

# Annual Report

2014-2015



Indian School of Mines

Dhanbad - 826004 (India)

# *Annual Report*

*2014-2015*



**Indian School of Mines**  
Dhanbad - 826004 (India)

## CONTENTS

		Page No.
<b>Foreword</b>		i
<b>Vision</b>		ii
<b>Mission</b>		ii
<b>Summary of Activities</b>		iii - xi
<b>1.</b>	<b>ABOUT ISM</b>	1
<b>2.</b>	<b>ACADEMIC ACTIVITIES</b>	3
	2.1 Academic Programmes	3
	2.2 Research Programmes	7
<b>3.</b>	<b>DEPARTMENTAL ACTIVITIES</b>	16
	3.1 Applied Chemistry	16
	3.2 Applied Geology	37
	3.3 Applied Geophysics	51
	3.4 Applied Mathematics	60
	3.5 Applied Physics	87
	3.6 Chemical Engineering	114
	3.7 Civil Engineering	120
	3.8 Computer Science & Engineering	123
	3.9 Electrical Engineering	139
	3.10 Electronics Engineering	148
	3.11 Environmental Science & Engineering	169
	3.12 Fuel & Mineral Engineering	191
	3.13 Humanities and Social Sciences	198
	3.14 Management Studies	204
	3.15 Mechanical Engineering	216
	3.16 Mining Engineering	234
	3.17 Mining Machinery Engineering	255
	3.18 Petroleum Engineering	263
<b>4.</b>	<b>STUDENTS' ACTIVITIES</b>	277
<b>5.</b>	<b>PLACEMENT OF STUDENTS</b>	280
<b>6.</b>	<b>INSTITUTE-INDUSTRY INTERACTION</b>	283
	6.1 Consultancy Services	283
	6.2 Professional Development Programmes	305
<b>7.</b>	<b>INFRASTRUCTURE FACILITIES</b>	311
<b>8.</b>	<b>ACTIVITIES UNDER INTERNATIONAL RELATIONS AND ALUMNI AFFAIRS (IRAA)</b>	318
<b>9.</b>	<b>PERSONNEL</b>	320
<b>10.</b>	<b>MEMBERS OF GENERAL COUNCIL, EXECUTIVE BOARD AND FINANCE COMMITTEE</b>	330
<b>11.</b>	<b>FINANCIAL STATEMENTS (Annexure I)</b>	342
<b>12.</b>	<b>AUDIT REPORT (Annexure II)</b>	392

## Foreword

---


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 Engineering and Applied Geology. In 1967 it was granted the status of a Deemed to be University under Section 3 of UGC Act, 1956. Over the last eight decades, ISM has incorporated important core engineering disciplines and has acquired the status of full-fledged institute of global standing in imparting higher education in engineering, science and management.

The present report contains the research, academic and related activities of the Institute for the period 1st April 2014 to 31st March 2015. During this period, there were substantial developments in all fronts such as student strength, number of research scholars, infrastructure development, research publications, external cash flow from projects sponsored by industries and national funding agencies. The campus placement continued to remain high with increase in the highest and the average pay packages. Further, the Institute was involved in several executive training programmes and industry sponsored project work for overseas organizations in addition to its role to cater to the need of industries and organizations in the country.

This year marked a new beginning in the area of international relations with signing of MOUs with different universities across the globe. During this academic year, 51 international students joined ISM. 20 students and 79 faculty members from ISM moved to different foreign universities under international collaboration programmes spanning from one month to one year duration including participation in International Conferences. During this period the institute was entrusted to mentor in establishing Afghan School of Mines at Kabul as assigned by Ministry of External Affairs, Government of India to augment bilateral diplomacy between Government of India and Islamic Republic of Afghanistan.

The Institute is making foray into the newer areas of academic endeavors in tune with the changing times. The year registered 20% increase in cash flow from sponsored projects, and 34% increase in the number of Ph.D. degrees awarded compared to the previous year. These developments were the outcome of a number of innovative steps taken during the year and in the recent past.

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 in bringing about these achievements during the last year. Their dedication and hard work would always pave 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 an 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 and intellectual honesty is the norm, and from which will emerge the leaders and innovators of tomorrow in the realms of technology. While serving as a catalyst in a developing society, its goal as one of the premier technology education institution of the country would be to intimately involve itself not just in the technological development of the Nation but also in its overall development.

## Mission

---

- To educate and train manpower in various disciplines of engineering and technology, applied sciences, management 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 industry and the 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 thoughts and endeavours, and
- To develop the region in which the Institute is located through community development programmes including training and education.

## Summary of Activities

---

### *Innovations and Marching Ahead towards Excellence*

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

#### **Research & Industry Interface**

- Establishment and operationalization of state-of-the-art Central Research Facility (CRF).
- Institution of Post-Doctoral Fellowship programme.
- Development of Industry-Institute Interface Center at Kolkata.
- Initiatives to open Industry-Institute Interface Center at New Delhi.
- Preliminary effort for establishment of Regional Center in Andhra Pradesh.
- Establishment of new Research Centers:
  - Center for Renewable Energy
  - Center of Excellence in Safety, Occupational Health and Disaster Management
  - Center for Innovation, Incubation & Entrepreneurship
  - Center for Societal Mission
- Emphasis and encouragement to publish research papers in SCI/SSCI journals.
- Conferment of industry sponsored awards to faculty members for excellence in research.

#### **Academic**

- Project mode learning from second year onwards.
- In house development and implementation of online students' feedback system.
- Introduction of Major, Minor and Honours for undergraduate courses.
- Introduction of foreign language, leadership development and entrepreneurship development programmes.
- Introduction of summer semester for academically weak students to improve the learning process.
- Introduction of relative grading system.
- Appointment of eminent persons including Padmashri awardees and retired faculty members from established IITs & IISc as adjunct/re-employed Professors.
- Conferment of industry sponsored awards to students.
- Establishing new industry sponsored professorial chairs and enhancement of funding for the existing chair positions.
- Introduction of academic programmes:
  - B.Tech (Civil Engineering)
  - B.Tech (Electronics & Instrumentation Engineering)

- B.Tech (Engineering Physics)
- Dual Degree (Computer Science & Engineering)
- Executive MBA
- M. Tech (Computer Science & Engineering with Specialization in Information Security)
- M. Tech (Power System Engineering)
- M. Tech (Design Engineering)
- M. Tech (Manufacturing Engineering)
- M. Tech (Thermal Engineering)

### **Infrastructure**

- Establishment of Student Activity Center with swimming pool and other facilities.
- An integrated approach to address the space and laboratory requirements of different Departments & Centers.
- Construction of 1000 bedded girls' hostel, 2000 bedded boys' hostel, 120 Type V flats, and 60 Type VI flats.
- Transfer of 9 acres of land from the Government of Jharkhand to ISM and initiative to acquire another 166 acres.
- Self contained students' amenities in the hostel complexes.
- Central Library, centrally air-conditioned seven storied building, automated in terms of records management, information retrieval and service delivery.

### **Organizational Development & Administration**

- In house development of Office Automation System.
- Institutionalized goal setting system for faculty members and departments.
- Streamlining of the promotional avenue of staff members and implementing DPC after a gap of 23 years.
- Improvement groups for formulating policy frame work for all round growth.
- Adoption of new Store & Purchase manual to streamline purchase process and disposal of dead stocks occupying valuable space.

### **International Endeavour**

- Mentoring to establish Afghan School of Mines at Kabul assigned by Ministry of External Affairs, Government of India to augment bilateral diplomacy between Government of India and Islamic Republic of Afghanistan.
- Accomplishment of 12 executive development programmes for senior officials of different ministries and technocrats of Islamic Republic of Afghanistan.
- Commencement of International Executive Development Center.
- Admission of foreign students in post graduate programmes of ISM.
- Reciprocal mobility of students of ISM and foreign universities and transfer of credits earned.

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 1<sup>st</sup> April 2014 to 31<sup>st</sup> March 2015 is presented below:

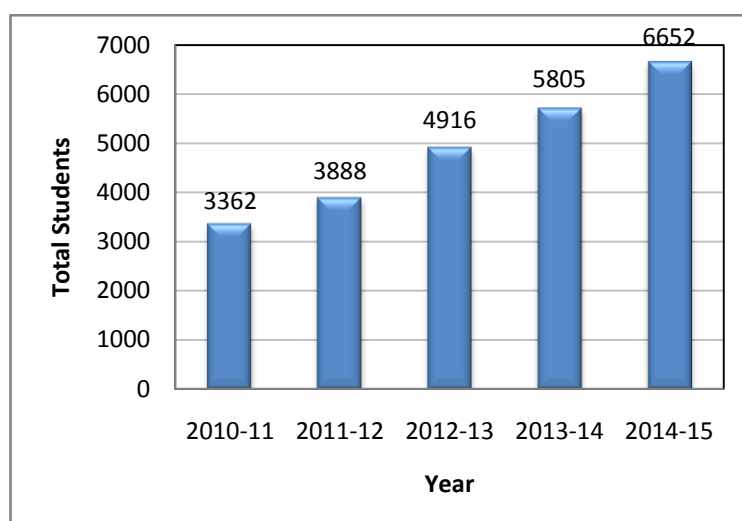
## 1. Academic Activities

### 1.1 New Programmes/Courses Launched

- M.Tech Programme in “Earthquake Disaster, Hazard & Risk Mitigation” by the Department of Applied Geophysics.
- M.Tech Programme in “Computer Science & Engineering with Specialization in Information Security” by the Department of Computer Science & Engineering.
- M.Tech Programme in “Power Electronics & Electrical Drives” by the Department of Electrical Engineering.
- M.Tech Programme in “Chemical Engineering” by the Department of Chemical Engineering.
- M.Tech Programme in “Reservoir & Production Engineering” by the Department of Petroleum Engineering.
- M.Tech Programme in “Opencast Mining” by the Department of Mining Engineering.

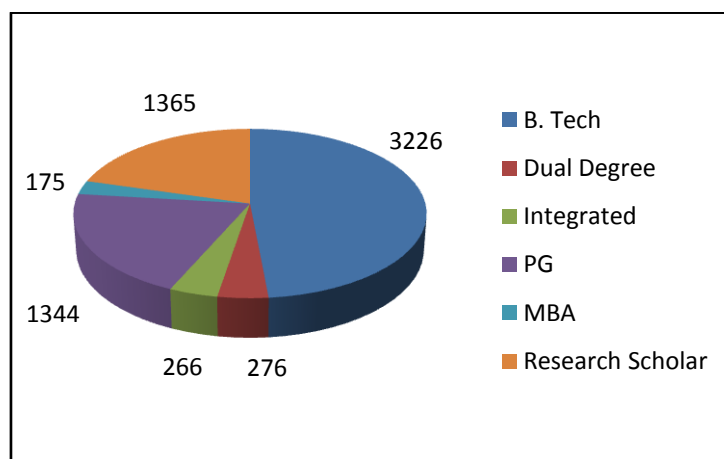
### 1.2 Student Strength

The total student strength in the campus increased to 6652 as on 31 March 2015. The comparison of student strength in the last five years is shown below:





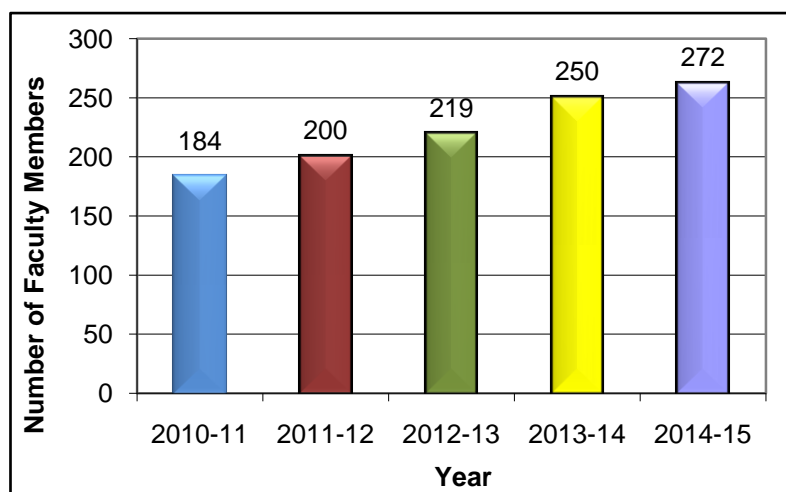
The break-up of student strength in different programmes is shown below:



### 1.3 Faculty Strength

- 28 faculty members (02 Chair Professors, 02 Professors, 02 Re-employed Professor, 22 Assistant Professors) joined during the year.
- Total faculty strength in the campus during the year was 272.

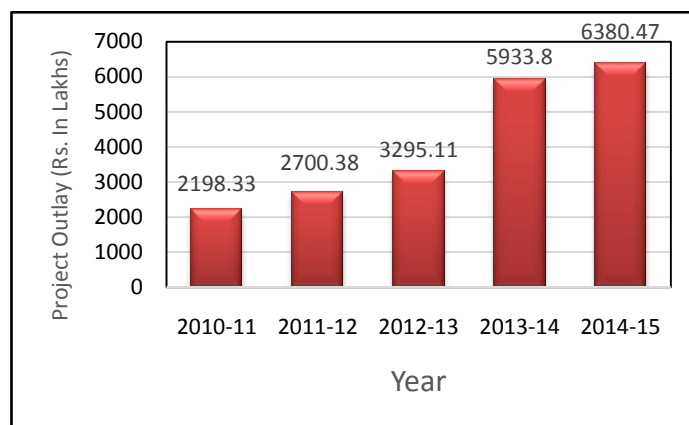
The increase in faculty strength for last five years is shown below:



## 2. R&D and Industry-Institute Interaction Activities

### 2.1. R&D and Industry Sponsored Projects & Outlay

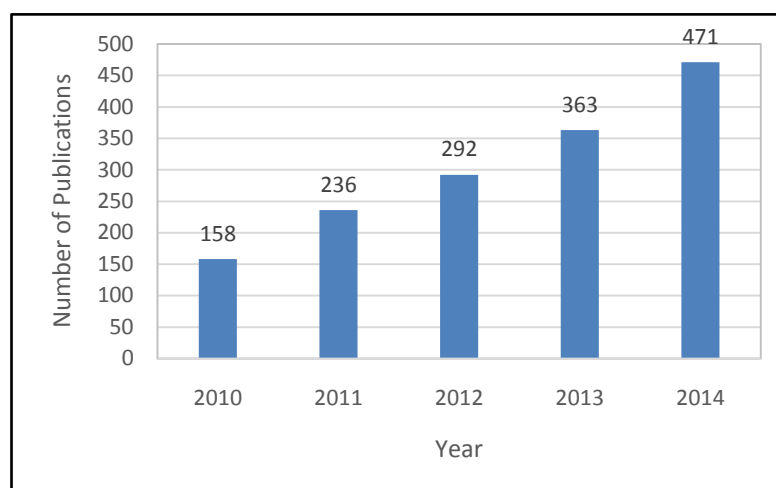
The Institute continued its growth in R&D & Industry sponsored projects and executed 852 projects worth Rs. 6380.47 lakhs during the year. The comparison of the last five years in terms of number of projects and their outlay are presented below:



Year	Number of R&D and Industry Sponsored Projects	Project Outlay (Rs. in Lakhs)	Yearly Growth	Overall Growth
2014-15	852	6380.47	08%	190%
2013-14	913	5933.80	80%	170%
2012-13	629	3295.11	22%	50%
2011-12	586	2700.38	23%	23%
2010-11	617	2198.33	Base year	

## 2.2 Research Publications & Books Contribution

- Growth of Research Publications (indexed in Scopus database maintained by Elsevier in Amsterdam, Netherlands) for last five calendar years is presented below:



Year	2010	2011	2012	2013	2014
No of Publications	158	236	292	363	471
Growth rate over 2010	Base Year	49.37%	84.80%	129%	198%
Yearly growth	Base Year	49.37	23.72	24.32	29.75

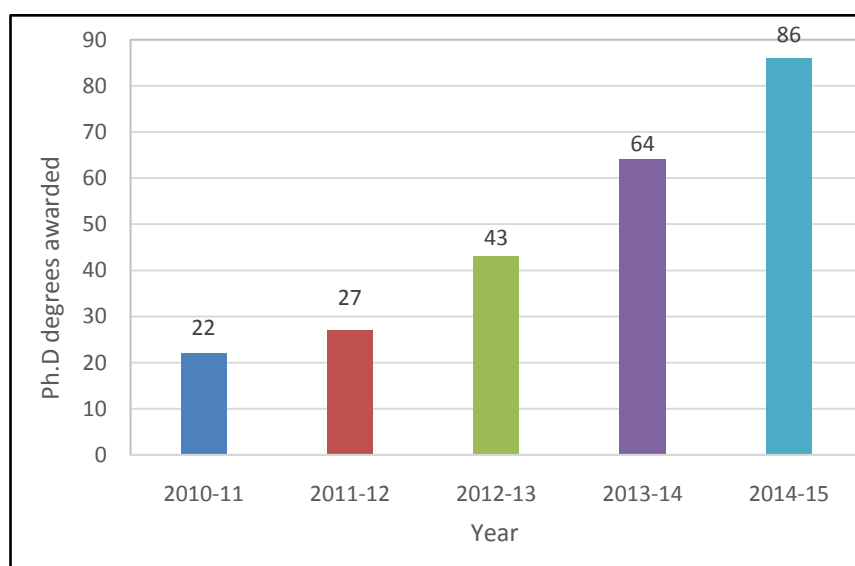
- The outcome of research resulted in publication of the research work in International & National Journals, and International & National Conferences. The details of publications of the last five years are as follows:

Year	Publications during last five years				Total Publications
	International Journal	National Journal	International Conference	National Conference	
2014-15	656	72	337	110	<b>1175</b>
2013-14	426	67	387	193	<b>1073</b>
2012-13	406	71	245	147	<b>869</b>
2011-12	312	42	256	177	<b>787</b>
2010-11	206	52	177	128	<b>563</b>

- The faculty members were also involved in book writing/book reviews/contribution of chapters to books, etc. The contributions made in this field were 42 this year.

### 2.3 Ph.Ds Awarded

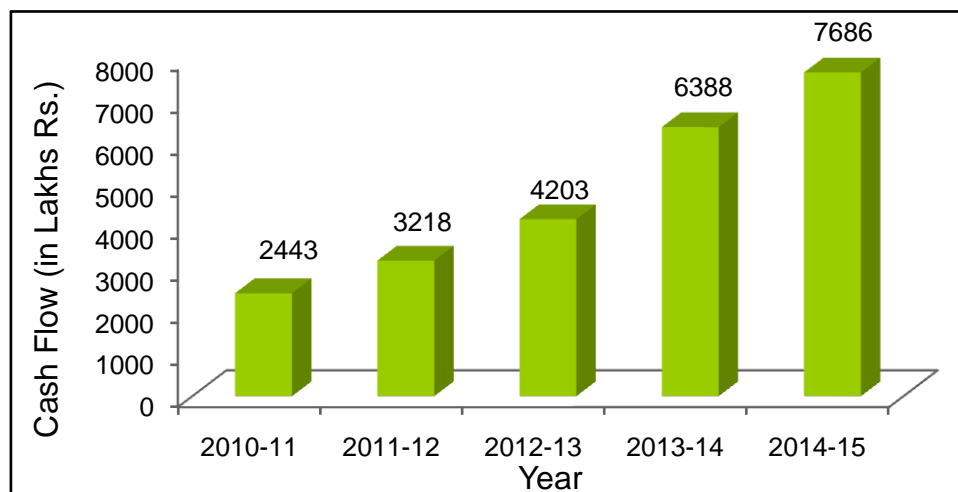
The faculty members were also involved in research guidance resulting in the award of 86 Ph.D degrees this year, the highest so far. The comparison of last five years is presented below:



Year	2010-11	2011-12	2012-13	2013-14	2014-15
Number	22	27	43	64	<b>86</b>

### 3. External Cash Flow

Progress of External Cash Flow (ECF), other than grant-in-aid of MHRD for last five years is presented below:



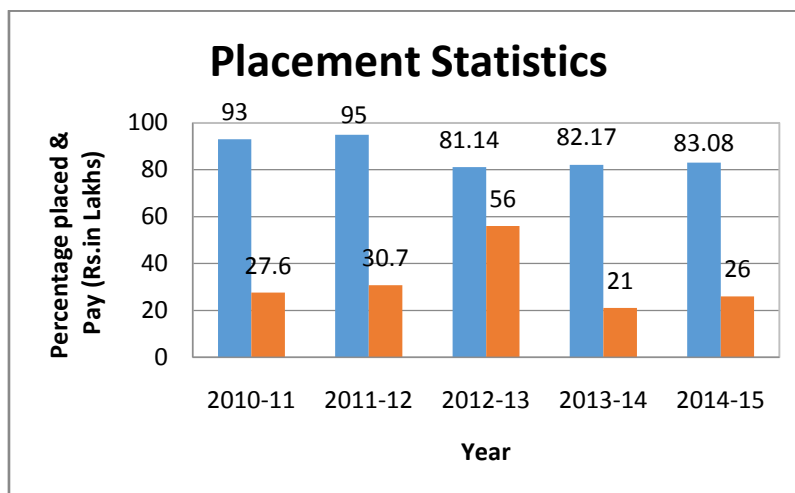
Year	2010-11	2011-12	2012-13	2013-14	2014-15
<b>Cash Flow (Rs. in Lakhs)</b>	2443	3218	4203	6388	7686
<b>Overall Growth</b>	Base Year	32%	72%	161%	215%
<b>Yearly Growth</b>	Base Year	32%	31%	52%	20%

### 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 and Sports events, viz. Srijan, Concetto, Parakram, Annual Sports etc.
- Students were encouraged to manage their campus affairs through the Students' Society in a democratic manner.
- Students were also involved in organizing various academic and extra curricular activities in association with International Societies viz. Society of Petroleum Engineers (SPE), Society for Mining, Metallurgy and Exploration (SME), Society for American Association of Petroleum Geologists (AAPG), Institute of Electrical and Electronics Engineers (IEEE), Association for Computing Machinery (ACM), Society of Exploration Geophysicists (SEG), Society for European Association of Geoscientists and Engineers (EAGE), Optical Society of America (OSA), International Society of Optics & Photonics (SPIE), American Society of Mechanical Engineers (ASME).

## 5. Campus Placement

The Training and Placement Cell maintains active association and excellent rapport with the industry and corporate sectors. 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 with their maximum pay package over the last five years is presented below:



## 6. International Collaboration

### (a) International Student/Faculty Exchange Projects:

- Attracted students from USA, Italy, Spain, Ghana, Tanzania and Afghanistan to study at ISM.
- Erasmus Mundus India 4EUII Project
- Erasmus Mundus AREAS+ Project
- Erasmus Mundus EMINTE Project
- Programme organized for students of University of South Florida, USA.

### (b) Indo-Australian Joint Research Initiative

Further to the joint statement made by Honorable Prime Ministers of India & Australia for building International Collaborations in the field of Clean Coal and Energy Technology between Indian School of Mines, Dhanbad and Australian Universities/Institutions. Efforts have been initiated to sign MoUs with Universities namely Curtin, New Castle, Queensland, New South Wales, and CSIRO.

**(c) Memorandum of Understanding:** Signed MoU with Arkansas State University, USA, and TU Clausthal, Germany.

**(d) Visit of Faculty Members Abroad:** 79 faculty members during the year.

**(e) Visit of ISM Students Abroad:** 20 students during the year.

**(f) Admission of International Students:** 51 students during the year.

## 7. Educational and Welfare Facilities

- The inventory of the learning resources of the **Central Library** is as follows:

Books	123517
Bound Volumes of Journals	38400
Current Journals	291
Theses & Dissertations	10203

- The **Computer Centre** provides intranet and internet services 24 hours a day, 365 days a year. It supports campus wide fiber optic LAN comprising of 5000 nodes.
- The **Central Workshop** has a wide range of manufacturing facilities catering to the needs of undergraduate and postgraduate students as well as research scholars.
- The **ISM Health Centre** provides medical care to students, teachers, officers, staffs including their dependent family members and also to the retired persons and their spouses.
- 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.
- The Institute has established a **Gender Sensitization 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 and equal opportunity place for women.
- 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.
- 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

### 1. Non-Plan Fund

After changing the accumulated deficit of Rs. 99.47 lakhs from previous year to the Capital Account the total income was Rs. 9846.53 lakhs, which includes irrevocable Non-Plan Grant-in-Aid of Rs.6249.40 lakhs from Ministry of Human Resource Development, Government of India, New Delhi. The total Non-Plan expenditure was Rs.9876.68 lakhs. A deficit of Rs.30.15 lakhs was transferred to Capital Account.

### 2. Plan Fund

The total Plan income was Rs. 11073.07 lakhs, including irrevocable Plan Grant-in-Aid of Rs.11000.00 lakhs from Ministry of Human Resource Development, Government of India, New Delhi. The total Plan expenditure was Rs.11100.53 lakhs including adjustment / advances under Plan with an excess expenditure of Rs.27.46 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 eighteen departments and 272 faculty members as on 31-03-2015. A list of the Departments is stated below:

<b>Department</b>	<b>Year of Establishment</b>
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 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 Mechanical Engineering	1999
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 twelve 4-years B.Tech. programmes in Chemical Engineering, Civil Engineering, Computer Science & Engineering, Electrical Engineering, Electronics & Communication Engineering, Electronics & Instrumentation 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.Tech programme in Applied Geology, Applied Geophysics, and Mathematics & Computing; two 5-years Integrated M.Sc. in Applied Physics, and Applied Chemistry (discontinued from year 2012-13); and two 5-years Integrated M.Sc.(Tech) in Applied Geology and Applied Geophysics (discontinued from year 2014-15). Admission to these B.Tech, Dual Degree, and Integrated courses is through IIT-JEE (Advanced).

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 Government of India norms.

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

Total Student Strength in B.Tech Programme 2014-15							
Sl. No.	Discipline	Sanctioned Strength	I Sem	III Sem	V Sem	VII Sem	Total
1	Chemical Engineering	40	40	35	21	0	96
2	Computer Science & Engineering	103	104	119	97	110	430
3	Electrical Engineering	92	93	90	97	98	378
4	Electronic & Communication Engineering	92	94	99	92	97	382
5	Environmental Science&Engineering	40	40	31	56	49	176
6	Mechanical Engineering	103	103	117	108	106	434
7	Mineral Engineering	45	46	49	56	38	189
8	Mining Machinery Engineering	40	40	44	36	35	155
9	Mining Engineering	92	92	121	125	120	458
10	Petroleum Engineering	92	92	101	101	102	396
11	Engineering Physics	22	20	0	0	0	20
12	Civil Engineering	40	41	41	0	0	82
13	Electronic Instrumentation Engineering	40	41	26	0	0	67
14	Preparatory		3	0	0	0	3
15	<b>Total</b>	<b>841</b>	<b>849</b>	<b>873</b>	<b>789</b>	<b>755</b>	<b>3266</b>
16	SC		125	128	114	101	468
17	ST		64	70	62	83	279
18	OBC		230	241	210	147	828
19	Girl		59	48	47	40	194

Total Student Strength in 5 year Dual Degree Programme 2014-15												
Sl. No.	Discipline	Sanctioned Strength	I	III	V	VII	IX	Total	SC	ST	OBC	Girl
1	5yr. Dual Degree Mineral Engineering	15	12	14	13	2	11	52	10	2	15	6
2	5yr. Dual Degree Mining Engineering	18	18	14	17	6	8	63	14	3	15	0
3	5yr. Dual Degree Mining with MBA	0	0	15	17	2	12	44	11	2	11	1
4	5yr. Dual Degree Petroleum Engineering	0	0	16	18	13	16	63	12	3	15	5
5	5yr. Dual Degree Computer Science &Engineering	18	18	18	0	0	0	36	6	2	9	1
6	5yr. Dual Degree Mineral with MBA	0	0	0	8	4	0	12	5	1	4	1
7	5yr. DualDegree Mineral/Mineral Resource Management	0	0	0	0	0	6	6	1	0	0	1
<b>Total</b>		<b>51</b>	<b>48</b>	<b>77</b>	<b>73</b>	<b>27</b>	<b>53</b>	<b>276</b>	<b>59</b>	<b>13</b>	<b>69</b>	<b>15</b>

**Total Student Strength in 5 year Integrated Programme 2014-15**

Sl. No.	Discipline	Sanctioned Strength	I	III	V	VII	IX	Total	SC	ST	OBC	Girl
1	5yr. Applied Geology Integrated M.Tech	15	16	14	21	14	19	84	13	9	18	15
2	5yr. Applied Geophysics Integrated M.Tech	15	13	11	14	6	16	60	14	0	13	6
3	5yr. Mathematics & Computing Integrated M.Tech	40	37	27	22	8	12	106	16	2	24	11
4	5yr. Integrated M.Sc Applied Chemistry	0	0	0	0	0	11	11	2	0	1	2
5	5yr. Integrated M.Sc Applied Physics	0	0	0	0	0	5	5	3	0	0	0
<b>Total</b>		<b>70</b>	<b>66</b>	<b>52</b>	<b>57</b>	<b>28</b>	<b>63</b>	<b>266</b>	<b>48</b>	<b>11</b>	<b>56</b>	<b>34</b>

**Total Student Strength in 2 year M.Sc/ 3 year M.Sc Tech Programme 2014-15**

Sl No.	Discipline	Sanctioned Strength	I Sem	III Sem	V Sem	Total	SC	ST	OBC	Girl
1	M.Sc Applied Physics	44	44	25	0	69	11	6	16	23
2	M.Sc Applied Chemistry	62	62	35	0	97	12	6	13	38
3	M.Sc Mathematics & Computing	44	39	38	0	77	10	2	25	29
4	M.Sc Tech Applied Geology	62	62	44	42	148	23	11	42	42
5	M.Sc Tech Applied Geophysics	44	44	57	55	156	23	13	44	39
<b>Total</b>		<b>256</b>	<b>251</b>	<b>199</b>	<b>97</b>	<b>547</b>	<b>79</b>	<b>38</b>	<b>140</b>	<b>171</b>

**Total Student Strength in 2 year M.Tech Programme 2014-15**

Discipline	Sanctioned Strength	I Semester						III Semester					
		Total	SC	ST	OBC	Girl	Spons.	Total	SC	ST	OBC	Girl	Spons.
Computer Science & Engineering	51	51	8	3	14	17	0	47	6	3	13	10	0
Computer Science & Engineering (Information Security)	40	40	6	3	11	15	0	0	0	0	0	0	0
Petroleum Engineering	30	40	5	1	11	8	0	24	3	0	8	1	0
Industrial Engineering & Management	40	35	4	1	11	2	0	25	2	2	6	6	0

Environmental Science & Engineering	45	43	8	0	11	12	0	33	4	1	9	12	0
Petroleum Exploration	26	6	1	0	3	2	0	8	1	0	0	2	0
Mineral Exploration	14	6	0	1	1	1	0	7	1	0	0	3	0
Maintenance Engineering & Tribology	40	37	6	0	9	3	0	18	2	0	5	2	0
Electronic & Communication Engineering	40	41	6	3	11	9	1	29	4	2	6	2	0
Mineral Engineering	28	22	0	0	6	5	0	9	0	0	0	6	0
Fuel Engineering	16	9	1	0	2	0	0	8	2	0	3	0	0
Mining Machinery Engineering	30	19	1	0	5	0	0	15	1	0	6	0	0
Mining Engineering	11	9	1	0	3	0	0	3	0	0	0	0	0
Power System Engineering	40	38	6	0	11	7	0	31	5	2	7	8	0
Power Electronic & Electrical Drives	40	37	4	0	11	10	0	0	0	0	0	0	0
Mechanical Engineering (Manufacturing)	40	40	6	3	13	6	0	21	2	2	6	6	0
Mechanical Engineering (Thermal)	40	40	6	2	11	1	1	0	0	0	0	0	0
Mechanical Engineering (Design)	40	40	6	2	11	5	0	17	3	0	7	0	0
Chemical Engineering	22	22	2	2	8	10	0	0	0	0	0	0	0
Opencast Mining	22	9	0	0	1	1	0	0	0	0	0	0	0
Geomatics	11	10	2	0	2	1	0	7	1	0	2	2	0
Engineering Geology	14	3	0	0	0	1	0	0	0	0	0	0	0
Tunneling & Underground Space Technology	11	3	0	0	0	0	0	5	0	0	0	0	0
<b>Total</b>	<b>691</b>	<b>600</b>	<b>79</b>	<b>21</b>	<b>166</b>	<b>116</b>	<b>2</b>	<b>307</b>	<b>37</b>	<b>12</b>	<b>78</b>	<b>60</b>	<b>0</b>

Total Student Strength in 2 year MBA Programme 2014-15						
Semester	Sanctioned Strength	Total	SC	ST	OBC	Girl
I	62	60	9	3	9	17
III	62	59	10	4	10	24
<b>Total</b>		<b>119</b>	<b>19</b>	<b>7</b>	<b>19</b>	<b>41</b>

<b>Total Student Strength in 3 year Ex-MBA Programme 2014-15</b>					
Semester	Total	SC	ST	OBC	Girl
I	19	0	0	4	1
III	23	1	0	3	2
V	14	1	0	1	1
<b>Total</b>	<b>56</b>	<b>2</b>	<b>0</b>	<b>8</b>	<b>4</b>

<b>Total Student Strength in M.Phil programme 2014-15</b>							
Sl No.	Discipline	Sanctioned Strength	I Sem	SC	ST	OBC	Girl
1	Applied Chemistry	11	2	0	0	0	2
2	Applied Physics	11	3	1	0	0	1
3	Applied Mathematics	20	18	4	0	8	8
4	English	20	16	1	1	0	16
<b>Total</b>		<b>62</b>	<b>39</b>	<b>6</b>	<b>1</b>	<b>8</b>	<b>27</b>

<b>Total Student Strength in Ph.D Programme 2014-15</b>					
	Total	SC	ST	OBC	Girl
Ph.D (Full Time)	771	103	40	200	218
Ph.D (Part Time)	594	-	-	-	88
<b>Total</b>	<b>1365</b>	<b>103</b>	<b>40</b>	<b>200</b>	<b>306</b>

## 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 86 Ph.D. degrees were awarded during 2014-15. The following list provides a detailed account of the research degrees awarded during 2014-15:

1.	Debananda Roy	Environmental Science	Prof. Gurdeep Singh, Prof. A L Aggarwal	Source apportionment of PM10 in Jharia coalfield, Jharkhand, India
2.	Jinia Nandy	Applied Geology	Dr Sukanta Dey	Study of Kadiri greenstone belt and adjacent granitoids, eastern Dharwar Craton, Southern India: petrogenesis and tectonic setting
3.	Manish Kumar	Electronics Engg	Prof. S K Paul, Prof. Anwar Hussain (Ext)	Design of low power digital circuits in deep submicron CMOS technologies
4.	Pradeep	Management	Prof. Kampan Mukherjee	Study of supply chain

	Kumar Behera	Studies		coordination and selection of schemes – an analysis in Indian perspective
5.	Beauty Pandey	Applied Physics	Dr A.K. Kar	Effect of incorporation of nickel nanoparticles in diamond-like carbon matrix
6.	Santanu Kumar Banerjee	Applied Geology	Prof. Atul K. Varma, Prof. V K Saxena, FME	Geological and petrographic conditions of coal seams for char development – case study of Korba Coalfield, Chhattisgarh
7.	Ashish Kumar Prasad	Applied Mathematics	DrAnuragJayswal	On some mathematical programmingproblems
8.	Hari Prakash Tiwari	Fuel & Mineral Engg	Prof. V K Saxena& Dr P K Banerjee (Ext)	Studies on the effects of intrinsic parameters of coal and heat transfer rate on coke quality for non-recovery oven in coke making process
9.	Susanta Kumar Tripathy	Electronics Engg	Prof. V Kumar	Electronic and second order nonlinear properties of optoelectronic materials
10.	Sushmita Sinha	Applied Geology	Prof. S Mohanty& Dr P K Khan	Neotectonics of the Kachchh basin and its implication for seismotectonic activity
11.	Vikash Kumar Gupta	Electrical Engg	Dr. Biplab Bhattacharyya	Facts devices for the increased load ability of power system
12.	Shrabani Sen	Environmental Science	Dr Vipin Kumar	A comparative study of different manures and fly ash to find out their optimum combination for efficient revegetation of overburden dumps in Jharia coalfield
13.	Anurag Pandey	Applied Physics	Dr Vineet Kumar Rai	Frequency upconversion in lanthanides activated luminescent materials
14.	Sudarshan Dhua	Applied Mathematics	Prof. A Chattopadhyay	Theoretical study of seismic wave propagation in layered media
15.	Amar E Tigga	Management Studies	Prof. PramodPathak DrRohit Vishal Kumar (Ext)	Dynamics of B-school branding: A study with reference to Jharkhand State

16.	Sumit Kumar	Applied Chemistry	Dr Mahendra Yadav	Studies on corrosion inhibition of N80 steel in 15% HCl solution
17.	Bhagirath Ahirwal	Electrical Engg	Prof. T K Chatterjee	Some studies on safety aspects of high tension increased safety squirrel cage induction motor for hazardous area
18.	Avantika Chandra	Environmental Science	Dr M K Jain	An investigation on environmental impact of mine waste leachate contaminants: sustainable approach for mine waste management
19.	Parvesh Kumar Agrawal	Fuel & Mineral Engg	Prof. T Sharma (Retd) Dr S N Mishra (Ext),	Beneficiation of low grade clays of Kutch-Bhuj region (Gujarat) and their utilization in traditional ceramic bodies
20.	Sangram Ray	Computer Science	Prof. G P Biswas	Cryptographic techniques for PKI enhancement and internet- and mobile-based application
21.	Autar Krishen Raina	Mining Engg	Prof. VMSR Murthy Dr A K Soni	Modelling the flyrock in openpit bench blasting under difficult geomining conditions
22.	Satish Kumar Sinha	Mining Engg	Prof. D C Panigrahi Prof. G N Singh	A study of occurrence of fire in opencast coal mines extracting developed pillars
23.	Debasis Behera	Applied Chemistry	Dr Mahendra Yadav	Studies on corrosion inhibition of mild steel in hydrochloric acid by some organic compounds
24.	Rahla Nagma	Applied Physics	Dr Bobby K Antony	Electron impact scattering studies of molecules relevant to atmospheric application
25.	Anup Kumar	Management Studies	Prof. Kampan Mukherjee Dr Narendra Kumar (Ext)	Study of dynamic behaviour of supply chains in pharmaceutical industry in India
26.	Santosh Kumar	Electronics Engineering	Dr SK Raghuwanshi	Study of optical waveguides and switching devices
27.	Banashree Dey	Applied Chemistry	Prof. A Sarkar	Characterization of low carbon fly ash for potential utilization

				directions
28.	Mrinal Sen	Electronics Engineering	Dr Mukul Kumar Das	Stimulated Raman scattering based ultra fast all-optical logic inverter
29.	Pratyay Kuila	Computer Science & Engineering	Prof. P K Jana	Energy efficient clustering and routing algorithms for wireless sensor networks
30.	Priya Kumari	Humanities & Social Sciences	Dr MojiburRahman Prof. R K Singh	Teaching English to underprivileged technical students: an empirical study towards designing a framework
31.	Dhanoj Gupta	Applied Physics	Dr Bobby K Antony	Electron impact scattering cross sections for molecules of environmental and biological importance: a theoretical study
32.	Rashmi	Management Studies	Dr Niladri Das	Integrating environmental management with key drivers of economic performance: a case study of coal mining industry in India
33.	Brijesh Kumar Mishra	Environmental Science & Engg	Prof. S K Gupta Dr AlokSinha	Predictive model approach for assessment of disinfection by-products formation in drinking water
34.	Manamohan Rout	Mining Engineering	Dr A K Mishra	An investigation into the influence of various properties of emulsion explosives on velocity of detonation
35.	Vanita Jain	Applied Mathematics	Dr Akhilesh Prasad Prof. P K Jain (Ext)	Certain classes of analytic functions in the unit disk having negative coefficients
36.	Vijeta Jha	Electronics Engineering	Prof. V Kumar	Linear and nonlinear properties of ternary chalcopyrite semiconductors
37.	Dibyendu Sain	Applied Chemistry	Dr SwapanDey	Synthesis and complexation studies of various sensors with different substrates
38.	Chandra Mohan Singh Negi	Electronics Engineering	Dr Jitendra Kumar	Theoretical investigation of quantum dot infrared photodetectors



39.	Alok Kumar	Management Studies	Prof.PramodPathak& Dr. P N Jha (Ext.)	The metamorphosis of advertising appeals and its impact on the purchase decisions of individuals
40.	Manish Kumar	Fuel & Mineral Engineering	Prof. V K Saxena	Studies on impact of ash and ash deposition on heat transfer performance in pulverized coal fired furnaces
41.	Poonam Singh	Management Studies	Dr (Mrs) MrinaliniPandey	A study of impact and acceptability of augmented reality advertising on Indian consumers
42.	Ramesh Kumar	Management Studies	Dr Niladri Das	Developing a framework for enhanced service delivery in Indian hospitals
43.	Adarsh Kumar	Environmental Science &Engg	Prof S K Maiti	Study of environmental impacts of chromite and asbestos mines waste and its phytoremediation
44.	Ravi Shankar	Electrical Engineering	Dr KalyanChatterjee Prof T K Chatterjee	Design of load frequency controller for interconnected power system
45.	Rakesh Ranjan	Electronics Engineering	Prof (Mrs) DebjaniMitra	Discrete channel modeling and performance evaluation for wireless applications
46.	Sadaf Jamal	Humanities & Social Science	Dr. (Mrs) Rajni Singh	Polyphonic voices: a study of contemporary south Asian women novelists
47.	Md. Nishat Anwar	Electrical Engineering	Prof S Pan	PID controller design for linear time invariant industrial systems
48.	Ritika Singh	Management Studies	Prof ChandanBhar	Developing a framework of decision support system for microfinance institutions in India
49.	Mourina Ghosh	Electronics Engg	Prof S K Paul	Design of some analog signal processing circuits using current mode analog building block
50.	Manjori Mukherjee	Applied Physics	Dr Pankaj Mishra	Statistical mechanics of structure and properties of binary colloidal systems
51.	Santanu	Applied	Dr SantimoyKundu	Mathematical study of

	Manna	Mathematics		seismic wave propagation in layered media
52.	Sushil Kumar	Applied Chemistry	Dr MahendraYadav	Corrosion inhibition of mild steel in hydrochloric acid solution
53.	Raju Dutta	Applied Mathematics	Prof S Gupta	A study on optimization of power consumption in wireless sensor network
54.	Reena Kumari	Applied Mathematics	Dr Badam Singh Kushwah	Stability of periodic orbits in the modified restricted three and four body problems with perturbing forces
55.	Subharthi Sarkar	Applied Mathematics	Prof G S Seth	Theoretical study of hydromagnetic flow with heat and mass transfer
56.	Biplab Goswami	Applied Physics	Dr Bobby Antony	Electron induced collision and ionization of technologically relevant atoms/molecules- a theoretical study
57.	Neha Sharma	Computer Science &Engineering	Dr Hari Om	Usage of data mining techniques for early detection and prevention of oral cancer
58.	Lopamundra Panda	Mineral Engineering	Prof N R Mandre, Prof R Venugopal&Dr P K Banerjee (Ext.)	Recovery of metal values from oxide minerals tailings/slimes using selective flocculation
59.	Dip Kumar Singha	Applied Geo-physics	Dr (Mrs) Rima Chatterjee	Geomechanical modeling of oil and gas bearing formation in Krishna-Godavari basin, India
60.	Sweta Sinha	Environmental Science &Engineering	Prof Gurdeep Singh &Prof A K Pal	Assessment of ambient air quality and its impacts on social spectrum in unstable (subsided and fire affected) areas of Jharia coalfield, Eastern India
61.	Arunava Roy	Applied Mathematics	Dr S. Chatterjee	Web software reliability analysis using various mathematical approaches
62.	Rintu Kumar Gayen	Electronics Engg	Dr Sushrut Das	Studies on scattering and resonance characteristics of double slot structures in reduced height waveguide using MCMT
63.	Krishna	Applied	Prof (Mrs) B.	Mathematical modelling

	Prasad	Mathematics	Mukherjee	of deteriorating inventory
64.	Sandeep Kumar	Electronics Engineering	Prof S Bhattacharya	On pitch detection for speech signals with real-time implementation
65.	Narayan Prasad	Applied Mathematics	Prof BaniMukherjee	Mathematical modelling of some boundary value problems in magneto hydrodynamics
66.	Krishna Murari Prasad Singh	Applied Chemistry	Prof G Udayabhanu Shri T. Gouricharan	Studies on Flocculation of Indian Non-Coking Coal Fines Using Suitable Reagents
67.	Nayan Mani Das	Applied Physics	Prof P S Gupta	Synthesis of Nanostructured Thin Films Using Langmuir-Blodgett Apparatus And Their Applications
68.	Mukesh Kumar Mahato	Environmental Science	Dr P K Singh	Quantitative And Qualitative Assessment of Water Resources With Contaminant Transport Modeling of East Bokaro Coalfield Area
69.	Patitapaban Sahu	Mining Engineering	Prof D C Panigrahi Dr D P Mishra	Studies on Radon Emanation and Development of A Mathematical Model For Prediction of Air Quantity To Minimize Radiation Levels In Underground Uranium Mines
70.	Partha Pratim Pal	Applied Physics	Prof J Manam	Synthesis, Characterization and Optical Studies of Undoped & Rare Earth Doped Zinc Oxide Nanophosphor
71.	Arnab Bandyopadhyay	Applied Mathematics	Prof G N Singh	On the use of Auxiliary Information and Development of Estimation Procedures In Sample Surveys
72.	Chiranjeevi Manike	Computer Science	Dr Hari Om	Study and development of high-utility pattern mining techniques for evolving data streams
73.	Amgoth Tarachand	Computer Science & Engineering	Prof P K Jana	Design of algorithms for wireless sensor networks

74.	Shruti Mishra	Environmental Science	Dr Anshumali	The study on diversity of leguminous and nonleguminous species in Jharia Coalfield, Jharkhand
75.	Umesh Kumar Vates	Mechanical Engineering	Dr N K Singh Dr Ran Vijay Singh (Ext.)	Experimental investigation and optimization of surface roughness of die steels in WEDM process using ANN technique
76.	Ankita Kumari	Petroleum Engineering	Dr ChandanGuria Prof A K Pathak	Cultivation of <i>Spirulina platensis</i> using flue gas and fertilizer in air-agitated sintered disc chromatographic glass bubble column
77.	Bramha Prasad Pandey	Electronics Engineering	Prof V Kumar	Structural, elastic and thermal properties of optoelectronic materials
78.	Bidyasagar Kumbhakar	Applied Mathematics	Dr P S Rao Prof G S Seth	Investigation of hydromagnetic flow with heat transfer- analytical and numerical approach
79.	Soumitra Ghorai	Applied Chemistry	Dr Sagar Pal Prof AshishSarkar	Modified xanthan gum/silica hybrid nanocomposite: synthesis, characterization and application
80.	Abhik Banerjee	Electrical Engineering	Dr V.Mukherjee Prof S P Ghoshal	Reactive power compensation of an autonomous hybrid power system
81.	Santosh Kumar	Applied Mathematics	Prof P C Pal	Theoretical study of elastic wave propagation in inhomogeneous, anisotropic and visco-elastic layered media
82.	Dharavath Ramesh	Computer Science &Engineering	Dr Chiranjeev Kumar	Study and approach to integrating agreement protocols in distributed database processing systems
83.	Suresh Dara	Computer Science &Engineering	Dr Haider Banka	Evolutionary computation for feature selection, classification and validation from high dimensional data
84.	Veerendra	Fuel & Mineral	Prof R Venugopal	Study of the effect of

	Singh	Engineering	Prof V K Saxena Dr A K Mukherjee	various pre-treatment methods on milling and liberation performance of coal and minerals
85.	Sandeep Nelliati	Applied Geophysics	Prof P R Mohanty & Dr Prakash ChJha (Ext)	Geophysical studies to resolve some of the geological problems related to hydropower development in India and Bhutan
86.	Anil Kumar Singh	Environmental Science & Engineering	Prof Gurdeep Singh & Dr Dayal Singh Mehra (Ext)	Characterization and biocompatibility studies on electron beam curable polyurethane based adhesive for bio-medical application

## 3.0 DEPARTMENTAL ACTIVITIES

### 3.1 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.

### 3.2 INTRODUCTION OF NEW COURSES AND PROGRAMS

2 Year M.Sc. course got revised and restructured in the BOCS meeting held on 27.03.2015

### 3.3 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	Findings
Mesoporous mixed oxide supported gold Nanoparticle catalyst for oxidant free dehydrogenation reaction of alcohol	DST (SERB)	Dr. Biswajit Chowdhury	48.96 lakh	13.08.13	05 papers have been published
Design of Novel bi-functional gold Ti and Fe modified zeolite functional material for the catalytic oxidation of hydrocarbon	DST (International division) India-Netherlands bilateral project	Dr. Biswajit Chowdhury (PI) Dr. V. Prabhakaran (Co-PI)	58.29 lakh	20/12/14	01 paper published and
Catalytic transformation of glycerol to Acrolein over mesoporous silica supported acid functionalized transition	CSIR	Dr. Biswajit Chowdhury	17.00 lakh	02.02.2014	01 paper communicated

metal					
High performance modified guar gum ----- industrial effluent treatment	DST, New Delhi.	Dr. Sagar Pal	Rs. 24.94	20.06.2013	Published-03 Communicated -
A Photochemical Approach to Surfactant Free Metal Nanoparticles and Nanoclusters and their Catalytic Applications in Organic Reactions	SERB, DST, GOI	Dr. Somnath Yadav	27 Lakhs	July, 2012	Nanoparticles have been synthesized and catalytic studies have been carried out.
Synthesis of Triplesalen-based metal-organic frameworks (MOFs) and investigation on their functional applicability	DST, New Delhi	Dr. H. P. Nayek	Rs. 25.4 lakhs	25.07.2012	MOFS developed and properties investigated
Syntheses of Polynuclear Metal Complexes from Metalloligands of Group 14 Elements and Their Catalytic Activities	DST, New Delhi	Dr. H. P. Nayek	Rs. 52.8 lakhs	17.06.2014	Ligands are synthesized
Synthesis and Functionalization of Graphene for controlled dispersion in Polymer Blends	DST New Delhi	Dr. G. C. Nayak	Rs. 23.6 Lakhs	31-10-2013	Development of polymer blends going on
A study of polymeric layer on efficiency enhancement of up conversion nanoparticles for biomedical applications	DST, New Delhi	Dr. S. K. Sahu	Rs. 24.8 Lakhs	20.05.2014	Development of the up conversion nanoparticles is going on.

