles	4,503,319.00	662,153.00	0.00	5,165,472.00	3,990,288.05	15.00%	176,277.59	4,166,565.54
5.1.11	Communication System	0.00	9,020,142.00	0.00	9,020,142.00	598,500.00	15.00%	1,263,246.30	7,158,395.70
5.1.12	Office Automation	0.00	1,612,273.00	0.00	1,612,273.00	0.00	15.00%	241,840.95	1,370,432.05
5.1.13	Total - Current year (Plan)	₹ 1,010,313,910.00	₹ 521,088,395.00	₹ 28,679,156.00	₹ 1,502,723,149.00	588,542,035.10		158,356,256.35	775,824,857.56
Non-Plan:									
5.2.1	Communication Facilities	4,076,105.00	2,112,803.00	0.00	6,188,908.00	3,612,247.40	15.00%	386,500.09	3,998,746.64
5.2.2	Computer Hardware	2,147,525.00	369,501.00	7,875.00	2,509,151.00	1,956,249.20	60.00%	331,742.08	2,287,990.88
5.2.3	Computer Software	1,566,774.00	18,177.00	0.00	1,584,951.00	1,566,118.60	60.00%	11,300.44	1,577,418.64
5.2.4	Electrical installations	3,083,482.00	969,480.00	0.00	4,052,962.00	1,362,698.10	10.00%	267,027.39	1,649,724.59
5.2.5	Equipment for Laboratories	13,964,076.00	0.00	0.00	13,964,076.00	10,652,789.80	15.00%	496,693.93	11,149,482.88
5.2.6	Furniture & Fixtures	14,254,596.00	20,059.00	0.00	14,274,655.00	9,570,823.30	10.00%	470,383.17	10,041,206.57
5.2.7	Library Books & Journals	35,451,405.00	2,334,947.00	2,141,490.00	35,644,862.00	31,514,592.20	60.00%	2,478,162.58	33,992,754.68
5.2.8	Office Equipment	9,140,606.00	3,438,665.00	0.00	12,579,271.00	5,165,447.40	10.00%	741,382.36	5,906,829.86
5.2.9	Roads & Buildings (On Freehold Land):	8,837,598.00	0.00	0.00	8,837,598.00	3,979,672.60	10.00%	485,792.54	4,465,465.24
5.2.10	Student Hostel furniture	1,444,548.00	0.00	0.00	1,444,548.00	523,665.40	10.00%	92,088.26	615,753.76
5.2.11	Tubewells & Water Supply Equipment	1,389,964.00	23,207.00	0.00	1,413,171.00	574,835.90	10.00%	83,833.51	658,669.51
5.2.12	Vehicles	551,432.00	0.00	0.00	551,432.00	343,459.25	15.00%	31,195.91	374,655.31
5.2.13	Total - Current year (Non Plan)	₹ 95,908,111.00	₹ 9,286,839.00	₹ 2,149,365.00	₹ 103,045,585.00	70,842,599.15		5,876,102.26	76,718,698.56
5.2.14	Total (Plan & Non Plan)	₹ 1,106,222,021.00	₹ 530,375,234.00			449,568,031.00		164,232,358.61	803,616,990.01
Project:									
5.3.1	Books and Journals	991,680.00	505,014.00	0.00	1,496,694.00	814,042.20	60.00%	409,591.08	1,223,633.28
5.3.2	Computers, Peripherals & Internet Equipment	19,681,974.40	3,621,838.00	112,394.00	23,191,418.40	17,178,621.84	60.00%	3,607,677.94	20,786,299.78
5.3.3	Computer Software	4,808,420.00	2,131,337.00	0.00	6,937,757.00	4,710,409.00	60.00%	1,336,408.80	6,046,817.80
5.3.4	Furniture & Fixtures	1,095,171.00	1,166,271.00	0.00	2,261,442.00	361,149.10	10.00%	190,029.29	551,178.39
5.3.5	Office Equipment	710,483.00	1,649,857.00	0.00	2,360,340.00	182,078.50	10.00%	217,826.15	399,904.65
5.3.6	Plant, Machinery, & Equipment - Equipment/Lab.Development:	126,963,842.60	38,763,205.67	0.00	165,727,048.27	85,777,556.68	15.00%	11,992,423.74	97,769,980.42
5.3.7	Roads & Buildings (On Freehold Land):	31,707,787.06	11,600.00	0.00	31,719,387.06	22,091,898.21	10.00%	962,748.89	23,054,647.09
5.3.8	Vehicles	1,043,602.00	0.00	0.00	1,043,602.00	703,669.30	15.00%	50,989.91	754,659.21
5.3.9	Current year (Project)	₹ 187,000,960.06	₹ 47,849,122.67	₹ 112,394.00	₹ 234,737,688.73	131,819,424.83		18,767,695.78	150,587,120.61
	TOTAL - Current year	₹ 1,293,222,981.06	₹ 578,224,356.67	₹ 30,940,915.00	₹ 1,840,506,422.73	₹ 771,204,059.08		183,000,054.39	954,204,110.62
	* Depreciation has been calculated as per prescribed rates (Details are explained under Notes on Accounts)								
									886,302,312.11

SCHEDULE - VI : INVESTMENTS

	PARTICULARS	Balance as on 01.04.2012	Investments/ Renewals during the year	Investments Encashed/ adj. during the year	Balance as on 31.03.2013
Plan:					
6.1.1	Bank Fixed Deposits	0.00	2,023,286,622.00	2,023,286,622.00	0.00
6.1.2	Sub-total - Plan	0.00	2,023,286,622.00	2,023,286,622.00	0.00
Non-Plan:					
6.2.1	GIA & School income: Bank FDs:	0.00	371,103,322.00	371,103,322.00	0.00
6.2.2	Scholarship funds: Bank FDs:	5,445,000.00	2,000,000.00	0.00	7,445,000.00
6.2.3	Endowment fund: Bank FDs:	0.00	266,729,254.00	0.00	266,729,254.00
6.2.4	Accrued Interest on End Fund FDRs	28,504,135.00	28,790,734.00	0.00	57,294,869.00
6.2.5	Accrued Interest on NP Investments	0.00	0.00	0.00	0.00
6.2.6	8% GOI Bond (End. Fund Invest.)	70,000,000.00	0.00	0.00	70,000,000.00
6.2.7	Sub-total - Non Plan	103,949,135.00	668,623,310.00	371,103,322.00	401,469,123.00
Projects:					
6.3.1	Bank FDs & GOI Bonds	376,280,620.00	410,203,743.00	338,034,211.00	448,450,152.00
6.3.2	Accrued Interest	32,894,755.00	35,025,881.00	32,894,755.00	35,025,881.00
6.3.3	Sub-total - Projects	409,175,375.00	445,229,624.00	370,928,966.00	483,476,033.00
6	GRAND TOTAL INVESTMENTS	513,124,510.00	3,137,139,556.00	2,765,318,910.00	884,945,156.00

SCH.- VII : CURRENT ASSETS, LOANS, ADVANCES, ETC.**VII (A) - CURRENT ASSETS****Cash and Bank Balances :**

Plan:	Particulars	2012-13	2012-13	2011-12	2011-12
7.1.1	Cash at Bank :				
7.1.2	SBI, ISM Campus Br. Dhanbad (Plan C/A)	63,049,133.91		41,755,769.91	
7.1.3	Sub Total (Plan)		63,049,133.91		41,755,769.91
Non-Plan:					
7.2.1	Bank Bal. with Scheduled Banks :				
7.2.2	SBI, ISM Campus Br., Dhanbad (Non Plan C/A)	169,046,789.10	0.00	122,203,040.01	
7.2.3	Canara Bank, SDL Br., Dhanbad	28,953.00	0.00	28,953.00	
7.2.4	Canara Bank, Parlmt. St. Br., N.Delhi	9,841.00	0.00	9,841.00	
7.2.5	SBI, ISM,Dhanbad (Endowment Fund SB A/c)	39,854,716.01	0.00	4,062,329.93	
7.2.6	Online SBI Bank A/c	1,358,109.00	0.00	681,868.00	
7.2.7	E-payment SBI Bank Account	10,893.00			
7.2.8	Sub Total (Non Plan)	210,309,301.11	210,309,301.11	126,986,031.94	126,986,031.94
7.2.9	Cash in Hand	93,949.70	93,949.70	278,157.70	278,157.70
7.2.10	Total Cash & Bank Balances (Non Plan)	210,403,250.81	210,403,250.81	127,264,189.64	127,264,189.64

Project:		2012-13	2012-13	2011-12	2011-12
	Balance with Scheduled Banks:				
7.3.1	CA with SBI, ISM Br., Dhanbad	232,363.90		1,076,614.57	
7.3.2	SB with Canara Bank,SDL Br, Dh.	2,186,226.95		22,964,688.80	
7.3.3	TEQIP II	13,209,804.00	15,628,394.85	19,832,273.00	43,873,576.37
7.3.4	Sub Total (Project)		15,628,394.85		43,873,576.37
7.3.5	Cash Balance in hand	1,522.00	1,522.00	10,660.00	10,660.00
7.3.6	Total Cash & Bank Balances (Project)	15,629,916.85	15,629,916.85	43,884,236.37	43,884,236.37
7	Total Cash & Bank Balances		289,082,301.57		212,904,195.92

VII (B) - LOANS, ADVANCES & OTHER ASSETS:**(a) Loans/Advances to employees:****1. Plan:**

Sl No	PARTICULARS	Balance as on 01.04.2012	Investments/ Renewals during the year	Investments Encashed/ adj. during the year	Balance as on 31.03.2013
7.1.4	Staff Advance	17,796.00	149,465.00	103,516.00	63,745.00
7.1.5	House Building Advance	59,235.00	0.00	0.00	59,235.00
7.1.6	Sub-total (Plan)	77,031.00	149,465.00	103,516.00	122,980.00

2. Non-Plan:

7.2.11	Cycle Advance	61,754.00	18,100.00	41,700.00	38,154.00
7.2.12	Car Advance	667,500.00	202,500.00	265,500.00	604,500.00
7.2.13	Festival Advance	578,599.00	1,072,500.00	1,086,000.00	565,099.00
7.2.14	H.B. Advance (Against Rev.Fund)	641,500.00	2,316,671.00	2,507,871.00	450,300.00
7.2.15	House Building Advance	11,852,900.00	477,866.00	1,813,066.00	10,517,700.00
7.2.16	Imprest Advances	158,267.00	284,000.00	289,791.00	152,476.00
7.2.17	P.C.Advance	972,000.00	751,512.00	537,612.00	1,185,900.00
7.2.18	Scooter/Motorcycle Advance	2,273,000.00	1,126,228.00	1,337,528.00	2,061,700.00
7.2.19	Staff Advance	4,155,616.00	17,130,299.00	18,292,016.00	2,993,899.00
7.2.20	Sub-total (Non Plan)	21,361,136.00	23,379,676.00	26,171,084.00	18,569,728.00

3. Project

7.3.7	Staff Advance	708,333.02	2,127,400.00	2,404,208.00	431,525.02
7.3.8	Advance for Election duty	0.00			0.00
7.3.9	Sub-total (Project)	708,333.02	2,127,400.00	2,404,208.00	431,525.02

(b) Advances to suppliers/Contractors: Capital A/c**1. Plan:**

7.1.7	Advances to suppliers	588,291.00	40,840,933.00	1,131,282.00	40,297,942.00
7.1.8	Advances to contractors	3,012,007,299.00	880,816,900.00	164,150,681.00	3,728,673,518.00
7.1.9	Advance of books and Journals	5,779.00	0.00	0.00	5,779.00
7.1.10	Adv. for ISM Work-in-progress	391,086.00	0.00	0.00	391,086.00
7.1.11	Prepaid Expenses	3,970,800.00	0.00	496,350.00	3,474,450.00
7.1.12	Sub-total	3,016,963,255.00	921,657,833.00	165,778,313.00	3,772,842,775.00

2. Non Plan:

7.2.21	Advances to suppliers	481,378.00	245,120.00	177,225.00	549,273.00
7.2.22	Adv.to foreign suppliers against LC	0.00	0.00	0.00	0.00
7.2.23	Sub-total	481,378.00	245,120.00	177,225.00	549,273.00

3. Project:

7.3.10	Advance to suppliers	1,444,310.62	13,345,667.00	1,178,127.00	13,611,850.62
7.3.11	Sub-total	1,444,310.62	13,345,667.00	1,178,127.00	13,611,850.62

(c) - Other Deposits

1. Plan:		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
7.1.13	SD with IOC/Mahavir Gas, Dhanbad	78,342.00	0.00		78,342.00
7.1.14	SD with DVC	50,000.00	0.00		50,000.00
7.1.15	Non Plan Control Account (Please see Current Liabilities)	0.00	0.00	0.00	0.00
7.1.16	Grants in aid receivable from MHRD	190,000,000.00	18,800,000.00	190,000,000.00	18,800,000.00
7.1.17	Sub-total	190,128,342.00	18,800,000.00	190,000,000.00	18,928,342.00

2. Non Plan:

		Balance as on 01.04.2012	Additions during the year	Deduction/Adj during the year	Balance as on 31.03.2013
7.2.24	Security Deposit with J.S.E.B.	3,877,000.00	0.00	0.00	3,877,000.00
7.2.25	Security Deposit with BSNL, Dh.	66,500.00	0.00	0.00	66,500.00
7.2.26	SD with IOC/Mahavir Gas, Dh.	75,400.00	112,000.00	0.00	187,400.00
7.2.27	SD with Sunita Rani Marwaha	28,500.00	0.00	0.00	28,500.00
7.2.28	Grants-in-aid Receivable	143,100,000.00	0.00	143,100,000.00	0.00
7.2.29	Deficit Current Year	13,012,156.30	2,461,983.61	13,012,156.30	2,461,983.61
7.2.30	Project Control Account (General)	12,971,644.14	52,099,423.03	65,061,067.17	10,000.00