Biodegradable imprinted nanomaterials: A unique combination of selectivity, sensitivity & biocompatibility	DST	Dr. R. Madhuri	23.18 Lakhs	23.06. 2014	
Catalytic partial oxidation of glycerol to acrylic acid over polymer-bound immobilised metal complexes under mild condition.	DST (SERB) New Delhi	Dr. C. Halder	24.4 lakhs	Aug 2014	Development of Catalyst is going on
Kinetics and Mechanistic Approach towards Water Splitting by Ruthenium Complexes having Polypyridyl Ligands	DST, New Delhi	Dr. S. K. Padhi	25.0 lakhs	Aug 2014	Published 01 paper in international journal
Metal free oxidative C-N bond formation	DST (INSPIRE), New Delhi	Dr. S. Maity	35.0 lakhs	January 2014	Developed new methods for sp <sup>2</sup> C-O bond

### 3.4 IMPORTANT COLLABORATIVE WORKS

Organisation/Laboratory	Nature of Interaction
SMST, IIT Kharagpur	Collaborative work on cell cytotoxicity study
CSMSRI, Bhavnagar	Characterization and applications of nanocomposites.
Department of Chemical Engineering, Eindhoven University of Technology, Netherland	Joint research project
Solid State Physics Division, BARC, Mumbai	Collaborative work
CNRS-Institut de Recherches sur la Catalyse, Villeurbanne Cédex FRANCE	Collaborative work
Philipps University Marburg, Germany	Collaborative work for single crystal X-ray diffraction analysis of synthesized compounds
Institute for Integrated Cell-Material	Collaborative research work.



Sciences, Kyoto University, Japan	
Institute for Molecular Science, Okazaki, Japan	Collaborative research work.
Institute of Chemical Research of Catalonia, Spain	Collaborative research work.
IIT Guwahati	Collaborative research work.
Department of Chemistry, University of Eastern Finland, Finland	Collaborative work for single crystal X-ray diffraction analysis of synthesized compounds
Department of Biotechnology, Indian Institute of Technology, Kharagpur	Collaborative work for biological study
Immunology and Microbiology Laboratory, Department of Human Physiology with Community Health, Vidyasagar University	Collaborative work for biological study
Department of Life Science and Biotechnology, Jadavpur University	Collaborative work for biological study
CSIR-Indian Institute of Petroleum Dehradun.	Collaborative work for Catalytic applications
Pohang Accelerator Laboratory, POSTECH, Republic of Korea	Collaborative work for crystallographic study

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

Name of the equipment	Purpose	Date of purchase	Value (Rs.)
Twin Screw Extruder	For research	January 2015	8.5 Lakhs
Photoluminescence spectrophotometer	For research	September '2014	16.50 Lakhs

### 3.6 RESEARCH PUBLICATIONS

#### 3.6.1 Books reviews / contribution of chapters in a book

1. Biswajit Chowdhury, Chiranjit Santra, Rawesh Kumar and Sandip Mandal, Recent development on gold nano material as a catalyst for oxidation reaction through green & sustainable route, In: Advanced Materials for Agriculture, Food, and Environmental Safety WILEY-Scrivener publishing, USA, 2014; Chapter 8.
2. Rawesh Kumar and Biswajit Chowdhury, The synthetic strategy for developing Mesoporous materials through nano casting route Advanced Functional Materials Wiley Publishing, 2015, Chapter 2.
3. Sagar Pal, Raghunath Das and Soumitra Ghorai, "Hydroxypropyl methyl cellulose

grafted with poly (acrylamide): Application of novel polymeric material as flocculant as well as adsorbent, In: Cellulose based graft copolymers: Structure and Chemistry, Vijay Thakur (Principle Editor), Chapter 15, pp. 301-333, Taylor & Francis Group – CRC Press – USA, 2015.

4. Rashmi Madhuri, Ekta Roy, Kritika Gupta and Prashant K. Sharma, Combination of Molecular Imprinting and Nanotechnology: Beginning of a New Horizon, In: Biosensors Nanotechnology, Editors: Tiwari A, Turner APF, 2014, Chapter 12, pp. 375-432, Wiley.

### 3.6.2 Papers published in International Journals

Sl. No.	Author(s)	Year	Title	Journal	Vol. No.	Page No.
1.	A. K. Varma, M. Kumar, V. K. Saxena, A. Sarkar, S. K. Banerjee	2014	Petrographic controls on combustion behavior of inertinite rich coal and char and fly ash formation,	Fuel	128	199–209
2.	Akshya Kumar Guin, Manish Bhadu, Mohua Sinhababu, G Udayabhanu	2014	The Effect of Zirconia Ions on Corrosion Performance of Sol-Gel Coated Galvanized Steel	J. Coat. Technol. Res.	11(6)	967 - 977
3.	Akshya K Guin, M Bhadu, Mahua Sinha Babu, Ankita Mundhara, T K Rout and G Udayabhanu	2014	Effective Corrosion Inhibition Performance of La(NO <sub>3</sub> ) <sub>3</sub> Doped Sol-Gel Coating on Galvanised Steel Sheet	Anti Corrosion Methods and Materials	6 (6)	370– 379
4.	Vikash Kumar Saw, Manojkumar Gudala, G. Udayabhanu, Ajay Mandal and Sukumar Laik	2014	Kinetics of Methane Hydrate Formation and its Dissociation in presence of Non-ionic Surfactant Tergitol.	Journal of Unconventional Oil and Gas Resources	6	54 – 59
5.	Baisali Sengupta, V.P.Sharma and G Udayabhanu	2014	In-situ gelation studies of an eco-friendly cross-linked polymer system for water shut-off at high temperatures	Energy Resources Part A, Recovery, Utilization and Environment	36	pp. 1445-1467

				al Effects		
6.	Vikash Kumar Saw, G. Udayabhanu, Ajay Mandal and Sukumar Laik	2014	Methane Hydrate Formation and Dissociation in presence of Silica Sand	Oil & Gas Science and Technology		DOI: 10.2516/ogst/2013200
7.	Shweta Kumari, Amiya Shekhar, Harshal P. Mungse, Om P. Khatri and Devendra D. Pathak	2014	Metal-free one-pot synthesis of amides using graphene oxide as an efficient catalyst	RSC Adv	4	41690-41695
8.	Shweta Kumari, Amiya Shekhar and Devendra D. Pathak	2014	Graphene oxide supported MnO <sub>2</sub> nanorods: an efficient heterogeneous catalyst for oxidation of aromatic amines to azo-compounds	RSC Adv.,	4	61187-61192
9.	Joe Gerald Jesu Raj, Devendra Deo Pathak, Pramesh N. Kapoor	2015	<sup>31</sup> P{ <sup>1</sup> H}NMR and carbonyl force constants of unsymmetrical bidentate phosphine complexes of group (VI) metal carbonyls	Journal of Molecular Structure	1087	41-45
10.	Mahendra Yadav, Sumit Kumar, Dipti Sharma	2014	Studies on Synthesized Nontoxic Corrosion Inhibitors for N80 Steel in Hydrochloric Acid.	Anti-corrosion Methods and Materials	61(3)	129-138
11.	M. Yadav, D. Behera, R.R. Sinha and P. Yadav	2014	Experimental and quantum chemical studies on corrosion inhibition effect of thiophene derivatives on mild steel in hydrochloric acid	Acta Metallurgica Sinica	27	37-46
12.	M Yadav, Debasis Behera, Sumit Kumar, R. R. Sinha	2014	Experimental and quantum chemical studies on corrosion inhibition performance of	Indian J. Chem. Technol	21	262-271

			some Schiff bases for mild steel in 4M HCL			
13.	Mahendra Yadav, Sushil Kumar, Indra Bahadur, Deresh Ramjugernath	2014	Corrosion inhibitive effect of synthesized thiourea derivatives on mild steel in 15% HCL solution	Int. J. Electrochem. Sci	9	6529-6550
14.	Mahendra Yadav, Dipti Sharma, Sumit Kumar, Sushil Kumar, Indra Bahadur	2014	Eno E. Ebenso, Electrochemical and Theoretical Studies on Amino Phosphonates as Efficient Corrosion Inhibitor for N80 Steel in Hydrochloric Acid Solution	Int. J. Electrochem. Sci.	9	6580-6593
15.	Mahendra Yadav, Sushil Kumar <sup>1</sup> , Neelam Kumari <sup>1</sup> , Indra Bahadur	2015	Eno E. Ebenso, Experimental and Theoretical Studies on Corrosion Inhibition Effect of Synthesized Benzothiazole Derivatives on Mild Steel in 15% HCl Solution	Int. J. Electrochem. Sci	10	602 – 624
16.	Mahendra Yadav, Sushil Kumar, Debasis Behera, Indra Bahadur, Deresh Ramjugernath	2014	Electrochemical and Quantum Chemical Studies on Adsorption and Corrosion Inhibition Performance of Quinoline -Thiazole Derivatives on Mild Steel in Hydrochloric Acid Solution	Int. J. Electrochem. Sci	9	5235-5237
17.	Mahendra Yadav, Sushil Kumar, Indra Bahadur, Deresh Ramjugernath	2014	Electrochemical and Quantum Chemical Studies on Synthesized Phenylazopyrimidone Dyes as Corrosion Inhibitors for Mild Steel in a 15% HCl Solution	Int. J. Electrochem. Sci	9,	3928-3950

18.	M. Yadav, D. Behera, Sumit Kumar	2014	Experimental and theoretical studies on corrosion inhibition of mild steel in hydrochloric acid by thiosemicarbazone of Schiff bases	Canadian Metallurgical Quarterly	53	220-231
19.	Mahendra Yadav, Sushil Kumar, Laldeep Gope	2014	Experimental and theoretical study on amino acid derivatives as eco-friendly corrosion inhibitor on mild steel in hydrochloric acid solution	Journal of Adhesion Science and Technology	28 (11)	1072 - 1089
20.	Mahendra Yadav, Sumit Kumar	2014	Experimental, thermodynamic and quantum chemical studies on adsorption and corrosion inhibition performance of synthesized pyridine derivatives on N80 steel in HCl solution	Surface and Interface Analysis	46	254-268
21.	Mahendra Yadav, Debasis Behera, Sushil Kumar	2014	Experimental and theoretical investigation on adsorption and corrosion inhibition properties of imidazopyridine derivatives on mild steel in hydrochloric acid solution	Surface Interface Analysis	46	640-652
22.	Mahendra Yadav, Sushil Kumar, Rajesh Ranjan Sinha, Sumit Kumar	2014	Experimental and Theoretical Studies on Synthesized Compounds as Corrosion Inhibitor for Mild Steel in Hydrochloric Acid Solution	Journal of Dispersion Science and Technology	35	1751-1763
23.	Mahendra Yadav, D. Behera, S. Kumar, and P. Yadav	2015	Experimental and Quantum Chemical Studies on Corrosion Inhibition Performance of	Chemical Engg. Comm	202	303-315

			Thiazolidinedione Derivatives for Mild Steel in HCl			
24.	Sumbul Rahman, S. A. Farooqui, Aditya Rai, Rawesh Kumar, Chiranjit Santra, Vinod C Prabhakaran, Sudip Maity, Anil Sinha and Biswajit Chowdhury	2014	Mesoporous TUD-1 supported indium oxide nanoparticles for epoxidation of styrene using molecular O <sub>2</sub>	RSC Advances	5 (58)	46850-46860
25.	S. Pahari, Pravas Pal, Biswajit Chowdhury and A.B Panda	2015	Efficient oxidation of hydrocarbons over nanocrystalline Ce <sub>1-x</sub> Sm <sub>x</sub> O <sub>2</sub> (x= 0-0.1) synthesized using supercritical water	RSC Advances	5(56)	45144-45151
26.	Rawesh Kumar, Nagasuresh Enjamuri, Jai Krishna Pandey, Debasis Sen, S. Mazumder, Asim Bhaumik, and Biswajit. Chowdhury	2015	Bismuth Supported SBA-15 Catalyst for Vapor Phase Beckmann Rearrangement Reaction of Cyclohexanone Oxime to Caprolactam	Applied Catalysis	497	51-57
27.	Sandip Mandal, Chiranjit Santra, Rawesh Kumar, Malay Pramanik, Sumbul Rahman, Asim Bhaumik, Sudip Maity and Biswajit Chowdhury	2014	Niobium doped hexagonal Mesoporous silica (HMS-X) catalyst for Vapor phase Beckmann Rearrangement reaction	RSC Advances	4	845-854
28.	Sandip Mandal, Kyoko K Bando, Rawesh Kumar and Biswajit Chowdhury	2014	XAFS, XPS Characterization of Cerium Promoted Ti-TUD-1 Catalyst and its activity for Styrene	Catalysis Communication	46	123-127.

			Oxidation Reaction			
29.	Sumbul Rahman, Chiranjit Santra, Rawesh Kumar, Jitendra Bahadur, Asima Sultana, Ralf Schweins, Debasis Sen, Sudip Maity, S. Mazumdar and Biswajit Chowdhury	2014	Highly active Ga promoted Co-HMS-X Catalyst towards Styrene Epoxidation Reaction using Molecular O <sub>2</sub>	Applied Catalysis A General	482	61-68
30.	Rawesh Kumar and Biswajit Chowdhury	2014	Comprehensive study for vapour phase Beckmann reaction over zeolite system	Industrial Engineering and Chemical Research	53 (43)	16587–16599
31.	Olusola O. James, Biswajit Chowdhury and Sudip Maity,	2014	Comparative TPR and TPD studies of Cu and Capromotion on Fe-Zn and Fe-Zn-Zr based Fischer-Tropsch catalysts	Oil & Gas Science and Technology	DOI:10.2516/ogs-t/2013114	
32.	Swapan Dey, Dibyendu Sain, Ashish Kumar and Chanda Kumari	2014	A Series of Ditopic Receptors for Succinic Acid Binding	RSC Adv	4	51486-51495
33.	Shyamaprosad Goswami, Rinku Chakrabarty, Swapan Dey and Hoong-Kun Fun	2014	‘Steric inhibition of hydrogen bonding in molecular recognition of dicarboxylic acids: di-topic receptors containing a nitro group designed to behave like monotopic receptors	RSC Adv.	4	49663-49671
34.	Raghunath Das, Dipankar Das, Paulomi Ghosh, Santanu Dhara, Asit B. Panda, Sagar Pal	2015	Development and application of a nanocomposite derived from crosslinked HPMC and Au nanoparticles for	RSC Advances	5	27481-27490

			colon targeted drug delivery			
35.	Dipankar Das, Sagar Pal	2015	Modified Biopolymer-Dextrin Based Cross linked Hydrogels: Application in Controlled Drug Delivery	RSC Advances	5	25014-25050
36.	Dipankar Das, Paulomi Ghosh, Santanu Dhara, A. B. Panda, Sagar Pal	2015	Dextrin and Poly (Acrylic Acid) Based Biodegradable, Non-Cytotoxic, Chemically Crosslinked Hydrogel for Sustained Release of Ornidazole and Ciprofloxacin".	ACS Applied Materials & Interfaces	7	4791-4803
37.	H. Kolya, Sagar Pal, A. Pandey, T. Tripathy,	2015	Preparation of gold nanoparticles by a novel biodegradable graft copolymer sodium alginate-g-poly (N, N-dimethylacrylamide-co-acrylic acid) with anti micro bacterial application	European Polymer Journal	66	139-148
38.	Aniruddha Pal, Dipankar Das, Amit Kumar Sarkar, Soumitra Ghorai, Raghunath Das, Sagar Pal	2015	Synthesis of glycogen and poly (acrylic acid)-based graft copolymers via ATRP and its application for selective removal of Pb <sup>2+</sup> ions from aqueous solution	European Polymer Journal	66	33-46
39.	Raghunath Das, Dipankar Das, Paulomi Ghosh, Animesh Ghosh, Santanu Dhara, Asit	2015	Novel pH responsive graft copolymer based on HPMC and poly (acrylamide) synthesized by	Cellulose	22	313-327



	Baran Panda, Sagar Pal		microwave irradiation: application in controlled release of ornidazole			
40.	Sagar Pal, Abhay Shankar Patra, Soumitra Ghorai, Amit Kumar Sarkar, Raghunath Das, Supriyo Sarkar	2015	Modified guar gum/SiO <sub>2</sub> : Development and application of a novel hybrid nanocomposite as flocculant for the treatment of wastewaters	Environmental Science: Water Research & Technology	1	84-95
41.	Paulomi Ghosh, Arun Prabhu Rameshbabu, Dipankar Das, Nimmy K. Francis, Harpreet Singh Pawar, Bhuvaneshwaran Subramanian, Sagar Pal, Santanu Dhara	2015	Covalent cross-links in polyampholytic chitosan fibers enhance bone regeneration in a rabbit model	Colloids and Surfaces B: Biointerfaces	125	160-169
42.	Amit Kumar Sarkar, Soumitra Ghorai, Abhay Shankar Patra, Brijesh K. Mishra, N. R. Mandre, Sagar Pal	2015	Flocculation properties of modified amylopectin for the treatment of synthetic effluent and industrial wastewaters	International Journal of Biological Macromolecules	72	356-363
43.	Dipankar Das, Sagar Pal.	2015	Deswelling and gel characteristics of modified dextrin based crosslinked hydrogel: application in controlled release of ciprofloxacin	International Journal of Biological Macromolecules	72	171-178
44.	Paulomi Ghosh, Manisit Das, Arun Prabhu Rameshbabu, Dipankar Das, Sayanti Datta, Sagar Pal, Asit Baran Panda,	2014	Chitosan derivatives cross-linked with iodinated 2, 5-Dimethoxy-2,5-dihydrofuran for non-invasive imaging	ACS Applied Materials & Interfaces	6	17926-17936

	Santanu Dhara					
45.	Soumitra Ghorai, Amit Kumar Sarkar, Sagar Pal	2014	Rapid adsorptive removal of toxic Pb <sup>2+</sup> ion from aqueous solution using recyclable, biodegradable nanocomposite derived from templated partially hydrolyzed xanthan gum and nanosilica	Bioresource Technology	170	578-582
46.	Amit Kumar Sarkar, Aniruddha Pal, Soumitra Ghorai, N. R. Mandre, Sagar Pal	2014	Efficient removal of malachite green dye using biodegradable graft copolymer derived from amylopectin and poly (acrylic acid)	Carbohydrate Polymers	111	108-115
47.	Rajkamal, Debnath Chatterjee, Abhijit Paul, Srirupa Banerjee and Somnath Yadav	2014	Enantiomeric organogelators from D-/L- arabinose for phase selective gelation of crude oil and their gel as a photochemical micro reactor	Chemical Communications	50	12131
48.	M. Mahato, D. Dey, S. Pal, S. Saha, A. Ghosh, K. Harms, H. P. Nayek	2014	Syntheses, Structures, Optical Properties and Biological activities of Bimetallic Complexes	RSC Advances	4	64725-64730
49.	S. Pal, P. P. Jana, H. P. Nayek	2014	Mononuclear Complexes and Coordination Polymer of 2-Pyridyl (NH <sup>2</sup> Py) Functionalized P(V) Ligand	RSC Advances	4	26902-26906
50.	S. Saha, S. Pal, C. J. Gómez-García, Juan M. Clemente-Juan, K. Harms, H. P. Nayek	2014	A Ferromagnetic Tetranuclear Nickel(II) Schiff-base Complex with an Asymmetric Ni <sub>4</sub> O <sub>4</sub> Cubane Core	Polyhedron	74	1-5
51.	S. Saha, R. K. Kottalanka, P.	2014	Synthesis and Characterization of a	J. Mol. Struc	1061	26-31

	Bhowmik, S. Jana, K. Harms, T. K. Panda, S. Chattopadhyay, H. P. Nayek		Nickel(II) Complex of 9-Methoxy-2,3- dihydro-1,4- Benzoxyzepine Derived from a Schiff Base Ligand and Its Ligand Substitution Reaction			
52.	K. Naktode, S. Anga, R. K. Kottalanka, H. P. Nayek, T. K. Panda,*	2014	Reaction of Sterically Congested NHC– Zn(CH <sub>2</sub> CH <sub>3</sub> ) <sub>2</sub> with Substituted Phenols Leading to Zinc Phenolate Complexes	J. Coord. Chem	67	236-248
53.	K. Naktode, J. Bhattacharjee, S. D. Gupta, H. P. Nayek, B. S. Mallik, T. K. Panda,*	2014	Unprecedented Calcium Metalla- macrocycle Having Phosphinoselenic Amide and Diphenylphosphinate in the Coordination Sphere	Z. Anorg. Allg. Chem	640	994-999
54.	S Das, GC Nayak, SK Sahu, R Oraon	2014	Development of FeCoB/Graphene Oxide based microwave absorbing materials for X-Band region	Journal of Magnetism and Magnetic Materials	384	224-228
55.	A. De Adhikari R. Oraon S. K. Tiwari Joong Hee Leeb and G. C. Nayak	2015	Effect of waste cellulose fibres on the charge storage capacity of polypyrrole and graphene/polypyrrole electrodes for supercapacitor application	RSC Adv.	5	27347- 27355
56.	Sukanta Das, b, G.C. Nayak, S.K. Sahu, P.C. Routray, A.K. Roy, H. Baskey	2015	Microwave absorption properties of double-layer composites using CoZn/NiZn/MnZn ferrite and titanium dioxide	Journal of Magnetism and Magnetic Materials	377	111–116
57.	Sukanta Das, G. C. Nayak, S. K. Sahu, P. C. Routray, A. K. Roy, and H.	2014	Microwave Absorption Properties of Double-Layer RADAR Absorbing Materials Based on	Journal of Engineering	2014	Article ID 468313

	Baskey		Doped Barium Hexaferrite/TiO <sub>2</sub> /Conducting Carbon Black			
58.	T. K. Mahto, A. Ray Chowdhuri and S. K. Sahu	2014	Polyaniline-Functionalized Magnetic Nanoparticles for the Removal of Toxic Dye from Wastewater	J. Appl. Polym. Sci.	131	40840
59.	S. Tripathy, S. Chattopadhyay, S. K. Dash, A. Ray Chowdhuri, S. Das, S. K. Sahu, S. Majumdar and S. Roy	2015	Chitosan conjugated chloroquine: Proficient to protect the induction of liver apoptosis during malaria.	International Journal of Biological Macromolecules	74	585
60.	T. K. Mahto, A. Ray Chowdhuri, B. Sahoo and S. K. Sahu	2014	Polyaniline functionalized magnetic mesoporous nanocomposite: A smart material for the immobilization of lipase	Polymer Composites	DOI: 10.1002/pc.	
61.	A. Ray Chowdhuri, S. Tripathy, C. Haldar, S. Chandra, B. Das, S. Roy and S. K. Sahu	2015	Theoretical and experimental study of folic acid conjugated silver nanoparticles through electrostatic interaction for enhance antibacterial activity	RSC Adv.	5	21515
62.	S. Chandra, D. Laha, A. Pramanik, A. Ray Chowdhuri, P. Karmakar and S. K. Sahu	2015	Synthesis of highly fluorescent nitrogen and phosphorus doped carbon dots for the detection of Fe <sup>3+</sup> ions in cancer cells	Luminescence	DOI: 10.1002/bio.2927	
63.	Ekta Roy, Soham Maity, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	2014	A metronidazole-probe sensor based on imprinted biocompatible nanofilm for rapid and sensitive detection of anaerobic protozoan	RSC Advances	4	32881-32893
64.	Ekta Roy,	2014	Simultaneous	RSC	4	56690–

	Santanu Patra, Rashmi Madhuri, Prashant K. Sharma		determination of heavy metals in biological samples by a multiple-template imprinting technique: an electrochemical study	Advances		56700
65.	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	2014	Imprinted ZnO nanostructure-based electrochemical sensing of calcitonin: A clinical marker for medullary thyroid carcinoma	Analytica Chimica Acta	853	271-284
66.	Patel, J.; Majee, K.; Ahamed, E.; Tanaka, K.; and Padhi, S. K.	2015	[Ru <sup>V</sup> (NCN-Me)(bpy)(=O)] <sup>3+</sup> Mediates Efficient C-H bond Oxidation from NADH Analogs in Aqueous Media rather than Water Oxidation,	Dalton Trans.,	44 (3)	920 – 923.

### 3.6.3 Paper presented in International Seminars/Conferences

Sl. No.	Author(s)	Title	Seminar/Conference	Date	Place
1.	Saheli Bera, G Udayabhanu , Ramanuj Narayan, T K Rout,	Evaluation of corrosion protection of sol-gel coating applied on galvanized steel	27th Indian Paint Conference	9 – 11 January, 2015	Kolkata
2.	Amrita Biswas, Sagar Pal, G Udayabhanu	Electrochemical studies of Guar gum – graft – polyacrylamide as corrosion inhibitor for mild steel in HCl	International Conference on Electrochemical Science & Technology 2014 (ICONEST 2014),	7 – 9 August, 2014	IISc Bangalore
3.	Soumitra Ghorai, Sagar Pal	Modified xanthan gum/SiO <sub>2</sub> hybrid nanocomposite: A promising adsorbent for selective adsorption of cationic dyes from aqueous	International Symposium on Polymer Science and Technology (MACRO-2016),	23-26 January, 2015	IACS, Kolkata

		solution			
4.	Ramesh Oraon, Amrita De Adhikari, Santosh Tiwari, Tuhin Sahu and G.C.Nayak	Fabrication of Nanoclay based Graphene/Polypyrrole Nanocomposite: An efficient, low cost and environmental friendly ternary electrode material for high performance supercapacitor	International conference on Multifunctional material structures and application-2014	22-24 Dec, 2014	MNNIT Allahabad
5.	Amrita De Adhikari, Ramesh Oraon, Santosh Tiwari and Ganesh Chandra Nayak,	Titanium nanosheet - based hybrid nanocomposite for enhanced electrochemical performance	International conference on Multifunctional material structures and application-2014	22-24 Dec, 2014	MNNIT Allahabad
6.	S.K. Tiwari, R. Oraon, A. De Adhikari, G.C.Nayak,	Effect of Mixing Sequence of Graphene on Thermo-Mechanical Properties of PC/PMMA blend System.	ICNM	2014	Kottayam Kerala
7.	S.K. Tiwari, R. Oraon, A. De Adhikari, G.C. Nayak	Cost effective, Green reduction of graphene oxide to pure graphene.	International Conferences 13th Eurasia on Chemical Sciences (EuAsC2S-13),	14-18 Dec., 2014.	IISc, Bangalore
8.	Santanu Patra, Ekta Roy, Rashmi Madhuri and Prashant K. Sharma	Designing of core shell fluorescent nanoparticles based optical sensor for the trace level determination of ferritin in human blood serum <sup>“”</sup>	International conference on multifunctional materials, structures and applications (ICMMSA-2014)	Dec., 2014	MNNIT, Allahabad (U.P.)
9.	Shrabani Mandal, Rashmi Madhuri and	Investigations of Crystal Defects and Its Consequence on Luminescence Properties of	International conference on multifunctional materials, structures and applications	Dec., 2014	MNNIT, Allahabad (U.P.).

	Prashant K. Sharma	Chemically Grown SnO <sub>2</sub> Nanoparticles	(ICMMSA-2014)		
10.	Ekta Roy, Santanu Patra, Rashmi Madhuri and Prashant K. Sharma,	Designing of imprinted biocompatible nanofilm for rapid and sensitive detection of anaerobic protozoan”	2nd international conference on nanostructured materials and nanocomposites (ICNM 2014)	Dec., 2014	Mahatma Gandhi University, Kottayam, Kerala
11.	Santanu Patra, Ekta Roy, Rashmi Madhuri and Prashant K. Sharma	Novel MWCNT-based molecularly imprinted nanoparticles for the rapid and simple detection of PSA in human blood sera	2nd international conference on nanostructured materials and nanocomposites (ICNM 2014)	Dec., 2014	Mahatma Gandhi University, Kottayam, Kerala
12.	Shrabani Mandal, Rashmi Madhuri and Prashant K. Sharma,	Gas sensing capabilities of Zn doped Nickel Ferrite nanodiscs	Current Trends in advanced Materials (CTMat-2014)	2014	VECC, Kolkata

### 3.6.4 Papers presented in National Seminars/Conferences

Sl. No.	Author(s)	Title	Seminar/Conference	Date	Place
1.	Ashish Kumar, Dibyendu Sain, Chanda Kumari and Swapn Dey	Rhodamine based highly selective fluorescent ‘turn-on’ chemosensor for visual detection of Hg <sup>2+</sup> ion’ Oral Presentation,	ICC 2014 XXXIII Annual conference, Indian Council of Chemists	15 <sup>th</sup> – 17 <sup>th</sup> Dec., 2014	Indian School of Mines, Dhanbad
2.	Chanda Kumari, Dibyendu Sain, Ashish Kumar and Swapn Dey	Selective sensing of Mercury (II) ion by a rhodamine & naphthyridine based highly selective fluorescent-chemosensor and their quantum chemical DFT calculation (Oral	ICC 2014 XXXIII Annual conference, Indian Council of Chemists	15 <sup>th</sup> – 17 <sup>th</sup> Dec., 2014	Indian School of Mines, Dhanbad

		Presentation)			
3.	Ramesh Oraon, Amrita De Adhikari, Santosh Kumar Tiwari and Ganesh Chandra Nayak.	Effect of Aniline Concentration on the Performance of Graphene/PANI based nanocomposite for Supercapacitor Application,	ICC 2014 XXXIII Annual conference, Indian Council of Chemists	15-17 Dec, 2014	Indian Council of Chemists, ISM DHANBAD
4.	Amrita De Adhikari, Ramesh Oraon, Santosh Kumar Tiwari and Ganesh Chandra Nayak,	Highly efficient, Environment friendly cellulose based Graphene-Polypyrrole nanocomposite for supercapacitor application	ICC 2014 XXXIII Annual conference, Indian Council of Chemists	15-17 Dec, 2014	ISM DHANBAD
5.	S.K. Tiwari, P. Saren, G.C. Nayak	A New Approach of Graphene Oxide Synthesis	XXXIII Annual conference, Indian Council of Chemists	15-17 Dec, 15-17 Dec, 2014	ISM DHANBAD
6.	T. K. Mahto and S. K. Sahu	Conjugation of polyaniline in magnetic mesoporous composites for magnetic field guided waste water treatment	XXXIII Annual conference of Indian Council of Chemists (ICC)	15-17 Dec, 2014	ISM Dhanbad
7.	A. Ray Chowdhuri, S. Tripathy, S. Chandra, S. K. Sahu,	Folic acid conjugated silver nanoparticles for enhance antibacterial activity	XXXIII Annual conference of Indian Council of Chemists (ICC)	15-17 Dec, 2014	ISM Dhanbad
8.	S. Chandra, A. Ray Chowdhuri, S. K. Sahu,	Facile synthesis of Fe <sub>3</sub> O <sub>4</sub> @Fe <sub>2</sub> O <sub>3</sub> /carbon dots nanocomposites for photocatalysis under visible light irradiation	XXXIII Annual conference of Indian Council of Chemists (ICC)	15-17 Dec, 2014	ISM Dhanbad
9.	Ekta Roy, Santanu Patra, Paramita Karfa, Sunil Kumar, Rashmi Madhuri and Prashant K. Sharma,	Molecularly imprinted polyarginine/MWCNTs nanowire for trace level detection of heavy metal ions in biological	XXXIII Annual conference of Indian Council of Chemists (ICC)	15-17 Dec, 2014	Indian School of Mines, Dhanbad



		samples			
10.	Santanu Patra, Ekta Roy, Sunil Kumar, Paramita Karfa, Rashmi Madhuri and Prashant K. Sharma,	Designing of Plastic antibody for the ultra-trace level detection of Ferritin	XXXIII Annual conference of Indian Council of Chemists (ICC)	15-17 Dec, 2014	Indian School of Mines, Dhanbad
11.	Sweta Kumari, Chanchal Halder	Evaluation of catalytic potential of polymer supported copper complex	ICC 2014 XXXIII Annual conference Indian Council of Chemists	15-17 Dec, 2014	ISM Dhanbad

### 3.7 MAJOR ACADEMIC CONTRIBUTIONS

1. Prof. G. Udayabhanu, Awarded first prize for the research paper, "Evaluation of corrosion protection of sol-gel coating applied on galvanized steel" in the Research Category - Institute by 27<sup>th</sup> Indian Paint Conference held in Kolkata during 9 – 11 January 2015.
2. Dr. B Chowdhury visited Department of Chemical Engineering, King Saud University, Saudi Arabia for delivering lectures on "Catalyst Characterization" during 30<sup>th</sup> Jan 2015-08 Feb 2015.
3. Dr. S. Dey, Postdoctoral Research Associate for six months (December, 2014 to June, 2015) under the supervision of Prof. (Dr.) Wim Dehaun, Erasmus Mundus Action 2 AREAS+ fellowship, Molecular Design and Synthesis Laboratory, Department of Chemistry, K.U. Leuven, Belgium.
4. Dr. Sagar Pal received CANARA BANK BEST RESEARCHER AWARD for Publication-2014 under the category Applied Sciences, given by ISM, Dhanbad.
5. Dr. H. P. Nayek received DAAD Fellowship (Research Stay) for doing collaborative research work with Prof. Stephan Schulz, University of Duisburg-Essen, Germany.

### 3.8 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

Department of Applied Chemistry organized the **XXXIII Annual Conference of Indian Council of Chemists**, at ISM Dhanbad from December 15-17, 2015.

### 3.9 PARTICIPATION OF FACULTY/STAFF IN SEMINARS/CONFERENCES ETC

Faculty	Topic	Name of the Conference	Duration
Dr. M. Yadav	Electrochemical and quantum chemical studies on corrosion inhibition of imidazole derivative on mild steel in 15% HCl solution.	CORCON 2014,	12-15 November 2014, Mumbai.

### 3.10 DISTINGUISHED VISITORS TO THE SCHOOL

1. Dr Ashish Ranjan, Assistant Professor, Oklahoma University, visited on 09/06/2014.
2. Dr. C. C. Malakar, Senior Scientist at Signal Chemistry Life Sciences Corporation India, Bangalore, visited on 18<sup>th</sup> December 2014.
3. Dr. Abijit Dan, Postdoctoral Fellow in the Department of Chemical and Biological Engineering at the University of Wisconsin-Madison, USA, visited on 3<sup>rd</sup> March 2015.
4. Dr. Subhash Chandra Roy, Former Director, CIMFR, Dhanbad as well as the former CSIR Emeritus Scientist, visited on 13<sup>th</sup> March 2015.
5. Prof. S. Bhaskaran, FASc, Department of Chemistry, IIT Madras, visited on 28<sup>th</sup> March, 2015.

### 3.11 SPECIAL LECTURES BY DISTINGUISHED GUESTS

1. Dr Ashish Ranjan, Assistant Professor from Oklahoma University, delivered a talk on "Nanomedicine for targeted therapy" on 09/06/2014.
2. Dr. C. C. Malakar, Senior Scientist at Signal Chemistry Life Sciences Corporation India, Bangalore, delivered a talk on "New Transition metal catalyzed construction of C-C and C-X bonds; (X= Hetero atom) & the application in the synthesis of Carbocycles and Heterocycles" on 18<sup>th</sup> December 2014.
3. Dr. Abijit Dan, Postdoctoral Fellow in the Department of Chemical and Biological Engineering at the University of Wisconsin-Madison, USA, delivered a talk on "Analytical Methodology Based on Soft Material Interfaces for Biomolecular Sensing" on 3<sup>rd</sup> March 2015.
4. Dr. Subhash Chandra Roy, Former Director, CIMFR, Dhanbad as well as the former CSIR Emeritus Scientist, delivered a talk on "Coal Chemistry- The Recent Trend" on 13<sup>th</sup> March 2015.
5. Prof. S. Bhaskaran, FASc, Department of Chemistry, IIT Madras, delivered a talk on "Dominos reactions in Biological Activities" on 28<sup>th</sup> March, 2015.

## 3.2 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/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of Students	Place of Visit	Period of visit
Sedimentary Terrain Mapping Training	II M. Sc. Tech (AGL) & VI Integrated M. Sc. Tech (AGL)	Ramgarh-Kuju-Hazaribagh Area	13-12-2014 to 22.12.2014
Geological Mapping Training (in deformed metamorphic terrain)	IV <sup>th</sup> M.Sc.Tech. (AGL) + VIII <sup>th</sup> integrated M.Sc.Tech (AGL)	Bagalkot, Karnataka	23.12.2015 to 02.01.2015
Geological Mapping Training (in deformed metamorphic terrain)	IV <sup>th</sup> M.Sc.Tech. (AGL) + VIII <sup>th</sup> integrated M.Sc.Tech (AGL)	Around Dhanbad (Govindpur, Baliapur)	24.01.2015, 25.01.2015 and 31.01.2015
Local Geological Field excursion	IV M.Sc. Tech Integrated	Jharia Coal Field	13.12.2014 to 23.12.2014
Local geological field excursion	VI Int. M.Sc. Tech (AGP) and II M.Sc. (AGP)	Areas in the vicinity of Dhanbad (Bhuli-Bansjora Area)	09/12/2014 to 22/12/2014
Geological mapping training in deformed metamorphic terrain	IV M.Sc. Tech. (AGL) and VIII Integrated M.Sc. Tech. (AGL) students	Nimka Thana, Sikar district, Rajasthan	12.12.2014 to 21.12.2014

### 3.2.2 INTRODUCTION OF NEW COURSES AND PROGRAMMES

- Five year Integrated M Tech (Applied Geology) started.
- Following courses have been introduced for 5 year Integrated M.Tech Degree in Applied Geology and 3 year M.Sc.Tech Degree in Applied Geology.
  1. Atmosphere, Ocean and Climate Dynamics
  2. Image Processing

### 3.2.3 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	Findings
[1]	[2]	[3]	[4]	[5]	[6]
Distribution and carbon isotopic variations of benthic foraminifera from gas hydrate rich Peru Offshore	DST	Dr. A. K. Bhaumik	Rs17.2 2 Lakhs	31.01.2012	Ongoing
Characterization, quantification and genesis of gas hydrate in Krishna-Godavari Basin, Bay of Bengal using benthic foraminiferal, geochemical and geophysical studies	MoES	Dr. A. K. Bhaumik	Rs. 86.69 lakhs	20.03.15	Ongoing
Geological and Technological Controls for Underground Coal Gasification	CSIR	Prof. D.C.Panigrahi; Co-Coordinator: Prof.Atul K. Varma	Rs 91.60 Lakh	01.04.2012	Work Plan finalized; Intricacies of the Project identified
Geodynamics and Structural Evolution of Kachchh Province	Department of Science and Technology New Delhi	Prof. S. Mohanty	Rs.32.0 0 Lakhs	1.9.2014	Field Mapping Phase-I, II and data collections are over. Interpretation of Wagad uplift data continuing.
Stable isotope, geochemical and geochronological	DST	Dr. S.Sarangi	Rs. 22.25 lakhs	24.02.2012	Work still in progress

studies of Ajjanahalli and parts of Gadag gold prospects, Chitradurga Schist Belt, South India					
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	Terrestrial Water Storage as a key indicator of drought.
Landslide risk analysis of road cut hill slopes near Sonapur, Meghalaya, India	DST(NRD MS)	Dr. K.Sarkar	Rs. 22,63,600/-	25/09/2014	--

### 3.2.4 IMPORTANT COLLABORATIVE WORKS

	<b>Organisation / Laboratory</b>	<b>Nature of Interaction</b>
Dr. A K Bhaumik	Brown University	Research work
Dr. A K Bhaumik	Wadia Institute of Himalayan Geology	Research Work & Project
Dr. A K Bhaumik	Birbal Sahani Institute of Paleobotany	Research Work
Dr. A K Bhaumik	NGRI, Hyderabad	Research Work & Project
Prof. A S Venkatesh	University of Maroua · Mines and Quarries, Cameroon · Maroua	Jointly published paper in Resource Geology. Dr. Sylvestre is likely to join Post Doctoral Fellow at ISM.
Prof. A K Varma	Central Institute of Mining and Fuel Research, Dhanbad	Adsorption of methane on various geological materials
Prof. A K Varma	Northern Carbon Research Laboratories, Newcastle upon Tyne, UK	CO <sub>2</sub> adsorption on various geological materials
Prof. A K Varma	Hokkaido University, Japan	Kerogen Petrology
Prof. B C Sarkar	Central Ground Water Board	Impact assessment and geophysical logging of recharge borewell.
Prof. B C Sarkar	CSRE, IIT Bombay	Mineral Potential Mapping
Prof. B C Sarkar	Trimex Sands Pvt. Ltd, Srikakulam	Evaluation of Srikurmam Heavy Mineral Sands.

Prof. S Mohanty	Airie Program, Colorado State University, USA	Collaborative research work sponsored by National Science Foundation (NSF), USA, for Re-Os geochronological work in the Central India.
Dr. S Sarangi	GSI, IIT-Kharagpur,	Research & Publication work
Dr. S Sarangi	NGRI-Hyderabad,	Research & Publication work
Dr. S Sarangi	GeoMysore (India) Pvt Ltd	Research & Publication work
Dr. S Sarangi	PRL, Ahmadabad	Research & Publication work
Dr. A K Prasad	Professor W. Sprigg, University of Arizona, Tucson, AZ, USA	Participation as Consultant (on contract).
Dr. A K Prasad	Dr. S. Nickovic, WMO, Geneva, Switzerland and Belgrade, Serbia. and Dr. A. Vukovic, University of Belgrade, Serbia	Remote sensing and modeling of dust storms.
Dr. A K Prasad	Dr. G. Asrar, Pacific Northwest National Laboratory Richland, WA United States	Himalayan Snow and Glacier cover and Impact of climate change.
Dr. A K Prasad	Dr. H. El-Askary, Chapman University, CA, USA	Remote sensing characterization of African and Asian dust storms.
Dr. A K Prasad	Dr. J. Luvall, NASA/NSSTC Huntsville, AL, USA	Development of pollen source mask and multi-species pollen phenology using hyperspectral and super-spectral satellite and ground measurements.
Dr. S Singh	Atomic Mineral Division, Eastern Region, Jamshedpur	As an Expert member of Exploration Research Advisory Committee of AMD/DAE, ER-Jamshedpur

### 3.2.5 RESEARCH PUBLICATIONS

#### 3.2.5.1 Book reviews / contribution of chapters in a book

Mohanty, S.	2015	Palaeoproterozoic supracrustals of the Bastar Craton: Dongargarh Supergroup and Sausar Group	Geological Society, London, Memoirs 43	11	151–164. Doi:10.1144/M43.11
Varma, A. K., Das, P. R., Mendhe, V. A, Hazra, B.,	2015	Hydrocarbon generation potential of selected	Frontiers of Earth Science,	16	Section1: Mineral Deposits

Samad, S. K. and Buragohain,		borehole samples from Jharia basin, Jharkhand	Indian Science Congress Association & Scientific Publishers, Jodhpur, India		
Varma, A. K., Sen, D., Mendhe, V. A., Mishra, D. K., Misra, S., Anwita and Das, P. R.	2015	Petrographic make up in deciphering depositional environment of Damodar valley coal basins	Frontiers of Earth Science, Indian Science Congress Association & Scientific Publishers, Jodhpur, India	44	Section V: Petrology

### 3.2.5.2 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Sahoo. P.R. and Venkatesh, A.S.	2014	“Indicator” carbonaceous Phyllite/graphitic schist in the Archean Kundarkocha gold deposit, Singhbhum orogenic belt, eastern India: Implications for gold mineralization vis-a-vis organic matter.	Journal of Earth System Science	123, No. 7	1693-1703.
2.	Sahoo. P.R. and Venkatesh, A.S.	2015	Constraints of mineralogical characterization of gold ore: Implication for genesis, controls and evolution of gold from Kundarkocha gold deposit, eastern India	Journal of Asian Earth Sciences,	v. 97,	136-149
3.	Vandana Jha, Sahendra Singh and A.S. Venkatesh	2015	Invisible gold occurrence within the quartz reef pyrite of Babaikundi area, North Singhbhum fold-and-thrust belt, Eastern	Ore Geology Reviews	65	426-432

			Indian Shield: Evidence from petrographic, SEM and EPMA studies			
4.	Nguo Sylvestre Kanouo, Rose Fouateu Yongue, Emile Ekomane, Emmanuel Njonfang, Changqian Ma, David R. Lentz, Zhenbing She, Khin Zawand Akella Satya Venkatesh	2014	U–Pb Ages for Zircon Grains from Nsanaragati Alluvial Gem Placers: Its Correlation to the Source Rocks.	Resource Geology	65	103-121
5.	Varma. A K, Kumar, M., Saxena, V.K., Sarkar, A. and Banerjee, S.K.	2014	Petrographic controls on combustion behavior of inertinite rich coal and char and fly ash formation	Fuel	128	199-209
6	Varma. A K, Hazra, B., and Srivastava, A,	2014	Estimation of total organic carbon in shales through color manifestations.	Journal of Natural Gas Science & Engineering	18	53-57
7	G. Predeanu, C. Panaitescu, M. Bălănescu, G. Bieg, A. Gómez Borrego, M.A. Diez, P. Hackley, B. Kwiecinska, M. Marques, M. Mastalerz, M. Misz-Kennan, S. Pusz, I. Suárez Ruiz, S. Rodrigues, A.K. Singh, A.K. Varma, Zdravkov, D. Životić.	2015	Microscopical characterization of carbon materials derived from coal and petroleum and their interaction phenomena in making steel electrodes, anodes and cathode blocks for the microscopy of carbon materials working group of ICCP	International Journal of Coal Geology	139	63-79
8	Varma. A.K, Biswal S., Hazra, B., Mendhe, V.A., Misra, S., Samad, S.K., Singh, B. D.,	2015	Petrographic characteristics and methane sorption dynamics of coal and shaly-coal samples from Ib Valley Basin, Odisha, India.	International Journal of Coal Geology	141-142	51-62



	Dayal, A.M , Mani, D.,					
9	Khan, P.K., Ansari, M. A. and Mohanty, S.	2014	Earthquake source characteristics along the arcuate Himalayan belt: Geodynamic implications.	Journal of Earth System Sciences	123	1013 – 1030
10	Panda, M.K., Mohanty, S., Pingua, B.M.P. and Mishra, A.K.	2014	Engineering geological and geotechnical investigations along the head race tunnel in Teesta Stage-III hydroelectric project, India.	Engineering Geology	181	297–308
11	Mohanty, S.P., Barik, A., Sarangi, S., and Sarkar, A.	2015	Carbon and oxygen isotope systematics of a Paleoproterozoic cap-carbonate sequence from the Sausar Group, Central India.	Palaeogeography, Palaeoclimatology, Palaeoecology	417	195–209.
12	S.K. Swain,S. Sarangi R. Srinivasan, A. Sarkar, S. Bhattacharya, S.C. Patel, R.M. Pasayat, R.H. Sawkar	2015	Isotope (C and O) composition of auriferous quartz carbonate veins, Central Lode System, Gadag Gold Field, Dharwar Craton, India: Implications to source of ore fluids	Ore Geology Review	70	305-320
13	Vukovic A., Vujadinovic M., Pejanovic G., Andric J., Kumjian M.R., Djurdjevic V., Dacic M., Prasad A.K., El-Askary H.M., Paris B.C., Petkovic S., Nickovic S., Sprigg W.A.	2014	Numerical simulation of "an American haboob"	Atmospheric Chemistry and Physics	14	3211-3230
14	Kim S.-R., Prasad A.K., El- Askary H., Lee W.-K., Kwak D.- A., Lee S.-H., Kafatos M.	2014	Application of the Savitzky-Golay filter to land cover classification using temporal MODIS vegetation indices	Photogrammetric Engineering and Remote Sensing	80	675-685
15	Sprigg W.A., Nickovic S.,	2014	Regional dust storm modeling for health	Aeolian Research	14	53-73

	Galgiani J.N., Pejanovic G., Petkovic S., Vujadinovic M., Vukovic A., Dacic M., DiBiase S., Prasad A., El- Askary H.		services: The case of valley fever			
16	Jha, V., Singh, S., Venkatesh, A.S.	2014	Invisible Gold Occurrences within the Quartz Reef Pyrites of Babaikundi Area, North Singhbhum Fold and Thrust Belt, Eastern Indian Shield. Evidence from Petrographic, SEM and EPMA studies	Ore geology Review	65	426- 432
17	Syed, T. H., P. J. Webster and J. S. Famiglietti,	2014	Assessing variability of evapotranspiration over the Ganga river basin using water balance computations	Water Resources Research	50	2551- 2565
18	Durbar Ray, Dalayya Kota, Pranab Das, L. Surya Prakash <sup>1</sup> , V.D. Khedekar, Anil L. Paropkari, Abhay V. Mudholkar	2014	Microtexture and Distribution of Minerals in Hydrothermal Barite- Silica Chimney from the Franklin Seamount, SW Pacific: Constraints on Mode of Formation	ACTA GEOLOGI CA SINICA (English Edition)	88, No. 1	801- 840
19	Sahoo. P.R. and Venkatesh, A.S.	2015	Constraints of mineralogical characterization of gold ore: Implication for genesis, controls and evolution of gold from Kundarkocha gold deposit, eastern India	Journal of Asian Earth Sciences,	97	136- 149

### 3.2.5.3 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Ajoy K. Bhaumik, Anil K. Gupta, Steve	2014	Functional morphology of	Current Science	106	1133- 1140

	C. Clemens and Richa Mazumder		<i>Melonis barleeanum</i> and <i>Hoeglundina elegans</i> : A proxy for water-mass characteristics.			
2	Boral, Prabal, Varma, AtulK. and Maity, Sudip,	2015	X-ray diffraction studies of some structurally modified Indian coals and their correlation with petrographic parameters.	Current Science.	108	384-394
3	Sarkar, B. C.	2014	Developments in Geostatistics for Mineral Deposit Modelling.	Jour. Society of Geoscientists and Allied Technologists	15, No. 1	pp. 13-23.
4	Sarkar, B. C.	2014	Geostatistics: Concepts and Applications in Mineral Deposit Modelling for Exploration and Mining.	Jour. Indian Geological Congress	6, No. 1	pp. 3-26.
5	Bagchi, A, Murty, C.V.G.K., Rambabu, R., Venugopal, R. and Sarkar, B.C.	2015	Mining, Concentration and Separation of Ilmenite, Rutile, Zircon, Garnet and Sillimanite from Mineral Sands – An Overview.	Jour. Economic Geology & Geo-resource Management	10	pp. 133-144
6	Sahoo. P.R. and Venkatesh, A.S.	2014	“Indicator” carbonaceous Phyllite/graphitic schist in the Archean Kundarkocha gold deposit, Singhbhum orogenic belt, eastern India: Implications for gold mineralization vis-a-vis organic matter.	Journal of Earth System Science	123, No. 7	1693-1703.
7	Chandan, K.K., Jha, V., Roy, S., Khatun, M., Sahoo, P.R. and Singh, S.,	2014	Ore Microscopic Study of the Gold Mineralization within Chandil Formation, North Singhbhum Mobile Belt, Eastern India.	International Journal of Earth Sciences and Engineering,	7, No. 1	213-222.