7.2.31	Project Control Account (End Fund)	38,342,936.92	28,895,255.61	38,342,937.08	28,895,255.45
7.2.32	Plan Control Account	162,217,715.36	126,801,183.00	278,977,285.00	10,041,613.36
7.2.33	Sub-total	373,691,852.72	210,369,845.25	538,493,445.55	45,568,252.42
3. Project:					
7.3.18	Security Deposit with Samanta & Co	12,000.00	0.00	0.00	12,000.00
7.3.19	Plan Control Account	0.00	0.00	161,546.00	(161,546.00)
7.3.20	Sub-total	12,000.00	0.00	161,546.00	(149,546.00)
Total Loan, Advances & Deposits					
7.10	Total (Loan, Advances & Deposits) - PLAN	3,207,168,628.00	1,003,656,431.91	355,881,829.00	3,854,943,230.91
7.20	Total (Loan, Advances & Deposits) - NON-PLAN	395,534,366.72	444,397,892.06	564,841,754.55	275,090,504.23
7.30	Total (Loan, Advances & Deposits) - PROJECT	2,164,643.64	15,473,067.00	3,743,881.00	29,523,746.49
Total Current Assets					
7A	Total Plan Current Assets	3,207,168,628.00			3,854,943,230.91
7B	Total Non Plan Current Assets	395,534,366.72			275,090,504.23
7C	Total Project Current Assets	2,164,643.64			29,523,746.49
7	Total Current Assets	3,604,867,638.36			4,159,557,481.63
Sl.No.	Particulars	Current Year : 2012-13		Previous Year : 2011-12	
SCH. VIII - GRANTS IN AID					
8.1.1	Grants-in-aid from MHRD (Plan)	1,350,000,000.00		810,000,000.00	
8.1.2	Add: GIA Receivable for the year	0.00		190,000,000.00	
8.1.3	Total	1,350,000,000.00		1,000,000,000.00	
8.1.4	Less: Transferred to Capital Fund towards non recurring expenses	0.00	1,350,000,000.00	831,385,720.64	168,614,279.36
8.1.5	Grants-in-aid from MHRD (Non-Plan)	539,500,000.00		290,000,000.00	
8.1.6	Add: GIA Receivable for the year	0.00		143,100,000.00	
8.1.7	Add: Opening Balance of GIA (Previous Yr)	0.00		0.00	
8.1.8	Total Non-Plan GIA for 2009-10	539,500,000.00		433,100,000.00	
8.1.9	Less: Transferred to Capital Fund towards non recurring expenses	0.00		6,118,209.00	
8.1.10	Less: Balance of GIA transferred to Unspent GIA for VI Pay Commission Arrears	0.00	539,500,000.00	0.00	426,981,791.00
8	Total Grants in Aid	1,889,500,000.00	1,889,500,000.00	1,433,100,000.00	595,596,070.36
SCH.- IX - FEES FROM STUDENTS:					
Non-Plan:		Current Year : 2012-13		Previous Year : 2011-12	
9.2.1	(a) Tuition fees	85,330,615.00		81,669,766.00	
9.2.2	(b) Less: Refund of tuition fees	9,989,800.00	75,340,815.00	13,577,292.00	68,092,474.00
9.2.3	Admission fees	745,712.00		704,795.00	
9.2.4	Annual fees	4,417,211.00		4,720,200.00	
9.2.5	Application fees for admission	4,279,225.00		4,712,020.00	
9.2.6	Computer fees	4,238,000.00		3,727,700.00	
9.2.22	Convocation charges			0.00	
9.2.7	Counselling fees	0.00		0.00	
9.2.8	Course material fees	0.00		0.00	
9.2.9	Electricity charges	1,807,263.00		1,506,760.00	
9.2.10	Exam. fees	6,111,016.00		5,097,191.00	
9.2.11	Fine/penalty	579,013.00		883,700.00	
9.2.12	Hostel admission fees	868,900.00		767,100.00	
9.2.13	Hostel seat rent	4,979,536.00		4,155,650.00	
9.2.14	Hostel seat rent(outside students)	36,375.00		0.00	
9.2.15	Identity card	244,600.00		203,000.00	
9.2.16	Library fees	2,941,200.00		2,347,200.00	

9.2.17	License fees	0.00		138,713.00	
9.2.18	Mark sheet fees	25,500.00		13,700.00	
9.2.19	Medical fees	708,185.00		312,000.00	
9.2.20	Migration certificate fees	586,950.00		615,900.00	
9.2.31	Outside Students Training Fee	128,500.00		140,500.00	
9.2.24	Registration form & fees	1,132,395.00		936,830.00	
9.2.25	School Development fees	18,000.00		0.00	
9.2.26	Semester rule book	910,790.00		789,455.00	
9.2.27	Sports fees & entry fees	847,300.00		744,000.00	
9.2.28	Student activity fees	0.00		66,510.00	
9.2.21	Student Other fees	2,023,702.00		585,732.00	
9.2.29	Telephone charges	0.00		0.00	
9.2.23	Training & Placement fee	4,593,000.00		4,055,000.00	
9.2.30	University/Degree exam. Fees	150,200.00	42,372,573.00	0.00	37,223,656.00
9	TOTAL		117,713,388.00		105,316,130.00

SCH. - X: INTEREST INCOME		Current Year : 2012-13		Previous Year : 2011-12	
Plan:					
Interest from Bank					
10.1.1	Interest on FDRs	10,067,290.00		17,383,428.00	
10.1.2	Miscellaneous Income	0.00		10,716.00	
10.1.3	Sub Total (Plan)		10,067,290.00		17,394,144.00
Non Plan:					
A. Interest from Bank					
10.2.1	Interest from FDRs	2,596,031.00		2,088,649.00	
10.2.2	Interest from Post Office SB a/c	0.00	2,596,031.00	0.00	2,088,649.00
B. Interest from employees:					
10.2.3	(a) Intt. from HBA to employees	415,830.00		724,875.00	
10.2.4	(b) Less: Transer to HBA	0.00	415,830.00	0.00	724,875.00
10.2.5	Interest on other Adv. to employees:				
10.2.6	Interest from Cycle Adv.			0.00	
10.2.7	Interest on LTC Adv.	2,875.00		459.00	
10.2.8	Intt. On PC advance	65,412.00		113,471.00	
10.2.9	Interest from Scooter Advance	13,241.00			
10.2.10	Interest from Car Advance	22,500.00	104,028.00	5,300.00	119,230.00
10.2.11	Sub Total (Non Plan)		3,115,889.00		2,932,754.00
Project:					
Interest from Bank					
10.3.1	Interest on Investment	27,385,897.00		35,308,193.00	
10.3.2	Interest on S.B. A/c	1,538,152.00		1,620,226.00	
10.3.3	Miscellaneous Income	0.00	28,924,049.00	153,269.27	37,081,688.27
10.3.4	Sub total (Project)		28,924,049.00		37,081,688.27
10	Total Interest Income		42,107,228.00		57,408,586.27

SCH. - XI: OTHER INCOME					
Non-Plan:					
A. Recoveries from employees:					
11.2.1	Bus fare / vehcile charges	285,289.00		215,427.00	
11.2.2	Electricity charges	1,279,530.00		790,932.00	
11.2.3	License fees	1,866,629.00		1,758,008.00	
11.2.4	Medical charges	2,678,156.00		2,431,450.00	
11.2.5	Water charges	5,132.00	6,114,736.00	7,781.00	5,203,598.00
B. Income from others:					
11.2.6	Sr. Acad. Hostel Room Rent	1,312,559.00		500,484.00	
11.2.7	EDC room rent	3,262,100.00		1,981,229.00	
11.2.8	Application fees for employment	133,100.00		37,400.00	
11.2.9	Miscellaneous income	2,566,294.40		450,136.00	
11.2.10	License fees from tenants	1,038,595.00		448,882.00	