## 3.2.5.4 Papers presented in International Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/Conference	Date	Place
(1)	(2)	(3)	(4)	(5)	(6)
1	Varma,A.K., Banerjee,S.K., Debadatta Sen, Bodhisatwa Hazra, Vinod Kumar Saxena and Bhagwan D. Singh	Petrographic controls on coal seams from Korba basin, Chhattisgarh, India for char development.	66 <sup>th</sup> Annual Meeting and Symposium of International Committee for Coal and Organic Petrology [ICCP- 2014], abstract volume,p.61	20-27 September, 2014.	Science City, Kolkata
2	Varma, A.K., Hazra,B., Suresh Kumar Samad, Sneha Panda, Vinod Atmaram Mendhe and Satbeer Singh	Shale gas potential of lower Permian shales from Raniganj and West Bokaro basins, India.	66 <sup>th</sup> Annual Meeting and Symposium of International Committee for Coal and Organic Petrology [ICCP- 2014], Abstract volume p.40-41	20-27 September, 2014,	Science City, Kolkata,
3	Boral,P.,Maity,S. and Varma,A.K.	Evaluation of nitration effect on petrographic characteristics of coals from Jharia coalfield, India, by FTIR and wide angle X-ray scattering.	66 <sup>th</sup> Annual Meeting and Symposium of International Committee for Coal and Organic Petrology [ICCP- 2014], Abstract volume, p.72.	20-27 September, 2014.	Science City, Kolkata,
4	Mishra,S., Mendhe,V.A., Kamble, A., Bannerjee,M. and Varma, A.K.	Prospects of Lower Gondwana shale gas exploitation in Raniganj Coalfield, West Bengal , International Conference on “	Current perspective and emerging issues in Gondwana evolution, p.58	February 19- 20,2015,	BSIP, Lucknow
5	Sarkar, B. C.	GIS approach to inferencing of copper potentiality in Singhbhum belt.	Proc.International Seminar on MINEXPRO 2014, pp. 7-11.	Dec. 5-7, 2014	Bhubanes war
6	Stein, H. J.,	Molybdenite	European	27 April –	Vienna,

	Hannah, J. L., Pandit, M. K., Mohanty, S., Corfu, F., Zimmerman, A.	tricks with titanite give history of the Central Indian Tectonic Zone.	Geosciences Union General Assembly 2014	02 May 2014	Austria
7	Luval, J, TM Crimmins, WA Sprigg, E Levetin, A Huete, S Nickovic, A Prasad, A Vukovic, PK VandeWater, AM Budge, W Hudspeth, L Bunderson	2014	2014 ESA Annual Meeting	10-15 Aug. 2014	Sacramen to, CA, United States
8	Sahu, S.S., Singh, S., Satapathy, J	Genesis of Emerald occurrences and their exploration implications within Singhbhum Shear Zones, Eastern Indian Craton, V.88, 1481-1482, ACTA GEOLOGICA SINICA.	14 <sup>th</sup> Quadrennial International Association on the genesis of ore deposits Symposium	19 <sup>th</sup> to 22 <sup>nd</sup> August, 2014	Kunming , China
9	A. Soni and T. H. Syed	Analysis of variations in terrestrial water storage over major river basins in India using multi-platform hydrologic observations	Fourth International Conference on Hydrology and Watershed Management, JNTU	29 <sup>th</sup> October to 1 <sup>st</sup> November, 2014.	Hyderaba d
10	D. Sinha and T. H. Syed	Quantification of Drought in India using Satellite based Water Storage Variations	Fourth International Conference on Hydrology and Watershed Management, JNTU	29 <sup>th</sup> October to 1 <sup>st</sup> November, 2014.	Hyderaba d

### 3.2.5.5 Papers presented in National Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/Conference	Date	Place
(1)	(2)	(3)	(4)	(5)	(6)
1	Varma, A.K., Das, P.R., Mendhe, V.A, Hazra, B., Samad, S.K. and Buragohain, J.	Hydrocarbon generation potential of selected borehole samples from Jharia basin, Jharkhand, ,	102 <sup>nd</sup> Indian Science Congress, Part II: Abstracts of Oral / Poster Presentations, Earth System Sciences, 12/I ,p.28-29,	3-7 Jan 2015,	Mumbai
2	Varma, A.K., Sen,D.,Mendhe, V.A, Mishra,D.K., Misra,S.,Anwita and Das, P.R., ,	Petrographic make up in deciphering depositional environment of Damodar valley coal basins,	102 <sup>nd</sup> Indian Science Congress, Part II: Abstracts of Oral / Poster Presentations, Earth System Sciences, 81/O ,117p., 3-7	Jan 2015,	Mumbai
3	Sarkar, B. C.	Geology-oriented geostatistics for improved orebody modelling and grade control. (Keynote paper)	Proc. Seminar on Sustainable Development in Mineral and Earth Resources (SDMinER 2014), pp. 11-17.	June 21-22, 2014	New Delhi
4	Sarkar, B. C.	Integrated geostatistical modelling and applications in exploration and mining.	<b>Proc.</b> All India Exploration Geologists Meet (AIEGM 2014), pp. 90-107.	August 21-22, 2014	Hyderabad

### 3.2.6 MAJOR ACADEMIC CONTRIBUTIONS

- Prof. A K Varma reported the presence of a new type of char, named vitrosphere.
- Prof. A K Varma reported the formation of organo-petrographic constituents in char is controlled by the microlithotype of the feed coal.
- Prof. B. C. Sarkar received MEAI Master Tanay Chadha Memorial Geologist Award 2014 in the field of Mineral Exploration.
- Prof. B. C. Sarkar received SGAT Award of Excellence 2014 for contributions to the field of Geostatistics.
- Prof. B. C. Sarkar received S. Narayanaswami Award 2014 of Geological Society of India for significant contributions in the field of Economic Geology.
- Prof. B. C. Sarkar received MEAI Outstanding Leadership Award 2014 for meritorious contribution to the Mineral Industry.

- Prof. B. C. Sarkar developed course module on Mineral Geostatistics for Deposit Modelling, Orebody Evaluation, Drilling optimization and Grade control for Scientists of Atomic Minerals Directorate for Exploration and Research.

### 3.2.7 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof.A.K.Varma	66 <sup>th</sup> Annual Meeting and Symposium of International Committee for Coal and Organic Petrology [ICCP-2014].	20-27 September, 2014	Kolkata
Prof. B. C. Sarkar	Seminar on Sustainable Development in Mineral and Earth Resources (SDMinER 2014)	June 21-22, 2014	New Delhi
Prof. B. C. Sarkar	All India Exploration Geologists Meet (AIEGM 2014)	August 21-22, 2014	Hyderabad
Prof. B. C. Sarkar	International Seminar on MINEXPRO 2014	Dec. 5-7, 2014	Bhubaneswar
Prof B C Sarkar	7 <sup>th</sup> Indian Mineral Congress & Exhibition on Technology and Innovation Management in Indian Mineral Industry	7 February 2015	Dhanbad

### 3.2.8 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Prof. Anil K.Gupta, Director, Wadia Institute of Himalayan Geology, Dehradun delivered N.L.Sharma Memorial Lecture on “Evolution of the South Asian monsoon and extreme events”	9 <sup>th</sup> Feb. 2015
Mr. N.K.Verma, Managing Director and CEO, ONGC Videsh Limited delivered lecture on “Peak Oil” at AAPG student meet.	13 <sup>th</sup> March 2015
Prof S. C. Dhiman, Former Chairman CGWB	Adjunct Professor Lectures on Hydrogeology
Dr. Rabi Bastia, President Oilmax Energy Limited, Mumbai	Adjunct Professor Lectures on Petroleum Geology

### 3.2.9 MISCELLANEOUS :

#### Prof. A K Varma:

1. Member Organising Committee of 66<sup>th</sup> Annual Meeting and Symposium of International Committee for Coal and Organic Petrology [ICCP-2014] which first time held in India (Kolkata).

2. Organized one week specialized training programme on “Geological aspects of coal, CBM and shale gas for officers of Geological Survey of India (GSI) and Dept of Mines and Geology (DMG), Jharkhand at ISM,Dhanbad during 12.10.2014-17.10.2014.
3. Organized “Earth Day” on 16.08.2014 sponsored by the Ministry of Earth Science, Govt. of India

**Prof. B C Sarkar:**

1. Prof. B. C. Sarkar elected as Council Member of Mining Engineers’ Association of India, Hyderabad.
2. Prof. B. C. Sarkar nominated as Member, Technical Committee of Indian Society of Engineering Geology (ISEG).

**Dr. P R Sahoo:**

Received National Geoscience Award, 2013 from the Honourable President of India at Rastrapati Bhawan



### 3.3 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	Place of Visit	Period of visit
Winter Field Training	IVth Semester 3 years M. Sc. Tech (AGP) and VIIIth Semester 5Year Int. M.Sc. Tech., AGP	Near Bhuli	14.12.2014-30.12.2014
Winter Field Training	IVth Semester 3 years M. Sc. Tech (AGP) and VIIIth Semester 5Year Int. M.Sc. Tech., AGP	Ranguni(Near Bhuli, Dhanbad)	14.12.2014-30.12.2014
Winter Field Training	IVth Semester 3 years M. Sc. Tech (AGP) and VIIIth Semester 5Year Int. M.Sc. Tech., AGP	Ranguni,(Near Bhuli, Dhanbad)	14.12.2014-30.12.2014
Winter Field Training	IVth Semester 3 years M. Sc. Tech (AGP) and VIIIth Semester 5Year Int. M.Sc. Tech., AGP	Ranguni,(Near Bhuli, Dhanbad)	20.12.2014-24.12.2014
Winter Field Training	IVth Semester 3 years M. Sc. Tech (AGP) and VIIIth Semester 5Year Int. M.Sc. Tech., AGP	Ranguni,(Near Bhuli, Dhanbad)	20.12.2014-24.12.2014

#### 3.3.2 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	Findings
Estimation of Crustal Stress and Development of Geo-Mechanical Earth models for few oil/gas fields of Eastern	Ministry of Earth Sciences	Dr. Rima Chatterjee	Rs. 22.8 Lakh	24.11.2012	(a) Evaluation of Petrophysical parameters (b) Rock properties estimation (c) Gemechanical models development

India					
Seismic Hazard Estimation for Bihar-Jharkhand Using GPS strain, seismicity and seismic study	Ministry of Earth Sciences (MoES), Govt. of India	Principal Investigator Dr. P. N. Singha Roy; Co-PI Dr S. K. Pal	Rs.139.78 6 Lakh	01.09.2013	GPS Station is nicely working
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 (Coordinator)	17.50	03.08.2011	
Geodynamic Modeling of the Eastern Subduction Margin of India	Department of Science and Technology, Govt. of India, New Delhi	Dr. P.K. Khan (Coordinator)	28.44	29.07.2013	Research works going smoothly, Works of one research paper completed
Short Course on "Basic Geophysical Techniques"	Department of Science and Technology, Govt. of India, New Delhi	Dr. P.K. Khan (Coordinator)	6.00	18.01.2015	Training was completed successfully.
Geotechnical characterization of Jharia Coal field area using geophysical techniques	DST	S.K. Pal (PI) and P.N.S.Roy (Co-PI)	Rs. 31.59 Lakhs	August, 2014	
Seismic Hazard estimation of Bihar-Jharkhand:	MOES	P.N.S. Roy(PI) and Pal, S. K. (Co-PI)	Rs.139.78 Lakhs	2013	

Using GPS strain, seismicity and seismic study					
Magnetotel luric Investigation in the Geothermal Province of Bakreswar, West Bengal, India	DST	Shalivahan	19.10	2013	2D Rapid Relaxation Inversion (RRI) model of NS line obtained from TE+TM with an RMS misfit of 1.78. It shows an anomalously low resistivity of 10 ohm-m below site 235 at a depth of about 3 km with horizontal dimension of about 2km. This anomalously low resistivity feature is enveloped by 100 ohm-m resistivity zone which seems to be extends quite deep. Further low resistivity zone of 100 ohm-m is surrounded by a relatively high resistivity of less than 500 ohm-m and extends beyond the profile of measurement towards south. The combination these three resistivity features define the geothermal reservoir of BGP. The reservoir is an asymmetric, thick, dyke-like conducting structure within a

					relatively high resistivity host
Seismic and Resistivity imaging for detection of subsurface cavities associated with coal working	DST	P R Mohanty	15.62	2013	Numerical modelling on subsurface cavities by resistivity imaging is tested. Results indicate subsurface cavities can be detected. (One Paper Communicated)  One Field Survey was conducted

### 3.3.3 IMPORTANT COLLABORATIVE WORKS

Organization/Laboratory	Nature of Interaction
National Geophysical Research Institute, Hyderabad	Seismic and Well Data Sharing and interpretation of Seismic data
ICTP, Trieste, Italy	As Junior Associate visited ICTP for research work during summer 2014 for 45 days.
NGRI, Hyderabad	Gravity Modeling, Study of Anisotropy
IMD	Earthquake hazard analysis
ISR	Seismotectonics
NIRM	Geotechnical Modeling

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

Name of Equipment	Purpose	Date of Purchase	Value (Rs.)
24 Channel GEOD Digital Seismograph	Teaching and research	March 2015	40569 USD
25nos. 4.5Hz Vertical Geophones and 25nos. 4.5Hz Horizontal Geophones		April, 2014	5000 USD
25 No. 2Hz Vertical Geophones		November, 2014	14750 USD
WinGLink software		April, 2014	14,950 Euro
FlashRES Universal 61 Channel 64 Electrode ERT		March, 2014	
Syscal R1 Plus single channel 48 electrode		December, 2014	35400 Euro
TNT mips Software		March 2015	Rs.7,35000.00

### 3.3.5 RESEARCH PUBLICATIONS

#### 3.3.5.1 Papers published in International Journal

Sl. No.	Authors(s)	Year	Title	Journal	Vol. No.	Page No.
1.	Dip Kumar Singha and Rima Chatterjee	2014	Geomechanical Modeling using Finite Element Method for Prediction of In-situ Stress in Krishna-Godavari basin, India	International Journal of Rock Mechanics and Mining Sciences	73	15-27
2.	Dip Kumar Singha and Rima Chatterjee	2014	Pore pressure prediction in gas-hydrate bearing sediments of Krishna-Godavari Basin in, India	Geochemistry	357	1-11
3.	Dip Kumar Singha and Rima Chatterjee	2014	Detection of Overpressure zones and a Statistical Model for Pore Pressure Estimation from Well Logs in the Krishna-Godavari Basin, India	Geochemistry	15(4)	1009-1020
3.	Ghosh, S., Chatterjee, R., Paul S. and Shanker, P	2014	Designing of plug-in for estimation of coal proximate parameters using statistical analysis and coal seam correlation	Fuel	134	63-73
4.	P. N. S. Roy , Suparna Chowdhury, Partha Sarkar and Saroj Kumar Mondal	2015	Fractal study of Seismicity in order to characterize the various tectonic block of North East Himalaya, India	Natural Hazards Springer Publication (Thomson Reuter)	77(1)	S5-S18
5.	Deepak K. Gupta, Debjani Bhowmick &	2015	Himalayan hazard study on the basis of stress and	Geomatics, Natural Hazards and	6(2)	131-148

	P.N.S. Roy		strain state of 1991 Uttarkashi earthquake using Coulomb stress transfer model	Risk Taylor & Francis (Thomson Reuter)		
6.	Gupta, G., Maiti, S., and Erram, V.C.,	2014	Analysis of electrical resistivity data in resolving the saline and fresh water aquifers in west coast Maharashtra, India	Journal of the Geological Society of India	84(5)	555-568
7.	Hainzl, S., Aggarwal, S.K., Khan, P.K., Rastogi, B.K.	2015	Monsoon-induced earthquake activity in Talala, Gujarat, India	Geophysical Journal International	200	627-637
8.	Ansari, M.A., Khan, P.K., Tiwari, V.M., Banerjee, J.	2014	Gravity anomalies, flexure, and deformation of the converging Indian lithosphere in Nepal and Sikkim-Darjeeling Himalayas	International Journal of Earth Sciences	103	1681-1697
9.	Khan, P. K., Ansari, M. A., Mohanty, S.	2014	Earthquake source characteristics along the arcuate Himalayan belt: geodynamic implications	Journal of Earth System Science	123	1013-1030
10.	Ansari, M. A., Khan, P.K.	2014	Occurrences of damaging earthquakes between the Himachal and Darjeeling Himalayas: tectonic implications.	Acta Geophysica	62	699-736
11	Shalivahan, D. Datta, B N P Agarwal, S Mehta,	2014	Applications of Ant Colony Optimization in determination of source parameters	Near Surface Geophysics	12	373-389

			from total gradient of potential fields,			
12	Ved P. Maurya,, Shalivahan, B. B. Bhattacharya, P. K. Adhikari and L. K.Das	2015	Preliminary Magnetotelluric results across Dalma Volcanics, Eastern India: Inferences on Metallogeny	Journal of Applied Geophysics	115	171-182

### 3.3.5.2 Papers published in National Journal

Sl. No.	Authors(s)	Year	Title	Journal	Vol. No.	Page No.
1.	Gupta, G., Erram, V. C., and Maiti, S.,	2015	Geoelectrical investigation for potential groundwater zones in parts of Ratnagiri and Kolhapur districts, Maharashtra.	Journal Indian Geophysical Union	19(1),	27-38

### 3.3.5.3 Papers presented in International Seminars/Conferences

Sl. No.	Authors(s)	Title	Seminar/Conference	Date	Place
1.	Dip Kumar Singha and Rima Chatterjee	Fracture and Breakout Analysis From Image Log in Krishna Godavari Basin, India	3rd South Asian Geosciences Conference and Exhibition, GEOINDIA GEOINDIA-2015	Jan. 11-14	Greater Noida
2.	Chatterjee R. and Singha, D. K	Geomechanical and Rock Properties Analysis: An Implication for Reservoir Development in Krishna-Godavari basin, India	3rd South Asian Geosciences Conference and Exhibition, GEOINDIA GEOINDIA-2015	Jan. 11-14	Greater Noida
3.	Das. B., Singha, D. K. and	Lithofacies Identification and Porosity	3rd South Asian Geosciences Conference and	Jan. 11-14	Greater Noida

	Chatterjee, R	Prediction Through Acoustic Impedance Inversion	Exhibition, GEOINDIA GEOINDIA-2015		
4.	Chatterjee, R. and Singha, D. K. and sain, K	Porosity Inversion of Pre-stack Seismic data: A Case Study from Krishna-Godavari Basin, India, India	Oil & Gas Review Summit & International Exhibition, IORS, Mumbai	September 10-11	Mumbai
5.	Singha, D. K., Chatterjee, R. and sain, K	Application of Multilayer Feed Forward Neural Network: Porosity Mapping in Gas Hydrate Sediment of Krishna-Godavari Basin, India	Annual meeting EAGE	June 16-19	Amsterdam
6.	P.N.S. Roy	Seismicity of the eastern Himalaya	IGC-2014 (19 <sup>th</sup> Convention of IGC and Int. Conf., )	Nov. 27-29, 2014	Itanagar, Arunachal Pradesh

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

Geoconfluence – 2015, All India Students Meet	January 24-27, 2015
National Seminar on “Recent Developments in Geoelectromagnetism for Crustal Investigation” under AGP Deppt. UGC CAS program.	March 30, 2015

### 3.3.7 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Dr. Rima Chatterjee	Fracture and Breakout Analysis From Image Log in Krishna Godavari Basin, India	3rd South Asian Geosciences Conference and Exhibition, GEOINDIA, January 11-14.	Greater Noida
Dr. Rima Chatterjee	Porosity Inversion of Pre-stack Seismic data: A Case Study from Krishna-Godavari Basin, India, India	Oil & Gas Review Summit & International Exhibition, IORS, Mumbai, <b>Sept. 10-11</b>	Mumbai



Dr P. N. Singha Roy delivered Key Note Address	IGC-2014 (19 <sup>th</sup> Convention of IGC and International Conference)	Nov. 27-29, 2014	Itanagar, Arunachal Pradesh
--	---	------------------	-----------------------------------

### 3.3.8 VISITS OF FACULTY MEMBERS ABROAD

Dr P. N. S. Roy, Associate Prof. visited ICTP,Treiste,Italy (6 Weeks), as Junior Associate (2014) sponsored by ICTP,Treiste,Italy.

### 3.3.9 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Dr. Naide Pan	South East Asia Honorary Lecture, SEG
---------------	---------------------------------------

### 3.4 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.

#### 3.4.1 BEST PRACTICES OF THE DEPARTMENT

- Conducted different events under Society of Applied Mathematics, including guest Lecture by Prof. Krishnendu Mukhopadhyaya, ISI Kolkata Localization in Wireless Sensor Networks” on 29 March, 2015 in the NLHC, ISM Dhanbad
- Conducted lectures on “SuDoKu Puzzles - A Combinatorial Marvel under Society of Applied Mathematics, by Prof. B.K. Sinha, ISI Kolkata on 12 March 2015 in the GJLT, ISM Dhanbad
- SIAM (Society for Industrial and Applied Mathematics) student chapter approved and started. SIAM student chapter, ISM Dhanbad became third chapter in India. Several events (viz. Three sessions of Coding cell, Mathematics Quizpiad) conducted by chapter members.

#### 3.4.2 BRIEF LIST OF ON-GOING R & D PROJECTS

Project Title	Sponsoring Agency	Coordinators(s)	Project value (Rs. In Lakhs)	Date of Commencement	Findings
Study of torsion wave in anisotropic and non-homogeneous media	CSIR	P.I.: Prof. S. Gupta CO-PI: Dr. S. Kundu	11.94	01.12.2013	---
Development of estimation techniques and search of effective methods to minimize the effect of non-response in sample surveys.	UGC	Prof. G. N. Singh	6.63	01.07.2011	Desired estimation procedures have been developed

Modeling the spatiotemporal complexity of Eco-epidemiological systems: A dynamical system Approach.	UGC, New Delhi	Prof. R. K. Upadhyay	3.50	01.04.2013	Five research papers have been published.
Pseudo-Differential Operators and Wavelet Transform Involving Fractional Fourier Transform on Function and Distribution Spaces	NBHM (DAE)	Dr. Akhilesh Prasad	10.07	01.04.2012	Four papers are accepted for publication in reputed international journals and some papers are communicated
Stability and Chaos in Photo gravitational N-body Problem with Solar Wind Drag	ISRO-DOS Govt. of India	Dr. B.S. Kushvah	16.97	June 11, 2013	Two papers published and two are ready to communicate
CUDA Teaching Centre	NVIDIA & ISM	Dr. B.S. Kushvah	3.07	2 July 2014	Supporting for teaching
Generalized Convexity and Its Applications to Mathematical Programming Problems	Department of Science Technology, New Delhi	Dr. Anurag Jayswal	11.64	01/10/2013	Two papers have been published

### 3.4.3 IMPORTANT COLLABORATIVE WORKS

#### Prof. G. S. Seth

Sl. No	Organization/lab	Nature of Interaction
1	Faculty of Military Science, Stellenbosch University, Private Bag X2, Saldanha 7395, South Africa.	Collaborative Scientific Research work
2	Mechanical Engineering Department, Prince Mohammad Bin Fahd University, Al-Khobar-31952, Kingdom of Saudi Arabia.	Collaborative Scientific Research work

**Prof. R. K. Upadhyay**

Sl. No.	Organization/lab	Nature of Interaction
1.	Department of Mathematics, School of Mathematical and Physical Sciences, University of Sussex, Falmer, Brighton, UK, BN1 9RF	Collaborative Scientific research work
2.	Mathematics Group, BITS Pilani – 333 031, India	Collaborative Scientific research works.
3.	Department of Mathematics and Computer Science, Mizoram University, Aizwal – 796009, India	Collaborative Scientific research work
4.	Department of Mathematics, National Institute of Technology, Raipur – 492010, India	Collaborative Scientific research work
5.	Centre for Mathematics, Central University of Orissa, Koraput 764020, Odisha, India	Collaborative Scientific research work
6.	Ecological Modelling Laboratory, Department of Zoology, Visva Bharati University, Santiniketan 731 235, WB, India	Collaborative Scientific research work
7.	School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi 110 067, India	Collaborative Scientific research work

**Dr. M. K. Singh**

Sl. No.	Organization/lab	Nature of Interaction
1	Department of Mathematics, Faculty of Science, BHU, Varanasi	Scientific research and Development of Mathematical techniques under joint research activity
2	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
3	Department of Earth Sciences, Perugia University, Perugia, Italy	Scientific research and Development of Mathematical techniques under joint research activity

**Dr. S. P. Tiwari**

Sl. No.	Organization/lab	Nature of Interaction
1.	Banaras Hindu University, Varanasi	Collaborative research work on fuzzy topology and theoretical computer

		science is going on. One research papers has been accepted for publication.
2.	Yazd University, Iran	Collaborative research work on theoretical computer science. One research papers has been submitted for publication.
3.	Institute for Research and Applications of Fuzzy Modeling, University of Ostrava, Czech Republic	Collaborative research work on F-transform. . One research papers has been accepted for publication

**Dr. B. S. Kushvah**

Sl. No	Organization/lab	Nature of Interaction
1	ISRO Telemetry, Tracking and Command Network (ISTRAC), Bangalore 560058, India	Research
2	ISRO Satellite Center, Bangalore 560017, India	Research

**Dr. G. K. Vishwakarma**

Sl. No	Organization/lab	Nature of Interaction
1	IIT, Indore	Collaborative research work
2	HarisinghGourCentralUniversity, Sagar, M.P.	Collaborative research work
3.	VikramUniversity, Ujjain	Collaborative research work

**3.4.4 RESEARCH PUBLICATIONS****3.4.4.1 Books Review/ Contribution of Chapter in a Book**

Singh, M K and Kumari, P (2014), Contaminant concentration prediction along unsteady groundwater flow, Modelling and Simulation of Diffusive Processes, Series: Simulation Foundations, Methods and Applications, Springer, XII, pp257-276.

**3.4.4.2 Paper published in International Journals/Conferences**

Sl. No	Author(s)	Year	Title	Journal	Vol. No.	Page No.
1.	M. Chatterjee, S. Dhua, S.A.Sahu, A. Chattopadhyay,	2014	Reflection in a highly anisotropic medium for three-dimensional plane waves under initial stresses	International Journal of Engineering Science	85	136–149
2.	M.Chatterjee,S. Dhua, A.Chattopadhyay	2015	Response of moving load due to irregularity in slightly compressible, finitely deformed elastic media	Mechanics Research Communications	66	49-59

3.	A Chattopadhyay and A K Singh	2014	Propagation of a Crack due to Magnetoelastic Shear Waves in a Self-reinforced medium	Journal of Vibration and Control	20(3)	406–420
4.	A Chattopadhyay, A K Singh, S Dhua	2014	Effect of heterogeneity and reinforcement on propagation of a Crack due to shear waves	International Journal of Geomechanics” (ASCE)	14(4),	1-10
5.	G. S. Seth, S. Sarkar and S. M. Hussain	2014	Effects of Hall current Radiation and Rotation on Natural Convection Heat and Mass Transfer Flow Past a Moving Vertical Plate	Ain Shams Engineering Journal	5(2)	489-503
6.	G. S. Seth, R. Sharma, S. M. Hussain and S. Sarkar	2014	Hall Effects on Unsteady MHD Natural Convection Flow of a Heat Absorbing and Radiating Fluid Past an Accelerated Moving Vertical Plate with Ramped Temperature	Int. J. Energy & Tech.	6(12)	1-13
7.	G. S. Seth, R. Sharma, P. Kumari and S. Sarkar	2014	Effects of Hall current and Rotation on MHD Couette Flow of Class-II in the Presence of an Inclined Magnetic Field	J. Nature Sci. and Sustainable Tech.	8(1)	27-50
8.	G. S. Seth and S. Sarkar	2014	Unsteady Hydromagnetic Free Convection Flow Past an Impulsively Moving Vertical Plate with Newtonian Heating	J. Nature Sci. and Sustainable Tech	8(1)	83-97
9.	G. S. Seth, B. Kumbhakar and S. Sarkar	2014	Magnetohydrodynamic Flow over a Permeable Non-linearly Stretching Surface with Effects of Viscous Dissipation and Thermal Radiation	J. Nature Sci. and Sustainable Tech	8(2)	273-292
10.	G. S. Seth, R. Sharma and S. M. Hussain	2014	Hall Effects on Unsteady MHD Natural Convection Flow of a Heat Absorbing Fluid Past an Accelerated Moving Vertical Plate with Ramped Temperature	Emirates J. Eng. Res.	19(2)	19-32
11.	G. S. Seth, S. M.	2014	Effects of Hall current	Bulg. Chem.	46(4)	704-

	Hussain and S. Sarkar		and Rotation on Unsteady MHD Natural Convection Flow with Heat and Mass Transfer Past an Impulsively Moving Vertical Plate in the Presence of Radiation and Chemical Reaction	Comm.		718
12.	G. S. Seth, S. M. Hussain and S. Sarkar	2014	Hydromagnetic Oscillatory Couette Flow in a Rotating System with Induced Magnetic Field	Appl. Math. Mech.	35(10)	1331-1344
13.	G. S. Seth, B. Kumbhakar and S. Sarkar	2014	Unsteady Hydromagnetic Natural Convection Flow With Heat and Mass Transfer of a Thermally Radiating and Chemically Reactive Fluid Past a Vertical Plate with Newtonian Heating and Time Dependent Free-Stream	Int. J. Heat Tech.	32(1-2)	87-94
14.	K. Bhattacharyya, G. C. Layek and G. S. Seth	2014	Soret and Dufour Effects on Convective Heat and Mass Transfer in Stagnation Point Flow towards a Shrinking Surface	Physica Scripta	89(9)	doi:10.1088/0031-8949/89/9/095203
15.	G. S. Seth, R. Tripathi, S. Kumari and R. Sharma	2014	Hydromagnetic Couette Flow of Class-II in a Rotating Porous Channel	J. Nature Sci. and Sustainable Tech.	8(4)	523-545
16.	G. S. Seth, S.M. Hussain and S. Sarkar	2015	Hydromagnetic Natural Convection Flow with Heat and Mass Transfer of a Chemically Reacting and Heat Absorbing fluid past an Accelerated Moving Vertical Plate with Ramped Temperature and Ramped Surface Concentration through a Porous Medium	J. Egyptian Math. Soc.	23	197-207

17.	G. S. Seth, S. Sarkar, S. M. Hussain and G. K. Mahato	2015	Effects of Hall Current and Rotation on Hydromagnetic Natural Convection Flow with Heat and Mass Transfer of a Heat Absorbing Fluid Past an Impulsively Moving Vertical Plate with Ramped Temperature	J. Appl. Fluid Mech.	8(1)	159-171
18.	G. S. Seth, R. Sharma and S. Sarkar	2015	Hydromagnetic Natural Convection Heat and Mass Transfer Flow with Hall Current of a Heat Absorbing and Radiating Fluid Past an Accelerated Moving Vertical Plate with Ramped Temperature in a Rotating Medium	J. Appl. Fluid Mech.	8(1)	7-20
19.	P.C. Pal, S. Kumar & S. Mandal	2014	Wave propagation in an inhomogeneous anisotropic generalized thermoelastic solid, Journal of Thermal Stresses	Journal of Thermal Stresses	37	817-831
20.	S. Kumar, P.C. Pal & S. Bose	2014	Propagation of SH-type waves in inhomogeneous anisotropic layer overlying an anisotropic viscoelastic half-space	International Journal of Engineering, Science and Technology	6 (4)	24-30
21.	P.C. Pal, S. Kumar & S. Bose	2014	Propagation of Plane Sh-Wave in inhomogeneous monoclinic layer overlying self-reinforced elastic solid half-space	International Journal of Applied Mathematics and Mechanics	10 (3)	58-68
22.	S. Kumar & P.C. Pal	2014	Wave propagation in an inhomogeneous anisotropic generalized thermoelastic solid under the effect of gravity	Computational Thermal Sciences	6 (3)	241-250



23.	P.C. Pal, S. Kumar & Mandal	2014	Surface wave propagation in sandy layer overlying a liquid saturated porous half-space and lying under a uniform liquid layer	Mechanics of Advanced Materials and Structures	DOI: 10.1080/15376494.2014.929765	
24.	P.C. Pal, S. Kumar & S. Bose	2014	Propagation of Rayleigh Waves in Anisotropic Layer Overlying a Semi-infinite Sandy Medium	Ain Shams Engineering Journal	DOI: 10.1016/j.asej.2014.11.003	
25.	S. Kumar, P.C. Pal & S. Majhi	2015	Reflection and Transmission of Plane SH-Waves through an Anisotropic Magnetoelastic Layer Sandwiched between two Semi-Infinite Inhomogeneous Viscoelastic Half-Spaces	Pure and Applied Geophysics	DOI: 10.1007/s00024-015-1048-3	
26.	S. Kumar, S. Majhi & P.C. Pal	2015	Reflection and Transmission of Plane SH-waves in two Semi-infinite Anisotropic Magnetoelastic Media	Meccanica	DOI: 10.1007/s11012-015-0170-8	
27.	Gupta, S., Sultana, R., Kundu, S.	2014	Influence of rigid boundary on the propagation of torsional surface wave in an inhomogeneous layer	Journal of Earth System Science	124(1)	161-170
28.	Gupta, S., Sultana, R., Verma, A.K	2014	Existence of torsional surface wave in a porous crustal layer over an initially stressed inhomogeneous half-space	Journal of Vibration and Control (SAGE)	DOI: 1177/1077546314544352	
29.	Vishwakarma, S. K., Gupta, S., Kundu, S	2014	Torsional Wave Propagation in a Substratum over a Dry Sandy Gibson Half-Space	International Journal of Geomechanics (ASCE),	14(3)	06014002-1-8
30.	Dutta, R., Gupta, S., Das, M.K.	2014	Low-Energy Adaptive Unequal Clustering Protocol Using Fuzzy c-Means in Wireless Sensor Networks	Wireless Personal Communication, (Springer)	79(2)	1187-1209
31.	Dutta, R., Gupta, S., Das, M.K.	2014	Improvement on LEACH Protocol in Wireless Sensor	International Journal of Computer	97 (21)	36-40

			Networks	Applications,		
32.	Kundu, S., Manna, S., Gupta S.	2014	Propagation of Love type wave in piezoelectric layer overlying non-homogeneous half-space	The Electronic journal of Mathematics and Technology	8(1)	1-16
33.	Singh, G. N. and Majhi, D.	2014	Some chain type exponential estimators of population mean in two-phase sampling	Statistics in Transition-new series	15(2)	221-230
34.	Singh, G. N. and Homa, F.	2014	An improved estimation procedure in two-phase successive sampling	International Journal of Applied Mathematics and Statistics	52(2)	76-85
35.	Singh, G. N., Khetan, M. and Maurya, S.	2014	Assessment of exponential methods of estimation under non-response in two-occasion successive sampling.	Journal of Statistical Theory and Practice	DOI: 10.1080/15598608.2014.938377	
36.	Bandyopadhyay, A. and Singh, G. N.	2014	Estimation of ratio of population means in two-occasion successive sampling.	Communications in Statistics-Theory & Methods ,	DOI: 10.1080/03610926.2014.917185	
37.	Bandyopadhyay, A. and Singh, G. N.	2014	Predictive estimation of population mean in two-phase sampling.	Communications in Statistics-Theory & Methods	DOI: 10.1080/03610926.2014.919396.	
38.	Singh, G. N., Maurya, S. and Khetan, M. (2014):	2014	Estimation of population mean under multiple imputation in sample surveys	International Journal Mathematics and Statistics.	15(3)	36-46
39.	Singh, G. N. and Sharma, A. K.	2014	An alternative rotation patterns in two-occasion successive sampling.	International Journal of Mathematics and Statistics.	16 (3)	9-22
40.	Singh, G. N. and Majhi, D.	2014	Some chain type exponential estimators of population mean in two-phase sampling	Statistics in Transition-new series	15(2)	221-230
41.	Singh, G. N. and Homa, F.	2014	An improved estimation procedure in two-phase successive sampling	International Journal of Applied Mathematics and Statistics	52(2)	76-85
42.	Singh, G. N., Khetan, M. and Maurya, S.	2014	Assessment of exponential methods of estimation under non-	Journal of Statistical Theory and	DOI: 10.1080/15598608.2014.9383	

			response in two-occasion successive sampling.	Practice	77	
43.	Bandyopadhyay, A. and Singh, G. N.	2014	Estimation of ratio of population means in two-occasion successive sampling.	Communications in Statistics-Theory & Methods ,	DOI: 10.1080/03610926.2014.917185	
44.	Bandyopadhyay, A. and Singh, G. N.	2014	Predictive estimation of population mean in two-phase sampling.	Communications in Statistics-Theory & Methods	DOI: 10.1080/03610926.2014.919396.	
45.	Singh, G. N., Maurya, S. and Khetan, M.	2014	Estimation of population mean under multiple imputation in sample surveys	International Journal Mathematics and Statistics.	15(3)	36-46
46.	Singh, G. N. and Sharma, A. K.	2014	An alternative rotation patterns in two-occasion successive sampling.	International Journal of Mathematics and Statistics.	16 (3)	9-22
47.	Singh, G. N. and Sharma, A. K.	2015	Some improved estimators for population mean in double sampling.	International Journal of Mathematics & Computation	26(3)	36-45
48.	Singh, G. N. and Sharma, A. K.	2015	Search of some effective rotation patterns in estimation of population mean on current occasion in tow-occasion successive sampling.	Journal of Statistics Applications & Probability	4 (1)	127-138
49.	Singh, G. N., Majhi, D., Prasad, S and Homa, F.	2015	Effective rotation patterns under non-response in two-occasion successive sampling.	Communications in Statistics - Theory & Methods	44 (6)	1182-1195
50.	Singh, G. N., Khetan, M. and Maurya, S.	2015	Exponential methods of estimation under non-response in two-occasion rotation patterns	International Journal of Statistics and Economics	16 (1)	8-19
51.	Singh, G. N., Maurya, S. and Khetan, M.	2015	An efficient class of estimators of population mean in two phase sampling	International Journal of Statistics & Economics	16 (1)	69-82
52.	Singh, G. N., Khetan, M. and Maurya, S.	2014	Some estimation procedures under non-response in two occasion successive sampling	International Journal of Mathematics and Statistics	16 (1)	25-44

53.	Bandyopadhyay, A. and Singh, G. N.	2015	Some estimation procedures in presence of non-response in two-phase sampling.	Srilankan Journal of Applied Statistics	16 (1)	41-68
54.	Singh, G. N., Khetan, M. and Maurya, S.	2015	General estimation procedures with multi auxiliary variables under non-response in two occasions successive sampling.	International Journal of Statistics and Economics	16 (2)	87-107
55.	Singh, G. N., Khetan, M. and Maurya, S.	2015	Exponential methods of estimation under non-response in two-occasion rotation patterns	International Journal of Statistics and Economics	16 (1)	8-19
56.	B. Dubey, J. Hussain, S.N. Raw, R.K. Upadhyay	2015	Modeling the effect of pollution on biological species: A socio-ecological problem	Computational Ecology and Software	5(2)	152-174
57.	N.K. Thakur, R. Gupta, R.K. Upadhyay	2015	Turing and Non-Turing patterns in diffusive plankton model	Computational Ecology and Software	5(1)	17-27
58.	Parimita Roy, R.K. Upadhyay	2015	Conservation of Iberian Lynx in Europe: Issues and Challenges	Ecological Complexity	22(4)	16-31
59.	R. K. Upadhyay, Parimita Roy, Jyotiska Datta	2015	Complex dynamics of ecological systems under nonlinear harvesting: Hopf bifurcation and Turing instability	Nonlinear Dynamics	79(4)	2251-2270
60.	R.K. Upadhyay, Rashmi Agarwal	2014	Modeling the effect of mutual interference in a delay-induced predator-prey system	J. Appl. Math. Comput.	DOI 10.1007/s12190-014-0822	
61.	R. K. Upadhyay, P. Roy, Vikas Rai	2014	Deciphering dynamics of Epidemic spread: The case of influenza virus	International Journal of Bifurcation and chaos	24(5)	1-31
62.	B. Dubey, A. Patra, R. K. Upadhyay	2014	Dynamics of phytoplankton, zooplankton and fishery resource model	Applications and Applied Mathematics: An international journal(AAM), USA	9(1)	217-245
63.	R.K. Upadhyay, A. Patra, B. Dubey,	2014	A Predator-prey interaction model with	Journal of Biological	22(4)	691-712

	N.K. Thakur		self and cross diffusion in aquatic systems	Systems		
64.	Debaldev Jana , Rashmi Agrawal, R.K. Upadhyay	2014	Top-predator interference and gestation delay as determinants of the dynamics of a realistic model food chain	Chaos, Solitons & Fractals	69	50-63
65.	R.K. Upadhyay, Vikas Rai, S. K. Tiwari	2014	Modeling Wetland Systems of Keoladeo National Park (KNP), India: the Role of Space	Wetlands Ecology & Management	22	605-624
66.	R. K. Upadhyay, P. Roy	2014	Spread of disease and its effect on population dynamics in an eco-epidemiological system	Communication in Nonlinear Science and Numerical Simulations	19	4170-4184
67.	Krishna Prasad & Bani Mukherjee	2014	Optimal Inventory Model under stock and time dependent demand for time varying deterioration rate with shortages.	Journal: Annals of Operations Research,	DOI: 10.1007/s10479-014-1759-3	
68.	Krishna Prasad & BaniMukherjee	2014	An Inventory Model for Non instantaneous Deteriorating items under the effect of Price with Partial Backlogging and shortage	Elixir Appl. Math	Vol-66	20820-20829
69.	BaniMukherjee &Narayan Prasad	2014	Effect of radiation and porosity parameter on hydromagnetic flow due to exponentially stretching sheet in aporous medium	International Journal of engineering science and technology (IJEST)	Vol.6 , No.1	58-70
70.	Singh M K, Ahamad S and Singh V P	2014	One-dimensional uniform and time varying solute dispersion along transient groundwater flow in a semi-infinite aquifer	Acta Geophysica	62(4)	872-892
71.	Singh, M K, and Das, P	2015	Scale dependent solute dispersion with linear isotherm in heterogeneous medium	Journal of Hydrology	520	289-299

72.	Singh M K, Mahato, N K, Kumar N	2015	Pollutant's horizontal dispersion along and against sinusoidally varying velocity from a pulse type point source	Acta Geophysica	63(1)	214-231
73.	Singh, M K, Das,P and Singh, VP	2015	Two-dimensional solute transport with varying velocity Field	EMI-2015,HongKong	N.A.	Paper ID-25
74.	Chatterjee, S.; and Roy, Arunava	2014	Novel Algorithms for Web Software Fault Prediction	Quality and Reliability Engineering International	DOI: 10.1002/qre.1687	
75.	Chatterjee, S.; and Roy, Arunava	2014	Application Of Non-Decimated Wavelet Packet Transfer Function In Web Error Prediction	International Journal of Systems Assurance Engineering and Management	DOI: 10.1007/s13198-014-0271-0	
76.	Chatterjee, S.; and Roy, Arunava	2014	Web software fault prediction under fuzzy environment using MODULO-M multivariate overlapping fuzzy clustering algorithm and newly proposed revised prediction algorithm	Applied Soft Computing	22	372-396
77.	Chatterjee, S.; and Roy, Arunava	2014	Transfer Function Modeling In Web Software Fault Prediction Implementing Pre-Whitening Technique	International Journal of Reliability, Quality & Safety Engineering	DOI: 10.1142/S0218539314500260	
78.	S.P. Tiwari and Anupam Kumar Singh,	2014	On minimal realization of fuzzy behaviour and associated categories	Journal of Applied Mathematics and Computing	45	223-234
79.	S.P. Tiwari, Shambhu Sharan and Vijay K. Yadav,	2014	Fuzzy closure spaces vs fuzzy rough sets	Fuzzy Information and Engineering	6	93-100
80.	S.P. Tiwari, Vijay K. Yadav and A.K. Singh	2015	Construction of a minimal realization and monoid for a fuzzy language: a categorical approach	Journal of Applied Mathematics and Computing	47	401-416
81.	S.P. Tiwari and	2015	IF-preorder, IF-topology	International	6	205-

	Anupam K. Singh		and IF-automata,	Journal of Machine Learning and Cybernetics		211
82.	Vinay Gautam, Vijay K. Yadav, Anupam K. Singh and S.P. Tiwari	2014	On the topological structure of rough soft sets	Lecture Notes in Artificial Intelligence	8818	39-48
83.	Prasad, A., Shekhar, A.	2014	Sobolev type spaces associated with fractional Fourier transform	Bull. Cal. Math. Soc.	106 (1)	1-12
84.	Prasad, A., Kumar, S.	2014	Two variants of fractional powers of Hankel-Clifford transformations and pseudo-differential operators	J. Pseudo-Differ. Oper. Appl.	5 (3)	411-454
85.	Prasad, A., Kumar, M	2014	Boundedness of pseudo-differential operator associated with fractional Fourier transform	Proc. Natl. Acad. Sci., Sect. A Phys. Sci.	84 (4)	449-554
86.	Prasad, A., Mahato, A.	2015	Continuous fractional power Bessel wavelet transform on Zemanian type spaces	J. Indian Math. Soc.	82 (1-2)	129-146
87.	Prasad, A., Singh, M. K.	2015	Pseudo-differential operators associated with the Jacobi differential operator and Fourier-cosine wavelet transform	Asian-Eur. J. Math.	8 (1), Article ID: 1550010	16 pages
88.	Prasad, A., Maurya, P. K.	2015	A pair of pseudo-differential operators involving Hankel-type integral transformations	J. Pseudo-Differ. Oper. Appl.	6 (1)	135-151
89.	Prasad, A., Mahato, K. L.	2015	The fractional Hankel wavelet transformation	Asian-Eur. J. Math.	8 (2)	1-11
90.	Vineet K Srivastava, Swapnil M Yadav, Jai Kumar, Badam Singh Kushvah, BN Ramakrishna, P Ekambram	2015	Earth conical shadow modeling for LEO satellite using reference frame transformation technique: A comparative study with existing earth conical shadow models	Astronomy and Computing	9	34-39
91.	Ashok Kumar Pal, Badam Singh	2015	Geometry of halo and Lissajous orbits in the	Monthly Notices of the Royal	446 (1)	959-972

	Kushvah		circular restricted three-body problem with drag forces	Astronomical Society		
92.	P S Rao, S. Agarwal	2014	Effect of Surface roughness on the hydrodynamic lubrication of porous inclined slider bearings considering slip velocity and squeeze velocity with couple stress fluids	International Journal of Engineering, Science and Technology	06 (2)	45-64
93.	B. Kumbhakar, P S Rao	2015	Dissipative Boundary Layer Flow over a Nonlinearly Stretching Sheet in the presence of Magnetic Field and Thermal radiation	Proc. Natl. Acad. Sci; India	85 (1)	117-125
94.	Anurag Jayswal, I. Ahmad, Ashish Kumar Prasad	2014	On minimax fractional programming problems involving generalized $(H_p, r)$ -invex functions	Journal of Industrial and Management Optimization	10	1001-1018
95.	Anurag Jayswal, Sarita Choudhary	2014	An exact $l_1$ exponential penalty function method for multiobjective optimization problems with exponential-type invexity	Journal of Operation Research Society of China	2	75-91
96.	Anurag Jayswal, Ashish Kumar Prasad	2014	Second order symmetric duality in nondifferentiable multiobjective fractional programming with cone convex functions	Journal of Applied Mathematics and Computing	45	15-33
97.	Anurag Jayswal, Sarita Choudhary, R. U. Verma	2014	Exponential type vector variational-like inequalities and vector optimization problems with exponential type invexities	Journal of Applied Mathematics and Computing	45	87-97
98.	Sarita Sharma, Anurag Jayswal, Sarita Choudhary	2014	Generalized $\alpha$ -V-univex functions for multiobjective variational control problems	Control and Cybernetics	43	403-420
99.	Anurag Jayswal, Ioan Stancu-Minasian, I. Ahmad	2014	Second order duality for minmax fractional programming problem involving $(F, \alpha, \rho, d)$ -	Bulletin of the Malaysian Mathematical Sciences Society	37	893-905



			type I functions			
100.	Anurag Jayswal, Ioan Stancu-Minasian	2014	Higher-order duality for multiobjective programming problems involving $(F, \alpha, \rho, d)$ -V-type I functions	Journal of Mathematical Modeling Algorithm in Operation Research	13	125-141
101.	Anurag Jayswal, I. Ahmad, Krishna Kummari	2014	Duality for minimax fractional programming problems under second order $(\Phi, \rho)$ -invexity	Dynamics of Continuous, Discrete and Impulsive Systems-A	21	153-169
102.	Kundu, S., Gupta, S., Vaishnav, P.K. and Manna, S.,	2014	Propagation of Love waves in a heterogeneous medium over an inhomogeneous half-space under the effect of point source.	Journal of Vibration and Control (SAGE)	DOI: 1177/1077546314534869	
103.	Kundu, S., Gupta, S., Manna, S. and Dolai, P.,	2014	Propagation of Love wave in fiber-reinforced medium over a non-homogeneous half-space.	International Journal of Applied Mechanics (World Scientific),	DOI: 10.1142/S1758825114500501	
104.	Kundu, S., Manna, S. and Gupta S.,	2014	Propagation of SH-wave in an initially stressed orthotropic medium sandwiched by a homogeneous and an inhomogeneous semi-infinite media.	Mathematical Methods in the Applied Sciences (John Wiley & Sons),	DOI:10.1002/mma.3203	
105.	Kundu, S., Gupta, S. and Manna, S.,	2014	Propagation of Love wave in fiber-reinforced medium lying over an initially stressed orthotropic half-space.	International Journal for Numerical and Analytical Methods in Geomechanics (John Wiley & Sons)	38 (11)	1172-1182
106.	Kundu, S., Gupta, S. and Manna, S.,	2014	Propagation of G-type seismic waves in heterogeneous layer lying over an initially stressed heterogeneous half-space. vol. 234, pp. 1-12	Applied Mathematics and Computation (Elsevier),	234	1-12
107.	Vishwakarma, G.K., Kumar, M., and Singh, R.	2014	A class of dual to ratio-cum-product estimators of population mean	International Journal of Statistics and	15, 3	43-50

			using known correlation coefficient between auxiliary variates	Economics		
108.	Vishwakarma, G.K., Gangele, R.K., and Singh, R.	2014	An efficient variant of dual to ratio and product estimator in sample surveys	The Philippine Statistician	63, 2,	21-29
109.	Vishwakarma, G.K., Kumar, M., and Gangele, R.K.	2014	A general class of chain ratio-product type exponential estimators in double sampling using two auxiliary variates	The Philippine Statistician,	63, 2,	9-20
110.	Vishwakarma, G.K. and Singh, H.P.	2015	Class of chain ratio-type estimators of finite population mean in stratified two-stage sampling	The Proceedings of the National Academy of Sciences, India, Section A: Physical Sciences, India,	85, 1,	99-115
111.	S. A. Sahu, P. Saroj and B. Paswan	2014-15	Shear Waves in a Heterogeneous Fiber-Reinforced Layer over a Half-Space under Gravity	Int. Journal of Geomechanics	15 (2)	14048-1 to 14048-8
112.	Mita Chatterjee, S. Dhua, S. A. Sahu and A. Chattopadhyay	2014	Reflection in a highly anisotropic medium for three-dimensional plane waves under initial stresses	International Journal of Engineering Science	58	136-149
113.	A. K. Singh, S. Kumar & A. Chattopadhyay	2014	Effect of irregularity and heterogeneity on the stresses produced due to a normal moving load on a rough monoclinic half-space	Meccanica	49 (12)	2861-2878
114.	A. K. Singh, A. Lakshman & A. Chattopadhyay	2014	The plane waves at the edge of a uniformly pre-stressed fibre-reinforced plate	Journal of Vibration and Control		doi: 10.1177/1077546314548087
115.	A. K. Singh, S. Kumar & A. Chattopadhyay	2014	Effect of smooth moving punch in an initially stressed monoclinic magnetoelastic crystalline medium due to shear wave propagation	Journal of Vibration and Control		doi: 10.1177/1077546314549588
116.	T. Kaur, A. K.	2014	Dynamic response of	Journal of		doi:

	Singh, A. Chattopadhyay & S. K. Sharma		normal moving load on an irregular fibre- reinforced half-space	Vibration and Control	10.1177/10775 46314528525	
117.	A. K. Singh, A. Das, A. Chattopadhyay & S. Dhua	2015	Dispersion of shear wave propagating in vertically heterogeneous double layers overlying an initially stressed isotropic half-space	Soil Dynamics and Earthquake Engineering	69	16-27
118.	A. K. Singh, S. Kumar & A. Chattopadhyay	2015	Love-type wave propagation in a piezoelectric structure with irregularity	International Journal of Engineering Science	89	35-60
119.	A. K. Singh, A. Lakshman & A. Chattopadhyay	2015	Effect of heterogeneity, irregularity and reinforcement on the stress produced due to a moving load on a self- reinforced composite half-space	International Journal of Geomechanics	DOI: 10.1061/(ASC E) GM.1943- 5622.0000502	
120.	A. K. Singh, S. Kumar & A. Chattopadhyay	2015	Propagation of torsional waves in a fiber composite layer lying over an initially stressed viscoelastic half-Space	International Journal of Geomechanics	doi 10.1061/(ASC E)GM.1943- 5622.0000469	
121.	R.B. Kaligatla, S. Koley, T. Sahoo	2015	Trapping of surface gravity waves by a vertical flexible porous plate near a wall.	(ZAMP) Journal of Applied Mathematics and Physics	doi :10.1007/s0003 3-015-0521-2.	
122.	B. S. Panda, S. Paul and D. Pradhan	2015	Hardness results, approximation al- gorithms and exact algorithms for liar's domination problem in graphs,	Theoretical Computer Science	573	26-42

#### 3.4.4.3 Paper Published in National Journals

Sl. No.	Author(s)	Year	Title	Journal	Vol. No.	Page No.
1	R.K. Upadhyay	2015	Role of predation on the chaotic dynamics in Ecological systems	JUET Research Journal of Science and Technology	2(1)	1-18

## 3.4.4.4 Papers presented in International Conferences

Sl No.	Authors	Title	Seminar/ Conference	Date	Place
1	M.Chatterjee, S.Dhua, A.Chattopadhyay	Propagation of shear waves in visco-elastic heterogeneous layer overlying an initial Stressed half-space	ICOVP 2015, Kakatiya University	18.2.15-20.2.15	Kakatiya University, AP
2	N.Kumari, A. Chattopadhyay, S.A.Sahu, A.K.Singh	Effect of Initial Stress on propagation of edge wave in homogeneous anisotropic plate	ICOVP 2015, Kakatiya University	18.2.15-20.2.15	Kakatiya University, AP
3	G. S. Seth	Unsteady Hydromagnetic Natural Convection Heat and Mass Transfer Flow Past an Impulsively moving Vertical Plate with Ramped Temperature in a Rotating System with Hall Effects, Chemical Reaction and Radiation.	2nd International Conference on Applications of Fluid Dynamics (ICAFD-2014)	July 21-23, 2014	S. V. University, Tirupati, India
4	G. S. Seth, R. Sharma, S. M. Hussain and S. Sarkar	Hall Effects on Unsteady MHD Natural Convection Flow of a Heat Absorbing and Radiating Fluid Past an Accelerated Moving Vertical Plate with Ramped Temperature.	2nd International Conference on Applications of Fluid Dynamics (ICAFD-2014)	July 21-23, 2014	S. V. University, Tirupati, India
5	G. S. Seth, B. Kumbhakar and R. Sharma	Unsteady Hydromagnetic Natural Convection Flow of a Heat Absorbing Fluid within a Rotating Vertical Channel in Porous Medium with Hall Effects.	2nd International Conference on Applications of Fluid Dynamics (ICAFD-2014)	July 21-23, 2014	S. V. University, Tirupati, India
6	G. S. Seth, R. Sharma and B. Kumbhakar	Heat and Mass Transfer Effects on Unsteady MHD Natural Convection Flow of a Chemically Reacting and Radiating Fluid through a Porous Medium Past a Moving Vertical Plate with Arbitrary Ramped Temperature.	International Conference with Modeling and Simulation of Diffusive Processes and Applications (ICMSDPA-2014)	October 29-31, 2014	Department of Mathematics, BHU, Baranasi.

7	G. S. Seth, P. K. Mandal and R. Sharma	Hydromagnetic Couette Flow of Class-II and Heat Transfer through a Porous Medium in a Rotating System with Hall Effects.	17 <sup>th</sup> International Conference of International Academy of Physical Sciences (CONIAPS XVII) on Emerging Trends in Physical Sciences and Technology.	January 16-18, 2015	University of Rajasthan, Jaipur
8	Singh, M K and Sultana Begam	One-dimensional Analytical Model with Variable Coefficients in Semi-infinite Aquifer	2 <sup>nd</sup> International Conference on Applications of Fluid Dynamics (ICAFD2014)	July 21-23, 2014	S. V. University, Tirupati, India
9	Singh, M K.	Solute Transport Model in Homogeneous and Anisotropic Porous Media	International Conference of ICMSDPA	Oct. 29-31, 2014	BHU, Varanasi
10	Sultana Begam and Singh, M K	Two-dimensional solute transport modeling with transient groundwater flow	International Conference of ICMSDPA	Oct. 29-31, 2014	BHU, Varanasi
11	Das, P. and Singh, M K	Two-dimensional solute dispersion with linear isotherm along unsteady groundwater flow in semi-infinite aquifer	International Conference of ICMSDPA	Oct. 29-31, 2014	BHU, Varanasi
12	Mahato, N K, Singh, M K and Begam Sultana	Temporally dependent solute dispersion with Cauchy type boundary condition in homogeneous semi-infinite aquifer	International Conference of ICMSDPA	Oct. 29-31, 2014	BHU, Varanasi
13	Singh, M K, Das, P. and Singh, V.P.	Two-dimensional Solute Transport with Varying Velocity Field	International Conference on EMI-2015	Jan.7-9, 2015	PolyU Hong Kong, China
14	Badam Singh Kushvah	Long term evolution of photogravitational N-body problem	40th COSPAR Scientific Assembly.	2-10 August 2014,	Moscow, Russia
15	P S Rao	Effect of different slip velocity and permeability at both the porous interface using couple stress fluid on the slider bearing load carrying mechanism.	II International Conference on Applications of Fluid Dynamics	21 <sup>st</sup> to 23 <sup>rd</sup> July, 2014	S. V. University, Tirupati, India

## 3.4.4.5 Papers presented in National Seminars/Conferences

Sl No.	Authors	Title	Seminar/Conference	Date	Place
1	A. Chattopadhyay	Waves in Anisotropic Media	NCETPFS	24-25 Feb, 2015	Dept of Mathematics, Jadavpur University
2	M.Chatterjee, S. Dhua, A. Chattopadhyay	Propagation of Love type waves in a Heterogeneous medium under initial stress,	6 <sup>th</sup> WMVC, 2014	Nov. 1-3, 2014	Siliguri, West Bengal
3	N.Kumari, S.A. Sahu, A. Chattopadhyay and A.K.Singh	Surface waves in heterogeneous layered media,	6 <sup>th</sup> WMVC, 2014	Nov. 1-3, 2014	Siliguri, West Bengal
4	M. Chatterjee, A. Chattopadhyay	Reflection of quasi-P wave in self-reinforced medium	80 <sup>th</sup> Annual Conference of IMS	27-30.12.14	ISM
5	G. S. Seth, B. Kumbhakar and R. Sharma	Unsteady MHD Free Convection Flow with Hall Effects of a Radiating and Heat Absorbing Fluid Past a Moving Vertical Plate with Variable Ramped Temperature.	30 <sup>th</sup> Annual Conference of The Mathematical Society, BHU on Mathematical Analysis and Applications	Jan. 30-31, 2015	Department of Mathematics, BHU, Baranasi.
6	G. S. Seth	MHD Natural Convection Heat and Mass Transfer Flow Past a Time Dependent Moving Vertical Plate with Ramped Temperature in a Rotating Medium With Hall Effects, Radiation and Chemical Reaction.	National Conference on Advances in Mathematical Science and its Applications	Feb. 20-21, 2015	Department of Mathematics and Statistics, DDU Gorakhpur and Indian Society of Mathematics and Mathematical Sciences.
7	G. S. Seth, R. Tripathi and R. Sharma	Unsteady MHD Natural Convection Heat and Mass Transfer Flow with Hall Effects of a Heat Absorbing and Radiating Fluid Past an Exponentially Accelerated Moving Vertical Plate	National Conference on Advances in Mathematical Science and its Applications	Feb. 20-21, 2015	Department of Mathematics and Statistics, DDU Gorakhpur and Indian

		with Ramped Temperature in a Rotating Medium.			Society of Mathematics and Mathematical Sciences.
8	G. S. Seth, R. Sharma and M. K. Mishra	Finite Element Solution of Hydromagnetic Natural Convection Radiative Flow of a Visco-elastic Nanofluid with Heat and Mass Transfer taking Dufour and Soret Effects into account.	National Conference on Advances in Mathematical Science and its Applications	Feb. 20-21, 2015	Department of Mathematics and Statistics, DDU Gorakhpur and Indian Society of Mathematics and Mathematical Sciences
9	Singh, G. N., Khetan, M. and Maurya, S.	Improved exponential methods of imputation in estimation of current population mean in two-occasion successive sampling	International Conference on Advances in Interdisciplinary Statistics and Combinatorics (AISC- 2014)	Oct. 10-12, 2014	University of North Carolina, Greensboro, USA.
10	R.K. Upadhyay	Deciphering dynamics of epidemic spread in west Africa: The case of Ebola virus	80 <sup>th</sup> IMS 2014	27-30 Dec 2014	ISM, Dhanbad
11	Rashmi Agarwal, R.K. Upadhyay	Global dynamic behavior of a predator-prey system with competitive interference and time delay	National seminar on Advances in Applied Mathematics and Mechanics.	March 12-13, 2015	Sidharth Govt. college Nadaun, Hamirpur, H.P.
12	Parimita Roy, R. K. Upadhyay	Conserving Iberian Lynx in Europe: issues and challenges	National Meet in Mathematical Sciences (Sponsored by SERB, DST)	Dec. 8-12, 2014	Department of Statistics, University of Jammu, Jammu.
13	S. K. Tiwari, R.K. Upadhyay	Harmful algal blooms in fresh and marine water system: The role of TPP	National conference on Advances in Math. Sciences and its Applications	Feb. 20-21, 2015	DDU Gorakhpur University

### 3.4.5 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. Delivered invited talk and chaired an invited talk delivered by eminent mathematician in the 2<sup>nd</sup> International Conference on Applications of Fluid Dynamics (ICAFD-2014) during July 21-23, 2014 organized by Department of Mathematics, S. V. University, Tirupati, India, in association with Fluid Mechanics Group, Department of Mathematics, Faculty of Science, University of Botswana, Botswana.
7. Delivered technical lecture in Science Academy's Lecture Workshop on Concept of Fluid Mechanics and its Applications (CFDA-2014) sponsored by Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi and The National Academy of Sciences, Allahabad organized by Society of Applied Mathematics, Department of Applied mathematics, Indian School of Mines, Dhanbad, India.
8. President Elect, International Academy of Fluid Mechanics (IAFM), Botswana.
9. Delivered Key-note Lecture in the National Conference on Advances in Mathematical Science and its Applications during Feb. 20-21, 2015, Jointly Organized by Department of Mathematics and Statistics, DDU Gorakhpur and Indian Society of Mathematics and Mathematical Sciences.

#### Prof. R. K. Upadhyay:

- Editorial board member of a peer reviewed international journal from France "Journal of Nonlinear Systems and Applications".
- Editorial board member of a peer reviewed international journal from Hong Kong "Computational Ecology and Software".
- Delivered an Invited Talk in 80<sup>th</sup> IMS 2014 and organize a symposium on chaos and complexity in Nonlinear phenomena.
- Chaired a technical session for symposium in 80<sup>th</sup> IMS 2014.
- Jury member for selection of Young Scientist Award in 80<sup>th</sup> IMS 2014.

#### 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; Life Member of Association of Global Groundwater Scientists (AGGS), India; Indian Geological Congress, Roorkee.
2. Invited Lecture delivered on the topic "One-dimensional analytical model with variable coefficients in semi-infinite aquifer" during 2<sup>nd</sup> International Conference on Applications



of Fluid Dynamics (ICAFD2014), July 21-23, 2014, SVU TIRUPATI.

- Invited Lecture delivered on the topic “Solute transport model in homogeneous and anisotropic porous media” during International Conference on Modeling and Simulation of Diffusive Processes and Applications (ICMSDPA), October 29-31, 2014, BHU Varanasi.

### 3.4.6 SEMINAR, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPARTMENT

- Organized Science Academy Lecture Workshop on Concept of Fluid Dynamics and its Applications (CFDA)-October 8-10, 2014, ISM Dhanbad.
- Organized 80<sup>th</sup> Annual Conference of Indian Mathematical Society during Dec. 27-31, 2014, at ISM Dhanbad

### 3.4.7 PARTICIPATION OF FACULTY/OFFICER/STAFF IN SEMINARS/ CONFERENCES ETC

A. Chattopadhyay	Conference	Waves in Anisotropic Media- Invited Talk	NCETPFS, 24-25 Feb, 2015, Dept of Mathematics, Jadavpur University
A. Chattopadhyay	Seminar	Attended the seminar	80 <sup>th</sup> Annual Conference of IMS at ISM from 27.12.14-30.12.14,
G. S. Seth	2nd International Conference on Applications of Fluid Dynamics (ICAFD-2014)	July 21-23, 2014	Department of Mathematics, S. V. University, Tirupati, India, in association with Fluid Mechanics Group, Department of Mathematics, Faculty of Science, University of Botswana, Botswana.
G. S. Seth	xxxiii Annual Conference of Indian Council of Chemists	December 15-17, 2014	Department of Applied Chemistry, ISM Dhanbad.
G. S. Seth	80th Annual Conference of Indian Mathematical Society (IMS-2014)	December 27-30, 2014	Department of Applied Mathematics, Indian School of Mines, Dhanbad, India.
G. S. Seth	National Conference on Advances in Mathematical Science and its Applications	Feb. 20-21, 2015	Department of Mathematics and Statistics, DDU Gorakhpur and Indian Society of Mathematics and Mathematical Sciences.
R. K. Upadhyay	80 The Indian Mathematical Society	December 27-30, 2014	Indian school of Mines, Dhanbad

Dr. M.K. Singh	2 <sup>nd</sup> International Conference on Applications of Fluid Dynamics (ICAFD2014)	July 21-23, 2014	SVU, Tirupati
Dr. M.K. Singh	Science Academy Lecture Workshop on Concept of Fluid Dynamics and its Applications (CFDA)	October 8-10, 2014	ISM Dhanbad
Dr. M.K. Singh	International Conference of ICMSDPA	Oct. 29-31, 2014	BHU, Varanasi
Dr. M.K. Singh	The 80 <sup>th</sup> Annual Conference of Indian Mathematical Society	Dec. 27-31, 2014	ISM Dhanbad.
Dr. M.K. Singh	International Conference on EMI-2015	Jan. 7-9, 2015	PolyU, Hong Kong, China
Dr. P S Rao	2 <sup>nd</sup> International Conference on Applications of Fluid Dynamics (ICAFD2014)	July 21-23, 2014	SVU, Tirupati
S. A. Sahu	Frequency equation of Torsional waves in Anisotropic Earth Crust	Participated as Keynote speaker	6 <sup>th</sup> National conference on Wave Mechanics and Vibrations
G K Viswakarma	Short Course on Introduction to Designing Surveys for Policy Evaluation	November 15, 2014	Sasana Kijang Kuala Lumpur, Malaysia.
G K Viswakarma	Regional Statistics Conference of International Statistical Institute	November 16-19, 2014	Sasana Kijang Kuala Lumpur, Malaysia.
G K Viswakarma	Short Course on Data Mining and Predictive Analytics	November 20, 2014	Sasana Kijang Kuala Lumpur, Malaysia
Dr. P. K. Kewat	Summer School on Gan Gross Prasad Conjectures	June 18-27, 2014	Institute of Mathematics, Jussieu, Paris, France
Dr. P. K. Kewat	The 80 <sup>th</sup> Annual Conference of the Indian Mathematical Society	December 27-30, 2014	ISM, Dhanbad

### 3.4.8 VISITS OF FACULTY MEMBERS ABROAD:

Prof. G. N. Singh delivered a lecture in an International Conference on “Advances in Interdisciplinary Statistics and Combinatorics (AISC- 2014)” during October 10-12, 2014 at University of North Carolina, Greensboro, USA.

Dr. M K Singh, Associate Professor, Department of Applied Mathematics, ISM Dhanbad visited the PolyTech University Hong Kong, China for presenting the research paper in International Conference Engineering Mechanics Institute (EMI)-2015, ASCE during January 7-9, 2015.

Dr. Akhilesh Prasad visited Southern Illinois University, Edwardsville, USA, to deliver a talk on paper entitled “Pseudo-differential operator involving Hankel-Clifford transformation” in 7<sup>th</sup> conference on Function Spaces during May 20-24, 2014.

Dr. Badam Singh Kushvah, Moscow, Russia, 1 July - 8 August 2014

Dr. G.K. Vishwakarma, Visited Kuala Lumpur, Malaysia to participate and present research paper Regional Statistics Conference of International Statistical Institute (ISI-RSC 2014) during November 14– 21, 2014.

Dr. P. K. Kewat visited Institute of Mathematics, Jussieu, Paris, France to participate in Summer School on Gan Gross Prasad Conjectures during June 18-27, 2014.

### 3.4.9 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Prof.(Dr.) B. V. Rathish Kumar, FNASc , IIT Kanpur	Science Academy Lecture Workshop, October 8-10, 2014 as a Convener and Resource Person
Prof. (Dr.) P. Kandasamy, FNASc, Bartihar University, Coimbatore	Science Academy Lecture Workshop, October 8-10, 2014 as a Resource Person
Prof. (Dr.) B. N. Mondal, FNASc, ISI Kolkata	Science Academy Lecture Workshop, October 8-10, 2014 as a Resource Person
Prof. (Dr.) B. S. Dandapat, FNASc, SMIT, Sikim	Science Academy Lecture Workshop, October 8-10, 2014 as a Resource Person
Prof.(Dr.) Naveen Kumar Department of Mathematics BHU, Varanasi	Science Academy Lecture Workshop, October 8-10, 2014 as a Resource Person
Prof.(Dr.) G. P. Raja Sekhar IIT, Kharagpur	Science Academy Lecture Workshop, October 8-10, 2014 as a Resource Person
Prof (Dr.) Bikas Kumar Sinha, ISI Kolkata	Annual General Body Meeting of Society of Applied Mathematics, March 12, 2015 as a Guest Speaker
Prof. R. Balasubramanian, Chairman, NBHM	80th Annual Conference of the Indian Mathematical Society
Prof. S. G. Dani, IIT, Mumbai	80th Annual Conference of the Indian Mathematical Society
Prof. Gopakumar, HRI, Allahabad,	80th Annual Conference of the Indian Mathematical Society
Prof. N. K. Thakare, Pune University	80th Annual Conference of the Indian Mathematical Society
Prof. S. K. Tomar, Panjab University, Chandigarh	80th Annual Conference of the Indian Mathematical Society
Prof. Sudhir Ghorpade, IIT, Mumbai	80th Annual Conference of the Indian Mathematical Society
Prof. B. V. Rajarama Bhat, ISI, Bangalore	80th Annual Conference of the Indian Mathematical Society
Prof. Ritabrata Munshi, TIFR, Mumbai	80th Annual Conference of the Indian Mathematical Society
Prof. Probal Chaudhari, ISI, Kolkata	80th Annual Conference of the Indian Mathematical Society

Prof. A. P. Singh, Central University, Rajasthan.	80th Annual Conference of the Indian Mathematical Society
Prof. M. A. Sofi, Kashmir University, Srinagar	80th Annual Conference of the Indian Mathematical Society
Prof. V. S. Kharat, Pune University.	80th Annual Conference of the Indian Mathematical Society
Prof. A. K. Agarwal, Panjab University, Chandigarh	80th Annual Conference of the Indian Mathematical Society
Prof. Riddhi Shah, JNU, Delhi	80th Annual Conference of the Indian Mathematical Society
Prof. M. G. Nadkarni, University of Mumbai.	80th Annual Conference of the Indian Mathematical Society
Prof. Q. H. Ansari, AMU, Aligarh	80th Annual Conference of the Indian Mathematical Society
Prof. S. A. Katre,	80th Annual Conference of the Indian Mathematical Society
Prof. R. Thangadurai, HRI, Allahabad	80th Annual Conference of the Indian Mathematical Society
Prof. Ravi Kulkarni, Bhaskaracharya Pratishthana Pune.	80th Annual Conference of the Indian Mathematical Society
Prof. Krishnendu Mukhopadhyaya,	ISI Kolkata
Prof P K Mishra, Professor & Head Department of Computer Science	Banaras Hindu University Varanasi-221005, India

### 3.4.10 MISCELLANEOUS

Prof. R. K. Upadhyay has been nominated as a society member of International Society of computational Ecology.

### 3.5 APPLIED PHYSICS

The Department of Applied Physics came into existence as a separate Department in 1989, although it existed 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 visits	Period of visits
Summer Training	VIII-Semester, Int. M.Sc.(Applied Physics)	IIT Roorkee IISER Kolkata IPR Ahmadabad	May to June 2014(~ 8 weeks)
	II-Sem. M. Sc. (Applied Physics)	IPR Gandhinagar IOP Bhubaneswar TIFR, Mumbai IIT Ropar SNBNCBS Kolkata UGC-DAE CSR Indore VECC, Kolkata IIT Patna IISER Thiruvananthpuram Etc	

#### 3.5.2 INTRODUCTION OF NEW COURSES AND PROGRAMS:

Department started B.Tech. (Engineering Physics) course from the session 2014-15. It is a 4 year regular B. Tech. Program for which students are admitted through JEE (Advanced).

#### 3.5.3 BEST PRACTICE OF THE DEPARTMENT

- (a) Weekly seminars by faculty, research scholars and students.
- (b) Organization of seminar talks by experts of various research areas at regular intervals under the auspices of Society of Applied Physics.

## 3.5.4 BRIEF LIST OF ON-GOING R&amp; D PROJECTS

Project Title	Sponsoring Agency	Coordinator (s)	Project Value	Date of Commencement	Findings
Development of multi colour long lasting phosphors based on colour conversion process	SERB, DST, New Delhi	Prof. J. Manam (Co-ordinator) Dr. S. K. Sharma (Deputy Co-ordinator)	46.2 lacs.	20.06.2014	Poly crystalline long lasting phosphors(LLP) such as Strontium, Barium and Calcium Aluminates doped with Eu and Dy were prepared by combustion method. Mesoporous Silica Nanoparticles (MSNp) were prepared and fluorescent dye was encapsulated in MSNp. Final product was prepared by mechanically mixing LLP and dye encapsulated MSNp.
Optical spectroscopic studies of rare earth doped molybdate phosphors.	DST, New Delhi	S. K. Sharma	Rs 20.95 lacs	September 2011/ August 2014	Rare earth doped /codoped molybdate phosphors are synthesized. XRD, FTIR, PL and DR studies of the prepared phosphors are carried out.
Synthesis and characterization of	UGC-DAE, Indore	S. K. Sharma	Rs 7.38 lacs	February 2013/ January 2016	Metal oxide composite thin films are

nanocomposite thin films for Optoelectronic applications.					deposited. GI-XRD, AFM, Raman and Transmission studies of the prepared films are in progress.
Investigation of electron scattering phenomenon in biological and environment sensitive molecules	SERB (DST)	Bobby Antony	32.61	30.07.14	For the molecules GeF <sub>4</sub> , SF <sub>6</sub> and AsH <sub>3</sub> electron attachment has been detected which may trigger the dissociation by vibrational excitations
Density functional theory for freezing transitions and properties of inhomogeneous systems	DST, New Delhi	Dr. Pankaj Mishra	Rs. 15,46,750/-	Sept 2013	We have studied the phase diagram of a long elongated model system of oligomers.
Studies on rare earth ions doped upconversion nano-phosphors as optical sensors	DST-New Delhi	Kaushal Kumar	Rs.23,28,000/	01.11.2013	Ongoing
Development of rare-earths doped upconversion phosphor particles for finger print detection and sensors	CSIR, New Delhi	Kaushal Kumar	Rs.12,25,000/	04.10.2013	Ongoing
Development of MgB <sub>2</sub> based conduction cooled superconducting current leads with high critical current	DST	Dr. Sarun P. M.	26.64 lakhs	26.01.2014	Ongoing

for cryogenic devices.					
Origin and Role of valence-band states on room temperature ferromagnetism in oxide nanocrystals.	High Energy Accelerator Research Organization (KEK-PF), Japan.	Prof A. C. Pandey Dr Prashant Kumar Sharma	Experimental facility and Travel Support etc	Dec 2012	Ongoing
Development of Hybrid Polymer - Nanoparticle Based White Light Emitting Diodes (WLEDs)	Department of Science and Technology	Dr. Prashant Kumar Sharma	23 Lakhs	March 2014	Ongoing
Synthesis and Assembly of Hybrid Nanostructured Materials for detection of explosives and narcotic drugs	DAE-BRNS	PI: Dr. Prashant Kumar Sharma Co-PI: Dr. Rashmi Madhuri	30 Lakhs	April 2014	Ongoing
Design and fabrication of metal oxide-based transparent thin film transistors	DST, New Delhi	Dr R Thangavel	23.28 lakhs	26.01.2014	To find ambipolar transistor materials

### 3.5.5 IMPORTANT COLLABORATIVE WORKS

Organization/ Laboratory	Nature of interaction
Inter University Accelerator Center, New Delhi	Collaborative research work for Swift Heavy Ion Beam/ $\gamma$ -Irradiations and Thermoluminescence studies of materials.
UGC-DAE CSR Indore	Collaborative research work for synthesis of thin films by PLD/GI-XRD /XPS studies.
DNAP, TIFR, Mumbai	Collaborative studies on experimental DEA processes.
The Open University, UK	Low energy electron collision studies and preparation of atomic and molecular database.
CSIC, Spain	Positron scattering studies.
Department of Physics, BHU Varanasi	Structural studies of mesogens
Institute of Physics Soft Matter, HH	Topology of the phase diagram of the colloidal systems



University, Duesseldorf, Germany	
IUAC, New Delhi	Using Swift Heavy ion Irradiation facility for investigation of superconducting properties on MgB <sub>2</sub> superconductor.
Bose Institute, Kolkata & Jadavpur University, Kolkata	Collaborative studies on development of dielectric materials for microwave applications.
Department of Physics, IIT Bombay	Collaborative studies on theoretical studies of electronic and optical properties of boron nanoclusters.
KEK Photon Factory, Japan	Collaborative studies on X-Ray Magnetic Circular Dichroism (XMCD) Investigation on Semiconductor Nano Structures
Nanocrystals Technology (NCT), USA	Collaborative studies on Magnetic Nanoparticles
Michigan Technological University, Houghton, USA	Collaborative studies on Magnetic Nanoparticles and Semiconductor Nano Structures
Linköping University, Sweden	Collaborative studies on Magnetic Nanoparticles and Semiconductor Nano Structures
National Institute of Materials Science (NIMS), Tsukuba, Japan	Collaborative studies on Magnetic Nanoparticles and Semiconductor Nano Structures
Institute of Physics, West Pomeranian University of Technology, Al. Piastow 17, 70-310 Szczecin, Poland	Collaborative studies on EPR Investigation of Semiconductor Nano Structures
Department of Physics, Solid State Physics, University of Athens, Panepistimiopolis, 15 784 Zografos, Athens, Greece	Collaborative studies on EPR Investigation of Semiconductor Nano Structures
Prof. Ashoke Sen , Harish- Chandra Research Institute, Allahabad and Dr. Sayantani Bhattacharyya, IIT, Kanpur	Collaborative research on logarithmic corrections to supersymmetric blackhole entropy.
Prof. Woochul Kim, National Leading Research Laboratory, Department of Mechanical Engineering, Yonsei University, Seoul, South Korea	Fabrication of absorber layer for tandem type perovskite solar cells
Prof. S. A. Boppart Bio-photonics Imaging Lab (BIL), University of Illinois at Urbana Champaign, Urbana, IL – 61801, USA	Collaborative studies on human retinal thickness measurement for early disease detection using optical coherence tomography (OCT)

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

Name of Equipment	Purpose	Date of Purchase	Value (Rs)
Workstation	Computational studies	09/11/2012	719881.00
Fluorescence Spectrometer	Research	April, 2015	8.5 lacs (approx)

### 3.5.7 RESEARCH PUBLICATIONS

#### 3.5.7.1 Book reviews/ Contribution of Chapters in a book

1. Anurag Pandey and Vineet Kumar Rai, “Rare Earth Doped Materials for Temperature Sensors” in the book entitled “Spectroscopic Techniques for Security, Forensic and Environmental Applications.” Edited by Y. Dwivedi, S. B. Rai and J. P. Singh; Published by Nova Science Publishers, Inc. New York, USA.
2. Sharma P. K. and Madhuri R., “Tailored Carbonaceous Material: A Fore Step towards the Breaking of Old Achilles Heel” in the book entitled “Technological Applications of Carbonaceous Structures”, WILEY-Scrivener.

#### 3.5.7.2 Paper published in International Journals

Sl. No.	Author(s)	Year	Title	Journal	Vol. No.	Page No.
1	P. K. Baitha, P. P. Pal, J. Manam	May 2014	Dosimetric sensing and optical properties of ZnO-SnO <sub>2</sub> nanocomposites synthesized by co-precipitation method	Nuclear Inst. and Methods in Physics Research, A	745	91-98
2	Abhijit Ghosh and A.K. Nirala	2014	One to one imagery using single hololens configuration	Optical Review	21(6)	765–768
3	Md Z Ansari and A K Nirala	2014	Assessment of fruits during shelf-life storage using biospeckle laser	Agri.En Int:CIGR Journal	16(3)	223-229
4	Abhijit Ghosh and A. K. Nirala	2015	Improvement of fringe quality at LDA measuring volume using compact two hololens imaging system	Optics and Spectroscopy	118(3)	482-289
5	Abhijit Ghosh, A.K. Nirala and H.L. Yadav	2015	Dependence of wavelength selectivity of holographic PV concentrator on processing parameters	Optik	126	622–625

6.	M. Chowdhury, A.K. Kunti, S. K. Sharma, M. Gupta and R.J. Chaudhary	2014	Synthesis and characterization of pulsed laser deposited SnO <sub>2</sub> -Fe <sub>2</sub> O <sub>3</sub> composite thin films for TCO application	European Physical Journal Applied Physics	67	10302
7.	S. Som, M. Chowdhury and S. K. Sharma	2015	Kinetic parameters of $\gamma$ -irradiated Y <sub>2</sub> O <sub>3</sub> phosphors: Effect of doping/codoping and heating rate	Radiation Physics and Chemistry	110	51-58
8.	S. Dutta, S. Som and S. K. Sharma	2015	Excitation Spectra and luminescence decay analysis of K <sup>+</sup> compensated Dy <sup>3+</sup> doped CaMoO <sub>4</sub> phosphors	RSC Advances	5	7380
9.	Anurag Pandey, Riya Dey, Saurabh Pandey and Rai, V.K.,	2014	Visible light emitting Er <sup>3+</sup> -Tm <sup>3+</sup> -Yb <sup>3+</sup> codoped ZrO <sub>2</sub> phosphor for sensing and photonics applications,	J. Display Technology	6	494-499
10.	Kumari Astha, Anurag Pandey, Riya Dey, Rai V. K.	2014	Simultaneous influence of Zn <sup>2+</sup> /Mg <sup>2+</sup> on luminescent behaviour of La <sub>2</sub> O <sub>3</sub> : Tm <sup>3+</sup> -Yb <sup>3+</sup> phosphor,	RSC Advances,	4	21844
11.	Pandey Anurag; Rai, V. K.	2014	Pr <sup>3+</sup> -Yb <sup>3+</sup> codoped Y <sub>2</sub> O <sub>3</sub> phosphor for display devices,	Materials Research Bulletin,	57	156-161.
12.	Anurag Pandey, S. Som, Vijay Kumar, Vinod Kumar, Kaushal Kumar, Rai V. K., H.C. Swart	2014	Enhanced upconversion and temperature sensing study of Er <sup>3+</sup> -Yb <sup>3+</sup> codoped tungsten-tellurite glass,	Sensors and Actuators B,	202	1305-1312
13.	Abhishek Kumar Soni, Rai, V.K.,	2014	Intrinsic optical bistability and frequency upconversion in Tm <sup>3+</sup> -Yb <sup>3+</sup> codoped Y <sub>2</sub> WO <sub>6</sub> phosphor,	Dalton Trans.,	43	13563 - 13570.
14.	Abhishek Kumar	2014	BaZnLa <sub>2</sub> O <sub>5</sub> :Ho <sup>3+</sup> -	J. Optical	31	2201-

	Soni, Rai, V. K.		Yb <sup>3+</sup> phosphor for display and security ink application	Society of America (JOSA) B		2207
15.	Anurag Pandey, Rai, V.K., Kumar, Vijay, Kumar, Vinod, H.C. Swart	2015	Upconversion based temperature sensing ability of Er <sup>3+</sup> -Yb <sup>3+</sup> codoped SrWO <sub>4</sub> : An optical heating phosphor	Sensors and Actuators B,	209	352-358
16.	Riya Dey, Asta Kumari, Abhishek Kumar Soni, Rai, V.K.	2015	CaMoO <sub>4</sub> :Ho <sup>3+</sup> -Yb <sup>3+</sup> -Mg <sup>2+</sup> upconverting phosphor for application in lighting devices and optical temperature sensing	Sensors and Actuators B	210	581-588
17.	Renuka Bokolia.; O. P Thakur; Rai, V.K.; S. K. Sharma	2015	Dielectric, ferroelectric and photoluminescence properties of Er <sup>3+</sup> doped Bi <sub>4</sub> Ti <sub>3</sub> O <sub>12</sub> ferroelectric ceramics	Ceramics International,	41	6055-6066
18	Abhishek Kumar Soni, Riya Dey, Rai, V. K.	2015	Improvement of two strak sulevels in Na <sub>2</sub> Y <sub>2</sub> B <sub>2</sub> O <sub>7</sub> :Tm <sup>3+</sup> -Yb <sup>3+</sup> phosphor for optical temperature sensor and nanoheater application	RSC Advances	5	34999-35009
19.	Abhishek Kumar Soni, Astha Kumari, Rai, V. K.	2015	Optical investigation in shuttle like BaMoO <sub>4</sub> :Er <sup>3+</sup> -Yb <sup>3+</sup> phosphor for display and sensing application	Sensors and Actuators B	216	64-71
20	S. Mahato, A.K. Kar	2015	Structural, optical and electrical properties of electrodeposited cadmium selenide thin films for	Journal of Electroanalytical Chemistry	742	23-29

			applications in photodetector and photoelectrochemical cell			
21	B. Pandey, D. Das, A.K. Kar	2015	Electrical and magnetic properties of electrodeposited nickel incorporated diamond-like carbon thin films	Applied Surface Science	337	195–207
22	Jaspreet Kaur, Rahla Nagma and Bobby Antony	2015	Electron induced ionization of C3 to C6 ethanoates	RSC Advances	5	20090-20097
23	Biplab Goswami, Rahla Nagma and Bobby Antony	2014	Electron scattering from germanium tetrafluoride	RSC Advances	4	63817-63823
24	Rahla Nagma and Bobby Antony	2014	Electron impact ionization cross sections for chloroethanes	Int. J. Mass. Spectrom	373	34-38
25	Biplab Goswami, Rahla Nagma and Bobby Antony	2014	Calculations for electron-impact total ionization cross sections for W, WO <sub>x</sub> , U and UO <sub>x</sub> (x=1, 2, 3)	Int. J. Mass. Spectrom	372	8-12
26	Dhanoj Gupta and Bobby Antony	2014	Electron impact ionization cross sections of Cycloalkanes, Aldehydes and Ketones	J. Chem. Phys.	141	054303-1-12
27	Jaspreet Kaur, Dhanoj Gupta and Bobby Antony	2014	Electron impact scattering by arsine	Phys. Rev. A	90	012711
28	Biplab Goswami and Bobby Antony	2014	Electron impact scattering of SF <sub>6</sub> over an extensive energy range (1eV-5000 eV)	RSC Advances	4	30953-30962
29	A Bobby, N Shiwakoti, S Verma, P S Gupta	2014	Co60 induced enhancement of electrical properties	Mater. Sci. Semicond. Process	21	116-121

	and Bobby K Antony		in Au/n-GaAs Schottky structures			
30	P. Dhara and Vinod Kumar Singh	January 2015	Effect of MMF stub on the sensitivity of a photonic crystal fiber interferometer sensor at 1550 nm	Optical Fiber Technology	21	154-159
31	Sanat Kumar, Manjori Mukherjee, Pankaj Mishra	May 2014	Structures and partial clustering in binary mixtures of colloidal particles interacting via repulsive power law potentials	Journal of Molecular Liquids	194	84-92
32	Manjori Mukherjee, Sanat Kumar, Pankaj Mishra	Sept. 2014	Clustering in binary mixtures of axial multipoles confined to a two-dimensional plane	Physica A	416	340-353
33	Manjori Mukherjee, Pankaj Mishra and H. Lowen	Oct. 2014	Density functional theory of freezing for binary mixtures of 2D superparamagnetic colloids	J. Phys. Condensed Matter	26	465101
34	R.B. Choudhary O.S. Tyagi O.N. Anand	2015	FTIR - micro reflectance absorption spectroscopic analysis of chemisorbed reaction films for tribological applications	Lubri. Science (Wiley Publi.)	10	1288
35	S P Tiwari, A K Singh, K. Kumar	June, 2014	Probing Er <sup>3+</sup> /Yb <sup>3+</sup> + Doped La <sub>2</sub> O <sub>3</sub> Upconversion Nano-Phosphor as Luminescent Device	Energy and Environment Focus,	3	175-178
36	MKMahata, S P Tiwari, SMukherjee, K Kumar, and V K	Aug., 2014	YVO <sub>4</sub> :Er <sup>3+</sup> /Yb <sup>3+</sup> phosphor for multifunctional applications	Journal of the Optical Society of America B	31	1814-1821

	Rai					
37	V K Singh, V Kumar, J Sharma, Y. Khajuria, K. Kumar	June, 2014	Importance of Laser Induced Breakdown Spectroscopy for Biomedical Applications: A Comprehensive Review	Materials Focus,	3	169-182
38	Manoj Kumar Mahata, Kaushal Kumar, Vineet Kumar Rai	April, 2014	Structural and optical properties of Er <sup>3+</sup> /Yb <sup>3+</sup> doped barium titanate phosphor prepared by co-precipitation method	Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy	124	285-291
39	Manoj Kumar Mahata, Kaushal Kumar, Vineet Kr Rai	Dec, 2014	Er <sup>3+</sup> –Yb <sup>3+</sup> doped vanadate nanocrystals: A highly sensitive thermographic phosphor and its optical nanoheater behavior	Sensors and Actuators B: Chemical	209	775-780
40	J. S. Hansdah and P. M. Sarun	2015	Doping effect of nano-Ho <sub>2</sub> O <sub>3</sub> and naphthalene in MgB <sub>2</sub> superconductor	Journal of Applied Physics	117	113903
41	Santanu Patra, Ekta Roy, Paramita Karfa, S. Kumar, Rashmi Madhuri, Prashant K. Sharma	2015	Dual-responsive polymer coated superparamagnetic nanoparticle for targeted drug delivery and hyperthermia treatment	ACS Appl. Mater. Interfaces	7 (17)	9235–9246
42	Santanu Patra, Ekta Roy, Rashmi Madhuri, and Prashant K. Sharma	2015	Fast and selective pre-concentration of europium from wastewater and coal soil by graphene oxide/silane@Fe <sub>3</sub> O <sub>4</sub> dendritic nanostructure	ACS Environ. Sci. Technol.	49 (10),	6117–6126
43	Ekta Roy, Santanu Patra,	2015	Multifunctional magnetic reduced	Biosensors and Bioelectronics	68	726–735

	Deepak Kumar, Rashmi Madhuri, Prashant K. Sharma		graphene oxide dendrites: Synthesis, characterization and their applications			
44	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	2015	An imprinted Ag@CdS core shell nanoparticle based optical- electrochemical dual probe for trace level recognition of ferritin	Biosensors & Bioelectronics	63	301-310
45	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	2015	Developing electrochemical sensor for point-of- care diagnostics of oxidative stress marker using imprinted bimetallic Fe/Pd nanoparticle	Talanta	132	406-415
46	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	2015	Imprinted ZnO nanostructure-based electrochemical sensing of calcitonin: A clinical marker for medullary thyroid carcinoma	Analytica Chimica Acta	853	271-284
47.	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	2015	Nano-iniferter based imprinted sensor for ultra trace level detection of prostate-specific antigen in both men and women	Biosensors & Bioelectronics	66	1-10
48.	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	2015	Development of an imprinted polymeric sensor with dual sensing property for trace level estimation of zinc and arginine	Material Science and Engineering: C	49	25-33
49.	Ekta Roy, Soham Maity, Santanu Patra, Rashmi	2014	A metronidazole- probe sensor based on imprinted	RSC Advances	4	32881- 32893



	Madhuri, Prashant K. Sharma		biocompatible nanofilm for rapid and sensitive detection of anaerobic protozoan			
50.	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	2014	Simultaneous determination of heavy metals in biological samples by a multiple-template imprinting technique: an electrochemical study	RSC Advances	4	56690–56700
51.	Ranu Dutta, Prashant K. Sharma, Vandana Tiwari, Vivek Tiwari, Anant B. Patel, Ravindra Pandey and Avinash C. Pandey	2014	Engineering of Gadofluoroprobes: Broad-spectrum applications from cancer diagnosis to therapy	App. Phys. Lett.	104	023703
52.	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	2014	Gold nanoparticle mediated designing of non-hydrolytic sol-gel cross-linked metformin imprinted polymer network: A theoretical and experimental study	Talanta	120	198-207
53.	Richa Bhargava, Prashant K. Sharma, Sushant Singh, Avinash C. Pandey and Naresh Kumar	2014	Switching in structural, optical, and magnetic properties of self-assembled Co-doped ZnO: effect of Co-concentration	Journal of Mat. Sci.: Materials in Electronics	25	552–559
54.	P K Singh, Prashant K. Sharma, M Kumar, R K Dutta, S Sundar, A C Pandey	2014	Red Luminescent Manganese-Doped Zinc Sulphide Nanocrystals and its antibacterial study	J. Mater. Chem. B	2 (5)	522-528
55	R	2015	Effect of Er	Superlattices	83	237-250

	Vettumperumal, S Kalyanaraman, R Thangavel		concentration on surface and optical properties of K doped ZnO sol-gel thin films	and Microstructures		
56	M Chakraborty, A Ghosh, R Thangavel	2015	Experimental and theoretical investigations of structural and optical properties of copper doped ZnO nanorods	Journal of Sol-Gel Science and Technology	74	756-764
57	A Ghosh, R Thangavel, M Rajagopalan	2015	Electronic and optical modeling of solar cell compound CuXY <sub>2</sub> (X= In, Ga, Al; Y= S, Se, Te): first-principles study via Tran-Blaha-modified Becke-Johnson exchange potential approach	Journal of Materials Science	50(4)	1710-1717
58	R Vettumperumal, S Kalyanaraman, R Thangavel,	2014	Optical constants and near infrared emission of Er doped ZnO sol-gel thin films	Journal of Luminescence 158	50	493
59	SH Wu, S Kumar, R Thangavel, SU Jen, WC Cheng, YC Chang	2014	Erratum to: Structural and optical properties of Na doped ZnO nanocrystalline thin films synthesized using sol-gel spin coating technique	Journal of Sol-Gel Science and Technology	71 (1)	192-192
60	S Kumar, R Thangavel	2014	No Observation of Room Temperature Ferromagnetism (RTFM) in GaN Nanopowder	Nano Communications	1	37-40
61	R Vettumperumal, S Kalyanaraman, R Thangavel	2014	Photoconductive UV detectors based heterostructures of Cd and Mg doped ZnO sol gel thin	Materials Chemistry and Physics	145 (1)	237-242

			films			
62	Sanjeev Kumar, Palvinder Kaur, CL Chen, R Thangavel, CL Dong, YK Ho, JF Lee, TS Chan, TK Chen, BH Mok, SM Rao, MK Wu	2014	Structural, optical and magnetic characterization of Ru doped ZnO nanorods	Journal of Alloys and Compounds	588	705-709
63	S Kumar, R Thangavel, BH Mok, SM Rao, MK Wu	2014	Structural and Magnetic Characterization of Undoped ZnO Nanopowder	Advanced Science, Engineering and Medicine	6(2)	188-192
64	S Kumar, R Thangavel	2014	Structural, optical and magnetic characterization of ZnO nanorods synthesized using hydrothermal technique at low temperature	Journal of Sol-Gel Science and Technology	70(3)	506-510
65	R Vettumperumal, S Kalyanaraman, R Thangavel	2014	A comparative study of structural, surface morphology and optical properties of Na and Mg codoped ZnO nanocrystalline thin films prepared using sol-gel spin coating technique	Journal of Molecular Structure	1059	61-67
66	R Vettumperumal, S Kalyanaraman, B Santoshkumar, R Thangavel	2014	Magnetic Properties of High Li doped ZnO Sol gel thin films	Materials Research Bulletin	50	7-11
67	J Kumar, S Ramasubramanian, R Thangavel, M Rajagopalan	2014	On the Optical and Magnetic Properties of Doped-ZnO	Nanocrystals and Allied Materials	180	309-329
68	S.K. Parida, S. Sahu, S. Sharma	2014	Interaction of third-row main group dicarbides, C <sub>2</sub> X	Comp. and Theor. Chem.	1032	1-6

			(X = K-Br) with molecular oxygen: A density functional study			
69	D. Iqbal, R. Singh Moirangthem, A. Bashir, A. Erbe	2014	Study of polymer coating delamination kinetics on zinc modified with zinc oxide of different morphologies	Materials and Corrosion	65(4)	370-375
70	Huai-Yi Xie, Minfeng Chen, Yia-Chung Chang, Rakesh Singh Moirangthem	2015	Efficient Simulation for Light Scattering from Plasmonic Core-Shell Nanospheres on a Substrate for Biosensing	Plasmonics		DOI 10.1007/s11468-014-9872-3
71	Andreea Paunoiu, Rakesh Singh Moirangthem, Andreas Erbe	2015	Whispering gallery modes in intrinsic TiO <sub>2</sub> microspheres coupling to the defect-related photoluminescence after visible excitation	physica status solidi (RRL) - Rapid Research Letters	9(4)	241-244
72	B. Bhaduri, M. Kandel, C. Brugnara, K. Tangella and G. Popescu	2014	Optical Assay of Erythrocyte Function in Banked Blood	Nature: Scientific Reports	4	6211
73	G. Rajshekhkar, B. Bhaduri, K. Tangella and G. Popescu	2014	Spatiotemporal characterization of a fibrin clot using quantitative phase imaging	PLoS One	9	e111381
74	C. Edwards, B. Bhaduri, B. G. Griffin, L. L. Goddard and G. Popescu	2014	Epi-illumination diffraction phase microscopy with white light	Optics Letters	39	6162
75	S. -W. Hwang, G. Park, C. Edwards, E. Corbin, S. -K Kang, H. Cheng, J. -K. Song, J. -H. Kim, S. Yu, J. Ng,	2014	Chemistry and biocompatibility of single crystalline silicon nanomembranes and associated	ACS Nano	8	5843

	J. E. Lee, C. Yee, B. Bhaduri, F. G. Omennetto, Y. Huang, R. Bashir, L. Goddard, G. Popescu. K. -M. Lee and J. A. Rogers		materials for transient electronics			
76	C. Edwards, R. Zhou, S.-W. Hwang, S. J. McKeown, K. Wang, B. Bhaduri, R. Ganti, P. J. Yunker, A. G. Yodh, J. A. Rogers, L. L. Goddard and G. Popescu	2014	Diffraction phase microscopy: monitoring nanoscale dynamics in materials science [Invited]	Applied Optics	53	G33