11.2.11	GJLT/Penman Rent	352,632.00		245,318.00	
11.2.12	Electric charges from tenants	648,984.00		854,600.00	
11.2.13	Tender Cost	1,190,470.00		713,850.00	
11.2.14	Income from BRS	970,463.00	11,475,197.40	136,897.00	5,368,796.00
C. Income from Consultancy /Projects:					
11.2.15	School share from Consultancy	14,895.00			
11.2.16	School support from Consultancy/ Projects	22,888,714.03	22,903,609.03	12,000,000.00	12,000,000.00
11.2.17	Sub Total (Other Income N Plan)		40,493,542.43		22,572,394.00
11	Total Other Income		40,493,542.43		22,572,394.00
9A	Total Fees from Students		117,713,388.00		105,316,130.00
10A	Total Interest Income		42,107,228.00		57,408,586.27
11A	Total Other Income		40,493,542.43		22,572,394.00
	Total Adminstrative Income		200,314,158.43		185,297,110.27
SCH. XII - ESTABLISHMENT EXPENSES		Current Year : 2012-13		Previous Year : 2011-12	
Plan:					
12.1.1	Pay & Allowances	0.00	0.00	0.00	0.00
Non-Plan:					
	Pay and Allowances:	Current Year : 2012-13		Previous Year : 2011-12	
12.2.1	Arrears of VI Pay Commission	0.00		1,917,206.00	
12.2.2	Bonus	1,065,705.00		1,176,999.00	
12.2.3	Children Education Allowance	3,168,120.00		3,154,679.00	
12.2.4	City Compensatory Allowance	0.00		0.00	
12.2.5	Conveyance/Transport Allowance	8,297,480.00		6,996,616.00	
12.2.6	Dearness Allowance	138,511,492.00		103,191,179.00	
12.2.7	Dearness Pay	8,184.00		0.00	
12.2.8	Grade Pay	34,305,676.00		33,528,480.00	
12.2.9	Honorarium	2,401,031.00		2,340,420.00	
12.2.10	House Rent Allowance	7,405,351.00		11,942,538.00	
12.2.11	House Rent for Accomodation to Faculty	0.00		0.00	
12.2.12	Interim Relief	0.00		0.00	
12.2.13	Leave Travel Concession	6,021,893.00		4,476,509.00	
12.2.14	Non-Practicing Allowance	256,002.00		248,272.00	
12.2.15	Other Allowances	885,812.00		459,149.00	
12.2.16	Overtime	178,403.00		111,312.00	
12.2.23	Pay arrears	117,942.00		0.00	
12.2.17	Pay of Officers	105,952,067.00		95,994,296.00	
12.2.18	Pay of Staff	57,263,422.00		57,157,216.00	
12.2.19	Personal pay	372,445.00		356,929.00	
12.2.20	Reimb.of profs. exp. to teachers/ Personal Development Allowance	20,740,609.00		9,735,172.00	
12.2.21	Special allowance to Director	60,000.00		51,613.00	
12.2.24	Wages	19,231,382.00		1,752,574.00	
12.2.22	Washing Allowance	162,270.00		181,796.00	
12.2.25	Sub-total		406,405,286.00		334,772,955.00
	Retirement Benefits:				
12.2.26	Pension	55,540,846.00		50,909,943.00	
12.2.27	Pension Arrears for VI pay comm				
12.2.28	Gratuity	8,561,328.00		15,748,740.00	
12.2.29	Leave Salary	9,693,134.00		12,172,721.00	
12.2.30	Sub Total	73,795,308.00		78,831,404.00	
12.2.31	Less: Received from other orgns.			0.00	
12.2.32	Sub Total	73,795,308.00		78,831,404.00	
12.2.33	Retirement T.A.	452,522.00		515,165.00	

12.2.34	Medical allowance	150,833.00		421,631.00	
12.2.35	Deposit Linked Insurance	51,952.00		120,000.00	
12.2.36	Matching contribn.to CPF members	2,855,392.00		2,836,190.00	
12.2.37	Matching contribn.to DCPS members	9,349,175.00	86,655,182.00	7,494,777.00	90,219,167.00
12.2.38	T O T A L (Non Plan)		493,060,468.00		424,992,122.00
12	Total Establishment Exp.		493,060,468.00		424,992,122.00

SCH. XIII - OTHER ADMINISTRATIVE EXPENSES	Current Year : 2012-13	Previous Year : 2011-12

Plan:					
a.	Travelling Expenses	0.00	0.00	1,706,973.36	1,706,973.36
b.	Departmental Expenses				
13.1.1	Applied Chemistry (Cont.)	3,565.00		319,466.00	
13.1.2	Electrical Engg Deptt	95,011.00		93,486.00	
13.1.3	Environmental Sc & Engg	305,328.00		314,171.00	
13.1.4	Chemical Engg.	320,178.00	724,082.00	24,041.00	751,164.00
c.	Other Educational Exp.				
13.1.5	Grant for R&D Projects	9,827,000.00		0.00	
13.1.6	Entrance Exam. & Admission exp.	0.00		609,892.00	
13.1.7	Student's Amenities and activities	254,438.00		926,830.00	
13.1.8	Student's Scholarship	27,874,680.00		15,097,594.00	
13.1.9	Examination Section	511,117.00		750,895.00	
13.1.10	Subscription to Science Direct & E-Journals	12,454,504.00	50,921,739.00	12,544,540.00	29,929,751.00
d.	General Expenses:				
13.1.11	Electricity Charges	18,188,569.00		14,683,846.00	
13.1.12	Generator Running & Maint. Exp.	11,778,914.00		7,107,322.00	
13.1.13	Health Centre & Medical Care Exp.	5,855,241.00		3,237,763.00	
13.1.14	Vehicle Running & Maint. Exp.	142,188.00		496,814.00	
13.1.15	Security Services	5,768,188.00		4,672,144.00	
13.1.16	Telephone/fax/internet/Website exp.	4,175,140.00		3,464,154.00	
13.1.17	Bank Charges	47,275.00		0.00	
13.1.18	Staff Selection Expenses	236,379.00	46,191,894.00	1,952,170.00	35,614,213.00
e.	Miscellaneous Expenses				
13.1.19	Repair & Maintenance	15,986,339.00		8,034,898.00	
13.1.20	Public Health & Pest Control	2,955,475.00		9,432,885.00	
13.1.21	ISM Expansion Plan	0.00		100,000.00	
13.1.22	Round off	0.00	18,941,814.00	0.00	17,567,783.00
	Sub-total (Plan)		116,779,529.00		85,569,884.36

Non-Plan:					
		Current Year : 2012-13	Previous Year : 2011-12		
a.	Travelling Expenses:				
13.2.1	TA to Employees	872,753.00		0.00	
13.2.2	TA for Trg/Seminar/Conf etc in India	76,392.00		214,437.00	
13.2.3	TA for Trg/Seminar/Conf etc abroad	61,912.00		105,097.00	
13.2.4	TA for Meetings & Meeting Exp.	2,105,919.00		1,908,615.00	
13.2.5	TA to External Experts/Officials	1,466,173.00	4,583,149.00	1,075,133.00	3,303,282.00
b.	Departmental Expenses:				
13.2.6	Administrative Dept Exp	1,416,301.00		975,080.00	
13.2.7	Applied Chemistry	1,031,311.00		804,482.00	
13.2.8	Applied Geology	925,698.00		728,466.00	
13.2.9	Applied Geophysics	619,137.00		451,494.00	
13.2.10	Applied Mathematics	361,279.00		223,062.00	
13.2.11	Applied Physics	326,352.00		159,092.00	
13.2.12	Central Library	305,505.00		323,394.00	