### 3.5.7.3 Paper presented in International Seminar/Conferences

Sl. No.	Author(s)	Title	Seminar/ Conference	Date	Place
1	Pankaj Kr. Baitha and J. Manam	Structural and optical behavior of Tb <sup>3+</sup> doped ZnO/SnO <sub>2</sub> nanocomposite phosphor	International Conference on Luminescence and its Applications	9-12 Feb 2015	PES Institute of Technology, Bangalore, India
2	Jyoti Singh and J. Manam	Structural and optical studies of Eu <sup>3+</sup> doped SrGd <sub>2</sub> O <sub>4</sub> phosphor	International Conference on Luminescence and its Applications	9-12 Feb 2015	PES Institute of Technology, Bangalore, India
3	Kanchan Mondal and J. Manam	Effect of annealing temperature on structural and optical properties of Mg <sub>2</sub> SiO <sub>4</sub> : Eu <sup>3+</sup> synthesized by low temperature combustion method	International Conference on Luminescence and its Applications	9-12 Feb 2015	PES Institute of Technology, Bangalore

4	Puja Kumari and J. Manam	White light emission from single rare earth ion doped orthovanadate phosphor	International Conference on Luminescence and its Applications	9-12 Feb 2015	PES Institute of Technology, Bangalore,
5	Puja Kumari and J. Manam	Near White Light Emission from Single Phased Dy <sup>3+</sup> doped Orthovanadate Phosphor	International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics	11-14 March 2015	Department of Physics & Astrophysics, University of Delhi, Delhi , India
6	Preeti D. Minz, S. Kumari and A. K. Nirala	Measurement of speckle size of biological samples using nondestructive biospeckle technique	Conference	27-28 February 2015	SASTRA University Thanjavur, Tamil Nadu, Paper No:LAO 01.
7	Abhijit Ghosh, A.K. Nirala and H.L. Yadav	Fringe field quantification of an LDA probe volume	Conference	20-22 February, 2015	Department of Applied optics and Photonics, University of Calcutta
8	Abhijit Ghosh and A.K. Nirala	One to one coherent imaging through double and single hololens configurations: A comparative study	Conference	20-22 February, 2015	Department of Applied optics and Photonics, University of Calcutta
9.	S. Dutta and S.K. Sharma	Characterization of traps in swift heavy ion induced CaMoO <sub>4</sub> : Dy, K phosphor using luminescence spectroscopy	International Conference on Luminescence	13-18 July, 2014	Wroclaw, Poland
10.	Jyoti Priya, Navneet K Gondia and S. K. Sharma	New $\beta$ -Diketone Complex Phosphor for OLED devices	DAE-BRNS National Conference on Current Trends	19-21 November, 2014	VECC, Kolkata

			in Advanced Materials (CTMat 2014)		
11	M. Chowdhury, S. K. Sharma, R.J. Chaudhary and M. Gupta	Effect of oxygen pressure on the structural and optical properties of pulsed laser deposited SnO <sub>2</sub> /Fe <sub>2</sub> O <sub>3</sub> nanocomposite thin films.	International Winter School-2014 on Frontiers in Material Science	1-5 December, 2014	JNCASR, Bangalore
12	S. Dutta and S. K. Sharma	Thermoluminescence investigation of optimized $\gamma$ -irradiated Gd <sub>2</sub> MoO <sub>6</sub> : Dy <sup>3+</sup> Phosphor	International Conference on Luminescence and its Applications (ICLA-2015)	9-12 February, 2015	PES Institute, Bangalore
13	M. Chowdhury, S. Dutta, S. K. Sharma and S.P. Lochab	Structural and thermoluminescence studies of SnO <sub>2</sub> : Eu <sup>3+</sup> nanoparticle.	International Conference on Luminescence and its Applications (ICLA-2015)	9-12 February, 2015	PES Institute, Bangalore
14	Astha Kumari, Vineet Kumar Rai	Tm <sup>3+</sup> -Yb <sup>3+</sup> Codoped Lithium-Titanate Tellurite Glasses	International Conference on Advances in Manufacturing and Materials Engineering (ICAMME 2014)	March 27-29, 2014.	Department of Mechanical Engineering, National Institute of Technology Karnataka, Surathkal, India,
15	Abhishek Kumar Soni, Vineet Kumar Rai	NIR to visible upconversion emission in Tm <sup>3+</sup> doped NA <sub>2</sub> Y <sub>2</sub> B <sub>2</sub> O <sub>7</sub> powder phosphor	International conference on Condensed Matter Physics	November 4-6, 2014	Himachal Pradesh University, Shimla
16	Rai, V.K.	Upconversion based temperature	International workshop and conference on	January 10-12, 2015	Department of Physics, Banaras Hindu

		sensing using rare earth doped luminescent materials,	Frontiers of Spectroscopy (ICFS)-2015,		University (BHU), Varanasi, India
17	Abhishek Kumar Soni, Vineet Kumar Rai	808 nm diode laser excited upconversion emission in BaMoO <sub>4</sub> : Pr <sup>3+</sup> phosphor	International workshop and conference on Frontiers of Spectroscopy (ICFS)-2015,	January 10-12, 2015	Department of Physics, Banaras Hindu University (BHU), Varanasi, India
18	Riya Dey, Vineet Kumar Rai	Unusual and attractive upconversion emission in Tm <sup>3+</sup> -Yb <sup>3+</sup> codoped CaMoO <sub>4</sub> phosphor	International workshop and conference on Frontiers of Spectroscopy (ICFS)-2015,	January 10-12, 2015	Department of Physics, Banaras Hindu University (BHU), Varanasi, India
18	V. K. Rai, S. K. Singh	Upconversion luminescence and its everlasting aspects,	International workshop and conference on Frontiers of Spectroscopy (ICFS)-2015,	January 10-12, 2015	Department of Physics, Banaras Hindu University (BHU), Varanasi, India
19	Jaspreet Kaur, Biplab Goswami, Pankaj Verma and Bobby Antony	Electron impact ionization of C2 to C6 methanoates	4th International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics with Applications	March 11-14, 2015	Delhi University, India
20	Rahla Nagma, Dhanaj Gupta, Paresh Modak and Bobby Antony	Cross sections for electron scattering from carbon disulfide	4th International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics with Applications	March 11-14, 2015	Delhi University, India
21	R.B. Choudhary A.K. Thakur	Synthesis, characterization	Energy & Materials	February 25-27,	Madrid (Spain)



		and properties of PTP-TiO <sub>2</sub> nano composites for its use as electrolyte membrane in fuel cell application.	Research Conf. (EMR-2015)	2015	
22	J. S. Hansdah and P. M. Sarun	Influence of Carbon-Doping on AC loss of MgB <sub>2</sub> Superconductors.	International Conference on Magnetic materials and Applications (ICMAGMA-2014)	15-17 September	Pondichery University, Pondichery, India.
23.	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	Metronidazole electrochemical sensor on glutamic acid modified molecularly imprinted polymer film	3 <sup>rd</sup> International conference on advanced nanomaterials and nanotechnology	Nov 2014	IIT Guwahati
24	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	Synthesis of molecularly imprinted polymer by non-hydrolytic sol-gel method for the trace level detection of anti-diabetic drug	3 <sup>rd</sup> International conference on advanced nanomaterials and nanotechnology	Nov 2014	IIT Guwahati
25	Shrabani Mondal, Rashmi Madhuri, Prashant K. Sharma	Gas sensing capabilities of Zn doped Nickel Ferrite nanodiscs	Current Trends in advanced Materials (CTMat-2014)	19 <sup>th</sup> -21 <sup>th</sup> Nov, 2014	VECC, Kolkata
26	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	Molecularly imprinted polyarginine/MWCNTs nanowire for trace level detection of heavy metal	XXXIII Annual conference of Indian Council of Chemists (ICC), 2014	15-17 Dec 2014	ISM, Dhanbad

		ions in biological samples			
27	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	Designing of Plastic antibody for the ultra-trace level detection of Ferritin	XXXIII Annual conference of Indian Council of Chemists (ICC), 2014	15-17 Dec 2014	ISM, Dhanbad
28	Ekta Roy, Santanu Patra, Rashmi Madhuri, Prashant K. Sharma	Designing of imprinted biocompatible nanofilm for rapid and sensitive detection of anaerobic protozoan	2 <sup>nd</sup> International conference on nanostructured materials and nanocomposites (ICNM 2014)	19-21 Dec 2014	Mahatma Gandhi University, Kottayam, Kerala
29	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	Novel MWCNT-based molecularly imprinted nanoparticles for the rapid and simple detection of PSA in human blood sera	2 <sup>nd</sup> International conference on nanostructured materials and nanocomposites (ICNM 2014)	19-21 Dec 2014	Mahatma Gandhi University, Kottayam, Kerala
30	Santanu Patra, Ekta Roy, Rashmi Madhuri, Prashant K. Sharma	Designing of core shell fluorescent nanoparticles based optical sensor for the trace level determination of ferritin in human blood serum	International conference on multifunctional materials, structures and applications (ICMMSA-2014),	22-24 Dec 2014	MNNIT, Allahabad
31	Shrabani Mondal, Rashmi Madhuri, Prashant K. Sharma	Investigations of Crystal Defects and Its Consequence on Luminescence Properties of Chemically Grown SnO <sub>2</sub>	International Conference on Multifunctional Materials, Structures and Applications (ICMMSA 2014),	22-24 Dec 2014	MNNIT, Allahabad

		Nanoparticles			
32	Mohua Chakraborty and R. Thangavel	Fabrication of Tunable Hydrophobic surface of ZnO Nanorods with Cu Doping	AMRP-2015	13-14 March 2015	Sant Longowal Institute of Engineering and Technology, Longowal
33	Anima Ghosh, Anita Kumari, M. Rajagopalan, R. Thangavel	Electronic Structure of spinel oxides ZnSc <sub>2</sub> O <sub>4</sub> and ZnY <sub>2</sub> O <sub>4</sub> : A First Principle Study	AMRP-2015	13-14 March 2015	Sant Longowal Institute of Engineering and Technology, Longowal
34	A Viswanath Gowd, Mohua Chakraborty, R Thangavel, R B Chaudhary	Dielectric Properties of SnO Nanocrystals Synthesized by Hydrothermal Method	ISSMD-3	2-5 Feb, 2015	Anna university, Chennai
35	Mohua Chakraborty, Anima Ghosh, R. Thangavel	A Comparative Study of Structural and Optical Properties of Cu <sub>2</sub> O Nanocrystals for Solar Water Splitting Applications	ISSMD-3	2-5 Feb, 2015	Anna university, Chennai
36	Saroj K. Parida, S. Sahu, S. Sharma	Theoretical Investigation of Photoabsorption in Cyanogen Cluster	International Conference on Microwave and photonics ICMAP 2013	13.12.2013 -1.12.2013	ISM, Dhanbad
37	Dipanwita Mukherjee, Saroj K. Parida, S. Sahu, S. Sharma	A Time-dependent Density Functional Study of Photoabsorption in B <sub>6</sub> O <sub>2</sub> Cluster: Effect of Geometry	58 <sup>th</sup> DAE-Solid State physics Symposium	December 17-21, 2013	Thapar University, Patiala

38	Saroj K.Parida, S. Sahu	Theoretical investigation of photoabsorption in the second-row dicarbides $C_2X$ , ( $X=Na, Mg$ ): Effect of Geometry	International Conference on Structural and Physical properties of Solids SPPS-2013	2013 November 18 <sup>th</sup> -20 <sup>th</sup>	ISM Dhanbad
39	AK Mohapatra, J. Nayak, H. Kim	TiO <sub>2</sub> nanocrystals for application in dye-sensitized solar cells (poster presentation)	ICONSEA-2014 (International Conference on Nanoscience and Engineering Applications)	26 <sup>th</sup> – 28 <sup>th</sup> June 2014	Jawaharlal Nehru Technological University (JNTU), Hyderabad, India
40	B. Bhaduri	Hilbert phase dynamometry for measuring cell-generated forces	International Conference on Optics and Photonics (ICOP)	20 <sup>th</sup> Feb, 2015	Kolkata

### 3.5.7.4 Paper presented in National Seminars/Conferences

Sl. No.	Author(s)	Title	Seminar/Conference	Date	Place
1	S. Mahato, A. K. Kar	Effect of pH variation on the physical properties of electrodeposited cadmium selenide thin films	Condensed Matter Days	27-29 August, 2014	University of Calcutta
2	J. Kaur, R. Naghma and Bobby Antony	Electron impact ionization of C3 to C7 ethanoates	20th National Conference on Atomic and Molecular Physics	December 9-12, 201	IIST, Thiruvananthapuram, India
3.	B. Goswami, J. Kaur, R. Naghma, D. Gupta, P. Verma and Bobby Antony	1-5000 ev electron impact cross sections with germanium tetrafluoride	20th National Conference on Atomic and Molecular Physics	December 9-12, 201	IIST, Thiruvananthapuram, India
4.	Shikha Dwivedi and	Phase transitions in conjugated	4th National Conference on	March 13-14 2015	Department of Physics,

	Pankaj Mishra	oligomers suspended in chloroform	Advanced Materials and Radiation Physics		SLIET, Longowal, India
5.	Shikha Dwivedi and Pankaj Mishra	Phase behavior of symmetric-asymmetric binary mixtures.	21 <sup>st</sup> National Conference on liquid crystals	November 10-12, 2014	CSJM University Kanpur
6	J. S. Hansdah and P. M. Sarun	Structural and AC Loss Study For Pure And Doped MgB <sub>2</sub> Superconductor	59 <sup>th</sup> DAE-Solid State Physics Symposium-2014	16-20 December	VIT University, Vellore, India.
7.	T. Mondal, P. M. Sarun, S. Das, T. P. Sinha	Investigation of Dielectric Properties of La <sub>0.33</sub> NbO <sub>3</sub> Ceramics	59 <sup>th</sup> DAE-Solid State Physics Symposium-2014	16-20 December	VIT University, Vellore, India
8	A.K. Mohapatra, J. Nayak, Heeje Kim	Effect of synthesis temperature on the morphology, structure and photocatalytic activity of TiO <sub>2</sub> nanocrystals (Poster presentation)	59 <sup>th</sup> DAE Solid State Physics Symposium	16 <sup>th</sup> -20 <sup>th</sup> Dec. 2014	Vellore Institute of Technology (VIT), Tamilnadu

### 3.5.8 MAJOR ACADEMIC CONTRIBUTIONS

Dr. Prashant K. Sharma's research group has developed an ultra-sensitive Gas Sensing Chamber/device.

### 3.5.9 SEMINAR, SYMPOSIA, WORKSHOPS, CONFERENCES / SHORT TERM COURSE ORGANIZED BY THE DEPT/CENTRE

Short-Term Course on New and Renewable Energy Materials and Technology (ANREMT-2015)	March 23-27, 2015
--	-------------------

### 3.5.10 PARTICIPATION OF FACULTY/ OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof. J. Manam	33 <sup>rd</sup> Annual National conference of Indian council of chemists	15-17 Dec 2014	Department of Applied Chemistry, Indian School of Mines, Dhanbad
	National Workshop on Challenges and Opportunities for Management of Water Supplies in Rural Areas	23-24 January, 2015	Department of Environmental Science and Engineering, Indian School of Mines, Dhanbad
	7th Indian Mineral congress & Exhibition ( IMC2015)	7th Feb 2015	Indian School of Mines, Dhanbad
	International Conference on Luminescence and Applications ICLA-2015	8-12 February, 2015	PES Institute of Technology, PES University, Bangalore
Prof. A. K. Nirala	7 <sup>th</sup> Indian Mineral Congress & Exhibition (IMC-2015)	7th Feb 2015	Indian School of Mines, Dhanbad
	33 <sup>rd</sup> Annual National conference of Indian council of chemists	15-17 Dec 2014	Department of Applied Chemistry, Indian School of Mines, Dhanbad
Dr. S. K. Sharma	National workshop on photovoltaics	20-21 January, 2015	IEST , Shibpur, Howrah
Dr. Bobby Antony	4 <sup>th</sup> International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics with Applications.	March 11-14, 2015	Delhi University, India
	20th National Conference on Atomic and Molecular Physics	December 9-12, 2014	IIST, Thiruvananthapuram, India
Dr. Pankaj Mishra	21 <sup>st</sup> National Conference on Liquid crystals	November 10-12, 2014	CSJM University, Kanpur
Dr. Prashant Kumar Sharma	XXXIII Annual conference of Indian Council of Chemists (ICC), 2014	15-17 Dec 2014	Department of Applied Chemistry, Indian School of Mines, Dhanbad, India
	International Conference on Multifunctional Materials, Structures and Applications (ICMMSA 2014),	22-24 Dec 2014	MNNIT, Allahabad

**3.5.11 VISITS OF FACULTY MEMBERS ABROAD**

1. Dr. Bobby Antony visited UK to attend the EMOL database review meeting in Cumberland Lodge (4-6, July 2014) and to continue collaborations on electron molecule interactions with Professor Nigel Mason, OU UK and in particular to develop the EMOL database and data reviews (7-16, July 2014).
2. Dr. R.B.Choudhary Visited Madrid (Spain) on February 25-27, 2015 for Participation in International Conference on Energy and Materials Research (EMR-2015) Conference, Faculty of Medicine, Complutense University Madrid (Spain).
3. Dr. Jhasaketan Nayak visited National Leading Research Laboratories, Department of Mechanical Engineering, Yonsei University, Seoul, South Korea for collaborative research work related to "Perovskite Solar Cells".

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

- X-ray diffractometer (XRD)
- Fourier Transform Infra-red Spectrometer (FTIR)
- Fluorescence Spectrophotometer
- UV-Vis Spectrophotometer

**3.5.13 DISTINGUISHED VISITORS TO THE SCHOOL**

Prof. E. Krishnakumar, TIFR, Mumbai	29.08.2014
Prof. Lokesh Tribedi, TIFR, Mumbai	24. 11. 2014
Dr. Ravindra Dhar, Centre for Material Sciences, University of Allahabad.	09. 01. 2015
Prof. P.C. Deshmukh, IIT, Madras	29.01.2015

**3.5.14 SPECIAL LECTURES BY DISTINGUISHED GUESTS:**

Dr. Debashri Ghosh Department of Electrical and Computer Engineering & Bioengineering, University of Illinois at Urbana-Champaign	14.08.2014
Prof. E. Krishnakumar, Resonant electron scattering from molecules, TIFR, Mumbai	29.08.2014
Prof. Lokesh Tribedi, TIFR, Mumbai, Fast ion collisions with mesoscopic objects: recent trends	24.11.2014
Dr. Ravindra Dhar, Centre for Material Sciences, University of Allahabad.	09.01.2015
Prof. P.C. Deshmukh, IIT, Madras, Science in one line for prosperity, if all else perished	29.01.2015

### 3.6 CHEMICAL ENGINEERING

A four year B.Tech programme in Chemical Engineering was introduced during the academic year 2011-12.

#### 3.6.1 FIELD VISITS /EXCURSIONS/TRAINING PROGRAMME UNDERTAKEN BY STUDENTS

Particulars	Batch of Students	Place of Visit	Period of visit
PDIL, Catalyst plant	B.Tech	Sindri, Dhanbad	One day

#### 3.6.2 IMPORTANT NEW EQUIPMENT

Sl. No.	Name of Equipment	Purpose	Date of Purchase	Value (Rs.)
1.	Milli-Q- Integral Water purifier	Research grade water for HPLC , TOC etc	24.10.13/04.08.2014	9,57,219.00
2.	Research grade Rheometer , MCR 102, Anton Parr	Rheology of complex fluids	1.9.14/17.2.15	32,32,115.00
3	ASPEAN Software University	Simulation tool for Chemical Engineering	5.2.15	6,25,000.00
4.	Dell Optiplex Desktop Computer (15 Nos)	Simulation Lab	23.9.14/26.3.15	7,57,165.00

#### 3.6.3 PAPER PUBLISHED IN INTERNATIONAL JOURNALS

Sl. No.	Author(s)	Year	Title	Journal	Vol. No	Page No.
1.	H.P. Tiwari, P.K. Banerjee, V.K. Saxena, S K Haldar	2014	Effect of Indian Medium Coking Coal on Coke Quality in Non-recovery Stamped Charged Oven	International Journal of Iron and Steel Research,	21(7)	673-678
2	H.P. Tiwari, P.K. Banerjee, V.K. Saxena, R Sharma, S K Haldar and S Verma	2014	Efficient way to use non-coking coals in non-recovery coke making process	Journal of Metallurgical Research & Technology, published by EDP Science	111, (2014)	211-220
3	H.P. Tiwari , P.K. Banerjee , V.K. Saxena , R Sharma, S K Haldar and	2014	Effect of Heating Rate on Coke Quality and Productivity in Nonrecovery Coke	International Journal of Coal Preparation and Utilisation	34:6	306-320



	Sanjoy Paul		Making			
4	Atul Kumar Varma , Mrityunjay Kumar , Vinod Kumar Saxena , Ashis Sarkar, Santanu Kumar Banerjee	2014	Petrographic controls on combustion behaviour of inertinite rich coal and char and fly ash formation	Fuel	128	199-209
5	Praveen Kumar Jha1, Vikas Mahto, V. K. Saxena	July-Aug 2014	Emulsion based drilling fluid: An overview	International Journal of ChemTech Research	Vol.6, No.4,	2306-2315
6	Suman Dutta	2014	A review on production, storage of hydrogen and its utilization as an energy resource	Journal of Industrial and Engineering Chemistry	20	1148–1156
7	Kumar Anupama, Suman Dutta, Chiranjib Bhattacharjee & Siddhartha Datta	2014	Artificial neural network modelling for removal of chromium (VI) from wastewater using physisorption onto powdered activated carbon	Desalination and Water Treatment		1–10
8	Vivek Kumar & V K Saxena	2014	Studies on the Variation in Coal Properties of Low Volatile Coking Coal after Beneficiation	International Journal of Computational Engineering Research	Vol, 04	39-57
9	Damandeep Singha,Raj Kumar Gupta, Vineet Kumar	2015	Simulation of a plant scale reactive distillation column foresterification of acetic acid	Computers and Chemical Engineering	73	70–81
10	Damandeep Singh, Raj Kumar Gupta, and Vineet Kumar	May 2014	Experimental Studies of Industrial-Scale Reactive Distillation Finishing Column Producing Ethyl Acetate	Ind. Eng. Chem. Res.,	53	10448–10456
11	Vikas K. Sangal Vineet	2014	Process Parametric Optimization Of	Chemical Engineering	201	72–87

	Kumar and Indra Mani Mishra		A Divided Wall Distillation Column	Communicatio ns		
12	S. K. Bhaumik, R. Roy, S. Chakraborty, S. Dasgupta	2014	Electrohydrodynam ic Micropumping Of Oil In Water Emulsions”	Sensors And Actuators B	193	288– 293.
13	S Sengupta & G Deo	2015	Modifying alumina with CaO or MgO in supported Ni and Ni-Co catalysts and its effect on dry reforming of CH <sub>4</sub>	Journal of CO <sub>2</sub> Utilisation	10	67-77
14	Singh G P, Moon, A P, S Sengupta , G Deo , Sangal S and Mandal K	2015	Corrosion Behavior of IF Steel in Various Media and Its Comparison with Mild Steel	Journals of Material Engineering and Performance	24	1961- 1974

### 3.6.4 PAPERS PRESENTED IN INTERNATIONAL SEMINARS/CONFERENCES

Sl. No	Author (s)	Title	Seminar/Conferences	Date	Place
1.	Ashwani Kumar Dubey, ArunKumar Samanta, V.K. Saxena, Pinki Sarkar	Chemical Looping Combustion Of Coal With CuO as Oxygen Carrier	IICHe CHEMCON-2014	27-31 December 2014	Chandigarh
2.	Chiranjit Bhattacharje e, Dr. Suman Dutta and Dr. V.K. Saxena	Static Turbulence Promoters In Membrane Filtration: A Review	IICHe CHEMCON-2014	27-31 December 2014	Chandigarh
3.	A. Samanta, N. Mittal, J. Segurac, P. Sarkar and R. Gupta	Carbon Dioxide Capture Using Structured Bed Loaded Withfunctionalize d Sorbent	IICHe CHEMCON-2014	27-31 December 2014	Chandigarh
4.	Rick Sundar,	CFD Analysis Of Flow Over	IICHe CHEMCON-2014	27-31 December	Chandigarh

	Salman Ahmed, Ajit Das and Soubhik Kumar Bhaumik	Patterned Microchannel		2014	
5	Marungsha Swrang Brahma, Salman Ahmed and Soubhik Kumar Bhaumik	Free Convective Cooling Over Micro Heat Sinks	IICChE CHEMCON-2014	27-31 December 2014	Chandigarh
6	Ajit Das, Soubhik Kumar Bhaumik and Rick Sundar	Wettability Over Superhydrophobic Surface	IICChE CHEMCON-2014	27-31 December 2014	Chandigarh
7	Soubhik Kumar Bhaumik, Rick Sundar and Salman Ahmed	Particle Sorting Using Dielectrophoresis	IICChE CHEMCON-2014	27-31 December 2014	Chandigarh
8	Shubham Maheshwari, Prasad Kopparti and V.K. Saxena	Studies On Beneficiation Of Coal Fines By Flotation Column	IICChE CHEMCON-2014	27-31 December 2014	Chandigarh
9	Md Danish Akhtar, Veerendra Singh and V.K. Saxena	Studies On Briquetting Of Chromite Ore With Waste Plastic Binder	IICChE CHEMCON-2014	27-31 December 2014	Chandigarh
10	Nikhil Nambiar, Shyam Kumar, Abhay Agrawal, V K Saxena	Effect of Particle Size Distribution on Rheological Properties of coal-oil-slurries	International conference on Mineral Processing Technology, MPT-2014"	March 12-14, 2015	Vishakhapatnam

### 3.6.5 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof V K Saxena	IChE CHEMCON-2014	27-31 December 2014	Chandigarh
Dr Arunkumar Samanta	IChE CHEMCON-2014	27-31 December 2014	Chandigarh

### 3.6.6 TESTING SERVICES (LAB FACILITIES AVAILABLE IN THE DEPARTMENT)

- Elemental composition (C,H,N,S,O) of coal, Soil, Oil etc by CHNS analyzer
- Total Organic Carbon by TOC analyzer
- Nano-particle size distribution by particle size analyzer
- Rheological investigation of liquid/slurries
- Surface Tension and Contact angle of liquid
- Potentiometric titration for all chemical, food, pulp & paper, petrochemicals, pharmaceuticals industries
- Refractive Index of liquid
- Liquid fuel testing, viz., Softening point, Aniline point, ASTM distillation, Flash point, smoke point & Char value, Cloud point, Viscosity measurement etc.
- Gas chromatograph
- High Performance Liquid Chromatograph (HPLC)
- Planary Ball Mill for nano grinding,
- Modular Compact Rheometer (MCR 102) for complex fluids
- Multicomponent Modular Gas Analyser,
- Fourier Transform Infrared spectrophotometer (FTIR)
- Thermo Gravimetric Analyser of Proximate analysis and LOI
- Macro particle size analyser (Nano to Macro) for liquid , slurry and dry powder

### 3.6.7 SPECIAL LECTURE BY DISTINGUISHED GUESTS

Prof S De, (Recipient of Prestigious Shanti Swaroop Bhatnagar Award), Department of Chemical Engineering, IIT Kharagpur delivered lecture on “Novel Membrane Processes”	July 10, 2014
Prof K Krisnaiah, Former Dean Academic & Emeritus Professor, IIT Madras, delivered Lectures on “What is your scale in Chemical engineering” and “What is Research”.	August 27, 2014
Prof K Krisnaiah, Former Dean Academic & Emeritus	August 28, 2014

Professor, IIT Madras, delivered Lectures on “Fluidized Bed reactor Design” and “Overview of Chemical Reaction Engineering”.	
Prof R L Malhotra, Former GM Production, ONGC, delivered lecture on “Oil exploration to Exploitation”	October 7, 2014
Prof R L Malhotra, Former GM Production, ONGC, delivered lecture on “Refining and their products”	October 10, 2014
Prof V K Gupta, Former GM, SAIL R&D, delivered lecture on “Modeling of size reduction processes”	October 10, 2014
Prof S S Bandopadhyay, Department of Chemical Engineering, IIT Kharagpur delivered lecture on “Cryogenic Separation Processes”	October 17, 2014
Prof G V Reddy, Department of Chemical Engineering, NIT Warangal, delivered lecture on Reactive Distillation- Recent trends”	December 8, 2014

### 3.7 CIVIL ENGINEERING

The inception of the department took place in the year 2013.

#### 3.7.1 INTRODUCTION OF NEW COURSES AND PROGRAMMES

M.Tech. in Structural Engineering commenced from A.Y. 2015. The course is designed to cater the requirement in Infrastructure and Construction industry.

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

Project Title	Sponsoring Agency	Coordinator	Project Value	Date of Commencement	Findings
Dynamic instability of elastic structural elements underdeterministic loading.	DST	Dr S K Panda & Prof. B. C Sarkar (Co. PI)	16.8 Lakhs	18 <sup>th</sup> January 2014	Project is in progress

#### 3.7.3 IMPORTANT COLLABORATIVE WORKS

Organisation / Laboratory	Nature of Interaction
University of Windsor	Collaborative research activity has been initiated.

#### 3.7.4 IMPORTANT NEW EQUIPMENT ACQUIRED (ABOVE RS. 5,00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value (Rs.)
Closed Circuit- Adjustable Open Channel Apparatus (Tilting Hydraulic Flume)	OCRH Lab	28-02-2014	5,38,249.00

#### 3.7.5 RESEARCH PUBLICATIONS

##### 3.7.5.1 Papers published in International Journals

Sl.No.	Authors (s)	Year	Title	Journal	Vol. No.	Page No.
1	Nayak, S. and Dutta, S. C.	2015	A cost-effective approach of improving seismic performance of unreinforced masonry walls	Journal of Performance of Constructed Facilities	DOI: 10.1061/(ASCE)CF.1943-5509.0000733	

			with openings by polypropylene bands and L-shaped reinforcing bars.			
2	Dutta, S. C., Mukhopadhyay, P., Saha, R. and Nayak, S.	2015	2011 Sikkim Earthquake at Eastern Himala Lessons learnt from performance of structures.	Soil Dynamics and Earthquake Engineering	75	121-129
3	Abhinav Kumar, Panda S.K. and Rajesh Kumar	2014	Dynamic Instability of Composite Skew Plates Using Boundary Characteristic Orthogonal Polynomials	International Journal of Applied Mechanics	06	1450078-1-24.

### 3.7.5.2 Papers presented in International Seminars/Conferences

Sl. No	Authors (s)	Title	Seminar /Conferen	Date	Place
(1)	(2)	(3)	(4)	(5)	(6)
1	Srinivas Pasupuleti, Pradeep Kumar and K. Jayachandra	Quantification of effect of convergence in porous media flow	5 <sup>th</sup> International Conference on porous Media and their Applications in Science, Engineering and Industry	June 22-27, 2014	Kona, Hawaii, USA
2	Kaushik Majumdar, Srinivas Pasupuleti, and SubrataPani	Performance evaluation of STPs constructed for conservation of water resources with particular emphasis on utilization of treated sewage water and domestic sludge for agricultural augmentation	International Conference on Modelling Tools for Sustainable Water Resources Management	Dec. 28-29, 2014	IIT Hyderabad

3	Sowmiya, L.S. and Shahu, J.T.	Benefits of Geosynthetic Reinforcement on Typical Indian Railway Tracks	ICSCI 2014, ASCE India Section	Oct. 17-18, 2014	Hyderabad, India
4	Sowmiya, L.S., Shahu, J.T. and Gupta, K.K	Study on the Performances of the Geosynthetic Reinforcement on the Ballasted Railway Track – Model test and Numerical Analysis	International Symposium on Lowland Technology (ISLT2014)	29th Sept. – 1st Oct. 2014	Saga University, Saga, Japan
5	Sowmiya L.S. and Shahu J.T	Study on the performances of the geosynthetic reinforcement on the ballasted railway track	International Conference on Advances in Civil Engineering Systems	23-24, Dec, 2014	SVNIT, Surat, India

### 3.7.6 VISITS OF FACULTY MEMBERS ABROAD

Dr. Srinivas Pasupuleti visited Hawaii, USA for attending the 5<sup>th</sup> International Conference on Porous Media and their Applications in Science, Engineering and Industry during June 22-27, 2014.

### 3.7.7 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Details	Occasion/ Purpose
Prof. Sreekanta Das, University of Windsor, Canada	Formal Visit to interact with faculty and discuss regarding MOU on 05-01-2015.

### 3.7.8 MISCELLANEOUS:

Dr. Sowmiya, L.S. received the “Best Paper Award” for the paper “Study on the Performances of the Geosynthetic Reinforcement on the Ballasted Railway Track – Model test and Numerical Analysis” presented at International Symposium on Lowland Technology (ISLT2014) during 29th Sept. – 1st Oct. 2014 at Saga University, Saga, Japan. The award was sponsored by International Society for Lowland Technology (ISLT), Japan.



### 3.8 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), Dual Degree (Computer Science & Engineering), M.Tech. (Computer Science & Engineering) and Ph.D. programmes.

#### 3.8.1 INTRODUCTION OF NEW COURSES AND PROGRAMMES

A new M.Tech course in Computer Science and Engineering with Specialization in Information Security has been introduced. The purpose of introducing this course is to cultivate the students for academia and also for industry in the field of Information Security.

#### 3.8.2 BEST PRACTICES OF THE DEPARTMENT

The best practice of the department comprises the following:

- (a) Deliver Quality Teaching & Research Outputs
- (b) Hands-on practical & project works
- (c) Organize Short-Term Courses, Guest Lectures, Workshop & Conferences on regular interval.
- (d) Organize various technical events to promote the competitive & healthy environment among the students of the department.

#### 3.8.3 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	Findings
ISEA (Information Security Education and Awareness)	MIT Govt of India	Dr. Sachin Tripathi (PI) Dr. Arup Kumar Pal (Co-PI)	Total 148.1 Lakhs (Proposed, no Installment has been given yet)	04.03.2015	Just started
Design of Machine Learning Techniques for Specialized Biological Online Database-mining	Council of Scientific and Industrial Research Human Resource Development Group	Dr. Haider Banka (PI) ACS Rao (Co-PI)	16.05 Lakhs	April, 2012	Papers published

Design and implementation of Group Key Generation Protocols and Its Applications for Secure Multicast	UGC	Dr. Sachin Tripathi	Rs. 10.78 Lakhs	01.07.2012	Some group key generation protocols has been proposed and its application areas has been identified
---	-----	---------------------	-----------------	------------	---

### 3.8.4 IMPORTANT COLLABORATIVE WORKS

Organisation / Laboratory	Nature of Interaction
University of Tunis & The Director of the National High Engineering School of Tunis (ENSIT)	Signed MOU for International Collaboration.
Botho University, Botswana	Signed MOU for International Collaboration.

### 3.8.5 RESEARCH PUBLICATIONS

#### 3.8.5.1 Book published

Mahua Banerjee & Chiranjeew Kumar, “Modular Programming Techniques using AOP and FOP”, (Research Monograph), LAP LAMBERT Academic Publishing, Germany, October 2014, ISBN: 978-3-659-59931-6.

#### 3.8.5.2 Book reviews / contribution of chapters in a book

1. Prof. P. K. Jana reviewed three chapters of the book “Computer Programming Through C++” Cambridge University Press India, New Delhi.
2. Dharavath Ramesh, H. Gupta, K. Singh, & Chiranjeew Kumar, “Hash Based Incremental Optimistic Concurrency Control Algorithm in Distributed Databases”, In Intelligent Distributed Computing (pp. 139-150). Springer International Publishing, Switzerland, 2015. DOI: 10.1007/978-3-319-11227-5 13.
3. Dharavath Ramesh., V. Kumar, Chiranjeew Kumar, & A. Kumar A, “An Apriori-Based Vertical Fragmentation Technique for Heterogeneous Distributed Database Transactions”, In Intelligent Computing, Networking, and Informatics (pp. 687-695). Springer India, 2014. DOI: 10.1007/978-81-322-1665-0 69.
4. Dharavath Ramesh, A. K. Jain, Chiranjeew Kumar, & V. Kumar, “Accuracy of Atomic Transaction Scenario for Heterogeneous Distributed Column-Oriented Databases”, In Intelligent Computing, Networking, and Informatics (pp. 491-501). Springer, India, 2014. DOI: 10.1007/978-81-322-1665-0 47.
5. Mantosh Biswas and Hari Om, “Intelligent and Non-Intelligent approaches in Image Denoising: A Comparative Study,” Case Studies in Intelligent Computing –

Achievements and Trends, Taylor & Francis Group, CRC Press, pp. 125-159 (Chapter 7), Aug. 2014.

6. Chiranjeevi Manike and Hari Om, "High-Utility Patterns Discovery in Data Mining: A Case Study," Case Studies in Intelligent Computing – Achievements and Trends, Taylor & Francis Group, CRC Press, pp. 247-269 (Chapter 12), Aug. 2014.
7. Neha Sharma and Hari Om, "Predictive Data Mining for Oral Cancer Treatment," Case Studies in Intelligent Computing – Achievements and Trends, Taylor & Francis Group, CRC Press, pp. 303-327 (Chapter 15), Aug. 2014.
8. Hari Om and Alok K. Gupta, "Feature Selection and Decision Tree: A Combinational Approach for Intrusion Detection," Case Studies in Secure Computing: Achievements and Trends, Taylor & Francis Group, CRC Press, pp. 27-47 (Chapter 2), Aug. 2014.

### 3.8.5.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	SK Hafizul Islam and G.P. Biswas	2014	Cryptanalysis of Lin et al.'s Digital Multisignature Scheme on the Generalized Conic Curve over $Z_n$	Information Sciences Letter	03	63-68
2.	Sangram Roy and G.P. Biswas	2014	Design of an Efficient Mobile Health System for Achieving HIPPA Privacy-Security Regulations	Wireless and Mobile Computing	07	378-387
3.	SK Hafizul Islam and G.P. Biswas	2014	Dynamic ID-based Remote User Mutual Authentication Scheme with Smartcard using Elliptic Curve Cryptography	Journal of Electronics	31	473-488
4.	SK Hafizul Islam and G.P. Biswas	2015	Design of Two-party Authenticated Key Agreement Protocol based on ECC and Self-Certified Public Keys	Wireless Personal Communications		1-24
5.	Ruhul Amin and G.P. Biswas	2015	A Novel User Authentication and Key Agreement Protocol for Accessing Multi-Medical Server usable in TMIS	Journal of Medical Systems	39	1-17
6.	SK Hafizul Islam and G.P. Biswas	2015	Provably Secure and Pairing-based Strong Designated Verifier	Arabian Journal for Science and Engineering	40	1069-1080

			Signature Scheme with Message Recovery			
7.	Pratyay Kuila and P. K. Jana	2014	A novel differential evolution based clustering algorithm for wireless sensor networks	Applied Soft Computing	25	414-425
8.	T. Amgoth and P. K. Jana	2014	Energy and Coverage-Aware Routing Algorithm for Wireless Sensor Networks	Wireless Personal Communications	81	531-545
9.	T. Amgoth and P. K. Jana	2014	Energy efficient and load balanced clustering algorithms for wireless sensor networks	Intl. Journal of Information and Comm. Technology	6	272-291
10.	Pratyay Kuila and P. K. Jana,	2014	Energy efficient clustering and routing algorithms for wireless sensor networks: Particle swarm optimization approach	Engineering Applications of Artificial Intelligence	33	127-140
11.	Md Azharuddin, Pratyay Kuila and P. K. Jana	2015	Energy efficient fault tolerant clustering and routing algorithms for wireless sensor networks	Computers & Electrical Engineering	42	177-190
12.	Md Azharuddin and P. K. Jana	2015	A Distributed Algorithm for Energy Efficient and Fault Tolerant Routing in Wireless Sensor Networks	Wireless Networks	21	251-267
13.	T. Amgoth and P. K. Jana,	2015	Energy-aware routing algorithm for wireless sensor networks	Computers & Electrical Engineering	41	357-367
14.	Dharavath Ramesh and Chiranjeev Kumar	2014	A Scalable Generic Transaction Model Scenario for Distributed NoSQL Databases	Journal of Systems and Software	101	43-58
15.	Prem Nath and Chiranjeev Kumar	2014	Mobility Agent Based on Activity Rate of User and Adaptive Paging for Location Management in Wireless Networks	Transactions on Emerging Telecommunications Technologies	25 (7)	723-735
16.	Prem Nath and	2014	Adaptive Mobility Anchor Point to	International Journal of Computers &	40 (5)	1329-1343

	Chiranjeev Kumar		Reduce Regional Registration and Data Packets Delivery Costs	Electrical Engineering		
17.	Dharavath Ramesh & Chiranjeev Kumar	2014	Design of Byzantine Fault-Tolerant Transaction Commit Protocol for Heterogeneous Distributed Databases	International Journal of Intelligent Information and Database Systems	8 (2)	127-149
18.	Kaushik, Baijnath, and Haider Banka	2015	Performance evaluation of approximated artificial neural network (AANN) algorithm for reliability improvement	Applied Soft Computing	26	303-314,
19.	Banka, Haider, and Suresh Dara.	2015	A Hamming distance based binary particle swarm optimization (HDBPSO) algorithm for high dimensional feature selection, classification and validation	Pattern Recognition Letters	52	94-100
20.	Rohit Chaturvedi and Haider Banka	2014	Modified Ant Colony Optimization Algorithm for Travelling Salesman Problem	International Journal of Computer Applications	97 (10)	20-24,
21.	Hari Om and M. Biswas	2014	MMSE based MAP Estimation for Image Denoising	Optics & Laser Technology	57	252–264
22.	Neha Sharma and Hari Om	2014	Cascade Correlation Neural Network Model for Classification of Oral Cancer	WSEAS Transactions on Biology and Biomedicine	11	45-51
23.	Neha Sharma and Hari Om	2014	Comparing the Performance of Data Mining Tools: WEKA and DTREG	International Journal of Scientific & Engineering Research	5 (4)	911-918
24.	Hari Om and Mantosh Biswas	2014	An Adaptive Image Denoising method based on Local Parameters Optimization	Sadhna, Academy Proceedings in Engineering Sciences	39 (4)	879–900
25.	Chiranjeevi Manike and Hari Om	2015	Modified GUIDE (LM) algorithm for mining maximal high utility patterns from data streams	International Journal of Computational Intelligence Systems	8(3)	517-529

26.	Abhimanyu Kumar and Sachin Tripathi	2015	A Pairing Free Anonymous Certificateless Group Key Agreement Protocol for Dynamic Group	Wireless Personal Communication	82	1027-1045
27.	Abu Salim, Sachin Tripathi and Rajesh Kumar Tiwari	2014	A secure and timestamp-based communication scheme for cloud environment	International Journal of Electronic Security and Digital Forensics	6	531-547
28.	Dharavath Ramesh, Alok Kumar Pani,	2014	An incremental load balancing approach for heterogeneous distributed processing systems	Int. Journal of Scientific & Engineering Research	5	225-231
29.	Kislay Shrivastava, Subhash Chandra, Sushila Maheshkar	2015	Offline Signature Verification with ANN using Shape Properties a Feasibility Report	Advances in Computer Science and Information Technology	2(3)	267-271
30.	Soumen Bag, Gaurav Harit, and Partha Bhowmick	2014	Recognition of Bangla compound characters using structural decomposition	Pattern Recognition	47	1187 – 1201

### 3.8.5.4 Papers presented in International Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/ Conference	Date	Place
1.	Sheweta R. Malwe and G.P. Biswas	TCA-PCA based Hybrid Code Assignment for Enhancement and Easy Deployability CDMA Protocol	Advances in Computing, Communications and Informatics (ICACCI-2014), IEEE Xplore	September 2014	New Delhi
2.	Manoj K. Mishra, S. Mukhopadhyay and G.P. Biswas	Compression and Encryption of Video Data for Efficient Transmission and Storage	Advances in Computer and Engineering (ACE-2014), McGraw Education	December, 2014	Kochi, Kerala
3.	Ruhul Amin and G.P. Biswas	Remote Access Control Mechanism Using Rabin Public Key Cryptosystem	Information Systems Design and Intelligent Applications	February, 2015	University of Kalyani, West

			(Springer)		Bengal
4.	Ruhul Amin and G.P. Biswas	Anonymity Preserving Secure Hash Function Based Authentication Scheme for Consumer USB Mass Storage Device	Computer, Communication, Control and Information Technology (C3IT-2015), IEEE Proceedings	February, 2015	Academy of Technology, West Bengal
5.	Prerna Mohit and G.P. Biswas	Design of ElGamal PKC for Encryption of Large Message	Computing of Sustainable Global Development (INDIACom-2015)	March, 2015	BVICA M, New Delhi
6.	Srikanth Jannu and P. K. Jana	Energy Efficient Grid Based Clustering and Routing Algorithms for Wireless Sensor Networks	International Conference CSNT-2014	April 7-9, 2014	NITTR, Bhopal, MP
7.	Deepika Singh, Pratyay Kuila and P. K. Jana	A Distributed Energy Efficient and Energy Balanced Routing Algorithm for Wireless Sensor Networks	International Conference ICACCI -2014	September 24-27, 2014	Galgotias College of Engineering & Technology, Greater Noida
8.	Sanjaya K. Panda and P. K. Jana	An Efficient Task Scheduling Algorithm for Heterogeneous Multi-cloud Environment	International Conference ICACCI-2014	September 24-27, 2014	GCET, Greater Noida, Delhi
9.	Srikanth Jannu and P. K. Jana	Energy efficient unequal clustering and routing algorithms for wireless sensor networks	International Conference ICACCI-2014	September 24-27, 2014	GCET, Greater Noida, Delhi
10.	Kumar Nitesh and P. K. Jana	DFDA: A Distributed Fault Detection Algorithm in Two Tier Wireless Sensor Networks	International Conference FICTA -2014	November 14-15, 2014	Bhubaneswar Engg. College, Bhubaneswar
11.	Suneet K Gupta, Pratyay Kuila and P. K. Jana	E3BFT: Energy Efficient and Energy Balanced Fault Tolerance Clustering in Wireless Sensor	International Conference IC3I-2014	November 27-29, 2014	JSS Technical Education

		Networks			Campus, Mysore
12.	Kumar Nitesh and P. K. Jana	Grid based adaptive sleep technique in wireless sensor networks	International Conference ICICT - 2014	December 3-5, 2014.	Kochi Univ. of Sc. & Tech., Kochi
13.	Sanjaya K. Panda, S. Nag and P. K. Jana	A Smoothing Based Task Scheduling Algorithm for Heterogeneous Multi-Cloud Environment	International Conference PDGC-2014	December 11-13, 2014	Jaypee University of Information Technology, Waknaghat, Solan, HP
14.	Sanjaya K. Panda and P. K. Jana	An Efficient Energy Saving Task Consolidation Algorithm for Cloud Computing	International Conference PDGC-2014	December 11-13, 2014	Jaypee University of Information Technology, Waknaghat, Solan, HP
15.	Sanjaya K. Panda and P. K. Jana	A Multi-Objective Task Scheduling Algorithm for Heterogeneous Multi-cloud Environment	International Conference EDCAV-2015	January 29-30, 2015	NIT, Meghalaya, Shillong
16.	Md Azharuddin and P. K. Jana	A PSO based fault tolerant routing algorithm for wireless sensor networks	International Conference INDIA-2015	January 8-9, 2015	University of Kalyani, West Bengal
17.	Md Azharuddin and P. K. Jana	A GA-based approach for fault tolerant relay node placement in wireless sensor networks	International Conference C3IT - 2015	February 7-8, 2015	Academy of Technology, Hooghly, West Bengal,
18.	Sanjaya K. Panda	An Efficient Resource	International	February	KIIT



	and P. K. Jana	Allocation Algorithm for IaaS Cloud	Conference ICDCIT-2015	5-8, 2015	University, Bhubaneswar, Odisha
19.	Sanjaya K. Panda, Indrajeet Gupta and P. K. Jana	Allocation-Aware Task Scheduling for Heterogeneous Multi-Cloud Systems	International Conference, ISBCC- 2015	March 12-13, 2015	VIT University, Chennai Campus
20.	Sudeep Varshney, Chiranjeev Kumar and Abhishek Swaroop	A Comparative Study of Hierarchical Routing Protocols in Wireless Sensor Networks	2 <sup>nd</sup> IEEE International Conference on Computing for Sustainable Global Development	11-13 March 2015	BVICA M, New Delhi, India
21.	Mohd Naseem and Chiranjeev Kumar	Distributed bandwidth guarantee using Multipath routing protocol in Mobile Ad Hoc Network	First International Conference on Science, Engineering and Management Research (ICSEMR-2014)	27-29 Nov 2014	Vel Tech MultiTech Dr. Rangarajan Dr. Sakuntala Engineering College, Chennai, India
22.	Siba Mishra, Chiranjeev Kumar	Estimating Development Size and Effort of Business Process Service-Oriented Architecture Applications	IEEE 2 <sup>nd</sup> International Conference on Systems and Informatics (ICSAI-2014)	15-17 Nov 2014	Shanghai, China
23.	Debashis Das and Susanta Mukhopadhyay	A Pixel Based Segmentation Scheme for Fingerprint Images	2nd International Conference on Information Systems Design and Intelligent Applications, INDIA 2015	Jan 8-9, 2015.	Kalyani University, Kolkata, India
24.	Manoj K. Mishra, S. Mukhopadhyay	Scheme for Compressing Video Data employing Wavelets and 2D-PCA	2nd International Conference on Information Systems Design	Jan 8-9, 2015.	Kalyani University, Kolkata

			and Intelligent Applications ,,INDIA-2015		, India
25.	Manoj K. Mishra, S.Mukhopahyay, G.P.Biswas	Architecture and Secure Implementation for Video Conferencing Technique	International conference on Computer, Communication, Control and Information Technology (C3IT- 2015)	Feb 7-8, 2015.	Hooghly, India,
26.	Manoj K. Mishra, Sandeep Singh Sengar and Susanta Mukhopadhyay	Algorithm for Secure Visual Communication	2nd International conference on Signal Processing & Integrated Networks (SPIN- 2015)	Feb 19-20, 2015	Noida, India,
27.	Rahul Paul and Susanta Mukhopadhyay	Effective Background Subtraction Method for Moving Object Segmentation	1st International Conference on Power, Circuit and Information Technologies (ICPCIT-2015)	April 27th-28th 2015.	Rajaraj eswari College of Engine ering (Rrce), Bangal ore, India
28.	Dara, Suresh, and Haider Banka	An Elitist Binary PSO Algorithm for Selecting Features in High Dimensional Data	Advanced in Computing, Networking and Informatics (ICACNI-2014)	2014	Kolkata
29.	Nilam Upasani and Hari Om	Evolving Fuzzy Min- Max Neural Network for Outlier detection	Int. Conf. on Advanced Computing Technologies and Applications (ICACTA)	March 26- 27, 2015,	Mumba i
30.	Ravi Sankar Sangam and Hari Om	The k-modes algorithm with an entropy based similarity coefficient	2 <sup>nd</sup> Int. Symposium on Big Data and Cloud Computing (ISBCC)	March 12- 13, 2015	VIT Univ. Chenna i
31.	N. Majumdar and Hari Om	Coverage-aware Unequal Clustering Algorithm for Wireless sensor networks	3 <sup>rd</sup> Int. Conf. on Recent Trends in Computing	March 12- 13, 2015	SRM Univ. Ghazia bad
32.	Mantosh Biswas and Hari Om	A Hybrid Image Denoising Technique	1 <sup>st</sup> Int. Conf. on Recent cognizance	Jan. 16- 17, 2015	Poorni ma Inst.