13.2.13	Computer Centre	266,737.00		91,648.00	
13.2.14	Computer Science & Engineering	240,965.00		224,211.00	
13.2.15	Centre for Mine Environment (ESE)	840,973.00		758,143.00	
13.2.16	Electronics & Instrumentation	580,093.00		370,143.00	
13.2.17	Executive Development Centre	788,711.00		513,071.00	
13.2.18	Fuel & Mineral Engg	615,341.00		333,921.00	
13.2.19	Humanities & Social Sciences	23,118.00		46,445.00	
13.2.20	Inter Disciplinary Research Contgency	339,327.00		575,605.00	
13.2.21	Management Studies	423,034.00		395,172.00	
13.2.22	MechEngg& Mining MachEngg	833,097.00		613,789.00	
13.2.23	Mining Engeeniring	1,068,596.00		1,070,441.00	
13.2.24	Petroleum Engg	883,118.00		878,080.00	
13.2.25	Sports & Gymnasium	1,643,655.00		1,560,789.00	
13.2.26	Electrical Engg	104,869.00		6,300.00	
13.2.27	Workshop	1,218,650.00	14,855,867.00	1,041,158.00	12,143,986.00

c.	Other Educational Expenses:	Current Year : 2012-13	Previous Year : 2011-12
13.2.28	Contbn. to Seminars/Symposia	50,000.00	-40,000.00
13.2.29	Entrance Exam/Admission Expenses	4,913,262.00	3,216,821.00
13.2.30	Examination Section Exp.	3,159,250.00	1,370,489.00
13.2.31	Liabrary Periodicals	125,525.00	82,218.00
13.2.32	Prizes to Students	414,881.00	147,250.00
13.2.33	Students Activities	1,561,290.00	1,631,254.00
13.2.34	Students Amenities	859,479.00	478,585.00
13.2.35	Scholarship to Students:		
13.2.36	PGContingency	1,262,152.00	336,910.00
13.2.37	Research Contingency	7,519,999.00	0.00
13.2.38	Research Fellowship	18,314,719.00	12,484,717.00
13.2.39	Student Scholarship(PG Fellowship)	14,239,360.00	11,172,908.00
13.2.40	Student Scholarship-(UG)	4,420,878.00	10,645,876.00
13.2.41	Mess bill/Pocket Exp to SC/ST students	4,724,551.00	0.00
		50,481,659.00	34,640,411.00
		61,565,346.00	41,527,028.00

d.	General Expenses:	Current Year : 2012-13	Previous Year : 2011-12
13.2.42	Advertisement & Publicity	5,599,819.00	4,898,110.00
13.2.44	Electricity Charges	12,551,621.00	8,557,036.00
13.2.45	Generator Running & Maint. Exp.	8,824,969.00	7,542,713.00
13.2.46	Health Centre Expenses/Medical cover to Employees/Students	13,314,356.00	11,671,120.00
13.2.47	Horticulture & Gardening	1,967,542.00	1,825,432.00
13.2.48	Hospitality & Public Relations	232,056.00	205,062.00
13.2.43	Liasioning Office Expenses	473,967.00	451,011.00
13.2.49	Postage & Telegram	746,754.00	679,019.00
13.2.50	Printing & Stationery	2,093,281.00	1,304,518.00
13.2.51	School's membership to professional bodies	194,840.00	44,090.00
13.2.52	Security Services	18,753,342.00	12,287,648.00
13.2.53	Telephone/Telex/Fax/Internet	1,700,139.00	900,447.00
13.2.54	Uniform to Staff	316,337.00	90,301.00
13.2.55	Vehicle Running & Maint. Expenses	1,613,391.00	1,565,639.00
13.2.56	Water Supply expenses	6,532,997.00	4,542,115.00
		74,915,411.00	56,564,261.00

e.	Miscellaneous Expenses	Current Year : 2012-13	Previous Year : 2011-12
13.2.57	Audit Fees & Expenses	85,449.00	66,000.00
13.2.58	Bank Charges	16,225.48	209,799.00
13.2.59	Contingent Expenses	1,118,795.00	1,137,605.00
13.2.60	Convocation & Annual Day	2,859,250.00	318,448.00

13.2.61	Deficit Set Off	13,012,156.30		598,115.00	
13.2.62	Legal expenses	187,524.00		29,749.00	
13.2.63	Loss by theft	10,425.00			
13.2.64	Miscellaneous Expenses:	144,800.00			
13.2.65	Public Health & Pest Control	6,770,673.00		4,484,192.00	
13.2.66	Publications	278,303.00		210,445.00	
13.2.67	Rajbhasha & other statutory exp	244,326.00			
13.2.68	Sr.Acedamic Hostel	716,274.00		122,516.00	
13.2.69	Trng. of Teachers/Staff incl.seminars etc.	149,714.00		842,449.00	
13.2.70	Visiting Part-time Lecturers	704,668.00		467,462.00	
13.2.71	Welfare Measures	1,399,212.00	27,697,794.78		8,486,780.00
13.2.72	Maintenance Exps(Repairing):				
a	Civil Maintenance	14,867,718.00		12,883,672.00	
b	Computer Maintenance	1,067,469.00		794,635.00	
c	Electrical Maintenance	2,394,157.00		2,048,096.00	
c	Furniture & Fixtures	328,200.00		296,602.00	
d	Office & Lab Equipment	361,765.00		201,056.00	
e	Refrigeration & Air-conditioning	120,700.00	19,140,009.00		16,224,061.00
	Sub Total (NP Miscellaneous Exp)		46,837,803.78		24,710,841.00
13.2.69					
13.2	Sub-total (Non-Plan)		695,818,044.78		563,241,520.00
Project Account		Current Year : 2012-13		Previous Year : 2011-12	
Miscellaneous Expenses:					
13.3.1	Bank Charges	28793.39		0.00	
13.3.2	Miscellaneous	0.00	28793.39	1019.15	1019.15
13.3	Total Admn Expenses Projects		28,793.39		1,019.15
13 A	Total Travelling Exp		4,583,149.00		5,010,255.36
13 B	Total Departmental Exp		15,579,949.00		12,895,150.00
13 C	Total Other Educational Exp		112,487,085.00		41,527,028.00
13 D	Total General Expenses		121,107,305.00		92,178,474.00
13 E	Total Misc Expenses		38,110,616.39		33,792,863.15
13	Total Other Administrative Exp		291,896,897.78		185,403,770.51

SCHEDULE - XIV: SIGNIFICANT ACCOUNTING POLICIES

14.1 ACCOUNTING CONVENTION:

"The financial statements of Plan, Non-Plan and Project have been prepared on the basis of historical cost convention unless otherwise stated and generally on accrual basis of accounting to the extent possible. However, provision for retirement benefits viz. gratuity, leave salary, pension liability, prepaid expenses etc. has not been made during the year."

14.2 REVENUE RECOGNITION

Fees from students, sale of admission forms, interest on saving bank a/c, Income from land, Building and other property etc, are accounted on realisation basis. The tuition fee is collected on semester basis commencing from July to June. Interest on Investment are accounted on accrual basis. Interest on interest bearing advances are accounted for on receipt basis.

14.3 INVENTORIES VALUATION:

Expenditure on purchase of chemicals, glassware, publications, stationery and other stores is accounted as revenue expenditure.

14.4 INVESTMENTS:

- (a) Investments both long term and short term have been shown at face value / cost.
- (b) No shortfall is expected in the value of investments as the same are to be redeemed by Govt. Institutions at face value.

14.5 FIXED ASSETS AND DEPRECIATION

A. FIXED ASSETS:

- (a) Fixed assets have been stated at cost of acquisition inclusive of inward freight, duties, taxes and incidental/direct expenses related to acquisition to the extent possible.
- (b) Fixed assets received by way of non-monetary grants (other than towards the Corpus Fund) have been capitalised at values stated by corresponding credit to capital fund.
- (c) Expenditure for renovation of buildings has been treated as Capital Expenditure.
- (d) Assets acquired under PDA have been capitalised.
- (e) Capitalisation of assets related to previous year and depreciation thereof directly accounted through capital fund.

B. DEPRECIATION:

"The depreciation on fixed assets has been recalculated during the year as per observation of audit, accordingly provision for excess/less depreciation has been made during the year. Depreciation rates has also been revised according to Income Tax Act. No depreciation was provided till 2006-07. Depreciation has also been calculated for whole year on the assets procured anytime during the year. With the change of accounting system from cash accounting to Accrual accounting, the depreciation was provided for the first time during 2007-08, for all the previous years upto 31st March 2007 by debiting Capital Fund Account. For the purpose of determining the quantum of depreciation for all the previous years, depreciation has been calculated separately on diminishing balance method (written down value) for each item from 1997-98 onwards at the following rates and at the ad-hoc rates to cover all the years up to and including 1996-97. In order to reflect the assets at face value, the provision for accumulated depreciation has been shown under Previous Liabilities & Provisions. The Depreciation rates and ad hoc rates adopted are as follows

Sl. No	Name of Assets	Ad-hoc rate of Depreciation for op. balance as on 1.4.1997	Depreciation rate on yearly basis
1	Land	0%	0%
2	Road & Buildings	25%	10%
3	Furniture & Fixture	50%	10%
4	Office Equipment/ Appliances	50%	10%
5	Electrical Installation	50%	15%
6	Library Books	80%	60%
7	Tube Well & Water Supply Equipment	50%	10%
8	Communication Facilities	50%	15%
9	Computer Hardware/ Peripherals	80%	60%
10	Computer Software/Software Development	80%	60%
11	Plant & Machinery/Lab Equipments	50%	15%
12	Vehicles	50%	15%
13	Student Amenities	50%	10%

The depreciation for Project Assets has been debited to the Capitalised fund for Assets Account through which assets were created in the books of accounts."

14.6 GOVERNMENT GRANTS:

- (a) Government grants utilised for acquisition/construction of assets have been capitalised.

- (b) The MHRD grant utilized towards capital expenditure are transferred to the Capital Fund Account to the extent of excess of income over expenditure.
- (c) MHRD grants for meeting Revenue Expenditure are treated, to the extent utilized as income of the year in which they are realized under Plan.
- (d) Break-up of grants-in-aid under the heads recurring and non-recurring has been shown according to utilisation of the grants as no such allocation has been specified by MHRD, New Delhi.
- (e) The last year deficit has been set off during current year. Deficit of current year under non plan has been carried forward.

14.7 FOREIGN CURRENCY TRANSACTIONS:

Transactions denominated in foreign currency are accounted or at the exchange rate prevailing on the date of the transaction as per Bank advice.

14.8 RETIREMENT BENEFITS:

Retirement benefits are accounted for on cash basis. "

14.9 INCOME TAX:

The income of the School is exempted from Income Tax under Section 10 (23c) of the Income Tax Act. No provision for tax is therefore made in the accounts.

SCHEDULE - XV: CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS

15.1 CONTINGENT LIABILITIES:

- (a) There were no disputed demands in respect of income tax, sales tax, municipal taxes, etc. as at the end of the year.
- (b) Some suits were filed against ISM, by former/ present employees/ students of ISM and were pending for decision by various courts. These are related to employees promotions, increments, pay scales, termination, retirement benefits, student related, tenants, as well as arbitration cases with the suppliers. The quantum of the claims is not ascertainable.

15.2 CAPITAL COMMITMENTS

Estimated value of contracts remaining to be executed on Capital Account and not provided for (Net of Advances) amounted to about Rs. 50.00 Crores as on 31.3.2013. The gross value

of construction works to be executed through Advance to CPWD is estimated more than Rs. 500 Crores.

15.3 PREVIOUS ASSETS, LOANS & ADVANCES

In the opinion of the Management the Previous assets, loans and advances have a realisable value in the ordinary course of transactions equal at least to the aggregate amount shown in the Balance Sheet except a few very old balances. The expenditure on renovation/modification of buildings has been charged to Road & Buildings.

15.4 PAY AND ALLOWANCES:

As a part of implementation of accrual system of accounting the provision for salary of March 2013 has been made in the books of accounts as on 31.3.2013. No other provisions are made for arrears of pay and allowances.

15.5 CONSULTANCY SERVICES:

The accounting system for the consultancy services was changed during the year 2007-08. Upto 2006-07 the amount received and expenditure incurred on consultancy projects were taken into Income & Expenditure Account. From 2007-08 the amount of consultancy has been considered as liability and undisbursed amount has been shown in the Balance sheet. The amount received/ expenditure for new consultancy services and undisbursed amount of old consultancy projects have been taken into Balance Sheet. The receipts/ payments for the consultancy services of previous period has been taken into Capital Fund Account.

15.6 Balance with SBI, ISM Campus Branch, Dhanbad under Project Previous a/c no.10230776203 as on 31.03.2013 as per Cash book is Rs. 2.32 lakhs which tallies with the balance of the bank.

15.7 Expenditure exceeding availability of fund in a project, if any, was met out of interest from project investments.

15.8 Corresponding figures for the previous year have been regrouped / rearranged, wherever necessary and segregated to the extent possible. The variation in the previous year figures of balance sheet is due to reclassification/ segregation of ledger accounts. However, no changes were made in the previous year figures of Income & Expenditure A/c and Receipt & Payment accounts.

15.9 As the Provident Fund Accounts and the New Pension Scheme Account are owned by the Members of those funds and not by the School, these accounts are prepared separately. However, a Receipt & Payment Account, an Income & Expenditure Account and a Balance Sheet of the same is attached to the School's Account.

- 15.10** The surplus funds under Project Accounts were invested in a consolidated manner, and interest income was credited to Income & Expenditure Account considering income of the School.
- 15.11** The Bank FDR's are considered as investment, hence shown as 'Investment of Funds' under Balance Sheet.
- 15.12** Schedule 1 to 15 are annexed to and form an integral part of the Balance Sheet as at 31st March 2013 and the Income & Expenditure Account for the year ended on that date.