		Using Neighbouring Wavelet Coefficients	in wireless communication & image processing (ICRCWIP)		of Engg. & Tech., Jaipur
33.	Chiranjeevi Manike and Hari Om	Sliding-Window Based Method to Discover High Utility Patterns from Data Streams	Int. Conf. on Computational Intelligence in Data Mining (ICCIDM)	Dec. 20-21, 2014	V.S.Sai Univ. of Tech., Sambalpur, Odisha
34.	Chiranjeevi Manike and Hari Om	Time-efficient Tree-based Algorithm for Mining High Utility Patterns	3 <sup>rd</sup> Int. Symposium on Intelligent Informatics Advances in Intelligent Informatics (ISI'14)	Sept. 24-27, 2015	G. Noida
35.	Sunil K. Gautam and Hari Om	Multivariate Linear Regression Model for Host Based Intrusion Detection	Int. Conference on Computational Intelligence in Data Mining (ICCIDM)	Dec. 20-21, 2014	V.S. Sai Univ. of Tech., Sambalpur, Odisha
36.	Shipra Kumari and Hari Om	Remote Login Password Authentication Scheme using Tangent Theorem on Circle	3 <sup>rd</sup> Int. Conf. on Frontiers of Intelligent Computing: Theory and Applications	Nov. 14-15, 2014	Bhubaneswar
37.	Shipra Kumari and Hari Om	A Modified Remote User Authentication Scheme Using Smart Cards with Check Digits	Int. Conf. on Data Science and Engineering	Aug.25-28, 2014	Cochin
38.	Shipra Kumari and Hari Om	Remote Login Password Authentication Scheme using Tangent Theorem on Circle in a Multi-Server Environment	Int. Conf. on Networks and Soft Computing	Aug. 18-19, 2014	Guntur
39.	Neha Sharma and Hari Om	Predicting Oral Cancer Survivability using LR and PNN/GRNN Models	8 <sup>th</sup> Int. Conf. on Data Mining and Warehousing (ICDMW)	Jul. 25-27, 2014	Bangalore
40.	Shipra Kumari and Hari Om	Remote Login Authentication	8 <sup>th</sup> Int. MultiConference on	Jul. 25-27, 2014	Bangalore

		Scheme using RSA Cryptography in Multiserver Environment	Information Processing (IMCIP)		
41.	Chiranjeevi Manike and Hari Om	Efficient discovery of High Utility Patterns from Transactional Databases	8 <sup>th</sup> Int. MultiConference on Information Processing (IMCIP)	Jul. 25-27, 2014	Bangalore
42.	Chiranjeevi Manike and Hari Om	Time-Fading based High Utility Pattern Mining from Uncertain Data Streams	2 <sup>nd</sup> Int. Conf. on Advanced Computing, Networking, and Informatics (ICACNI)	Jun. 24-26, 2014	Kolkata
43.	Shipra Kumari and Hari Om	Remote Login Password Authentication Scheme Based on Cuboid using Biometric	13 <sup>th</sup> Int. Conf. on Information Technology	Dec. 22-24, 2014	Bhubaneswar
44.	Shipra Kumari and Hari Om	A Remote Login Password Authentication Scheme Using Row Vector with Biometric	2 <sup>nd</sup> Int. Conf. on Information Systems Design and Intelligent Applications	Jan. 8-9, 2015.	Kalyani
45.	Abhimanyu Kumar and Sachin Tripathi	A Pairing Free Certificate less Group Key Agreement Protocol with Constant Round	2nd International Conference on Advanced Computing, Networking and Informatics (ICACNI-2014)	24-26 June, 2014	Kolkata
46.	Tapas Kumar Mishra and Sachin Tripathi	Fair and Reliable Transmission Control Protocol for Adhoc Networks”	4th International Conference on Advances in Computing and Communications (ICACC-2014)	27-29 August	Kochi
47.	Ajay Kumar Yadav , Sachin Tripathi	Load Balancing Multicast Routing Protocol for Mobile Ad-Hoc Network	3rd International Conference on Computer Communication Control and Information Technology(C3IT 2015)	7-8 February 2015	Adisaptagram, Hooghly
48.	Santosh Kumar Das and Sachin Tripathi	Design of Fuzzy based Intelligent Energy Efficient Routing	3rd International Conference on Computer	7-8 February 2015	Adisaptagram, Hooghly

		Protocol for WANET	Communication Control and Information Technology(C3IT 2015)		y
49.	Santosh Kumar Das and Sachin Tripathi	Intelligent energy competency multipath routing in WANET	Second International Conference on Information Systems Design and Intelligent Applications	8-9 January, 2015	University of Kalyani
50.	Priyanka Jaiswal, Abhimanyu Kumar and Sachin Tripathi	Design of Queue Based Group Key Agreement Protocol using Elliptic Curve Cryptography	Second International Conference on Information Systems Design and Intelligent Applications	8-9 January, 2015	University of Kalyani
51.	Santosh Kumar Das and Sachin Tripathi	Fuzzy Based Energy Efficient Multicast Routing for Ad-hoc Network	3rd International Conference on Computer Communication Control and Information Technology(C3IT 2015),	7-8 February 2015	Adisaptagram, Hooghly
52.	Priyanka Jaiswal, Abhimanyu Kumar and Sachin Tripathi	Design of Secure Group Key Agreement Protocol using Elliptic Curve Cryptography	2014 International Conference on High Performance Computing and Applications	22-24 December, 2014	Bhubaneswar
53.	Tapas Kumar Mishra and Sachin Tripathi	Integrated FRTCP: Fair and Reliable Transmission Control Protocol for Ad Hoc Networks	Fifth International Conference on Communication Systems and Network Technologies	4-6 April 2015	Gwalior
54.	Ramesh, D., Gupta, H., Singh, K., & Kumar, C.	Hash Based Incremental Optimistic Concurrency Control Algorithm in Distributed Databases	Third International Symposium on Intelligent Informatics (ISI'14)	24-27 September, 2014	Galgoti as College of Engineering & Technology, Greater Noida, India

55.	Kshiramani Naik, Shiv Prasad and Arup Kumar Pal	A Steganography Scheme using SVD Compressed Cover Image	5 <sup>th</sup> International Conference on Computational Vision & Robotics (ICCV – 2014), Computational Vision and Robotics Advances in Intelligent Systems and Computing	2015	Bhubaneswar
56.	Naushad Varish and Arup Kumar Pal	Content Based Image Retrieval using Statistical Features of Color Histogram	3rd International Conference on Signal Processing, Communications and Networking	2015	MIT Campus, Anna University, Chennai

### 3.8.6 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

Short term course on Digital Image Processing & its Applications.	26-30 Dec 2014
Short term course on Digital Image Processing & its Applications.	23-27 March 2015

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

Prof. P. K. Jana	Indo-German Intl. Workshop on Algorithms	9 March, 2015	ISI, Kolkata
Prof. P. K. Jana	International Conference EDCAV-15	29-30 January, 2015	NIT, Meghalaya, Shillong
Dr. Chiranjeev Kumar	2014 2nd International Conference International Conference on Systems and Informatics (ICSAI-2014) held at during	15-17 Nov, 2014	Wistaria Hotel, Shanghai, China
Dr. Haider Banka	Sensors Systems: Development, Prototyping & Commercialization (SS-DPC 2015), Industry-Sensor Hub Meet	9-10, January 2015	Kolkata

Mr. A.C.S.Rao	Intl workshop on SOFT COMPUTING AND APPLICATIONS	25-27 March, 2015	SAU, New Delhi
Shweta R. Malwe	International Conference on Advances in Computing, Communications and Informatics (ICACCI), 2014	24-27 Sept. 2014	New Delhi
Shweta R. Malwe	Tech Talk on “Big Data, Cloud Computing&Hadoop Map-reduce	21 March 2015	ISM Dhanbad
Tanusree Kaibartta	Emerging and Post CMOS Technologies	16-18 June, 2014	Kolkata

### 3.8.8 VISITS OF FACULTY MEMBERS ABROAD

Dr. Chiranjeev Kumar, Associate Professor of CSE Dept visited Shanghai, China during 15-17 Nov, 2014 to attend 2<sup>nd</sup> International Conference International Conference on Systems and Informatics (ICSAI-2014).

### 3.8.9 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/PURPOSE)

Prof. Mourad Elloumi, University of Tunis & The Director of the National High Engineering School of Tunis (ENSIT)	Visiting Professor for a Month (16 Dec 2014 to 15 Jan 2015) under MOU with University of Tunis & The Director of the National High Engineering School of Tunis (ENSIT)
Mr. Ravi Srinivasan, Pro-Vice-Chancellor (Internationalization and Communications), Botho University, Botswana	Visited for signing MOU for International Collaboration

### 3.8.10 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Mr. Kushal K. Banerjee, TCS Kolkata Delivered a Lecture on “Recent Trends in Information Technology”.	28 Aug 2014
Dr. Maheshkumar H. Kolekar, IIT Patna Delivered two Lecture on (i) Medical Image Processing and (ii) Content Based Image Retrieval during Short term course on Digital Image Processing & its Applications.	29-30 Dec 2014
Prof. Mourad Elloumi, University of Tunisia Delivered a Lecture on Bioinformatics during Short term course on Digital Image Processing & its Applications.	30 Dec 2014
Prof. Mourad Elloumi	13 Jan 2015

Delivered a Guest Lecture on Bi-clustering of Microarray Data.	
Prof. Rajib Bandyopadhyay, Jadavpur University Delivered a Lecture on “An Insight into Electronic Nose & Electronic Tongue”.	11 March 2015
Dr. Rajeev Gupta, IBM New Delhi Delivered a Lecture on “Big Data, Cloud Computing & Hadoop Map Reduce”.	21 March 2015
Dr. S. K. Singh, IIT (BHU) Varanasi Delivered a Lecture on “Biometric based Applications”.	26 March 2015
Dr. Satish Chand, NSIT New Delhi Delivered two Lectures on (i) Some Aspects of Image Processing, and (ii) JPEG Standards.	26-27 March 2015

### 3.8.11 MISCELLANEOUS :

1. Prof. P. K. Jana delivered an invited lecture on “Modeling of Some Biological Problems and Their Solutions in Parallel Processing Platform” at Burdwan University (13<sup>th</sup> September, 2014), “Efficient Clustering and Routing Algorithms for Wireless Sensor Networks: PSO Based Approach” at Burdwan University (12<sup>th</sup> December, 2014), on “Some Energy Efficient Schemes for Wireless Sensor Networks” at International Conference INDIA 2014, University of Kalyani, West Bengal (9<sup>th</sup> January 2015).
2. Prof. P. K. Jana chaired a special session on wireless sensor networks at International Conference INDIA 2014, University of Kalyani, West Bengal, 8-9 January, 2015.
3. Dr. Chiranjeev Kumar acted as a Program Committee Member of 5<sup>th</sup> Annual International Conference on Software Engineering & Applications (SEA-2014)”, held at Singapore during 22-23 September 2014.
4. Dr. Hari Om acted as an Advisory Board Member for 'World Research Journal of Computation Theory' journal.
5. Dr. Hari Om acted as an Editorial board Member for the following journals: Universal Journal of Communications and Network, Journal of Image Processing & Pattern Recognition Progress, International Journal of Engineering and Applied Sciences (EAAS), International Journal of Scientific Knowledge (IJSK), International Journal of Computer Networking, Wireless and Mobile Communications (IJCNWMC), International Journal of Computer Science and Engineering (IJCSE), Journal of Computer Science and Engineering (JCSE)



### 3.9 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.

#### 3.9.1 FIELD VISITS / EXCURSIONS / TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of students	Place of Visit	Period of visit
Industrial Visit	B.Tech	Chittaranjan Locomotive Works	11-12 Sept 2014

#### 3.9.2 INTRODUCTION OF NEW COURSES AND PROGRAMMES

In 2014-15 academic year, the Department has started a new M. Tech course in Power Electronics and Electrical Drives. The major courses of Power Electronics and Electrical Drives cover mainly the different aspects of Power Electronics like different Power Converters, Inverters their modulation and control aspects.

#### 3.9.3 BRIEF LIST OF ON-GOING R & D PROJECTS

Project Title	Sponso ring agency	coordinat ors	Project value	Date of commen cement	findings
[1]	[2]	[3]	[4]	[5]	[6]
Development of A Load-Frequency Control System With A PID Controller Designed Through A Frequency-Domain Matching Method	UGC	Prof. S. Pan	Rs. 9,33,000	01-04-2013	Design and Simulation study shows favourably comparable performance with existing methods.
Development of hybrid off-grid power supply system for remote areas	UGC, New-Delhi	Dr. Nitai Pal	Rs. 7,16,000/-	01/04/2013	Procurement process is going on till date. Moreover, study work is also running simultaneously.

Simulation and Real-time Implementation of Smart Grid	UGC	Dr. V. Mukherjee	5.55 Lakhs	01.04.2013	--
---	-----	------------------	------------	------------	----

### 3.9.4 RESEARCH PUBLICATIONS

#### 3.9.4.1 Book Chapter

Kalyan Chatterjee, Ravi Shankar, & T.K. Chatterjee , “ Load Frequency Control Considering Very Short-term Load Prediction and Economic Load Dispatch Using Neural Network and Its Application” Chapter 7 of the Book Entitled “Systems Thinking Approach for Social Problems Lecture Notes in Electrical Engineering Volume 327, 2015, pp 75-89 ” published by Springer.

#### 3.9.4.2 Papers published in International Journals

Sl. No	Author(s)	Year	Title	Journal	Vol. No	Page no.
1.	R. P. Singh, V. Mukherjee, and S. P. Ghoshal	2014	The opposition-based harmony search algorithm	J. Inst. Eng. India, Ser. B	94(4)	2014
2.	Abhik Banerjee, V. Mukherjee, and S.P. Ghoshal	2014	Intelligent fuzzy-based reactive power compensation of an isolated hybrid power system	Int. J. Elect. Power and Energy Syst.	57	164-177
3.	P. Upadhyay, R. Kar, D. Mandal, S.P. Ghoshal, and V. Mukherjee	2014	A novel design method for optimal IIR system identification using opposition based harmony search algorithm	Journal of the Franklin Institute	351(5)	2454-2488
4.	Abhik Banerjee, V. Mukherjee, and S.P. Ghoshal	2014.	Intelligent controller for load-tracking performance of an autonomous power system	Ain Shams Eng. J.	5(4)	1167-1176
5.	R. P. Singh, V. Mukherjee, and S. P. Ghoshal	2015.	Particle swarm optimization with an aging leader and challengers algorithm for optimal power flow problem with FACTS devices	Int. J. Elect. Power and Energy Syst.	64	1185-1196
6.	Bindeshwar Singh, V. Mukherjee, and P. Tiwari	2015	A survey on impact assessment of DG and FACTS controllers in	Renew. Sustain. Energy	42	846-882

			power systems	Rev.		
7.	Tarkeshwar, and V. Mukherjee	2015	A novel quasi-oppositional harmony search algorithm and fuzzy logic controller for frequency stabilization of an isolated hybrid power system	Int. J. Elect. Power and Energy Syst.	66	247-261
8.	Pradip Kumar Sadhu, Palash Pal, Nitai Pal and Sourish Sanyal	2015	Selection of Power Semiconductor Switches in M.H.B.R.I. Fitted Induction Heater for Less Harmonic Injection in Power Line	International Journal of Power Electronics and Drive System	6 (1)	121-128
9.	Soumya Das, Pradip Kumar Sadhu, Nitai Pal, Gourav Majumdar and Saswata Mukherjee	2015	Solar Photovoltaic Powered Sailing Boat Using Buck Converter	International Journal of Power Electronics and Drive System	6(1)	129-136
10.	Suprava Chakraborty, Pradip Kumar Sadhu, Nitai Pal	2014	HVDC Application for Different Solar PV Technology Combinations in India	TELKOMNIKA Indonesian Journal of Electrical Engineering	12(12)	8008-8014.
11.	Suprava Chakraborty, Pradip Kumar Sadhu, Nitai Pal	2014	New Location Selection Criteria for Solar PV Power Plant	International Journal of Renewable Energy Research	4 (4)	1020-1030
12.	Soumya Das, Pradip Kumar Sadhu, Suprava Chakraborty, Nitai Pal and Gourav Majumdar	2014	New Generation Solar PV Powered Sailing Boat Using Boost Chopper	TELKOMNIKA Indonesian Journal of Electrical Engineering	12(12)	8077-8084

				ng		
13.	Soumya Das, Pradip Kumar Sadhu, Nitai Pal and Suprotim Mukherjee	2014	Single Axis Automatic Solar Tracking System using Microcontroller	TELKOM NIKA Indonesian Journal of Electrical Engineering	12(12)	8028-8032
14.	Suprava Chakraborty, Pradip Kumar Sadhu, Nitai Pal	2014	A New Approach towards Ideal Location Selection for PV Power Plant in India	TELKOM NIKA Indonesian Journal of Electrical Engineering	12(11)	7681-7689
15.	Debabrata Roy, Pradip Kumar Sadhu, Nitai Pal	2014	Hysteresis Current Control with Input Filter Design for High Frequency Series Resonant Full Bridge Inverter	TELKOM NIKA Indonesian Journal of Electrical Engineering	12(11)	7650-7658
16.	Pradip Kumar Sadhu, Debabrata Roy, Nitai Pal, Sourish Sanyal	2014	Design and Analysis of EMI and RFI Suppressor for High Frequency Full Bridge Resonant Inverter Fitted Induction Heater	International Journal of Mechatronics, Electrical and Computer Technology	4(12)	1328-1352
17.	Pradip Kumar Sadhu, Debabrata Roy, Nitai Pal and Sourish Sanyal	2014	Selection of Appropriate Semiconductor Switches for Induction Heated Pipe-Line using High Frequency Full Bridge Inverter	International Journal of Power Electronics and Drive System	5 (1)	112–118
18.	S. Vamsi Krishna, Dr. Nitai Pal and Prof. Pradip Kumar Sadhu	2014	Post Disaster Illumination for Underground Mines	TELKOM NIKA Indonesian Journal	12 (4)	701-708

				of Electrical Engineeri ng		
19.	B.Bhattacharyya, Vikash Kumar Gupta, Sanjay Kumar	2014	UPFC with series and Shunt FACTS controllers for the Economic operation of a Power System	Ain Shams Engineeri ng Journal	5 (3)	789- 801
20.	B. Bhattacharyya, Vikash Kumar Gupta	2014	Fuzzy based Evolutionary Algorithm for Reactive Power Optimization with FACTS Devices	Electrical Power and Energy Systems	61	39-47
21.	B. Bhattacharyya, Vikash Kumar Gupta	2014	Fuzzy-GA approach for the Optimal Placement of FACTS Devices in a Power System	Electric Power Compone nts & System	42 (8)	779- 787
22.	P. K. Nayak, A. K. Pradhan and P. Bajpai	2015	Secured zone 3 protection during stressed condition	IEEE Transactio n on Power Delivery	30 (1)	89-96
23.	P. K. Nayak, A. K. Pradhan and P. Bajpai	2014	Wide-area measurement-based backup protection for power network with series compensation	IEEE Transactio n on Power Delivery	29 (4)	1970- 1977
24.	A. Baral S. Chakravorti	2014	Condition Assessment of Cellulosic Part in Power Transformer Insulation using Transfer Function Zero of Modified Debye Model	IEEE Transactio ns on Dielectrics and Electrical Insulation	21 (5)	2028- 2036
25.	Kalyan Chatterjee Ravi Shankar, & Amit Kumar	2014	Fuzzy Logic Based Controller for a Grid- Connected Solid Oxide Fuel Cell Power Plant	Transactio ns of the ASME, Journal of Fuel cell science and Technolog y	11 (5)	051005 -1-9
26.	Ravi Shankar, Kalyan Chatterjee & T.K. Chatterjee	2014	Coordination of Economic Load Dispatch and Load	J. Inst. Eng. India Ser. B	96 (1)	47-54

			Frequency Control for Interconnected Power System			
27.	Jay Singh, Kalyan Chatterjee, C. B. Vishwakarma	2014	System Reduction by Eigen Permutation Algorithm and Improved Pade Approximations	International Journal of Mathematical, Computational Science and Engineering	8 (1)	117-121
28.	Jay Singh, Kalyan Chatterjee, C. B. Vishwakarma	2014	System Reduction Using Modified Pole Clustering and Modified Cauer Continued Fraction	International Journal of Electrical, Computer, Electronics and Communication Engineering	8 (9)	1436-1440

### 3.9.4.3 Papers presented in International Seminars / Conferences

Sl. No	Author(s)	Title	Seminar/ Conference	Date	Place
1.	Rajib Kar, Bishnu Prasad De, Durbadal Mandal, Saktiprasad Ghoshal and V. Mukherjee	Design of symmetric switching CMOS inverter using PSOCFIWA	Proc. Int. Conf. Communication and Signal Processing (ICCSP 2014)	3-5 Apr. 2014	Chennai, India
2.	Kumar, R., and Das, S.	A Modified Approach to Both Conventional and ANN Based SVPWM Controllers for Voltage Fed Inverter in Sensorless Vector Control IM Drive	IEEE Int. Conf. Power Electronics, Drives and Energy Systems (PEDES 2014)	16-19 Dec., 2014	IIT Bombay, Mumbai, India

3.	Kumar, R., and Das, S.	A comparative performance assessment of conventional and ANN based SVPWM controller for VFI induction motor drive	IEEE International Conference on Signal Processing and Communication Engineering Systems (SPACES)	2-3 January, 2015	Vaddeswaram, AP, India
4.	Vidyut Mahato, K. C. Jana, P. R. Thakura	Hardware Design and Implementation of Unity Power Factor Rectifiers using Microcontrollers	Conference	8-10 Dec., 2014	NIT Kurushetra
5.	G. Shankar, N Nagarjuna	Load frequency control of two area interconnected hydrothermal power plant using classical controller and particle swarm optimization technique	International conference on Environment and Energy (ICEE 2014)	15-17 Dec., 2014	JNTU, Hyderabad
6.	G. Shankar, Shubh Lakshmi	Performance of a hybrid renewable energy system under isolated mode of operation	International conference on Environment and Energy (ICEE 2014)	15-17 Dec., 2014	JNTU, Hyderabad
7.	Deepak Kumar	Modeling, simulation and performance analysis of a standalone voltage source inverter based photovoltaic system under balanced and non-linear load conditions	International conference on Environment and Energy (ICEE 2014)	15-17 Dec., 2014	JNTU, Hyderabad
8.	Ashsih Kumar, G. Shankar	Priority based optimization of PID controller for automatic voltage regulator system using gravitational search algorithm	IEEE international conference on recent developments in control, automation and power engineering (RDCAPE 2015)	12-13 March, 2015	AMITY University, Uttar Pradesh
9.	G. Shankar, Shubh Lakshmi	Frequency control of hybrid renewable energy system with pso optimized controller	IEEE international conference on recent developments in control, automation and power engineering (RDCAPE 2015)	12-13 March, 2015	AMITY University, Uttar Pradesh

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

Sl. No.	Title of Course	Duration
1.	Professional Skill Development Program on “MATLAB BASED SOFT COMPUTING TECHNIQUES”	27 <sup>th</sup> June. -2 <sup>nd</sup> July.,2014
2.	Certificate Course on, “MATLAB & Simulink for Engineering Application”	5 <sup>th</sup> to 10 <sup>th</sup> Dec.,2014
3.	Certificate Course on, “Application of Power Electronics in Renewable Energy”	30 <sup>th</sup> June to 04 <sup>th</sup> July, 2014
4.	Certificate Course on, “Application of Power Electronics in Renewable Energy	07 <sup>th</sup> to 11 <sup>th</sup> July, 2014
5.	Refresher course, “Advanced Power Electronics”	29 <sup>th</sup> Dec 2014 to 03 <sup>rd</sup> January, 2015

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

Name	Seminars / Conferences etc.	Date	Place
B Krishna Naick	Short term course on “Application of power electronics to renewable energy systems and micro grids”	8 <sup>th</sup> to 10 <sup>th</sup> February 2015	NIT, Tiruchirappalli

### 3.9.7 MISCELLANEOUS

Dr. Arijit Baral and Dr. P. K. Nayak Assistant Professor of the Department have received POSOCO Power system Award (PPSA)-2015, organized by Power System Operation and Control Ltd. in association with Foundation for Innovation and Technology Transfer (FITT), IIT Delhi for research carried out at Doctoral Level.

#### Patent Applied

1. Applied patent (Application No : 25/KOL/2015, dated 07 / 01 / 2015) for “A High Frequency Hybrid Resonant Inverter With AC Input Source” in the name of inventors Prof. (Dr.) Pradip Kumar Sadhu, Ananya Bhattacharya , Dr. Vivekananda Mukherjee and Dr. Nitai Pal, at Patent Office, Kolkata, Government of India.
2. Applied patent (Application No : 1321/KOL/2014, dated 17 / 12 / 2014) for “A High Frequency Modified Half Bridge Resonant Inverter With AC Input Source” in the name of inventors Prof. (Dr.) Pradip Kumar Sadhu, Palash Pal, Dr. Nitai Pal and Arijit Baral, at Patent Office, Kolkata, Government of India.
3. Applied patent (Application No : 1081/KOL/2014, dated 24 / 10 / 2014) for “A High Frequency Full Bridge Series Resonant Inverter with AC Input Source” in the name of inventors Prof. (Dr.) Pradip Kumar Sadhu, Debabrata Roy, Dr. Nitai Pal and Arijit Baral, at Patent Office, Kolkata, Government of India.



4. Applied patent (Application No : 1052/KOL/2014, dated 16 / 10 / 2014) for “A System for Induction Heated Sterilization of Surgical Instruments and A Method for the Same” in the name of inventors Prof. (Dr.) Pradip Kumar Sadhu, Agamani Chakraborty, Atanu Bandyopadhyay and Dr. Nitai Pal, at Patent Office, Kolkata, Government of India.

### 3.10 ELECTRONICS ENGINEERING

The Department has been running B.Tech. programmes in Electronics Engineering (currently renamed as Electronics & Communication Engineering) since 1998 and in Electronics & Instrumentation Engineering from 2013. 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.

#### 3.10.1 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	Findings
Real-time Implementation of Speech Coders	UGC	Prof. Subrata Bhattacharya	7.588	01.04.2013	Selection of a set of speech coders for comparison of real-time performance Development of a new pitch detection technique. Development of a SIMULINK model to implement the Adaptive Multi Rate (AMR) coder.
Implementation of Spectrum Sensing for Cognitive Radio	UGC	Prof. Debjani Mitra	12.938	01.04.2013	From USRP acquired data, sensing algorithms have been developed which are robust to noise uncertainty,
Modeling of Semiconductor Nanostructured Devices	UGC (SAP)	Dr. Mukul K Das (PI) Dr. J. Kumar (Co-PI)	28.5	1.4.2011	Obtained maximum efficiency of SiGe/Si heterojunction solar cell is ~17% and SiGe/Si/SiGe triple junction solar cell is 24%. Efficiency of Nanorod array solar cell is 7-8%
Accurate analysis of passive waveguide structures under pulse /	DST	Dr. Sushrut Das	14.4	28.02.2009	Different waveguide based circuits have been analyzed under periodic non – sinusoidal excitation to find the aperture

FM excitation					field distribution.
Fund for Improvement of S&T Infrastructure in Higher Educational Institutions (FIST)	DST	Dr. Sushrut Das	120	01.04.2013	CST microwave Studio, LCR meter have been purchased ,
Design and Characterization of Compact, High Performance Patch antennas Loaded with Metamaterials	UGC	Dr. Santanu Dwari	8.555	01.04.2013	Simulation part is completed.
Photonic Microwave Arbitrary Waveform Generation with Adjustable Chirp Parameter based on Remote Sensing Applications	ISRO	Dr. S K Raghuwanshi (PI) Dr. Raghvendra Kumar Chaudhary (Co-PI)	14.662	Sept 2014	Microwave generation through photonics components
Studies on Multi-element Multi-segment Dielectric Resonator Antenna for Wireless Application	DRDO	Dr. Ravi Kumar Gangwar	17.0	29.10.2014	Literature survey has been done and single element CDRA has been designed, simulated.

**3.10.2 IMPORTANT NEW EQUIPMENT ACQUIRED (ABOVE RS.5,00,000/-)**

Name of Equipment/Software	Purpose	Date of Purchase	Value (Rs.)
Network Analyzer	For Microwave Measurement	21.04.2014	USD 8211.00
Apsys Physical Modelling of Semiconductor Devices Adv. Optics module (Additional Module with existing License) – 1 No.	For simulation purpose	20.05.2015	Rs. 5,24,145.00
ST series of optical table	For optical fibre measurement	15.07.2014	USD 13,572.02
Agilent make E4982A LCR meter	For measurement of L, C, R of a component	31.07.2014	Rs. 28,00,000.00
External cavity tunable laser source with controller – 1 set	Would be used in optical communication related experiments as optical source	17.12.2014	Rs. 11,07,750.00
i) Level control trainer -1 ii) Temp. control trainer -1 iii) PC based flow control trainer -1 iv)PC based pressure control trainer -1	Would be used in instrumentation related experiments	15.01. 2015	Rs. 13,76,674.00
Handheld Vector Network Analyzer	For Microwave Measurement	04.02.2015	Rs. 5,85,000.00

**3.10.3 RESEARCH PUBLICATIONS****3.10.3.1 Books published**

1. Microwave Engineering by Dr. Sushrut Das, Oxford University Press.
2. Fundamental of Electromagnetics Field Theory by Dr. Sanjeev Kumar Raghuwanshi, and Santosh Kumar, "AXIOE" Books, India (A division of Agarwal publication).

**3.10.3.2 Papers published in International Journals**

Sl. No.	Author(s)	Year	Title	Journal	Vol. No.	Page No.
1.	Ashish Ranjan, Mourina Ghosh and Sajal K. Paul	2015	Third order Voltage Mode Active-C Band Pass Filter	International Journal of Electronics	102	781-791
2.	Mourina Ghosh	2014	Design of	Rev. Roum. Sci.	59	381-390

	and Sajal K Paul		Lossless Grounded Negative Inductance Simulator Using Single Operational Transresistance Amplifier	Techn.- Electrotechn. et Energ		
3.	Rajeshwari Pandey, Neeta Pandey, Sajal K Paul, Ajay Singh, B.Sriram and K. Trivedi	2014	Novel Grounded inductance Simulator Using Single OTRA	International Journal of Circuit Theory and Applications	42	1069-1079
4.	Ashish Ranjan and Sajal K. Paul	2014	0.35 $\mu$ m CMOS Technology Based Active-C Voltage Mode Third Order Band Pass Filter	Journal of Active and Passive Electronic Devices	9	199-205
5.	V. Kumar, Anita Sinha and U. Farooque	2015	Concentration and temperature dependence of the energy gap in some binary and alloy semiconductors.	Infrared Phys. & Technol.	69	222–227
6.	V. Kumar, V Jha and A Sinha	2015	Linear properties of ternary chalcopyrite semiconductors	Ind. J. Physics	89	233–240
7.	Jitendra Kumar Mishra, Vishnu Priye	2014	Design of low crosstalk and bend insensitive optical interconnect using rectangular array multicore fiber	Optics Communications	331	272–277
8.	C.S. Mohanty, P. S. Khuntia and D. Mitra	2014	A modified bacterial foraging optimized PID controller for	International Journal Advanced Intelligence Paradigms	6(4)	255-271

			time delay systems			
9.	S.Koley, V. Mirza, S. Islam and D. Mitra	2014	Gradient based Real-Time Spectrum Sensing at low SNR	IEEE Communication Letters	19(3)	391-394
10.	R. Ranjan, and D. Mitra	2015	HMM modeling for OFDM–BER performance	Int J Electron Commun (AEÜ)	69	18-25
11.	S. Koley and D. Mitra	2015	A planar microstrip-fed tri-band filtering antenna for WLAN/WiMAX applications	Microwave Optical Technology Letters	57(1)	233-237
12.	Rajendra Kumar Vishwakarma, Vinayak Ranjan and Jitendra Kumar	2015	Dynamic response and effect of apertures on explosion parameters of flameproof apparatus	Journal of Loss Prevention in the Process Industries	33	245
13.	Dharmendra Kumar and Jitendra Kumar	2014	Effect of Size and Temperature on Optical Gain of Quantum Dots	Journal of Nanoelectronics and Optoelectronics	9	520
14.	Satish Kumar Singh and Jitendra Kumar	2014	Effect of geometry and composition on the intraband transitions of holes in quantum dots	Journal of Applied Physics	116	244303
15.	Chandra Mohan Singh Negi and Jitendra Kumar	2014	Analysis of electromagnetically induced transparency-based quantum dot infrared photodetectors	Journal of Optical Society of America B	31	2121
16.	R. K. Vishwakarma, V. Ranjan, and J.	2014	Comparison of explosion parameters for	Journal of Loss Prevention in the Process	31	82

	Kumar		Methane-Air mixture in different cylindrical flameproof enclosures	Industries		
17.	Raju Dutta, Shishir Gupta and Mukul K. Das	2014	Low-Energy Adaptive Unequal Clustering Protocol Using Fuzzy c-Means in Wireless Sensor Networks	Wireless Pers. Commun	79	1187-1209
18.	R. K. Gayen and S. Das	2014	Analysis of Broad-Wall Longitudinal Slot Arrays in Standard and Reduced Height Waveguides	Journal of Wireless Networking and Communications	4 (1)	18 – 25
19.	R. K. Yadav, S. Das and R. L. Yadava	2014	Analysis and modeling of a novel compact rectenna for indoor applications	IET Communications	8 (15)	2642-2651
20.	R. K. Gayen and S. Das	2015	Moment Method Analysis of Standard and Reduced Height Broad-Wall Longitudinal Slot Doublets in Rectangular Waveguides	International Journal of Electronics and Communication Technology	6 (1)	212 – 218
21.	Mukesh Kumar Khandelwal, Binod Kumar Kanaujia, Santanu Dwari, Sachin Kumar, and A. K. Gautam	2014	Bandwidth enhancement and cross-polarization suppression in ultrawideband microstrip antenna with defected	Microwave and Optical Technology Letters	5 (9)	2141-2146

			ground plane			
22.	Mukesh Kumar Khandelwal, Binod Kumar Kanaujia, Santanu Dwari, Sachin Kumar, and A. K. Gautam	2014	Analysis and design of wide band Microstrip-line-fed antenna with defected ground structure for Ku band applications	Elsevier Int. J. Elect. Comm. AEU	68 (10)	951-957
23.	Pritam S. Bakariya, Santanu Dwari, and Manas Sarkar	2015	Triple band notch UWB printed monopole antenna with enhanced bandwidth	Int. J. Elect. Comm. AEU	69 (1)	26-30
24.	Mukesh Kumar Khandelwal, Binod Kumar Kanaujia, Santanu Dwari, Sachin Kumar, and A. K. Gautam	2015	Analysis and design of dual band compact stacked Microstrip patch antenna with defected ground structure for WLAN/WiMax applications	Int. J. Elect. Comm. AEU	69 (1)	39-47
25.	Dinesh Kumar Singh, Binod Kumar Kanaujia, Santanu Dwari, Ganga Prasad Pandey, and Sandeep Kumar	2015	Complementary split ring resonator based compact wideband microstrip antenna with tunable bands	Wireless Personal Communication	80 (2)	635-645
26.	Dinesh K. Singh, Binod K. Kanaujia, Santanu Dwari, Ganga P. Pandey, and Sandeep Kumar	2015	Multiband Circularly Polarized Stacked Microstrip Antenna	Progress in Electromagnetics Research C	56	55-64
27.	Gunjan Srivastava, Santanu Dwari, and Binod Kumar	2015	A compact triple band notch circular ring antenna	Microwave and Optical Technology Letters	57 (3)	668-672



	Kanaujia		for UWB applications			
28.	Pritam Singh Bakariya, Santanu Dwari, Manas Sarkar, and Mrinal Kanti Mandal	2015	Proximity Coupled Multiband Microstrip Antenna for Wireless Applications	IEEE Antennas and Wireless Propagation Letters	14	646–649
29.	Pritam Singh Bakariya, Santanu Dwari, Manas Sarkar, and Mrinal Kanti Mandal	2015	Proximity Coupled Microstrip Antenna for Bluetooth, WiMAX and WLAN Applications	IEEE Antennas and Wireless Propagation Letters	14	755–758
30.	S. K. Raghuwanshi, and B. M. A. Rahman	2015	Analysis of Novel Chirped Types of Refractive Index Profile Metamaterial Planar Slab Optical Waveguide by Finite Element Method for Sensor Application	IEEE Sensor Journal	15 (7)	4141-4147
31.	Sanjeev Kumar Raghuwanshi, and B. M. Azizur Rahman	2015	Propagation and Characterization of Novel Graded and Linearly Chirped Type's of Refractive Index Profile Symmetric Planar Slab waveguide by Numerical Means	Progress in Electromagnetic Research-B	62	255-275
32.	Sumit Kumar Jindal and Sanjeev Kumar Raghuwanshi,	2015	A complete analytical model for circular	Microsystems Technology	21 (5)	1073-1079

			diaphragm pressure sensor with freely supported edge			
33.	Sanjeev Kumar Raghuwanshi and Vikram Palodiya	2015	Analytical Analysis of Leaky Modes in a Multilayer Planar Slab Waveguide for Sensor Applications	Sensor Letters	13	1-8
34.	Mandeep Singh and S. K. Raghuwanshi	2014	Impact of Higher Order Dispersion on Photonically Assisted Optical Millimeter-Wave Generated using Dual parallel Electro-optic Modulators	Current Applied Physics	14	1837-1844
35.	Sanjeev Kumar Raghuwanshi, Ajay Kumar	2014	A new semi – analytical method for the analysis of tapered optical waveguides	Optik	125 (24)	7515-7221
36.	Sanjeev Kumar Raghuwanshi, Ajay Kumar, Nan K Chen	2014	Implementation of Sequential logic circuits using the Mach-Zehnder inter based on Electro-optic effect	Optics Communications	333	193-208
37.	Ajay Kumar, Santosh Kumar *, S. K Raghuwanshi	2014	Implementation of XOR/XNOR and AND Logic Gates using Mach-Zehnder interferometers	Optik	125	5929-5935
38.	Sanjeev Kumar Raghuwanshi,	2014	Dispersion characteristics	Optik	125	5929-5935

	Santosh Kumar, Ajay Kumar		of complex refractive-index planar slab optical waveguide by using finiteelement method			
39.	S.K.Raghuwanshi, and Debi P. Panda	2014.	A complete analytical analysis and modelinf of few mode non-uniform fiber bragg grating assisted sensing waveguide devices	Progress in electromagnetic research M	36	23-37
40.	Devendra Chack, Nitesh KumarAgrawal, S. K. Raghuwanshi	2014	To analyse the performance of tapered and MMI assisted splitter on the basis of geographical parameters	Optik	125	2568-2571
41.	Ajay Kumar, Santosh Kumar, S. K Raghuwanshi	2014	Implementatio n of Full-adder and Full-subtractor based on Electro-optic Effect in Mach-Zehnder interferometer	Optics Communication	32 (4)	93-107
42.	Vikram Palodiya and S. K. Raghuwanshi	2015	Design and parametric study of depressed core optical fiber	In Procedia Computer Sciences	46	1385-1392
43.	B. Kumar, G. Rajita, N. Mandal	2014	A Review on Capacitive-Type Sensor for Measurement of Height of Liquid Level	Measurement and Control	47 (6)	219-224
44.	N. Mandal, B.	2014	Design of a	IEEE	63	3127-

	Kumar, R. Sarkar, and S C Bera		Flow Transmitter Using an Improved Inductance Bridge Network and Rotameter as Sensor	Transactions on Instrumentation and Measurement	(12)	3136
45.	S. Chakraborty, N. Mandal, and S. C. Bera	2014	Study of an IR Defusing Surface of a Float Used as Non-Contact Level Sensor	Sensors & Transducers Journal, International Frequency Sensor Association (IFSA)	183 (12)	53-59
46.	Kaushik Mazumdar, Saddam Hussain, Vishwanath Pratap Singh, Aniruddha Ghosal	2015	Tunneling effect in double barrier nitride (algan/gan) heterostructure s at very low temperature	Science International	27	1017- 1019
47.	Kaushik Mazumdar, Saddam Hussain, Jitendra Kumar, Aniruddha Ghosal	2014	Study of drain current for algan/gan superlattice mosfet considering various scattering in non- equilibrium state	Journal of Electron Devices	20	1777- 1785
48.	Raghvendra Kumar Chaudhary, K. V. Srivastava and A. Biswas	2014	A Broadband Dumbbell- Shaped Dielectric Resonator Antenna	Microwave and Optical Technology Letters	56	2944- 2947
49.	Sameer Kumar Sharma, and Raghvendra Kumar Chaudhary	2015	Dual-Band Metamaterial- inspired Antenna for Mobile Applications	Microwave and Optical Technology Letters	57	1444- 1447
50.	Raghvendra	2015	Variation of	International	25	321-329

	Kumar Chaudhary, K. V. Srivastava and A. Biswas		Permittivity in Radial Direction in Concentric Half-split Cylindrical Dielectric Resonator Antenna for Wideband Application	Journal of RF and Microwave Computer-Aided Engineering (RFMiCAE)		
51.	Prachi, Raghvendra Kumar Chaudhary, K. V. Srivastava	2015	Circularly Polarized Bowtie-shaped Dielectric Resonator Antenna Excited with Asymmetric Cross Slot	Microwave and Optical Technology Letters	57	1723-1727

### 3.10.3.3 Papers published in National Journals

Sl. No.	Author(s)	Year	Title	Journal	Vol. No.	Page No.
1.	Md. Hassan, and Sajal K. Paul	2014	A New Current Mode Quadrature Oscillator Using Current Differencing Transconductance Amplifier	Journal of VLSI Design Tools and Technology	4	39-42

### 3.10.3.4 Papers presented in International Seminars/Conferences

Sl. No.	Author(s)	Title	Seminar/ Conference	Date	Place
1.	Rupam Das and Sajal K. Paul	Differential Difference Current Conveyor (DDCC) Based Current Mode Integrator and Differentiator	Proceedings of International Conference on Industrial Engineering Science and Applications-2014(IESA-2014)	April 02-04 2014	National Institute of Technology , Durgapur, West Bengal, India
2.	B. P. Singh and V. Kumar	Optical and Phonon Properties of Zinc-Blende AlN from	4th Int. Conf. on Current Developments in	March 11-14, 2015	University of Delhi, India.

		First-principle Calculations	Atomic, Molecular, Optical & Nanophysics with Applications (CDAMOP-2015)		
3.	B. P. Singh, V. Kumar and S. K. Tripathy	First-principle calculations of optical and phonon properties of wurtzite gallium nitride	4 <sup>th</sup> Nat. Conf. on Advanced Materials & Radiation Phys. (AMRP-2015)	March 13-14, 2015	SLIET Longwal, India.
4.	Neeraj Kumar, Raubin Kumar and Subrata Bhattacharya	Testing Reliability of Mirtoolbox	2nd International Conference on Electronics and Communication System(ICECS-2015) sponsored by IEEE Madras section	February 26-27,2015	Karpagam college of Engg.,Coimbatore, India
5.	Sumit Saha and Jitendra Kumar	Effect of Temperature and Electric Field on Quantum Cascade Laser Transients	39th Conference of Optical Society of India, International Conference on Optics and Photonics	February 20-22, 2015	University of Calcutta, India
6	Dharmendra Kumar, C. M. S. Negi and Jitendra Kumar	Effect of Temperature on optical gain of CdSe/ZnSe quantum dots	International Conference on Opto-Electronics and Applied Optics	December 17-18, 2014	Institute of Engineering and Management, Kolkata, India
7.	C. M. S. Negi, Dharmendra Kumar, Jitendra Kumar	Characteristics of II-VI Quantum Dot Infrared Photo-detectors	International Conference on Opto-Electronics and Applied Optics	December 17-18, 2014	Institute of Engineering and Management, Kolkata, India
8.	Sneha Sharma and Jitendra Kumar	Highly Birefringent Fluoride Photonic Crystal Fiber with low confinement loss	International Conference on Opto-Electronics and Applied Optics	December 17-18, 2014	Institute of Engineering and Management, Kolkata, India
9.	Sneha Sharma and Jitendra Kumar	Numerical Analysis of Raman Soliton Generation in Photonic Crystal Fiber	12 <sup>th</sup> International Conference on Fiber Optics and Photonics	December 13 – 16, 2014	IIT Kharagpur, India
10.	Sumit Saha and	Analysis of Energy	International	March 2-	INST

	Jitendra Kumar	and Wavefunction in Quantum Cascade Structure using Finite Difference Method	Conference on Nanoscience and Technology	5, 2014	Mohali, India
11.	Prakash Pareek, Mukul K Das	A Review on Tin doped Group IV alloys and Theoretical Analysis of Direct Transition in Tin doped Strained Quantum Well for Photonic Applications	4th International Conference on Current Developments in Atomic, Molecular, Optical & Nano Physics with Applications (CDAOMP-2015)	March 11 -14, 2015	Delhi University, India
12.	Prakash Pareek, Mukul K Das	Theoretical Analysis of Direct Transition in SiGe/GeSn Strained Quantum Well Structure by Finite Difference Method	1 <sup>st</sup> International conference IEM OPTRONIX 2014	December 17 - 18, 2014	IEM, Kolkata, India
13.	L. Murmu and S. Das	A Simple Wideband Microstrip Bandstop Filter for WLAN and WiMAX Band Rejection Purpose	8th International Conference on Electrical and Computer Engineering	December 20 – 22, 2014	Dhaka, Bangladesh
14.	S. Kumar and S. Jha	Ellipticity Induced Variability in Gate-All-Around MOSFET- based Circuits	International Conference on Small Science (ICSS 2014)	December 8-11, 2014	Hong Kong
15.	Biswajit Pal, and Santanu Dwari	Three-order Microstrip Bandpass Filter with Two Transmission Zeros for WLAN/WiMAX Applications	8th International Conference on Electrical and Computer Engineering	December 20-22, 2014	Dhaka, Bangladesh
16.	Gunjan Srivastava, Santanu Dwari, B.K. Kanuijia	A Compact 4x4 Ultrawideband(UWB) Band Notched MIMO Antenna	IEEE MTT-S International Microwave and RF Conference 2014	December 15-17, 2014	Bangalore, India
17.	Mitul Handa,	Analysis of	2014 9th	December	Gwalior,

	Himanshu Bhasin, Santanu Dwari, Sandeep Kumar, Binod Kumar Kanaujia	Threshold Voltage Variation using Stacked-FET Power Amplifiers	International Conference on Industrial and Information Systems (ICIIS)	er 15-17, 2014	India
18.	Himanshu Bhasin, Sandeep Kumar, Santanu Dwari, Mitul Handa, Binod Kumar Kanaujia	Optimization of Noise Figure and Gain of a CMOS RF Low Noise Amplifier	2014 9th International Conference on Industrial and Information Systems (ICIIS)	December 15-17, 2014	Gwalior, India
19.	Pawan Kumar, and Santanu Dwari	Design of dual-frequency CPW-fed monopole antenna for wireless application	2015 Fifth International Conference on Advanced Computing & Communication Technologies (ACCT-2015)	February 21-22, 2015	Rothak, India
20.	Praveen Maurya, and Santanu Dwari	Metamaterial-based electrically small wide band L-shaped monopole antenna	2015 Fifth International Conference on Advanced Computing & Communication Technologies (ACCT-2015)	February 21-22, 2015	Rothak, India
21.	Santosh Kumar, Ajay Kumar and Sanjeev Kumar Raghuvanshi	Application of Photonic crystal Fiber Sagnac loop in DWDM as a Flat top Comb-Filter	Frontiers in Optics/Laser Science	October 19-23, 2014	Arizona, USA
22.	Santosh Kumar, Ajay Kumar and Sanjeev Kumar Raghuvanshi	Implementation of an optical AND gate using Mach-Zehnder interferometers	Optical Modelling and Design III, SPIE Photonics PP. 913120	May 1, 2014	Europe Brussels, Belgium
23.	Santosh Kumar, Ajay Kumar and Sanjeev Kumar Raghuvanshi	Analysis of effect of single and multiple micro-ring resonators as an optical filter using the Mason's gain formula	Micro-Optics 2014, SPIE Photonics	May 2, 2014	Europe Brussels, Belgium
24.	Vikram Palodiya	Comparative study	4 <sup>th</sup> International	March	New Delhi,



	and S. K. Raghuwanshi	of step index and trench assisted single mode optical fiber	conference on Current Developments in Atomic, Molecular, Optical and Nano Physics with Applications (CDAMOP 2015)	11-14, 2015	India
25.	Reena Sharma, S.K. Raghuwanshi	Analysis of cross phase modulation in EDFA based on the study of phase & frequency chirp	IEEE International Conference on confluence the Next Generation Information Technology Summit (Confluence)	September 25-26, 2014	Amity University Noida, India
26.	Anshul Gupta and Ravi Kumar Gangwar	Analysis of Triangular Shaped Dielectric Resonator Antenna Using FDTD Method	IEEE International Conference on Computational Electromagnetics (ICCEM) 2015	February 02-05, 2015	City University of Hong Kong, Hong Kong
27.	Ravi Kumar Gangwar, Anand Sharma, Ashana Tayal and D H B Roshan	Wideband Dual Segment Cylindrical Dielectric Resonator Antenna with Annular Shaped Feed	Antenna Testing and Measurement Society (ATMS-2015)	February 03-04, 2015	Bangalore, India
28.	Gourab Das, Ravi Kumar Gangwar	Two Element Cylindrical Dielectric Resonator Antenna Array With Annular Shaped Feed	Antenna Testing and Measurement Society (ATMS-2015)	February 03-04, 2015	Bangalore, India
29.	A.K. Singh, Ravi Kumar Gangwar and B.K. Kanaujia	Circular patch loaded Annular Ring Microstrip Antenna using L-Probe Feed	Antenna Testing and Measurement Society (ATMS-2015)	February 03-04, 2015	Bangalore, India
30.	Anshul Gupta and Ravi Kumar Gangwar	FDTD Analysis of Conformal Strip Excited Rectangular Dielectric Resonator Antenna Array	International Symposium on Antennas and Propagation (APSYM 2014)	December 17 – 19, 2014	Cochin University of Science & Technology, Kochi, India
31.	Gourab Das,	Two Element Ring	International	Decemb	Cochin

	Ravi Kumar Gangwar	Dielectric Resonator Antenna Array With Defected Ground Structure	Symposium on Antennas and Propagation (APSYM 2014)	er 17 – 19, 2014	University of Science & Technology , Kochi, India
32.	Vipul Ranjan Kahushik, Ravi Kumar Gangwar	Low Profile Four Element Conical Dielectric Resonator Antenna for Wideband Applications	International Symposium on Antennas and Propagation (APSYM 2014)	December 17 – 19, 2014	Cochin University of Science & Technology , Kochi, India
33.	Pinku Ranjan and R. K. Gangwar	Four element Quarter Split cylindrical dielectric resonator antenna for Wireless Application	International Conference on Antennas and Propagation and USNC-URSI Radio Science Meeting (IEEE APS/URSI-2014),	July 6-11, 2014	Memphis, TN, USA
34.	A.K. Singh, Ravi Kumar Gangwar and B.K. Kanaujia	Cavity Backed Annular Ring Microstrip Antenna Loaded with Concentric Circular Patch	The 8th European Conference on Antennas and Propagation (EuCAP-2014),	July 6-11, 2014	Hague, Netherlands
35.	Pinku Ranjan and R. K. Gangwar	Three element cylindrical sector dielectric resonator antenna for wide band Monopole like Radiation	The 8th European Conference on Antennas and Propagation (EuCAP-2014),	July 6-11, 2014	Hague, Netherlands
36.	Rajib Ratan Ghosh, Tanmoy Datta, Haraprasad Mondal, and Mrinal Sen	Efficient TE-pass polarizer based on Photonic Crystal Slot Waveguide	International Conference in Opto-Electronics and Photonics Materials (ICOPMA-2015)	February 27-28, 2015	SASTRA University, Thanjavur, Tamilnadu, India.
37.	Somenath Dutta, Tanmoy Datta, Mrinal Sen and Arpan Deyasi	Design of Efficient Photonic Coupler Structure for Lumped Raman Amplification in Silicon Waveguides	International Conference on Devices, Circuits and Communications (ICDCCOM-2014)	September 12-13, 2014	BIT Meshra, India,
38.	Amitesh Kumar, Ritu Raj Singh, Vishnu	Instantaneous Microwave Frequency	2014 9th International Conference on	December 15-17, 2014	Gwalior, India

	Priye	Measurement Using Dual Drive Mach-Zehnder Modulator	Industrial and Information Systems (ICIIS)		
39.	Amitesh Kumar, Vishnu Priye	Photonic Generation of Microwave Signal Using a Dual-Parallel Dual-Drive Mach-Zehnder Modulator	PHOTONICS-2014	December 15-17, 2014	IIT, Kharagpur, India
40.	Amitesh Kumar, Raj Chaitanya Vissampall, Vishnu Priye	Photonic Microwave Up-converter Based on Four-Wave Mixing in an SOA Using Single Laser Source	PHOTONICS-2014	December 15-17, 2014	IIT, Kharagpur, India
41.	Sameer Kumar Sharma and Raghvendra Kumar Chaudhary	Compact Novel Coaxial Fed Planar Metamaterial Antenna	8th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics–Metamaterials	August 25 -30, 2014.	Copenhagen, Denmark
42.	Sameer Kumar Sharma, Ashish Gupta and Raghvendra Kumar Chaudhary	Compact CPW-Fed CHSSR Antenna for WLAN	IEEE MTT International Microwave and RF Conference (IMaRC)	December 15 - 17, 2014.	Bangalore, India.
43.	Sameer Kumar Sharma, and Raghvendra Kumar Chaudhary	Compact Semi-Circular Metamaterial-Inspired Dual-Band Antenna	8th Annual International Conference of the Antenna Test & Measurement Society (ATMS)	February 03-04, 2015.	Bangalore, India.
44.	Rakesh Chowdhury, and Raghvendra Kumar Chaudhary	High Gain Aperture-Fed Truncated Cylindrical Dielectric Resonator Antenna for Wideband Applications	8th Annual International Conference of the Antenna Test & Measurement Society (ATMS)	February 03-04, 2015.	Bangalore, India.