(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)



(COL. M.K.SINGH)
REGISTRAR



(PROF. D. C. PANIGRAHI)
DIRECTOR

INDIAN SCHOOL OF MINES

DHANBAD



**Annual Accounts of GPF, CPF & DCPS for the
Financial Year 2012 - 2013**



INDIAN SCHOOL OF MINES DHANBAD

BALANCE SHEET OF G.P.F., C.P.F. AND D.C.P.S. ACCOUNT AS AT 31st MARCH 2013

Sl. No.	LIABILITIES	Current Year 2012-13 (Amounts in ₹)	Previous Year 2011-12 (Amounts in ₹)
1	GPF MEMBERS' FUNDS:		
1.4.1	Balance at the beginning of the year	194,793,619.00	174,079,012.00
1.4.2	Add: Subscriptions/Loan Recovery during the year	36,663,251.00	34,623,719.00
1.4.3	Add: Interest credited to members	16,741,807.00	14,205,363.00
	Add: Transfer from CPF Member's fund a/c	0.00	-
1.4.4	Sub-total	248,198,677.00	222,908,094.00
1.4.5	Less: Advances, withdrawals & final payments	40,525,173.00	28,114,475.00
1.4.6	Balance at the end of the year	207,673,504.00	194,793,619.00
2	CPF MEMBERS' FUNDS:		
2.4.1	Balance at the beginning of the year	137,156,860.00	133,794,032.00
2.4.2	Add: Subscriptions & Loan recovery during the year	10,694,329.00	11,456,186.00
2.4.3	Add: Interest credited to members	11,741,644.00	10,458,377.00
2.4.4	Add: Matching contribution to the members	3,025,669.00	3,122,338.00
2.4.5	Sub-total	162,618,502.00	158,830,933.00
2.4.6	Less: Advances, withdrawals & final payments	12,005,544.00	21,674,073.00
	Less: Adjustment for transfer to GPF Members's Fund/ General Reserve	0.00	0.00
2.4.7	Balance as at the end of the year	150,612,958.00	137,156,860.00
3	DCPS MEMBERS' FUNDS:		
3.4.1	Balance at the beginning of the year	404,103.00	421,614.00
3.4.2	Subscriptions during the year	0.00	0.00
3.4.3	Add: Matching contribution to the members	0.00	0.00
3.4.4	Add: Interest credited to members	0.00	0.00
	Less: Amount transferred to NSDL Account	0.00	17,511.00
3.4.5	Balance as at the end of the year	404,103.00	404,103.00
4	GENERAL RESERVE:		
4.4.1	Balance at the beginning of the year	48,442,346.13	47,543,191.55
4.4.2	Add: Excess of income over exp. for the year	9,188,964.42	899,154.58
4.4.3	Add: Book adjustment for reconciliation	0.00	0.00
4.4.4	Add: Transfer from CPF Member's fund a/c	0.00	0.00
4.4.5	Balance as at the end of the year	57,631,310.55	48,442,346.13
5	TOTAL LIABILITIES	416,321,875.55	380,796,928.13

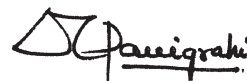
	A S S E T S	Current Year 2012-13	Previous Year 2011-12
6	CURRENT ASSETS:		
6.4.1	Investments:		
6.4.2	Balance at the beginning of the year	278,934,745.00	321,734,523.00
6.4.3	Add: Investments made during the year	143,490,672.00	72,359,243.00
6.4.4	Less: Investments encashed during the year	68,486,957.00	115,159,021.00
6.4.5	Balance as at the end of the year	353,938,460.00	278,934,745.00
6.4.6	Accrued Interest on Investment:		
6.4.7	Opening Balance	35,247,683.58	26,360,519.00
6.4.8	Additions during the year	10,096,182.42	8,887,164.58
6.4.9	Balance as at the end of the year	45,343,866.00	35,247,683.58
6.4.10	Total Investment incld. Accrued Interest	399,282,326.00	314,182,428.58
6.4.11	CASH & BANK BALANCES:		
6.4.12	Cash at Bank with SBI, ISM Br., Dhanbad	16,885,272.55	10,186,872.55
6.4.13	Sundry Debtors: Project Control A/c	170,277.00	443,627.00
6.4.14	Non Plan Control Account (payable)	-16,000.00	55,984,000.00
6.4.15	T O T A L	416,321,875.55	380,796,928.13



(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)



(COL. M.K.SINGH)
REGISTRAR



(PROF. D. C. PANIGRAHI)
DIRECTOR



INDIAN SCHOOL OF MINES DHANBAD

INCOME AND EXPENDITURE ACCOUNT OF G.P.F., C.P.F. AND D.C.P.S. ACCOUNT FOR THE YEAR ENDED 31st MARCH 2013

Sl. No.	INCOME	Current Year 2012 - 2013 (Amounts in ₹)	Previous Year 2011 - 2012 (Amounts in ₹)
1	Interest / Income from Investments	27,579,141.00	16,675,730.00
2	Interest Accrued on investment	10,096,182.42	8,887,164.58
	TOTAL (A)	37,675,323.42	25,562,894.58
	EXPENDITURE		
3	Interest credited to members accounts	28,483,451.00	24,663,740.00
4	Bank charges	2,908.00	0.00
	TOTAL (B)	28,486,359.00	24,663,740.00
5	Balance being excess of Income over Expenditure (A - B)	9,188,964.42	899,154.58
6	BALANCE BEING SURPLUS CARRIED TO GENERAL RESERVE	9,188,964.42	899,154.58

(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)

(COL. M.K.SINGH)
REGISTRAR

(PROF. D. C. PANIGRAHI)
DIRECTOR



INDIAN SCHOOL OF MINES DHANBAD

RECEIPTS AND PAYMENTS ACCOUNT OF G.P.F., C.P.F. AND D.C.P.S. ACCOUNT FOR THE YEAR ENDED 31st MARCH 2013

Sl.No.	RECEIPTS	Current Year 20012-13 (Amounts in ₹)	Previous Year 20011-12 (Amounts in ₹)
1	O.B: Cash at Bank with SBI,ISM Br,Dhanbad	10,186,872.55	3,975,030.55
2	Interest / Income from Investments	27,579,141.00	16,675,730.00
3	Subscription & loan rec. from GPF members	36,663,251.00	34,623,719.00
4	Subscription & loan rec. from CPF members	10,694,329.00	11,456,186.00
5	Subscription from DCPS members	0.00	0.00
6	Matching contribuion to CPF members	3,025,669.00	3,122,338.00
7	Matching contribuion to DCPS members	0.00	0.00
8	Investments encashed	68,486,957.00	115,159,021.00
9	Receipt from Non-Plan A/c	56,000,000.00	3,320,150.00
10	Receipt from Project Control A/c	11,502,695.00	20,000.00
11	TOTAL	224,138,914.55	188,352,174.55
	PAYMENTS		
12	Advances / withdrawals / final payments to GPF members	40,525,173.00	28,114,475.00
13	Advances / withdrawals / final payments to CPF members	12,005,544.00	21,674,073.00
14	Refund/ Transfer from DCPS to NSDL A/c	0.00	17,511.00
15	Investments made during the year	143,490,672.00	72,359,243.00
16	Refund of dues to Non-Plan A/c	11,229,345.00	56,000,000.00
17	Bank Charges	2,908.00	0.00
18	CB: Cash at Bank with SBI,ISM Br.,Dhanbad	16,885,272.55	10,186,872.55
19	TOTAL	224,138,914.55	188,352,174.55

(M. S. CHAMPIA)
ASSTT. REGISTRAR (G. ACCOUNTS)

(COL. M.K.SINGH)
REGISTRAR

(PROF. D. C. PANIGRAHI)
DIRECTOR

Audit Report

Annexure - II



No. OAD-C/SAR-ISM/2012-13/288 Dated 13. 02. 2014
Indian Audit & Accounts Department
Office of the Principal Director of Audit (Central), Lucknow
Branch-Jharkhand Ranchi, AG Office, Main Building, Ranchi-834 002

To

**The Director,
Indian School of Mines,
Dhanbad-826004**

Subject : Separate Audit Report and Audit Certificate on the accounts of Indian School of Mines, Dhanbad for the year 2012-13.

Sir,

I am to enclose a copy of the Audit Report and Audit Certificate along with audited annual accounts of Indian School of Mines (ISM), Dhanbad for the year 2012-13 for information and necessary action.

2. A copy of each of the documents has been sent to the Secretary to the Government of India, Ministry of Human Resource Development, New Delhi for information and necessary action.
3. The audited annual accounts, Audit Report should be duly considered and adopted by the Governing Body (BOG) of the ISM, Dhanbad in the Annual General meeting before these are laid in the House of Parliament.
4. A copy of (i) Resolution of Governing Body adopting the Audit Report and Audit Certificate with audited Annual Accounts, (ii) Date of its Presentation before the House of Parliament and (iii) Annual Report of the Institute may be furnished to this office in due course for our records and onward transmission to the Comptroller and Auditor General of India, New Delhi.
5. The Hindi version of this SAR may kindly be furnished to this office within one week.
6. The receipt of this letter with enclosures may please be acknowledged.

Yours faithfully,

Encl :- As above

Principal Director of Audit (Central), Lucknow

**Separate Audit Report of the Comptroller and Auditor General of India on
the accounts of Indian School of Mines, Dhanbad, for the year ended 31st
March 2013**

We have audited the attached Balance Sheet of Indian School of Mines (ISM), Dhanbad as at 31 March 2013, the Income and Expenditure Account and Receipts and Payments account for the year ended on that date under Section 20 (1) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. The audit has been entrusted for the period up to 2016-17. These financial statements are the responsibility of the ISM's management. Our responsibility is to express an opinion on these financial statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller and Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules and Regulations (Propriety and Regularity) and efficiency-cum-performance aspects, etc., if any, are reported through Inspection Reports/ CAG's Audit Reports separately.

3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements. An audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the managements as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.

4. Based on our audit, we report that :

- (i) We have obtained all the information and explanations, which, to the best of our knowledge and belief, were necessary for the purpose of our audit.

- (ii) The Balance Sheet and Income and Expenditure Account and Receipts and Payments account dealt with by this report have been drawn up in the format approved by the Government of India, Ministry of Finance.
- (iii) In our opinion, proper books of accounts and other relevant records have been maintained by the Indian School of Mines, Dhanbad as required under section 19 (I to vi) of the Memorandum of Association and Rules and Regulations in so far as it appears from our examination of such books,
- (iv) We further report that :

A. Balance Sheet

A.1 Liabilities

A.1.1 Overstatement of Liability (Plan) under the head Revolving Fund by ₹ 1.91 lakh

The liability under the head Revolving Fund was shown as ₹ 77.41 lakh (Schedule-III3.2.8) in the annual accounts as on 31.03.13 as against ₹ 75.50 lakh. This may be reconciled.

B. Income and Expenditure

B.1 Interest Income (Schedule-X): ₹ 421.07 lakh

As per the accounting policies interest earned from investment of a Project Fund should be credited to the respective project under intimation to the grant sanctioning authority. It was noticed that the interest of ₹ 289.24 lakh (273.86 lakh and 15.38 lakh of Schedule-X item No. 10.3.1 & 10.3.2) was earned accrued on investment of different project funds. Instead of crediting to the respective project head, interest earned and accrued was credited to the Income and Expenditure Account as ISM's income. This resulted in overstatement of excess of income over expenditure by ₹ 289.24 lakh.

C. Receipts and Payments

C.1 Uncashed Cheques : ₹ 6023.90 lakh

Cheques amounting to ₹ 6023.90 lakh were issued by ISM between Nov. 2009 and March 2013, but these cheques were not encashed and they became time-barred. Consequently, the liability to the extent of ₹ 6023.90 lakh remained indisposed. This resulted in understatement of cash and bank balance as well as liability to that extent.

C.2 Overstatement of Receipt by ₹ 92.50 lakh.

In Receipts and Payments Account, the total addition to Earmarked fund on the receipt side was shown as 1076.71 lakh whereas as per ledger (Schedule-III), the amount was 984.24 lakh. This figure needs reconciliation.

D. General

- i. Contrary to the Common Format of accounts prescribed by the Government, ISM accounted for the liabilities of staff pension. Staff GPF/CPF leave salary and gratuity on cash basis.
- ii. Staff GPF/CPF fund of ₹ 3539.38 lakh was invested in Short-Term Deposit Receipts (STDR) and Term Deposit Receipts (TDR) in the bank in contravention of the pattern of investment prescribed by the Ministry of Finance vide Notification dated 14.08.2008.

E. Grants - in - Aid

The ISM had unspent balance of previous year ₹ 8.88 lakh under the Plan head and the ISM received ₹ 18895.00 lakh (₹ 13500.00 lakh in Plan and ₹ 5395.00 lakh in Non Plan). Further, the ISM earned ₹ 100.67 lakh as interest on investment and the ISM generated income from internal resources amounting to ₹ 1613.23 lakh under the head Non plan. Thus, the total fund of ₹ 20617.78 lakh was

available to ISM for utilization, out of which the ISM could utilise ₹ 20642.16 lakh (₹ 13609.31 lakh under the head Plan and ₹ 7032.85 lakh in Non Plan) and leaving the balance of ₹ (-) 24.38 lakh as on 31.3.2013.

The ISM received ₹ 4400.00 lakh during the month March 2013.

F. Management letter

Deficiencies which have not being included in the Audit Report have been brought to the notice of the Director of ISM through a management letter issued separately for remedial/corrective action.

- v. Subject to our observations in the preceding paragraphs, we report that the Balance Sheet and Income & Expenditure Account/Receipt & Payment Account dealt with by this report are in agreement with the books of accounts.
- vi. In our opinion and to the best of our information and according to the explanations given to us, the said financial statements read together with the Accounting Policies and Notes on Accounts, and subject to the significant matters stated above and other matters mentioned in the annexure to this Audit Report give a true and fair view in conformity with accounting principles generally accepted in India.
 - (a) In so far as it relates to the Balance sheet, of the state of affairs of the Indian School of Mines, Dhanbad as at 31 March 2013, and
 - (b) In so far as it relates to Income and Expenditure Account of the deficit for the year ended on that date.

For and on behalf of the

Comptroller and Auditor General of India.

Place : Patna

Date : 13.02.14



Principal Director of Audit (Central), Lucknow

Annexure

1. Adequacy of Internal Audit System :

No internal audit was conducted during the current year. Besides, Internal Audit Manual has not been prepared by ISM as of date.

2. Adequacy of Internal control system :

Internal Control mechanism in ISM reflected the following deficiencies :

- Improper maintenance of cash books as opening and closing balances were not shown in cash books. Beside, monthly bank reconciliation was not recorded in cash book.
- Lack of proper authentication and checking of ledgers and cash books.
- Non-maintenance of Consolidated Fixed Assets Register.
- No system is in place to conduct physical verification of cash.
- Non-adjustment of advances.
- Long-term and short-term investments were not shown separately in the annual accounts.
- Un-utilized grants at the end of the year were not shown separately as refundable to the Ministry.
- Project Account did not exhibit fixed assets as prescribed in the Common Format of Account.

3. System of Physical verification of Assets

Physical verification of fixed assets was carried out by individual departments.

4. System of Physical verification Inventories

Physical verification of Inventories was carried during the year.

5. Regularities in payment of statutory dues :

All statutory dues were paid within the stipulated time schedule by ISM.