### 3.10.3.5 Papers presented in National Seminars/Conferences

Sl. No.	Author(s)	Title	Seminar/Conference	Date	Place
1.	Ajay Kumar, S. K Raghuwanshi, Santosh Kumar	Photonic crystal Fiber Sagnac loop as a Flat top Comb-Filter	National Conference on Emerging Trends in Engineering and Science (ETES)	January 30-31, 2014	Asansol, India
2.	Vikram Palodiya, S. K. Raghuwanshi, Ajay Kumar, Santosh Kumar	Effect of various Parameters on $LiNbO_3$ Modulator using Sellmeier's Equation	National Conference on Emerging Trends in Engineering and Science (ETES) 2014,	January 30-31, 2014	Asansol, India
3.	S.K Jindal, S.K Raghuwanshi	Analytical Solutions for square shape pressure Microsensors.	IJRET	December 15, 2014	Cochin, India
4.	Vikram Palodiya and S. K. Raghuwanshi	Analysis of Special Properties Single Mode Optical Fiber for Fiber-To- The-Home Application	ICOP	2014	Kolkata, India
5.	Ashish Gupta, Sameer Kumar Sharma, and Raghvendra Kumar Chaudhary	A Compact CPW-fed Metamaterial Antenna for High Efficiency and Wideband Applications	National Conference on Communications (NCC)	February 27- March 01, 2015	IIT Bombay, India.

### 3.10.4 MAJOR ACADEMIC CONTRIBUTIONS

Dr. S. K. Raghuwanshi visited City University London as a Post doc fellow for period of 6 months (from Oct 2014 to April 2015) through Areas+ project of Erasmus mundus.

### 3.10.5 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

Workshop on “Cognitive Radio using USRP” in association with National Instruments, India	6 <sup>th</sup> to 10 <sup>th</sup> January, 2015
Short term course on “Microwave Instrumentation and Simulation Tools”	30 <sup>th</sup> June to 4 <sup>th</sup> July, 2014

### 3.10.6 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof. Debjani Mitra	Short-term course on “Convex Optimization for Wireless Communication”	15 <sup>th</sup> to 17 <sup>th</sup> September, 2014	IIT Kanpur
Dr. Mukul K. Das	INUP Workshop on Nanofabrication Technologies	January 28-30, 2015	IISc., Bangalore
Dr. S. K. Raghuwanshi	Delivered an “Invited talk” with Honorium of 3000 NTD (Tiwani Dollar) on “Optical switching devices” to “International Applied Photonics Conference 2014	June 22 <sup>th</sup> -24 <sup>th</sup> , 2014	National United University , Taiwan
Dr Ravi Kumar Gangwar	IEEE International Conference on Computational Electromagnetics (ICCEM)	02-05 Feb. 2015	City University of Hong Kong
Dr Ravi Kumar Gangwar	Advanced Antenna Technology (Indian Antenna Week 2014)”	26-30 May 2014	Chandigarh, India
Dr. Mrinal Sen	INUP Familiarization Workshop on “Nanofabrication Technologies”	28-30 January, 2015	IISC Bangalore

### 3.10.7 VISITS OF FACULTY MEMBERS ABROAD

1. Dr. Subindu Kumar visited Hong Kong to deliveran Invited Talk on “Ellipticity Induced Variability in Gate-All-Around MOSFET- based Circuits” at the International Conference on Small Science (ICSS 20014), held during 8 – 11 Dec, 2014.
2. Dr Ravi Kumar Gangwar, AP/ECE visited City University of Hong Kong, Hong Kong, for a period of one week from 1.2.2015 to 06.05.2015.

**3.10.8 SPECIAL LECTURES BY DISTINGUISHED GUESTS**

Mr. NirajRanjan Sharma, IP CoC Mining Segment Leader & IP CoE Leader, IBM India Pvt. Ltd delivered a Lecture on “Manufacturing Industry Trends & Smarter Manufacturing”	30 <sup>th</sup> August 2014
---	---------------------------------

**7.0 MISCELLANEOUS:**

Prof. V. Kumar was key note speaker at Nat. Conf . on Emerging Trends in Electronics & Computer Science (ETECS-2015) held at Shivaji Univ., Kolhapur during 13-14 Feb. 2015. He was also member of Advisory Committee for SAP Project, Shivaji Univ, Kolhapur as an UGC Nominee.

### 3.11 ENVIRONMENTAL SCIENCE AND ENGINEERING

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 (first of its kind offered by any national institute).

#### 3.10.2 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of Students	Place of Visit	Period of visit
M.Tech	II Sem	BCCL – Opencast & Tata Jamadoba	11-04-2014
M.Tech	II Sem	BCCL– Underground	16-10-2014
B Tech	VI Sem	Bokaro Steel Plant and Coke Oven Plant	23-03-2015
M.Tech	II Sem	BCCL – Opencast Mine, Muridih	17-03-2015
B Tech	V Sem	BCCL – Opencast Mine, Muridih	17-03-2015

#### 3.11.2 BEST PRACTICES OF THE DEPT

- (i) The Department has an Environmental Information System on Mining Environment (MINENVIS) with a distinctive web-site: [geocities.com/envis\\_ism](http://geocities.com/envis_ism) and maintains a database management system to cater the requirements of various users/ stakeholders of the mineral industry and regularly publishes Newsletters and Monographs.
- (ii) The Department has been Accredited by NABET, GOI.
- (iii) Emphasis on topics of current interest in the academic program and project based learning instead of the traditional subjects and examination centric pedagogy.
- (iv) Job function of faculty and staff has been redefined in terms of creative work rather than dissemination of existing knowledge.

#### 3.11.3 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	Findings
Regional Environmental Impact assessment Study of mining in Goa region	MOEF	PI: Prof Gurdeep Singh Co-PI: Prof A K Pal	2.02 crores	2011	Completed Final Report was submitted
ENVIS Centre on Environmental Problems of mining	MOEF	PI: Prof A K Pal Co-PI: Dr M K	Rs 12.46 lakhs	Ongoing	

Industry		Jain			
Disinfection By-products Formations and Their Management in Water Supplies in India	Ministry of Rural Development (GoI), New Delhi	Dr. S. K. Gupta	7.38	March, 2011	High concentration levels of THMs found in five water treatment plant
Estimation of aquifer potential in Jharia coal mining region with suitable techniques to improve the recharge	UGC	Dr. P.K.Singh	9.256 Lakhs	July 2012	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 region	MoWR	Dr. P.K.Singh	28.547 Lakhs	April 2012	Rainfall data and water level fluctuation data have been taken.
Influence of Chlorine Disinfectant and Natural Organic Matter Gradients on Disinfection By-Product Formation in Drinking Water of Some Indian Cities	SERB-DST	PI: Dr. B. K. Mishra Co-PI: Dr S K Gupta & Dr Alok Sinha	20.60 Lakh	2014	Monitoring of DBPs is going on
Phosphorus Fractionation in Surface Sediments: An Implication in Restoration and Conservation of Govind Balabah Pant Sagar, Singrauli, MP	MoES	Dr Anshumali	32.46	2014	Sampling and analysis is going on.

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

Name of Equipment	Purpose	Date of Purchase	Value (Rs.)
High Performance Liquid	Determination of Organic and	March 2015	28,00,000/-



Chromatograph (HPLC)	other compounds in micro level		
LCA Software	To study the environmental life cycle assessment of any substance present in environment.	August 2014	7,41,576/-
Arc GIS Software	To study the remote sense image	July 2014	9,98,094/-
TNTmips Software		July 2014	7,35,000/-
Micro analytical balance	To weight any element up to 0.000001 gm	May 2014	9,06,984/-
Microwave digestion system	For digestion of liquid and solid samples for heavy metal analysis	2014	20,00,000/-

### 3.11.5 RESEARCH PUBLICATIONS

#### 3.11.5.1 Books published

M K Jain & Arpita Das, Fly Ash Status and Utilization in India”, 2014, ENVIS Monograph No, 16, Published by MoEF &CC.

#### 3.11.5.2 Book reviews / contribution of chapters in a book

Dr. Alok Sinha reviewed two chapters in the book Groundwater Hydrology (English) 1st Edition published by TATA McGraw Hill (TMH) authored by H. Bouwer.

Dr. Anshumali, Fluoride in Groundwater and its Health Hazards: A Review in Indian Scenario, 2014. Excellent Publishing House, New Delhi.

Dr. Anshumali, Fluoride in Agricultural soil: A Review on its sources and toxicity to plants, 2014, Excellent Publishing House, New Delhi.

#### 3.11.5.3 Papers published in International Journals

Sl No	Authors	year	Title	Journal	Vol. No.	Page No.
1.	Bhawna Dubey, Asim Kumar pal and Gurdeep Singh.	2014	Air Quality Index of an industrial district of Jharkhand, India.	International Journal of Engineering Sciences & Research Technology	3(5)	52-55
2.	Banerjee S, Subodh K Maiti, Adarsh Kumar	2015	Metal contamination in water and bioaccumulation of metals in the planktons, molluscs and fishes in Jamshedpur	Water and Environment Journal	29 (2)	207-213

			stretch of Subarnarekha River of Chotanagpur plateau, India.			
3.	Maiti, Subodh Kumar and Deblina Maiti	2015.	Ecological restoration of waste dumps by topsoil blanketing, coir-matting and seeding with grass-legume mixture.	Ecological Engineering	77	74-84
4.	Adarsh Kumar, Subodh Kumar Maiti	2015	Effect of organic manures on the growth of Cymbopogon citratus and Chrysopogon zizanioides for the phytoremediation of Chromite-Asbestos mine waste: A pot scale experiment.	International Journal of Phytoremediation	17 (5)	437-447
5.	China S.P, Manab Das, S.K. Maiti	2014	Phytostabilisation of Mosaboni Copper Mine Tailings: A Green Step Towards Waste Management.	Applied Ecology and Environmental Research	12 (1)	25-32
6.	Adarsh Kumar, Subodh Kumar Maiti	2014	Translocation and Bioaccumulation of Metals in Oryza sativa and Zea mays Growing in Chromite-Asbestos Contaminated Agricultural Fields, Jharkhand, India.	Bulletin of environmental contamination and toxicology	93 (4)	434-441
7.	Anuradha, Biswajit Paul, Jagdish	2014	Microbial D egradation of Expired Slurry Explosives in Mines: A Review	International journal of environmental studies	72 (1)	117-131
8.	Anuradha, Biswajit Paul, Jagdish	2014	Microbial Degradation of Nitrate Salts Utilized as	International Journal of Engineering Research and	9 (9)	18-23

			Oxidizing Agent in Slurry Explosives	Development		
9.	Anuradha, Biswajit Paul, Jagdish	2014	Biodegradation of Carbon Containing Gumming Material Utilized as Salt Binders and Fuels in the Mining Explosives	Journal of Basic and Applied Engineering Research	1(9)	17-21
10.	Shreya, N., Paul, B., Valentine, B., Ribeiro, J., Flores, D.	2014	Fly ash Characterization of Jharkhand (India) by Laser granulometry and SEM-EDS	Comunicações Geológicas	101(2)	851-854
11.	Shreya, N., Paul, B.	2015	Effective utilization and environmental management of fly ash as a geoliner constituent material	J. Bio. & Env. Sci.	6(1)	511-519
12.	Kumari, Minashree, Gupta, S.K., & Mishra, B.K	2015	Multi-exposure cancer and non-cancer risk assessment of trihalomethanes in drinking water supplies – A case study of Eastern region of India.	Ecotoxicology and Environmental Safety	113	433–438
13.	Kumari, Minashree, Gupta, S.K.	2015	Modelling of trihalomethanes in drinking water supplies – A case study of Eastern region of India.	Environmental Science and Pollution Research	DOI 10.1007/s11356-015-4553-0	
14.	Subhash Chandra, Prasoon Kumar Singh, Ashwani Kumar Tiwari, Binay Prakash Panigrahy and Anjani Kumar	2015	Evaluation of hydrogeological factors and their relationship with seasonal water table fluctuation in Dhanbad district, Jharkhand, India	ISH Journal of Hydraulic Engineering	21(2)	1-17
15.	Binay Prakash Panigrahy, Prasoon Kumar Singh, Ashwani Kumar Tiwari and, Bijendra Kumar	2015	Impact of Climate Change on Groundwater Resources	International Research Journal of Environment Sciences	4(3)	86-92

16.	Binay Prakash Panigrahy, Prasoon Kumar Singh, Ashwani Kumar Tiwari, Bijendra Kumar, Anjani kumar	2015	Assessment of heavy metal pollution index for groundwater around Jharia coalfield region, India	Journal of Biodiversity and Environmenta l Sciences	6(3)	33-39
17.	Prabhunath Singh, Ashwani Kumar Tiwari, Prasoon Kumar Singh	2015	Assessment of Groundwater Quality of Ranchi Township Area, Jharkhand, India by Using Water Quality Index Method	International Journal of ChemTech Research	7(1)	73-79
18.	Prasoon Kumar Singh, Binay Prakash Panigrahy, Ashwani Kumar Tiwari, Bijendra Kumar, Poornima Verma	2015	A statistical evaluation for the groundwater quality of Jharia coalfield, India	International Journal of ChemTech Research	7(4)	1880- 1888
19.	Prasoon Kumar Singh, Poornima Verma , Ashwani Kumar Tiwari , Shonam Sharma, Parveen Purty	2015	Review of Various Contamination Index Approaches to Evaluate Groundwater Quality with Geographic Information System (GIS	International Journal of ChemTech Research	7(4)	1920- 1929
20.	Prabhunath Singh, Ashwani Kumar Tiwari, Prasoon Kumar Singh	2014	Water Quality Assessment of Kanke Reservoir Water of Ranchi Township Area	Indian Journal of Environmenta l Protection	34 (9)	735- 741
21.	Ashwani Kumar Tiwari, Prasoon Kumar Singh, Mukesh Kumar Mahato	2014	GIS-based Evaluation of Water Quality Index of Groundwater Resource in West Bokaro Coalfield, India	Current World Environment	9 (3)	843- 850
22.	Prabhunath Singh, Ashwani Kumar Tiwari, Prasoon Kumar Singh	2014	Hydrochemical Characteristic and Quality Assessment of Groundwater of Ranchi Township Area	Current World Environment	9 (3)	804- 813

23.	Surajit Panda, Krishnendu Banerjee, Ratnesh Sharma, Manish Kumar Jain, A.T Jeyaseelan	2014	Measurement of Urban Growth and Spatial Dynamics in a Rapid Growing Saltlake City of Kolkata Using GIS	International Journal of Remote Sensing and GIS	3(2)	10-17
24.	Surajit Panda, Krishnendu Banerjee, Manish Kumar Jain, Ratnesh Sharma	2014	Seamless Slope Generation from Cartosat-1 Stereo DEM of Noamundi of Jharkhand and its surrounding Areas Using Deospatial Technology	International Journal of Research in Advent Technology	2(6)	133-136
25.	Surajit Panda, Krishnendu Banerjee, Manish Kumar Jain	2014	Identification of Iron Ore Mines of Noamundi, Jharkhand by using the satellite based Hyperspectral and Geospatial Technology	International Journal of Science and Research	3(6)	149-152
26.	Surajit Panda, Krishnendu Banerjee, Manish Kumar Jain, Dr. A.T Jeyaseelan, Ratnesh Sharma	2014	Mapping of Iron Mining of Noamundi Area, Jharkhand by using the image Based NDII and Geospatial Technology	International Journal of innovation and scientific Research	7(1)	5-10
27.	Jitin Rahul, Manish Kumar Jain,	2014	An investigation into the Impact of Particulate Matter on vegetation along the National Highway: A review	Research Journal of Environmental Sciences	8(7)	356-372
28.	Aakash Dwivedi and Manish Kumar Jain	2014	Fly ash – waste management and overview: A Review	Recent Research in Science and Technology	6(1)	30-35
29.	Krishnendu Banerjee, Surajit Panda, JatisankarBandyopadhyay, Manish Kumar Jain	2014	Forest Canopy Density Mapping Using Advance Geospatial Technique	International Journal of Innovative Science & Technology,	1(7)	358-363
30.	Jitin Rahul, Manish Kumar Jain	2014	Documentation of floristic inventory along the national highway: a case	Journal of Biodiversity and Environmental	5(6)	241-247

			study of Dhanbad district, Jharkhand, India	I Sciences		
31.	Jitin Rahul, Manish Kumar Jain, Shishu Pal Singh, Rakesh Kant Kamal, Anuradha, Aliya Naz, Anup Kumar Gupta, Sujeet Kumar Mrityunjay,	2015	Adansonia digitata L. (Baobab): A review of Traditional Information and Taxonomic Description	Asian Pacific Journal of Tropical Biomedicine	5(1)	79-84
32.	Radha Rani, Manish Kumar Jain	2015	Physiochemical and Engineering characteristics of fly ash and its application in various field - a review	Journal of Biodiversity and Environmental Sciences	6(2)	161-174
33.	Sinha A. and Bose P.	2014	Modeling of 2-chloronaphthalene interaction with high carbon iron filings (HCIF) in semi-batch and continuous systems,	Environmental Science and Pollution Research	21 (17)	10442-10452
34.	Kumar, R., Sinha, A.	2014	Reductive transformation and enhancement in biodegradability of mono-azo dye by high carbon iron filings (HCIF)	Desalination and Water Treatment	DOI: 10.1080/19443994.2014.981224	
35.	Pande, G., Sinha, A., Agrawal, S.	2015	Impacts of leachate percolation on ground water quality: A case study of Dhanbad city	Global Nest Journal	17(1)	162-174.
36.	Mukherjee, R., Sinha, A., Lama, Y., Kumar, V.	2015	Utilization of Zero Valent Iron (ZVI) particles produced from steel industry waste for in-situ remediation of ground water contaminated with organo-chlorine	International Journal of Environmental Research	9 (1)	19-26.

			pesticide heptachlor			
37.	Lama, Y., Sinha, A., Singh, G., Sahu, S.A., Mishra, B.K.	2015	Modeling the impacts of corrosion product formation on simultaneous sorption and reductive dehalogenation of organochlorine pesticide aldrin by high carbon iron filings (HCIF)	Desalination and Water Treatment	DOI:10.1080/1 9443994.2015. 1017007	
38.	Srivastava, R., Yadav, G.K., Sinha A. and Mishra B.K.	2015	Comparative Study for Reduction of Hexavalent Chromium by High Carbon Iron Filings (HCIF) and Electrolytic Iron: Mass Transfer Limitations	Asian Journal of Chemistry	27 (4)	1398- 1402
39.	Asmaa Naaz & Anshumali	2015	Hydrogeochemistr y of fluoride-rich groundwaters in semiarid region of Central India	Arab Journal of Geosciences	DOI 10.1007/s1251 7-015-1936-y	
40.	Bijendra Kumar, Anshumali, Asmaa Naaz, Kriti Shukla, Chandravir Narayan	2014	Effect of organic manures on the growth of Cymbopogon citratius and Chrysopogon zizanioides for the phytoremediation of Chromite- Asbestos mine waste: A pot scale experiment.	Current World Environment	9(3)	983- 989
41.	Mishra S., Anshumali	2014	Phytosociological analysis of native species in the Tropical Deciduous Forests around Jharia Coalfield, Eastern India.	International Journal of Applied Environmenta l Sciences	9(4)	2243- 2253
42.	Anshumali, Rani M.,	2014	Geochemical	Environmental	71	3181-

	Yadav S., Kumar A		alterations in surface waters of Govind Ballabh Pant Sagar, Northern Coalfield, India	Earth Science		3193
43.	Chandra A., Kumar V. and Jain M. K.	2015	The seasonal changes in soil properties due to coal mine impacts	Carpathian Journal of Earth and Environmental Sciences.	10(1)	241 - 248
44.	Hansda A., Kumar V. and Anshumali	2015	Biosorption of Copper by Bacterial Adsorbents: A Review.	Research Journal of Environmental Toxicology	9(2)	45-58
45.	Mritunjay S. K. and Kumar V	2015	Potential Hazards of Microbial Contamination Associated with Raw Eaten Salad Vegetables and Fresh Produces.	Middle East Journal of Scientific Research	23 (4)	741-749
46.	Usmani Z. and Kumar V.	2015	Earthworms: 'The Unheralded Soldiers' Standing Steadfast Against Metal Contamination.	Research Journal of Environmental Sciences	9(2)	48-65
47.	Mritunjay S. K. and Kumar V.	2015	Raw Eaten Salad Vegetables and Fresh Produce Source of Pathogen: A Review.	Research Journal of Environmental Toxicology	9(2)	59-70
48.	Sen S., Kumar V. and Sen P.	2014	Feasibility of Cymbopogon citrates (DC) Ex nees in revegetation of coal mine overburden dumps – A study	Journal of Mines, Metals and Fuels	62(4)	96-104
49.	Mishra, B.K., Gupta, S.K. and Sinha, A.	2014	Human health risk analysis from disinfection by-products (DBPs) in drinking and bathing water of	Journal of Environmental Health Science & Engineering	12 (1)	Article 73



			some Indian cities			
50.	<u>Sarkar AK, Ghorai S, Patra AS, Mishra BK, Mandre NR and Pal S</u>	2015	Modified amylopectin based flocculant for the treatment of synthetic effluent and industrial wastewaters	International Journal of Biological Macromolecules	72	356–363
51.	Debishree Khan and Sukha Ranjan Samadder	2014	Municipal solid waste management using Geographical Information System aided methods: A mini review	Waste Management & Research	32(11)	1049–1062
52.	S. Lata, P. K. Singh and S. R. Samadder	2015	Regeneration of adsorbents and recovery of heavy metals: a review	Int. Journal of Environmental Sci and Technology	12	1461–1478
53.	S. Jagadevan, A. Vorobev, S. Jain, K. Anantharaman, G. Dick, S. Vuilleumier and J.D. Semrau	2014	Genomic and transcriptomic analyses of the facultative methanotroph <i>Methylocystis</i> sp. Strain SB2 grown on methane or ethanol	Applied and Environmental Microbiology	80 (10)	3044-3052)
54.	F. Seixas, D. Fukuda, F. Turbiani, P.S. Garcia, C. Petkowicz, S. Jagadevan, M. Gimenes	2014	Extraction of pectin from passion fruit peel ( <i>Passiflora edulis</i> f. <i>flavicarpa</i> ) by microwave-induced heating	Food Hydrocolloids	38	186-192

#### 3.11.5.4 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1	Ahirwal J., Singh A.K., Maiti S.K.,	2014	The importance and future challenges of ecological restoration of abandoned Coal Mine degraded levels: an Indian scenario.	Journal of Mines, Metals, & Fuels	62, (11-12)	277-285

2	Ahirwal, J, Singh AK, Maiti, SK	2014	The importance and future challenges of ecological restoration of abandoned coalmine degraded lands: an Indian scenario.	Journal of Mines, Metals and Fuels	62 (11 & 12):	277-285
3	Maiti SK, Adarsh Kumar, R Khanam	2014	An overview of microbiological aspects of ground water quality assessment	Indian J of Environmental Protection	34 (12)	988-999
4	Maiti, SK & Banerjee	2014	Evaluation of Heavy Metal Contamination in River Water through Assessment, Mobility and Bioavailability of Metals in Sediment - A review	Indian J of Environmental Protection	34 (7)	596-608
5	Vipin Singh Rawat, Jain Manish Kumar	2014	Flow Properties of Fly Ash through Viscometer with Reference to Mine Filling	The Indian Mining & Engineering Journal	53-4	20-28
6	Avantika Chandra, M. K. Jain, V Kumar	2014	Impact Studies of Coal Mining on Microbiological Population in Soil at and around the coal Mines	The Indian Mining & Engineering Journal	53-5	26-29
7	Avantika Chandra, M. K. Jain, V Kumar	2014	Quality index of surface water near overburden dumping site in coal mining area	Mining Engineer's Journal	15-11	18-22
8	Manish Kumar Jain, Viond Babu V	2015	Evaluation of Spatial Distribution of Erosion Potential of Jharia Coalfields By Geographical Information System	Indian Journal of Environmental protection	35-3	200-215
9	Mishra S., Anshumali	2014	Forest structure and diversity in the tropical deciduous forests of Jharia Coalfield, Jharkhand	The Indian Mining & Engineering Journal	53(03)	14-18

10	Mishra S., Anshumali	2014	Identification of plant community structure in Tropical Deciduous forests around, Eastern India.	The Indian Mining & Engineering Journal	53(08)	14-18
11	Mishra S., Anshumali,	2014	Dispersion pattern of legumes and non-legumes in the Tropical Deciduous Forests around Jharia Coalfield, Eastern India	Indian Journal of Tropical Biodiversity	22(1)	45-50
12	Hansda A., Kumar V. and Anshumali	2014	Phytoremediation of heavy metals contaminated soil using plant growth promoting rhizobacteria (PGPR): A current perspective.	Recent Research in Science and Technology	6 (1)	131-134
13	Chandra A., Jain M. K. and Kumar V.	2014	Quality Index of Surface Water near Overburden Dumping Site in Coal Mining Area	Mining Engineer's Journal	15 (11)	18-22
14	Chandra A., Jain M. K. and Kumar V.	2014	Impact Studies of Coal Mining on Microbiological Population in Soil at and around the coal Mines	The Indian Mining & Engineering Journal	53 (5)	26-29
15	Sen S. and Kumar V.	2014	Reclamation of coal mine degraded land by revegetation of <i>Vigna unguiculata</i> L. with application of various soil amendments	The Indian Mining and Engineering Journal	53 (3)	27-31

### 3.11.5.5 Papers presented in International Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/Conference	Date	Place
1	Singh A.K.	Coal bed methane- a clean source of Energy.	International Conference on Environmental Technology and Sustainable Development: Challenges & Remediation	Feb, 2014.	BBAU. Lucknow
2	Singh A.K., Singh Randip	Slop stability: Mitigation risk in	6 <sup>th</sup> National Seminar on Surface Mining (NSSM)	10-11 Jan	ISM Dhanbad

		dragline dump slopes		2014	
3	Deepa Agarwal, Rajnish Dubey, J K Pandey, K K Mishra, A K Pal & A K Bandopadhyay	Probability of development of Genetic Disorder along with Silicosis in Coal Mines workers resulting from inhalation of quartz-laden dust- A Review	Proceedings of International Symposium on Environmental Management and Current Practices in Mining & Allied Industries	2014	Banaras Hindu University
4	Maiti, S.K., D Maiti, PS Rana, ML Sahu	Stabilization of Integrated Sponge Iron Plant Waste Dump through Ecological Restoration Approach-A Field Study	In Proc. of the 2 <sup>nd</sup> Intl. Conf. on Advances In Civil, Structural and Environmental Engineering- ACSEE	25-26 Oct 2014	Zurich, Switzerland,
5	Verma, S.K., L.C. Ram, S.K. Maiti, R.E Masto	Heavy metals and PAHs characteristics of the Ashes from Unchahar Thermal Power Plant	Int Conference on Energy, Environment, Materials and Safety (ICEEMS'14), pp. 379-386,	15-18 Dec, 2014	Cochin University of Sc & Technology, Kochi, Kerala, India
6	Ahirwal, J, Maiti SK, Singh AK, and Adarsh Kumar	Soil Microbial Biomass: An Early Stage Biomarker of Mine Restoration Success. pp 40-41,	Int Conference on Emerging Challenges in Biotechnology, Human Health & Environment	18- 20 Dec 2014	Indore, India
7	Anuradha, Biswajit Paul, and Jagdish,	A Critical Views on Scope of Biodegradation of Slurry Explosives	Fifth International Conference on Plants & Environmental Pollution (ICPEP-5),	Feb 24-27, 2015.	CSIR-NBRI, Lucknow, India
8	Anup Kumar Gupta, Biswajit Paul	Characterization of OB dump as mine filling materials	International Conference on “Energy Technology, Power Engineering & Environmental Sustainability”(ETPEES	2014	JNU, Delhi
9	Anup Kumar Gupta, Biswajit Paul	A Review on utilization of mine waste refuse	International conference on “Emerging Challenges in Environmental Protection”	Jan 23-24, 2014.	Chhattisgarh Council of Science and Technology
10	Shreya, N., Valentim, B., Paul, B., Gomes, C.R., Sant'Ovaia, H.,	Analysis of Iron and Iron Phases in Fly Ash to be used as a Geoliner Construction	66 <sup>th</sup> Annual meeting and Symposium of International Committee for Coal and Petrology 2014 (IICP-2014)	Sept20 -27, 2014	Science City, Kolkata, India

	Pinho, S., Ribeiro, J., Ward, C., Flores, D.	Material			
11	Gupta, S.K and Kumari, Minashree	Factors influencing the formation of trihalomethanes in drinking water supplies	International Conference on “Strategic Technologies of Complex Environmental issues: A Sustainable Approach	June 21-22, 2014	JNU New Delhi
12	Naz Aliya and Gupta, S.K	Remediation of low level hexavalent chromium from water by activated sludge: A review	International Conference on “Strategic Technologies of Complex Environmental issues: A Sustainable Approach	June 21-22, 2014	JNU New Delhi
13	Debleena Bhattacharya and S. K. Gupta	Importance of granulation to promote clean energy production and effluent treatment in the anaerobic hybrid reactor (AHR)	4th International conference On “Advances in Architecture, Urban Planning, Material Engineering and Civil/Environmental Dynamics”(AUPMECED- 2014)	July 26-27 , 2014	JNU New Delhi
14	Prasoon Kumar Singh and Poornima Verma	Quality Assessment of Mine Water in the West Bokaro Coalfield Area, India	3 <sup>rd</sup> International Conference on Hydrology and Meteorology, (OMICS group),	Sept 15-16, 2014	Hyderabad
15	Ashwani Kumar Tiwari, Prasoon Kumar Singh and Mukesh Kumar Mahato	Quality Assessment of Mine Water in the West Bokaro Coalfield Area, India	International Conference on Hydrology and Meteorology, (OMICS group)	Sept 15-16, 2014	Hyderabad
16	Prasoon Kumar Singh, Shonam Sharma	Adaptation of Climate Change on Water Resources: A Review	7 <sup>th</sup> International Congress of Environmental Reserach (ICER-14)	Dec 26-28, 2014	Bangalore, Karnataka
17	Prasoon Kumar Singh, Binay Prakash Panigraphy, Ashwani Kumar Tiwari, Subhash Chandra, Bijendra Kumar	Physico-chemical Studies on surface water quality in the Jharia coal field region, Dhanbad	3 <sup>rd</sup> International conference on “Sustainable Innovative Techniques in Architecture, Civil and Environmental Engineering	April 26- 27, 2014	JNU, New Delhi
18	Narayan C., Kumar A., Ghritlahre M.K.,	Structure and floristic composition of tropical deciduous forests around	Tropical Ecology Congress	Dec10 -12, 2014	Jawaharlal Nehru University New Delhi

	Anshumali	Bokaro district, Jharkhand, India			
19	Shukla K., Anshumali	Review on biogeochemistry of some micronutrients in agricultural soils, India	Tropical Ecology Congress	Dec10 -12, 2014.	Jawaharlal Nehru University New Delhi
20	Kumar V and Usmani Z	Bio-magnification study of heavy metals in food chain at different trophic levels in river water	Life & Life processes: Sustainable development	Feb19- 21, 2015.	Goa University, Goa
21	Gupta, S.K., Pandian, S.,	Seasonal variation of ambient fine particulate matter concentration at near urban roadway	2 <sup>nd</sup> International conference on Bioenergy, Environment and Sustainable Technologies	Jan 28-31, 2015	Arunai Engineering College, Tiruvannam alai, Tamil Nadu
22	Sahu, R., Adak, P., Pandian, S.,	Physical & chemical characterization of hazardous solid waste emitted by typical Indian share autos and buses	2 <sup>nd</sup> International conference on Bioenergy, Environment and Sustainable Technologies	Jan 28-31, 2015	Arunai Engineering College, Tiruvannam alai, Tamil Nadu
23	Kumar, A., Pandian, S.,	Quantification of non-exhaust emission from road transport and their impacts on GHG inventory	2 <sup>nd</sup> International conference on Bioenergy, Environment and Sustainable Technologies	Jan 28-31, 2015	Arunai Engineering College, Tiruvannam alai, Tamil Nadu
24	Sneh Lata and S. R. Samadder	Removal of Heavy Metals from Drinking Water Using Coconut Husk	3 <sup>rd</sup> International Conference on Hydrology and Meterology	Sept 15-16, 2014	HICC Hyderabad, India
25	S. Lata and S. R. Samadder	A Comparative Study of Arsenic Removal Techniques for Rural Areas	19 <sup>th</sup> International Conference on Hydraulics, Water Resources, Coastal & Environmental Engineering	Dec 18-20, 2014.	MNIT, Bhopal, India
26	D. Khan and S. R. Samadder	How Geospatial Technology Helps in Landfill Site Section	4 <sup>th</sup> International Conference, World Science Congress	Dec 16-18, 2014	Jadavpur University, Kolkata

## 3.11.5.6 Papers presented in National Seminars/Conferences

Sl. No	Authors	Title	Seminar/Conference	Date	Place
1	Asim Kumar Pal	Ergonomics and its Application in Mines	National Workshop on Applied Ergonomics for Mining.	Nov 28-29, 2014	National Institute of Miner's Health, Nagpur
2	Ahirwal, J, Maiti SK, and Singh AK	Degraded Mining Ecological Restoration of Mine Land: An Approach to Sustainable	Tropical Ecology Congress (TEC)	Dec 10-12, 2014	School of Env Sc, JNU, New Delhi
3	Das R, Maiti SK	Importance of Carbon Fractionation Study for the Assessment of Carbon Sequestration in the Reclaimed Coalmine Soils - A Case Study from Jharia Coalfields, Jharkhand, India	Tropical Ecology Congress (TEC)	Dec 10-12, 2014	School of Env Sc, JNU, New Delhi
4	Rana V, Sheeja J, Maiti SK	Treatment and Reuse of Waste Water in a Residential University Campus by Using Phyto reed Technology	XXXIII- Annual Conference, Indian Council of Chemist	Dec 15, 2014	Dept of Applied Chemistry, ISM Dhanbad
5	Anuradha, Biswajit Paul, and Jagdish	Investigation into microbial degradation of guar gum contained in slurry explosive	National Conference on Recent Trends in Chemical and Environmental Sciences (RTCES)	Feb21-23, 2014.	Kangra, Himachal Pradesh, India,
6	Juli Kumari, Biswajit Paul	Heavy metal contamination of river sediment –A review”,	First Himachal Pradesh Science Congress on Role of Science & Technology in Sustainable Development	Oct15-16, 2014	Shimla, H.P, India
7	Priti Saha and Biswajit Paul	Natural and Anthropogenic Sources of Heavy Metal Contamination in Water bodies: its 184 Impact and 8Assessment	National Workshop on Challenges and Opportunities for Management of Water Supplies in Rural Areas	Jan 23-24, 2015	Indian School of Mines, Dhanbad

		Techniques			
9	Anup Kumar Gupta, Biswajit Paul	“Characterization of coal mine Refuse as mine filling material a sustainable approach of mining” A Review”	National Conference on Recent Trends in Chemical and Environmental Sciences (RTCES)	Feb21-23, 2014	Kangra, Himachal Pradesh, India,
10	Shreya, N., Valentim, B., Paul, B., Ribeiro, J., Flores, D.	Fly ash Characterization of Jharkhand (India) by Laser granulometry and SEM-EDS	IX national Congresso de Geologia	July 18-24, 2014	Faculty of Sciences, University of Porto, Portugal
11	Kumari, Minashree, Gupta, S.K	Use of nanoparticles for the removal of trihalomethanes in drinking water supplies-a review.	National workshop on challenges and opportunities for management of water supplies in rural areas, (COMWRA), Proceedings, p164-169.	Jan23-24, 2015	ISM Dhanbad
12	Kumari, Minashree, Gupta, S.K.	Seasonal variation and correlations of trihalomethanes in drinking water supplies	102 <sup>nd</sup> Indian science Congress, Proceedings, p196-197.	Jan3-7, 2015	University of Mumbai
13	Kumari, Minashree, Gupta, S.K.	Concentration and correlations of trihalomethanes in drinking water systems from an exposure assessment perspective	National conference on Harmony with Nature in context of environmental issues and challenges of 21 <sup>st</sup> century (HARMONY 2014). Souvenir & Abstracts, p59.	Nov28-30, 2014	M. L. Sukhadia University, Udaipur, Rajasthan
14	Anand Govind More and S. K. Gupta. (2015).	Microbial Desalination cell: A Short review.	Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA), Dhanbad, Pg. No.121-124	Jan23-24, 2015	ISM Dhanbad
15	Tomar Swati, Gupta S.K. (2015)	A Review of Novel Technologies for Removal of Ammonical Nitrogen from Wastewater	Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA), Dhanbad, Pg. No.221-225	Jan23-24, 2015	ISM Dhanbad
16	Tomar Swati, Gupta S.K.	Characteristic indicators of early	National conference on Harmony with	Nov28-30, 2014	M. L. Sukhadia



	(2015)	start-up and granulation of ANAMMOX in Anaerobic Hybrid Reactor	Nature in context of environmental issues and challenges of 21 <sup>st</sup> century (HARMONY 2014). Souvenir & Abstracts, p159		University, Udaipur, Rajasthan
17	Tomar Swati, Gupta S.K. (2015)	Morphological study of anammox granules in Anammox Hybrid Reactor	102 <sup>nd</sup> Indian Science Congress (ISC-2015), 3-7 Jan, 99-100	Jan3-7, 2015	University of Mumbai, Mumbai
18	Debjyoti Debnath and Sunil Kumar Gupta (2015).	Zero Liquid Discharge approach in plating industry: treatment of degreasing effluents by electrocoagulation and anodic oxidation	Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA), Dhanbad, Pg. No. 139-144	Jan23-24, 2015	ISM Dhanbad
19	Jayeeta Sahal and Sunil Kumar Gupta	Electrochemical disinfection: An overview of the different ways of killing mechanism for indicator microbes in comparison with chlorination, ozonation	Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA), Dhanbad, Pg. No. 156-160.	Jan23-24, 2015	ISM Dhanbad
20	Prasoon Kumar Singh, Shonam Sharma, Poornima Verma	Trends of Seasonal and Annual Rainfall of Dhanbad, India	102 <sup>nd</sup> Indian Science Congress	Jan 3-7, 2015	University of Mumbai, Mumbai, Maharashtra
21	Prasoon Kumar Singh, Binay Prakash Panigraphy, Ashwani Kumar Tiwari, Bijendra Kumar	Quality Assessment of Mine Water of Jharia Coal Mine Region, Jharkhand	Conservation of Natural Resources and Biodiversity for Sustainable Development (NCCRB 2014)	Dec 4-6, 2014	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce & Vid. Dadasaheb Pitre Science College, Devrukh
	Prasoon Kumar Singh, Binay Prakash Panigraphy, Ashwani Kumar Tiwari, Bijendra	Estimation of Seasonal Groundwater Fluctuation by Meteorological Parameters, Jharia	102 <sup>nd</sup> Indian Science Congress	Jan 3-7, 2015	University of Mumbai, Mumbai, Maharashtra

	Kumar	Coalfield, Jharkhand			
22	Prasoon Kumar Singh, Shonam Sharma	Artificial recharge: An emerging tool for water resource management,	Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA 2015) under KRC (Key Resource Centre) Scheme of Ministry of Drinking Water & Sanitation	Jan 23-24, 2015	ISM Dhanbad
23	Prasoon Kumar Singh, Parveen Purty	Challenges of watershed management in Rural Areas: Integrated Approach of Water Resource Management	Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA 2015) under KRC (Key Resource Centre) Scheme of Ministry of Drinking Water & Sanitation	Jan 23-24, 2015	ISM Dhanbad
24	Lama, Y. and Sinha A.	Interaction of Heptachlor with High Carbon Iron Filings (HCIF)	All India Workshop on Action Plan to Meet the Challenges of Water Crisis in Present Scenario, Institution of Engineers, Dhanbad	March 22, 2015	Dhanbad
25	Kumar V., Chandra A and Jain M K	Influence of mining and mineral processing on land environment with special emphasis on microbial population	Sustainable development in mineral and earth resources	June 21-22, 2014	New Delhi, India
26	Hariraj Singh, Brijesh Kumar Mishra	Electrocoagulation: A Review- Electricoagulation Treatment Recent Applications for Polluted Water and Wastewater	Challenges and Opportunities for Management of Water Supplies in Rural Areas	Jan23-24, 2015	ISM Dhanbad
27	Sheeja Jagadevan	Zerovalent Iron mediated remediation- An emerging water treatment technology	Invited talk, 33rd Annual Conference, Indian Council of Chemists	Dec 17, 2014	ISM, Dhanbad

### 3.11.6 MAJOR ACADEMIC CONTRIBUTIONS

1. Department is nominated as Key Resource Centre (KRC) in water sector by the Ministry of Drinking Water and Sanitation, GoI New Delhi.
2. Prof S K Maiti selected as expert member in the management council, CIMFR to evaluation of Group-III on 16.3.2015.
3. Prof S K Maiti appointed as expert reclamation by Government of Jharkhand to evaluate the reclamation work done by Rohini project CC: and submit report to MoEF, GoI.
4. Dr Anshumali Appointed as The Non-Official Member of Regional Empowerment Committee (REC) under Forest (Conservation) Act 2003 at Regional Office, East Central Zone, Ranchi.

### 3.11.7 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPT/CENTRE

National workshop on Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA 2015)	23-24 January 2015
Two-weeks Training Program on “Mining Environment & Sustainable Development” for the Officials of Ministry of Mines, Government of Afghanistan, sponsored by Ministry of External Affairs, Government of India was organized by Centre of Mining Environment, Indian School of Mines, Dhanbad during.	16 August - 01 September 2014
3-days residential training program for the executive of Department of Drinking Water & Sanitation (DDWS), Jharkhand on “Assessment of Water Quality and Low cost Treatment methods for Rural Water Supply” was organized by Centre of Mining Environment, Indian School of Mines, Dhanbad.	15-17 October, 2014
Two-weeks Training Program on “Environmental Impact Assessment of Mining Projects” for the Officials of Ministry of Mines, Government of Afghanistan, sponsored by Ministry of External Affairs, Government of India was organized by Centre of Mining Environment, Indian School of Mines, Dhanbad during.	6- 22 December, 2014

### 3.11.8 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Prof A K Pal	Environmental, Occupational Health & Safety (EMS) Management Systems as per ISO 14001:2004 and OHSAS 18001:2007	14-18 July, 2014	Bengal Club, Kolkata
Dr S.K Gupta	International Conference on “Strategic Technologies of Complex Environmental issues: A Sustainable Approach.	21-22 June, 2014	JNU New Delhi
Dr M K Jain	Training Program on Satellite Ground System	NRSC, Hyderabad	Oct 28-31, 2014
	Workshop on Challenges and	ISM Dhanbad	Jan 23-24, 2015

	Opportunities for Management of Water Supplies in Rural Areas		
	Regional Workshop for Evaluation and Training of ENVIS centres (Eastern and North-Eastern Region)	ASTECC, Guwahati	March 23-24, 2015
Dr Alok Sinha	National workshop on Challenges and Opportunities for Management of Water Supplies in Rural Areas (COMWRA 2015)	23-24 January 2015	Dhanbad
	All India Workshop on Action Plan to Meet the Challenges of Water Crisis in Present Scenario, Institution of Engineers, Dhanbad	22 March 2015	Dhanbad
Dr. Vipin Kumar	the seminar on Life & Life processes: Sustainable development	February 19-21, 2015	Goa
	Seminar on Sustainable development in mineral and earth resources	June 21-22, 2014	New Delhi
Dr Suresh Pandian E	Summer Research Fellowship at IITM Pune	19 June- 13 August 2014	Pune

### 3.11.9 VISITS OF FACULTY MEMBERS ABROAD

Prof. S. K. Maiti visited Zurich, Switzerland for oral presentation of research paper titled “Stabilization of Integrated Sponge Iron Plant Waste Dump through Ecological Restoration Approach-A Field Study” in 2<sup>nd</sup> Intl. Conf. on Advances in Civil, Structural and Environmental Engineering- ACSEE during 25-26 Oct 2014.

### 3.11.10 TESTING SERVICES

To evaluate the environmental parameters i.e. water, soil, air, noise and solid waste,

### 3.11.11 DISTINGUISHED VISITORS TO THE SCHOOL

- Prof. Madhu Pandey visited under Study Abroad – India Programme for the Students of University of South Florida-St. Petersburg, USA on “Mining, Environment and Sustainable Development” during 05.08.2014 to 18.08.2014 jointly organized by Centre of Mining Environment and Department of Mining Engineering.
- Prof. R. V. Ramani, Emeritus Professor of Mining Engineering and Emeritus George H. Jr and Anne B. Deike Chair in Mining Engineering Department of Energy and Mineral Engineering, The Pennsylvania State University, USA visited MINENVIS Centre during their training program at Centre of Mining Environment on February 11, 2015.
- Prof. J. K. Tripathi Jawaharlal Nehru University (JNU), New Delhi visited MINENVIS Centre during their training program at Centre of Mining Environment on February 16, 2015.

### 3.12 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.

#### 3.12.1 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of students	Place of Visit	Period of Visit
Plant Visits/ Excursions	VI-B. Tech (MLE) Group-I (1-25)	Chasnala Coal Washery	One Day
	VI-B. Tech (MLE) Group-II (26-50)	Jamadoba Coal Washery	One Day
	VI-B. Tech (MLE) Group-III (51-76)	Bhelatand Coal Washery	One Day
	VIII-B. Tech(MLE) + DD (MLE)	Mc Nally Bharat, Kumardubi	One Day
	I-M. Tech (MLE+FLE)	Electrosteel Steel Ltd.	One Day
Industrial Training	III-M. Tech (MLE)	Tata Steel Jamadoba	42 days
		Tata Steel Bhelatand	
		UCIL Jaduguda	
		SAIL Chasnala	
	B.Tech+DD (MLE)	Electrosteel Steel Ltd. Bokaro, TEGA Industries Ltd	
		RINL, Vishakapatnam, Tata Jamadoba, HZL, WB TataSKMines, MCP, Ambuja Cement, BCCL, NMDC, Balasore Alloys, McNally Bharat	

#### 3.12.2 BRIEF LIST OF ON –GOING R&D PROJECTS

Project Title	Sponsoring Agency	Coordinator(s)	Project value	Date of Commencement	Finding
Effect of feed characteristics on performance of Industrial Dense Medium Cyclones	DST	Anand Anupam	21.47 lakh	1-8-2014	-
Beneficiation of low grade iron fines/alloys by selective flocculation	MOM	Prof. N.R. Mandre(PI) Prof R.Venugopal (Co-PI)	25.82	1-4-2013	-

**3.12.3 IMPORTANT COLLABORATIVE WORKS**

Organisation/Lab.	Nature of Interaction
CSIRO Australia	Workshop on Life Cycle Assessment for Mining, Mineral Processing and Metal Extraction and Power Generation April 4-5 2014
CSIRO Australia	Collaborative research proposal submitted

**3.3 Important New Equipment acquisitioned(above 5.0lakh)**

Name of Equipment	Purpose	Date of purchase	Value (Rs)
Particle Size Analyser	R&D Work	2-12-2014	19.5 lakh
Coal Abrasive Index	R&D Work	22-1-2015	6.40 lakhs

**3.12.4 RESEARCH PUBLICATIONS****3.12.4.1 Papers Published in International Journals**

Sl. No	Authors	Year	Title	Journal	Vol. No	Page No
1	B B Mandal, S Bhattacharya, A Anupam and P K Jain	2014	Vibration exposure of workmen of coal preparation plants – an exploratory study	Noise and Vibration Worldwide	40	21-31
2	S. Kumar, S. Bhattacharya and N R Mandre	2014	Characterization and flocculation studies of fine coal tailings	Journal of the Southern African Institute of Mining and Metallurgy	114	945-952
3	Panda, L. Banerjee, P.K. Biswal, S.K., Venugopal, R. Mandre, N.R.	2014	Modelling and optimization of process parameters for beneficiation of ultrafine chromite particles by selective flocculation	Separation and Purification Technology	132	666-673
4	A.Vidyadhar, Neha Kumar, R.P. Bhagat	2014	Adsorption mechanism of mixed cationic / anionic collectors in quartz-hematite flotation system	Mineral Processing & Extractive Metallurgy Review	35	117-123

5	Sarkar, A.K. Pal, A. Ghorai, S., Mandre, N. R. Pal, S.	2014	Efficient removal of malachite green dye using biodegradable graft copolymer derived from amylopectin and poly - acrylic acid	Carbohydrate Polymers	111	108-115
6	Singh, V. , Venugopal, R. Banerjee, P.K. Saxena, V.K.	2014	Effect of morphology on breakage and liberation characteristics of minerals and coal	Minerals and Metallurgical Processing	31	186-192
7	Sarkar, A.K., Ghorai, S., Patra, A.S. Mishra, B.K. Mandre, N.R., Pal, S.	2014	Modified amylopectin based flocculant for the treatment of synthetic effluent and industrial wastewaters	International Journal of Biological Macromolecules	72	356-363
8	Panda, L. , Banerjee, P.K. Biswal, S.K. Venugopal, R. Mandre, N.R.	2014	Artificial neural network approach to assess selective flocculation on hematite and kaolinite	International Journal of Minerals, Metallurgy and Materials	21	637-646
9	Tiwari, H.P. , Banerjee, P.K. Saxena, V.K. Sharma, R., Haldar, S.K., Paul, S.	2014	Effect of heating rate on coke quality and productivity in nonrecovery coke making	International Journal of Coal Preparation and Utilization	34	306-320
10	Tripathy, S.K. , Banerjee, P.K. Suresh, N.	2014	Separation analysis of dry high intensity induced roll magnetic separator for concentration of hematite fines	Powder Technology	264	527-535
11	Varma, A.K. , Kumar, M. Saxena, V.K., Sarkar, A., Banerjee, S.K.	2014	Petrographic controls on combustion behavior of inertinite rich coal and char and	Fuel	128	199-209

			fly ash formation			
12	Tiwari, H.P. , Banerjee, P.K., Saxena, V.K., Haldar, S.K.	2014	Effect of Indian medium coking coal on coke quality in non-recovery stamp charged coke oven	Journal of Iron and Steel Research International	21	673-678
13	Singh, V. , Venugopal, R., Banerjee, P.K., Saxena, V.K.	2014	Effect of morphology on breakage and liberation characteristics of minerals and coal	Minerals and Metallurgical Processing	31	186-192
14	Jha, P.K., Mahto, V. , Saxena, V.K.	2014	Emulsion based drilling fluids: An overview	International Journal of ChemTech Research	6	2306-2315
15	Tiwari, H.P. , Banerjee, P.K., Saxena, V.K., Sharma, R., Haldar, S.K., Verma, S.	2014	Efficient way to use of non-coking coals in non-recovery coke making process	Metallurgical Research and Technology	111 (4)	211-220

### 3.12.4.2 Papers Published in National Journals

Sl. No	Authors	Year	Title	Journal	Vol. No	Page No
1	Rachit Tiwari and S. Bhattacharya	2014	Evolution of non-coking coal pricing system in India	Economic and Political Weekly	XLIX	20-22
2	R. P. Bhagat, B. Nayak, K K Bhattacharyya and M C Goswami	2014	Mineralogy of iron ore pellets and its correlation with crushing Strength	Metallurgy & Materials Science	56	117-123
3	Rachit Tiwari, S. Bhattacharya and Piyush Raghav	2015	A discussion on non-coking coal pricing systems adopted in different countries	Vikalpa	40	62-73



## 3.12.4.3 Papers Published in International Seminars/ Conferences

Sl. No	Authors	Title	Seminars/ Conferences	Date	Place
1	R P Bhagat, S. K. Pradhan, Y. Rajshekar, T Venugopalan	Effect of process parameters on mix granulometry vis-a-vis the sintering indices with reference to Joda ore fines	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering, Visakhapatnam
2	R P Bhagat, Mamta Sharma, Manoj Kumar Choudhary, T Venugopalan	Effect of process parameters on the cooling characteristics of sinter vis-a-vis the sintering indices with reference to Joda ore fines	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering, Visakhapatnam
3	Bhupender Singh Ken, Swapan Suman, S.Gautam D.S.Panwar	Utilization of Agricultural wastes for Metallurgical purposes	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering, Visakhapatnam
4	Swapan Suman, S.Gautam	Use of solid Agricultural wastes as an Energy resource, Utilization of Agricultural wastes for Metallurgical purposes	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering, Visakhapatnam
5	Gaurav Jha, A. K. Verma and S. Soren	Studies on Processing of Sinters and its Handling Parameters	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering, Visakhapatnam
6	Gaurav Jha, A. K. Verma and S. Soren	Characterization of Properties of Iron Ore Sinter using Artificial Neural Network	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering
7	S. Chavan, A. Ranjan, S.Bacchuwar and S. Soren	Effects of different Parameters on Reduction of Iron Ore Pellets	Proc. Inter. Conference on Mineral Processing Technology	12-14 March	AU College of Engineering

**3.12.4.4 Papers Published in National Seminars/ Conferences**

Sl. No	Authors	Title	Seminars/ Conferences	Date	Place
1	Yogesh Reja and S Bhattacharya	Improving energy and water efficiency in mineral processing	Workshop on Life Cycle Assessment for Mining, Mineral Processing and Metal Extraction and Power Generation	April 4-5 2014	Dhanbad
2	S Jaiswal, A Das, R K Ranjan, M P Sinha, A K Mukherjee and S Bhattacharya	Evaluating the Flotation Performance of Three Different Coals of Jharia Coalfield Using Release Analysis	International Seminar on Mineral Processing Technology - MPT	March 12-14 2015	Visakhapatnam

**3.12.5 MAJOR ACADEMIC CONTRIBUTION**

Prof S Bhattacharya was the convener and session chair for the theme symposium Sustainability: Recycling Refurbishing and Remanufacturing at the 68<sup>th</sup> Annual Technical Meeting of Indian Institute of Metals, Pune November 12-15 2014.

**3.12.6 SEMINARS, SYMPOSIA, WORKSHOPS, CONFERENCES ORGANIZED BY THE DEPARTMENT**

Workshop on Life Cycle Assessment for Mining, Mineral Processing and Metal Extraction and Power Generation	April 4-5 2014
Professional Development Programme of "Agglomeration Techniques"	Feb. 16 <sup>th</sup> – 20 <sup>th</sup> , 2015

**3.12.7 PARTICIPATION OF FACULTY/ OFFICE/ STAFF IN SEMINARS/ CONFERENCES**

Dr S. Bhattacharya	68 <sup>th</sup> Annual Technical Meeting of Indian Institute of Metals and National Metallurgists Day	November 12-15 2014	Pune
	Coal Conference	October 21-24 2014	Pittsburgh

**3.12.8 VISITS OF FACULTY MEMBER ABROAD**

Prof. S. Bhattacharya visited USA to attend as keynote speaker, panel member and delegate the International Conference, Coal – Towards Cleaner Production, organized by Society of Mining Engineers and Pennsylvania Coal Mining Institute of America and held at Pittsburgh on October 21-24 2014. He also visited the screen manufacturing plant of Derrick Corporation at Buffalo on October 20

**3.12.9 TESTING SERVICE**

- \* Crushing & Grinding
- \* Sample Preparation
- \* Chemical Analysis by conventional and Instrumental methods
- \* Beneficiation of Mineral and Coal
- \* Coal analysis
- \* TGA Analysis
- \* CHNSO Analysis
- \* Determination of calorific Value
- \* Size Analysis

**3.12.10 SPECIAL LECTURES BY DISTINGUISHED GUESTS**

<b>Sl. No.</b>	<b>Name</b>	<b>Date</b>
1.	Prof. L N Jha, Ex-SAIL Chair Professor	Feb 16-20, 2015
2.	Prof. A. Chattopadhyay Former Professor/EMM & Dean (F&P) & DT (I/C) ISM	April 14-16, 2014 March 01, 2015

**3.12.11 MISCELLANEOUS:**

Dr Sumantra Bhattacharya Professor Tata Steel Chair became Life Member of Indian Institute of Metals (IIM)

### 3.13 HUMANITIES AND SOCIAL SCIENCES

The Department of Humanities and Social Sciences 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.

#### 3.13.2 BEST PRACTICES IN THE DEPARTMENT

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

#### 3.13.2 BRIEF LIST OF ON-GOING R & D PROJECTS

Project Title	Sponsoring Agency	Coordinator (s)	Project Value	Date of Commencement	Findings
Poetics of Tension: Contemporary Indian English Women's Poetry	UGC, New Delhi	Dr. Rajni Singh	Rs.8.55 Lakhs	1.7.2012	-

#### 3.13.3 RESEARCH PUBLICATION

##### 3.13.3.1 Books Published

Ram Krishna Singh, I am No Jesus and other selected Poems, Tanka, and Haiku. With Translation into crimean Tatar by Taner Murat and illustration by Alsou Ildarovna Shikhova Iazi, Sos: Editura StudIS, 2014.

##### 3.13.3.2 Book Reviews/Contribution of chapters in a book

1. R. K. Singh, Faithful Mirrors. Book Review: Blossoming Blossoms of Poetry: Selected Poems (HSU Chicheng). Transfire, Issue no. 14, Jan-March 2015, pp. 70-73.
2. R. K. Singh, Teaching English for Communicative Performance and Business Communication. In Md. Mojibur Rahman (ed.), Cultural Contexts in English Language Learning and Teaching, Jaipur: Yking Books, 2014, pp. 157-188.
3. R. K. Singh, Foreward. In Md. Mojibur Rahman (ed.) Cultural contexts in English Language Learning and Teaching, Jaipur Yking Book, 2014, pp. v-viii.
4. Nirban Manna, Jatra in the age of digital revolution in Jatrar Sange Bere Otha Edited by A Majumdar. Patra Bharati: Kolkata 2014. Print.

## 3.13.3.3 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1	Ipsita Roy and A K Behura	2014	Revisiting the Relationship between Business and Environment	Journal of Dharma	2 (39)	167-180
2	M K Singh and A K Behura	2014	Nanotechnology Towards Environmental Sustainability	Journal of Dharma	3 (39)	113-138
3	Mishra, Sneha and Md. Mojibur Rahman	2015	Gulgulia Semantics: A Descriptive Study	American International Journal of Research in Humanities, Arts and Social Sciences	9(4)	308-312
4	Rajni Singh & Soumyajyoti Banerjee	2015	Re-placing Memory: Intertextual Collage in Laksmisree Banerjee's Peahen Passions	Poetcrit	XXVIII (1)	pp.37-44
5	Sadaf Jamal & Rajni Singh	2014	Mixing Memories with Desire: Women in Kamila Shamsie's Salt and Saffron	Dialogue	X (1)	pp. 69-75
6	Sadaf Jamal & Rajni Singh	2014	Quest for Identity in Kamila Shamsie's Burnt Shadows and Uzma Aslam Khan's Trespassing	Poetcrit	XXVII (2)	pp. 90-96
7	Seema Ladsaria & Rajni Singh	2014	What is Sports?: A Barthesian Gaze	International Journal of Humanities and Social Sciences (IJHSS)	3 (4)	pp. 47-54
8	Seema Ladsaria & Rajni Singh	2014	Image Repertoire: An Analysis of Browning's My Last Duchess	Creative Forum	27 (1)	
9	SMD Hossain & Rajni Singh	2014	We are Children of Britain Without Home: A Study of Hanif Kureishi's The Black Album	Research Scholar: International	2 (III)	pp.119-128
10	Akaitab Mukherjee & Rajni Singh	2014	The Creed of Nationalism in the Aftermath of 9/11: A Study of the Cinematic Representation of 'The Reluctant Fundamentalist'	Deep Focus Cinema	II (III)	pp. 56-61

## 3.13.3.4 Papers published in National Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1	R. K. Singh	2014	Filling the Empty Internal spaces: Some women Poets	Poetcrit	xxvii, ( 2)	82-89
2	R. K. Singh and Simon Kisku	2014	The Poetry of Ross Donlon	Modern Research Studies	1	153-161
3	Swagata Ray & Rajni Singh	2015	Rape Narratives in Shashi Deshpande's The Binding Vine and Fay Weldon's Praxis	The Indian Journal of English Studies	LII	156-170
4	Nirban Manna	2014	Partha Chaterjee's Play National Playlet in English	Impression of Eternity	3	21-27
5	Nirban Manna	2014	Bratya Basu's Krishna Gwahar as Black Hole	Bratyajon	4	649-685

## 3.13.3.5 Papers presented in International Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/ Conference	Date	Place
1	A K Behura	Environmental Sustainability: An Ethical Analysis with Special Reference to Jharkhand State	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Birla Institute of Technology and Science Pilani, K Birla Goa Campus
2	Pankojini Mulia, Sarita Kar and A K Behura	Deep Ecology: A Solution to Environmental Problems	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Birla Institute of Technology and Science Pilani, K Birla Goa Campus
3	Naznin and A K Behura	Environmental Ethics: A Study from Islamic Perspectives	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Birla Institute of Technology and Science Pilani, K Birla Goa Campus
4	Ipsita Roy and A K Behura	Ethics and Environment	International Conference on Towards Ecocultural Ethics:	09-11, October, 2014	Birla Institute of Technology and Science Pilani, K Birla

			Recent Trends and Future Directions		Goa Campus
5	Abhinav Anand and A K Behura	Overcoming Environmental Crisis: A Buddhist Psycho-Ethical Analysis	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Birla Institute of Technology and Science Pilani, K Birla Goa Campus
6	Abhinav Anand and A K Behura	An Introspection of Buddhist Ethical Analysis on Environmental Degradation	International Conference on 'Bhartiye Sanskritri and Bodh Dharma Darshan Mai Prayawaran	5 October 2014	Sampurnanand Sanskrit Vishwavidyal, Varanasi
7	A K Behura and Sarita Kar	Dharma in Purva-Mimamsa: Secular and Sacred	International Conference on Dharma: Interface between Secular and Sacred	4-7 January 2015	Dharmaram Vidya Kshetram, Bangalore, India
8	A K Behura and Sarita Kar	Sacred and Secular Revelations in Purva-Mimamsa	International Conference on Religion, Ethnicity and Resistance	14-16 March 2015	Vinoba Bhave University, Hazaribagh
9	Abhinav Anand and A K Behura	Buddhist Ethical Notion towards Environmental Crisis	International Conference on Religion, Ethnicity and Resistance	14-16 March 2015	Vinoba Bhave University, Hazaribagh
10	Rajni Singh	"The Creed of Nationalism in the Aftermath of 9/11: A Study of the Cinematic Representation of The Reluctant Fundamentalist"	International Seminar on Philosophy of Culture	31 <sup>st</sup> March – 2 <sup>nd</sup> April, 2014	Tezpur University, Assam
11	Rajni Singh	"Creative Use of Tradition: Eliot's Changing Response to Tennyson"	International Symposium on Time & Space In T.S. Eliot	18 <sup>th</sup> -22 <sup>nd</sup> January 2015	Florence, Italy
12	Rajni Singh	"(Re)Narrating the History through Ambiguous Gender Discourse: A Study of Salman Rushdie's Shalimar the Clown"	International Commonwealth Conference on Postcolonial Literature	28 <sup>th</sup> -30 <sup>th</sup> January, 2015	Global University, Sonapat, Haryana
13	Sarita Kar	Man-Nature Relationship: An Analysis from Indian	International Conference on Towards	09-11, October, 2014	Birla Institute of Technology and Science

		Religious Perspective	Ecocultural Ethics: Recent Trends and Future Directions		Pilani, K Birla Goa Campus
--	--	-----------------------	---	--	----------------------------

### 3.13.3.5 Papers presented in National Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/ Conference	Date	Place
1	Abhinav Anand and A K Behura	Using Buddhist Eight Fold Path as a Tools Against Abortion	National Level seminar on 'An Interdisciplinary National Seminar on Buddhist Philosophy	18-19, December 2014	Department of Philosophy, SSLNT Mahila Mahavidyalaya, Dhanbad in Collaboration with DAV B.ED. College, Giridih, Jharkhand
2	A K Behura and Sarita Kar	In Defense of an Intrinsic Value of Nature	National Conference on Agriculture and Rural Development Issues In Eastern India	12 - 13 March, 2015	Indian Statistical Institute, Giridih Campus
3	Rajni Singh	Hybrid Diasporas: Questioning the "Identity" in Salman Rushdie's Shalimar the Clown	59 <sup>th</sup> All India English Teacher's Conference	19 <sup>th</sup> – 21 <sup>st</sup> December, 2014	Rajasthan Technical University, Rajasthan

### 3.13.4 MAJOR ACADEMIC CONTRIBUTION

Professor R. K. Singh received Certificate of Honorable Mention from Basho Memorial Museum, Basho Memorial Museum, Basho Tribute Foundation, Iga City, Japan, Oct. 12, 2014.

Professor R. K. Singh appointed Advisory Member, Verbal Art: A Global Journal (ISSN: 2347:632)

Professor R. K. Singh appointed Member, CIMFR Ethic Committee CIMFR, Dhanbad.

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

A K Behura	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Goa
------------	---	----------------------	-----



Sarita Kar and A K Behura	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Goa
A K Behura	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Goa
A K Behura	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Goa
A K Behura	International Conference on Towards Ecocultural Ethics: Recent Trends and Future Directions	09-11, October, 2014	Goa
A K Behura	International Conference on 'Bhartiye Sanskritri and Bodh Dharma Darshan Mai Prayawaran	5 October 2014	Varanasi
A K Behura and Sarita Kar	International Conference on Dharma: Interface between Secular and Sacred	4-7 January 2015	Bangalore
A K Behura and Sarita Kar	International Conference on Religion, Ethnicity and Resistance	14-16 March 2015	Hazaribagh
A K Behura	International Conference on Religion, Ethnicity and Resistance	14-16 March 2015	Hazaribagh
A K Behura	UGC Sponsored National Level seminar on 'An Interdisciplinary National Seminar on Buddhist Philosophy	18-19, December 2014	Dhanbad
A K Behura and Sarita Kar	National Conference 'Agriculture and Rural Development Issues In Eastern India	12 - 13 March, 2015	Giridih
Rajni Singh	International Seminar on Philosophy of Culture	31 <sup>st</sup> March – 2 <sup>nd</sup> April, 2014	Tezpur Assam
Rajni Singh	International Symposium on Time & Space In T.S. Eliot	18 <sup>th</sup> -22 <sup>nd</sup> January 2015	Florence, Italy
Rajni Singh	International Commonwealth Conference on Postcolonial Literature	28 <sup>th</sup> -30 <sup>th</sup> January, 2015	Sonipat, Haryana
Rajni Singh	59 <sup>th</sup> All India English Teacher's Conference	19 <sup>th</sup> – 21 <sup>st</sup> December 2014	Rajasthan Technical University, Rajasthan.

### 3.14 MANAGEMENT STUDIES

Department of Management Studies started as the Department of Industrial Engineering and Management in the year 1977. The Department 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. The Department became only the second institute in the country to offer M. Tech IEM and MBA. The Department currently offers M.Tech (Industrial Engineering & Management), MBA (2 year) and Executive MBA (3 year) programmes. It also offers Ph.D programme in Industrial Engineering & Management and in Management.

#### 3.14.1 FIELD VISITS/ EXCURSION/TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of Students	Place of visit	Period of visit
Factory Visit	MBA (Final Semester)	Supreme Industries Limited, Durgapur, West Bengal	September 1, 2014
Factory Visit	M. Tech.(2 <sup>nd</sup> Semester)	Xpro India Limited, Barjora, West Bengal	January 30, 2015

#### 3.14.2 INTRODUCTION OF NEW COURSES AND PROGRAMMES

- New course on Macroeconomics and Business Policy have been incorporated in MBA Program.
- New course like Services in Operations Management has been incorporated in MBA. The purpose of introducing this course is to acquaint students with service industry.

#### 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 (Rs. In Lakhs)	Date of Commencement	Findings
System Dynamics based Decision Support System for Indian Microfinance Institutions	UGC	Prof. Chandan Bhar	6.45	01.04.13	
Developing an accounting system for small and micro enterprises of Jharkhand	UGC	Prof. J.K.Pattanayak	5.39	01.04.13	

Testing theory in process industry transformation systems using case studies	UGC	Dr. K.S. Thyagaraj	9.16	01.04.13	
A Framework of Entrepreneurial Success among aspiring Entrepreneurs of Micro-enterprises in Jharkhand Region	UGC	Niladri Das	6.57	01.04.13	
Developing a Framework of Critical Indicators for Entrepreneurial Success of Science and Technology (S&T) Graduates in Eastern India	DST	Niladri Das	10.73	01.08.14	
Corporate Entrepreneurship in India: An Exploratory Study	UGC	Govind Swaroop Pathak	7.77	01-04-2013	

### 3.14.4 RESEARCH PUBLICATIONS

#### 3.14.4.1 Books published

Sl. No.	Author(s)	Title of Book
1	M. Pandey	Disaster Management, Wiley (2014)
2	Singh S, Pathak P, Pattanayak J K, Chandra B, Das N	Effectiveness, ethics and Sustainability: The Measure of Organizational Excellence, Excel Publisher (2014)

#### 3.14.4.2 Book reviews / contribution of chapters in a book

Dr. S.Singh reviewed the book “Tourism Marketing” authored by Manjula Chaudhary, for Oxford University Press.

#### Contribution of chapters in a book

Sl. No.	Author(s)	Title	Book	Vol. No./ Month/ Year	Page No.
1	S.Singh	Various factors of E-commerce and Buyer	Excel Publisher edited by Ajit	2014	239-247

		Behaviour: A Literature Review	Upadhyay, Bharti Motwani, Yogeshwari Phatak, R.K. Sharma		
2	Abhishek Kumar Dokania and Govind Swaroop Pathak	Corporate Brand Management: A Strategic HR Tool for Competitive Advantage	Re-Visioning Business Management and Psychology Ecologies of Local and Global Contexts Delhi: Wisdom Publications	August 2014	13-21
3	Abhishek Kumar Dokania and Govind Swaroop Pathak	The Role of CSR in Enhancing Corporate Image	Effectiveness, Ethics And Sustainability The Measures of Organisational Excellence, Excel India Publishers: New Delhi	October 2014	197-200
4	Rajesh Kumar and Govind Swaroop Pathak	Intrapreneurship: A Strategic Tool for Organisational Effectiveness	Effectiveness, Ethics And Sustainability Measures of Organisational Excellence, Excel India Publishers: New Delhi	October 2014	365-370
5	Govind Swaroop Pathak and Rajesh Kumar	Intrapreneurship: A Challenge for HR Function	Eleventh Biennial Conference on Entrepreneurship, Bookwell: Delhi	February , 2015, Vol. 1	533-541
6	Rajesh Kumar and Govind Swaroop Pathak	Intrapreneurship: A Strategy for Organization Renewal	Eleventh Biennial Conference on Entrepreneurship Bookwell: Delhi	February , 2015, Vol. 1	542-550

### 3.14.4.3 Papers published in International Journals

Sl. No	Author(s)	Year	Title	Journal	Vol No.	Page No.
1	Pankaj Kumar Medhi and Sandeep Mondal	2015	The changing dynamics in the worldwide mobile phone market: creating excellence through innovation management and collaborative	Emerald Emerging Markets Case Studies	5 (1)	1 - 10

			relationships			
2	Ahmad, Anees and Thyagaraj, K.S.	2015	Understanding the influence of brand personality on consumer behaviour	Journal of Advanced Management Science	3(1)	33-48
3	Nag, D. & Das, N.	2015	Development of Various Training Methods for Enhancing the Effectiveness and Skill Development among Micro entrepreneurs in India	Journal of Entrepreneurship Education, Allied Academies, USA	18(1)	Jan-18
4	Parihar Shwetank and C. Bhar	2014	Six Sigma, The Cloud and Clarity	Industrial Engineer	Oct	44-48
5	Shantanu Mukherjee, K. Mukherjee, Bibhas Chandra	2015	Channel Distribution Performance in Cold Chain Management: A Comparative Scenario Between Two States of India	Indian Journal of Marketing	45	19-35
6	Akhatar, F, Thyagaraj, K.S. and Das, N.	2015	A review of literature on financial investment decisions of individual investor: behavioural and risk related explanations	International Journal of Applied Business and Economic Research	13(1)	319-340
7	Ahmad, Anees and Thyagaraj, K.S.	2014	Applicability of brand personality dimensions across cultures and product categories: A review	Global Journal of Finance and Management	6(1)	7-18
8	Ahmad, Anees and Thyagaraj, K.S.	2014	Evaluating the role of consumer brand relationship in brand equity formation	International Journal of Applied Business and Economic Research	12(3)	603-614
9	N.K. Srivastava, N.K. and Sandeep Mondal	2014	Predictive maintenance using FMECA method and NHPP models	International Journal of Services and Operations Management	19(3)	pp.319-337
10	Anuradha	2014	Relationship	Abhinav International	3(9)	28-35

	and M Pandey		between work-life balance and Organizational Excellence: A Conceptual Model	Monthly Refereed Journal of Research in Management & Technology		
11	Santosh Kumar and M Pandey	2014	The impact of 9-ending prices strategy on consumers' attitude and Buying Behaviour: An Exploration,	Advances in economics and business management	2 (2)	93-98
12	Raut, R K and Das, N.	2014	Socio-Psychological Perspective of Stock Market Investors: A Review	International Journal of Applied Business and Economic Research	12(3)	501-513
13	Daizyand Das, N.	2014	Disclosure of Sustainability Reporting Initiatives Framework in Indian Mining Sector	International Journal of Applied Business and Economic Research	12(3)	683-707
14	Ghosh, S and Das, N	2014	Performance Evaluation of Faculties in Higher Educational Institutions in West Bengal	International Journal of Applied Business and Economic Research	12(3)	531-535
15	Mohd Irfan	2014	Quality Competition and Takeover Likelihood of Firms in a Vertically Differentiated Industry	International Journal of Economic Research	11 (1-2) – Part-2	457-472
16	Das S, Pattanayak J K and Pathak P	2014	Effect of quarterly earnings announcement under different market conditions: an empirical study of companies constituting SENSEX	Journal of Indian Business Research	6 (2)	128-154
17	Tudu P N, Pathak P	2014	Managing Employee Stress:	Global Journal of Finance Management	6 (5)	143-161

			Ways to Minimize Distress			
18	Das, S., Pattanayak, J.K. and Pathak, P.	2014	A study on cross sectional dependence and independence approach in an event study – A case with SENSEX	International Journal of Financial Management	4 (3)	11-27

#### 3.14.4.4 Papers published in national Journals

Sl. No	Authors	Year	Title	Journal	Vol No.	Page No.
1	Kumar, Randhir, K Brahampurya, and C. Bhar	2015	Feasibility Study of the Bicycle Sharing System as a Mode for Internal Movement of Employees: A Case Study	Prabandhan: Indian Journal of Management	8(2)	25-34
2	Nandi S, Singh S	2015	Impact of Marketing Stimuli on Mobile Phone Buying Behaviour of Young Indian Adults: An EFA and CFA approach	Tattva: International Journal for Advanced Research in Commerce and Management	1 (1)	13-29
3	Anuradha and M Pandey	2015	A Review of work-life balance practices prevalent in public sector undertakings in India	Prabandhan: Indian Journal of Management	8 (2)	49-56
4	Shrivastava A, Pare, S K, Singh S	2015	A Study to Understand the Price Sensitive Buying Behaviour of Consumers	Pacific Business Review International	7 (7)	63-73
5	Shantanu Mukherjee, K.Mukherjee, Bibhas Chandra	2015	Channel Distribution Performance in Cold Chain Management: A Comparative Scenario Between Two States of India	Indian Journal of Marketing	45	19-35
6	Nandi, S. and Pattanayak, J.K.	2015	Brand Loyalty and switching: An empirical study on mobile phone usage among young Indian adults	Indian Journal of Marketing	45 (3)	39 - 53
7	Ahmad, Anees and Thyagaraj, K.S.	2014	Brand Personality and Brand Equity Research: Past Developments and Future Directions	IUP Journal of Brand Management	11(3)	19-56

8	Mahapatra, B., Mukherjee, K. and Bhar, C.	2014	Performance Measurement- An DEA-AHP based approach	Journal of Advance Management Science	3(1)	26-30
9	Singh, Ritika and C. Bhar	2014	The Growth of Microfinance and the Role of DSS in Reducing its Volatility	The IUP Journal of Management Research	13(4)	54-79
10	Parihar, S, C. Bhar, and V. Tripathi	2014	Market related Risk Mitigation and Perishable Food Product Management of Agricultural Supply Chain in North East Region of Uttar Pradesh	Management Insight	10(2)	115-122
11	N.K. Srivastava and Sandeep Mondal	2014	Development of a Predictive Maintenance Model using Modified FMEA Approach	The IUP Journal of Operations Management	13 (2)	7-16
12	Raut,R Kand Das, N.	2015	Behavioural Perspective of Individual Investor Decision Making Process: A Review	Indian Journal of Finance	9 (4)	44-55
13	Akhtar, F, Thyagaraj, K.S. and Das, N.	2014	Developing an Empirical Framework for Investment Strategy Based on BB&K Five-way Model	IPE Journal of Management	4(2)	47-63
14	Nag, D. &Das, N.	2014	A Framework for the Development and Success of Microenterprises in India	IUP Journal of Business Strategy	11(3)	8-23
15	A Dubey and M Pandey	2014	Employees Personality, Political Skills & Impact on Job Satisfaction : A Literature Review & Synthesis	Management Insight	X (1)	38-46
16	Abhishek Kumar Dokania and Govind Swaroop Pathak	2014	Adopting the CSR Route for Corporate Image Building: A Case of Indian Steel Industry	Prabandhan: Indian Journal of Management	7 (7)	19-30
17	Rambalak Yadav and Govind Swaroop Pathak	2014	The pursuit of Sustainability through Green IT: A Study of Select IT organisations in India	Asia-Pacific Marketing Review	3 (2)	143-154



18	P.S. Sandhu, P. Pathak and G. S. Pathak	2014	Corporate Social Responsibility in India: A Review.	Social Science International	30 (2)	265- 280
19	Pathak P	2014	Administrative Wisdom in Ramayana	Prabuddha Bharata	120 (4)	307- 313
20	Pathak N. and Pathak P.	2014	Making CSR Effective- A Study of Coal Industry	Growth	42 (3)	1-6.
21	Tudu P.N. and Pathak P.	2014	A Comparative Study of Occupational Stress among Public and Private Sector Bank Employees of India: A Research Review	International Journal of Applied Business and Economics	12 (2)	831- 841
22	Tudu P.N. and Pathak P.	2014	Diagnosing Stress Level in Employees of Indian Banking Sector - A Study	Rajagiri Management Journal	8 (1)	51-75
23	Pathak N, Pathak P and Tudu P N	2014	Acceptability of stakeholders as a measure of CSR effectiveness: A study of Coal Industry	Management Insight	X(1)	69-73
24	Pathak P and Tudu P N	2014	Reinventing the Indian Civilization- The Values perspective	World Focus	35	27-30
25	Tigga A.E., Pathak P. and Kumar R.V.	2014	Branding of B Schools by Understanding the Expectations of their Three major stakeholders	Indian journal of Marketing	44 (10)	1-7.
26	Tara K, Singh S	2014	Green Banking: An Approach Towards Environmental Management	Prabandhan: Indian Journal of Management	7 (11)	Jul-20
27	Sinha P, Singh S	2014	Product Characteristics vis-à-vis Consumers' Risk Perception: A Conceptual Study of Online Shopping	The IUP Journal of Marketing Management	XIII (2)	40-57
28	Patro, B. and Pattanayak, J.K.	2014	Governance and its impact on the association between CSR and Earnings Quality : Evidence from Indian private mining firms	Indian Accounting Review	18 (2)	1-19.
29	Singh, P.K. and Pattanayak, J.K.	2014	The impact of brand loyalty on consumers' sportswear brand purchase	IUP Journal of Brand Management	XI (4)	40-52
30	Guha, P., Pattanayak, J.K. and Roy	2014	Corporate Governance – A perceptual undertone of management graduates	IPE Journal of Management	4 (2)	25-46

	Chaudhuri, M.					
31	Kumari, P. and Pattanayak, J.K.	2014	Earnings management and corporate governance issues in the banking and finance sector: A review of literature	Prabandhan: Indian Journal of Management	7 (12)	22- 31
32	Das, S., Pattanayak, J.K. and Pathak, P.	2014	Effect of quarterly earnings announcement under different market conditions – An empirical study of companies constituting SENSEX	Journal of Indian Business Research	6 (2)	128 - 154
33	Patro, B. and Pattanayak, J.K.	2014	Detecting earnings management using accrual based models – An empirical study with reference to Coal India Ltd.	The IUP Journal of Accounting Research & Audit Practices	XIII (2)	53-64

#### 3.14.4.5 Papers presented in International Seminars/Conference

Sl No	Author(s)	Year	Title	Conference Name	Venue
1	Ankita Ray and Sandeep Mondal	2015	An evaluation of acquisition policy of spare parts of used products in a remanufacturing business	8th ISDSI International Conference	Pune
2	Kaustov Chakraborty, Sandeep Mondal and Kampan Mukherjee	2015	Study on possibility of Frequency of remanufacturing- A critical analysis	8th ISDSI International Conference	Pune
3	Srivastava V. and Das, N.	2015	Corporate Governance and its Impact on Cost of Capital: Development of a Framework	12th International Accounting Conference on Contemporary Issues in Accounting and Finance	Science City, Kolkata
4	Nag, D. and Das, N.	2015	Impact of Sociocultural & Skill Related Factors for Success of Micro Entrepreneurs	12th AIMS International Conference on Management organized by AIMS	IIM, Kozhikode
5	Raut, R K and Das, N.	2015	Leveraging an Awareness of Common Behavioral Biases in Investment Decision Making: A Review	12th International Accounting Conference on Contemporary Issues in Accounting and Finance	Science City, Kolkata

6	Daizy and Das, N.	2015	Corporate Sustainability Reporting'	12th International Accounting Conference on Contemporary Issues in Accounting and Finance	Science City, Kolkata
7	Ankita Ray, Sandeep Mondal	2015	Impact of the buyback price on the profitability of spare parts remanufacturing	XVIII Annual International Conference of the Society of Operations Management	IIT Roorkee
8	Prof. Govind Swaroop Pathak & Rajesh Kumar	18-20, Feb, 2015	Intrapreneurship: A Challenge for HR Function	Eleventh Biennial Conference on Entrepreneurship, Organized by Entrepreneurship Development Institute of India, Ahmedabad	Ahmedabad
9	Rajesh Kumar & Prof. Govind Swaroop Pathak	18-20, Feb, 2015	Intrapreneurship: A Strategy for Organization Renewal	Eleventh Biennial Conference on Entrepreneurship, Organized by Entrepreneurship Development Institute of India, Ahmedabad	Ahmedabad
10	Rahul Kumar Singh, J.K. Pattanayak	2015	The relationship between corporate governance and corporate bonds: A study of electricity companies in India	The Twelfth International Accounting Conference on Contemporary issues in Accounting and Finance	
11	Binoti Patro, J.K. Pattanayak	2015	Governance and its impact on the association between CSR and earnings quality: Evidence from Indian private mining firms	The Twelfth International Accounting Conference on Contemporary issues in Accounting and Finance	
12	Kaustov Chakraborty, Sandeep Mondal and Kampan Mukherjee	2014	Extension of useful life of a product through Sustainable design methodologies	XVIII Annual International Conference of the Society of Operations Management	IIT Roorkee
13	Dibyajyoti Ghosh and Sandeep Mondal	2014	Integrated Production-Distribution Planning- Example of an Indian Steel Company	XVIII Annual International Conference of the Society of Operations Management	IIT Roorkee
14	Raut, R K and Das, N.	2014	Stock Market- An Emerging Approach to Infrastructural Financing in India	Infrastructural Conference on Frontiers of Infrastructural Finance (ICFIF 2014)	IIT, Kharagpur
15	Daizy and	2014	Status of Sustainability	Infrastructural	IIT,

	Das, N.		Reporting in Indian Mining Sector	Conference on Frontiers of Infrastructural Finance (ICFIF 2014)	Kharagpur
16	Amitabha Ghose, Bibhas Chandra	2014	Exploring Green Consumption Behaviour Framework for Indian Consumer Durable Products- A study Based on Qualitative Research	“Emerging Markets, Evolving Perspectives” by IMI Kolkata in collaboration with IAE, University of Tours, France & The Whitman School of Management, Syracuse University, USA	Kolkata
17	Ahmad, Anees and Thyagaraj, K.S.	2014	Applicability of Brand Personality Dimensions across Cultures and Product Categories: A Review	International Conference on "Modern Strategies for Management of Business, Economy, Services vis-a-vis Social Sciences-A Sustainable Approach	Jawaharlal Nehru University, New Delhi
18	Akhtar, Fatima, Thyagaraj, K.S. and Das, N.	2014	Behavioural Finance: Studying the Behaviour of Investors	4th International Management Convention-2014	Asian School of Business Management, Bhubaneswar
19	Abhishek Kumar Dokania & Prof. Govind Swaroop Pathak	2-3, Oct 2014	Corporate Brand Management: A Strategic HR Tool for Competitive Advantage	12th International Conference of Management and Behavioural Sciences	Jaipur
20	P.S. Sandhu & Govind Swaroop Pathak	4-5, Nov, 2014	Corporate Social Responsibility as Strategy: Management of Biodiversity?	International Conference on Corporate Social Responsibility, ICSSR 2014, organized by the Department of Marketing Management, University of Sri Jayewardhanapura, Sri Lanka, Management and Science University, Malaysia & TIKM	Colombo

#### 3.14.4.6 Papers presented in National Seminars/Conference

Sl No	Author(s)	Year	Title	Conference Name	Venue
1	Shantanu Mukherjee, Bibhas	2015	Evocative Transportation Network for Blood Bank Supply Chain: A Speculative Study	“Globalised Growth and Indian	Jodhpur

	Chandra			Challenges” by Jai Narain Vyas University, Jodhpur	
2	Prof. Govind Swaroop Pathak and Col. P.S. Sandhu	March, 30-31, 2015	Disaster Management with Special focus on the Marginealized Farmers	Round table conference on ‘Disaster and Exclusion: Exploring the challenges’ organized by The Jamsetji Tata Centre for Disaster Management, Tata Institute of Social Sciences, Mumbai	Mumbai
3	Aparna Choudhary, Sandeep Mondal and Kampan Mukherjee	2014	Analysis of the factors affecting the adoption of green supply chain management - an ISM approach	Socially Responsible Supply Chains (Biennial Supply Chain Conference, 2014)	IIM, Bangalore
4	Amitabha Ghose, Bibhas Chandra	2014	Developing Green Consumption Behaviour Framework for Indian Durable Products Consumers- A Theoretical Framework	“Globsyn Management Conference 2014” by Globsyn Business School, Kolkata	Kolkata
5	Prof. Govind Swaroop Pathak and Vijyendra Pandey	Dec, 12 -14, 2014	Organizational Justice in Indian Context: An Exploratory Study	XXIV Annual Convention of National Academy of Psychology (NAOP), India	Bhopal
6	Samir Gokarn and K.S.Thyagaraj	2014	An analysis of the factors influencing the performance of fresh produce supply chain management	Socially Responsible Supply Chains (Biennial Supply Chain Conference, 2014)	IIM, Bangalore

### 3.15 DEPARTMENT OF MECHANICAL ENGINEERING

The Department of Mechanical 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.

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

Particulars	Batch of Students	Place of Visit	Period of visit
Summer Training	VI Semester Students  II Semester M. Tech. (Maintenance Engineering and Tribology) Students  II Sem. M.Tech (Manufacturing Engg.)	Bhilai Steel Plant, SAIL Bokaro, BCCL Dhanbad, DVC-CTPS, Tega Industries, BHEL Bhopal Tata Steel, Ultratech Cement, Tata Motors, Hero Moto Corp, Honda Cars India Ltd., BHEL Jhansi, Jindal Stainless Ltd. Hisar, J K Tyres Gwalior, Howrah Railway Workshop, Mazagon Dock Ltd., Kota Super Power Thermal Station, HEC Ranchi, HLS Asia Ltd., HPCL Vizag, Honda Cars India Ltd., Essar Steel, Mathura Refinery, L&T, Rawatbhata, TVS Motors, BHEL Hyderabad, NTPC Delhi, Kota Super Power Thermal Station, Vizag Steel Plant, Tata Motors, Essar Steel, NTPC Nagpur, IOCL Mumbai, PMI Toolings Pvt. Ltd, Volvo India Pvt. Ltd, Royal Enfield Chennai, K.M.Sugar Mills Ltd. Faizabad, Oerlikon Graziano, Trasmisioni Pvt. Ltd. Greater Noida, Tata Hitachi, Mazagon Dock Ltd., Steel Plant Vizag, HMT Ajmer, BHEL North Karnpura, SECL Gevra	Minimum 4 weeks to maximum 8 weeks
Industrial Visit	B.Tech students (2 <sup>nd</sup> Year)	Bokaro Steel Plant, Bokaro Jharkhand	19 <sup>th</sup> & 20 <sup>th</sup> March 2015
Industrial Visit	B.Tech students (3 <sup>rd</sup> Year)	Chittaranjan Locomotive Works Chittaranjan Jharkhand	13 <sup>th</sup> Feb., 2015
Industrial Visit	2 <sup>nd</sup> M.Tech (Thermal Engg)	Chandrapura Thermal Power Plant, Chandrapura	One day In April 2015

### 3.15.2 INTRODUCTION OF NEW COURSES AND PROGRAMMES

New M. Tech programme in Thermal Engineering has been introduced from July, 2014.

### 3.15.3 BEST PRACTICES OF THE DEPT

- Encourage students to take part in technical competition of national/international importance by actively involving and guiding students providing available infrastructure and workmanship.
- Encourage students to attend national and international seminars/conferences/symposium and to present paper both for general forum and student's level competitions.
- Inculcate student's innovative minds in computational research work through latest softwares like FEM, CFD, CATIA, COMSOL, and MATLAB.

### 3.15.4 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	Findings
Synthesis and characterization of dental polymeric nanocomposite materials	DST	Ashis Mallick	54 lakh	November, 2013	Strength of polymer composite
Wear & Friction Study of Nano Composites	UGC	Dr. K. K. Singh	6.85 Lakh	1 <sup>st</sup> April 2014	Under Process
Active modal Vibration control of composite structure	SERB (DST)	Dr P. K. Mahato	Rs.27.1 Lakhs	01.12.2014	Equipments will be installed soon.
Investigation into the Submerged Arc Welding Process	UGC	Somnath Chattopadhyaya	10.21 Lakhs	April 2013	

**3.15.5 IMPORTANT COLLABORATIVE WORKS**

<b>Organisation / Laboratory</b>	<b>Nature of Interaction</b>
University of South Florida, USA	Study abroad program on Mining, Environment and Sustainable Development” for the students of University of South Florida, USA at ISM Dhanbad.
Politecnico Di Torino, Polito, Torin, Italy	MOU has been signed
CSIR-CMERI, Durgapur	MOU has been signed

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

Name of Equipment	Purpose	Date of Purchase	Value
Mechanical Testing Machine for Fatigue and Fracture	For B.Tech, M.Tech, JRF Research work	30/09/2014	Rs. 30.5 Lakhs
400 Watt Fibre Laser with standard accessories	Teaching and Research	27.08.2014	33840 US Dollars(Rs. 21 lakhs)
Electrical Discharge Machine(DieSinkingEDM)	-Do-	10.08.2014	9.01 lakhs
Micro hardness Tester(Vickers)	-Do-	23.03.2015	5.72 lakhs
Plate Type Heat Exchanger with all instrumentations	Research and Ph.D work	08-08-2014	Rs.15.659 lakhs
Exhaust Gas Analyzer	R&D work	16.09.14	USD 12800
Infra Red Camera	For UGC Project	January 2015	9.10 Lakhs

**3.15.7 RESEARCH PUBLICATIONS****3.15.7.1 Papers published in International Journals**

<b>Sl. No.</b>	<b>Author (s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Vol. No.</b>	<b>Page No.</b>
1	A. Mandal, A. R. Dixit	2014	State of art in wire electrical discharge machining process and performance	Int. J. Machining and Machinability of Materials	16	1-20
2	S. Samanta, A. Mandal, Thingujam	2014	Application of ANN in Identifying	Procedia Materials Science	6	926 – 930



	Jackson Singh		Defects in Impacted Composite			
3	Ramesh P. Sah, Biplab Choudhury, Ranadip K. Das	2015	A review on adsorption cooling systems with silica gel and carbon as adsorbents	Renewable and Sustainable Energy Reviews, Elsevier	45	123–134
4	Mukul Kumar & R. K. Das	2015	Thermodynamic Investigation of Diffusion Absorption Refrigeration Technology With Triple Fluid	International Journal of Applied Engineering Research	10	451-468
5	A. Mallick and R. Das	2014	Application of Simplex search method for predicting unknown parameters in an annular fin subjected to thermal stresses	J. of Thermal stresses	37	236 - 251
6	A. Bhowmik R. K. Singla R. Das A. Mallick and R. Repaka	2014	Inverse modelling of a solar collector involving Fourier and non-Fourier heat conduction, App. Mathematical Modelling	Applied Mathematical Modeling	38	5126 - 5128
7	A. Mallick, S. Ghosal, P. K. Sarkar, and R. Ranjan	2015	Homotopy Perturbation Method (HPM) for Thermal Stresses in an Annular Fin with Variable Thermal Conductivity	J. of Thermal stresses	38	110 - 132
8	P. K. Roy H. Mondal and A. Mallick	2015	A decomposition method for convective–radiative fin with heat generation	Ain Shams Engg. Journal	6	307 – 313
9	P. S. Shinde, P. Kumar, K.	2014	Experimental Study of CFRP	Composite Interfaces,	22 (4)	233-248

	K. Singh, V. K. Tripathi & P. K. Sarkar		patches bonded on a cracked Aluminum alloy panel			
10	R. N. Ladhwe, Prashant Kumar, K. K. Singh & P. K. Sarkar	2014	Experimental Study and Numerical Analysis of a CFRP Butt-Joint between the Pipes of Dissimilar Materials	The Journal of Adhesion	91 (9)	725- 729
11	Azam, M. S., Ranjan, V., Kumar, B.	2015	Effect of a Crack on the Eigenvalues of Rectangular Isotropic Plate Using Finite Element Method	International Journal of Applied engineering Research	10 (1)	231- 243
12	Azam, M. S., Ranjan, V., Kumar, B	2015	Finite element modeling and analysis of free vibration of a square plate with side crack	Differential Equations and Dynamical Systems	DOI: 10.1007/s125 91-015- 0241-2	
13	S. Narayanan, P. Chaitanya, S. Haeri, P. Joseph, J. W. Kim, C. Polacsek	2015	Airfoil noise reductions through leading edge serrations	Physics of Fluids	27, 02 51 09	1-16
14	S. Narayanan, K.Srinivasan, T. Sundararajan	2014	Aero-acoustic features of internal and external chamfered Hartmann whistles: A comparative study	Journal of Sound and Vibration	33 3 (3)	774- 787
15	Vates U. K, Singh N. K. and Singh R.V.	2014	Effect of Alloying Content on Surface Roughness of Steels at Optimal Parametric Condition using WEDM	International Journal of Applied Engineering Research	9 (19 )	5299- 5310

16	Vates U. K, Singh N. K. and Singh R.V.	2014	ANN Modelling and Optimization of Ra with MRR on HSS T42 Steel using WEDM process	International Journal of Mechanical & Mechatronics Engineering	14 (3)	114- 128
17	Vates U. K, Singh N. K. and Singh R.V.	2014	Modelling and Prediction of Ra of EN31 in Wire Electrical Discharge Machining using ANN and MSE Approach	International Journal of Applied Engineering Research	9 (21 )	9273- 9296
18	Vates U. K, Singh N.K. and Tripathi B.N	2015	Surface Finish Analysis of D2 Steel in WEDM using ANN &Regression Modelling with influence of Fractional Factorial Design of Experiment”	International Journal of Engg Trends and Technology	19 (3)	159- 167
19	E. Carrera, M. Filippi, P. K. Mahato, A. Pagani	2014	Advanced Models for the Free Vibration Analysis of Laminated Beams with Compact and Thin-Walled Open/Closed Sections	Journal of Composite Materials	doi: 0.1177/0021 9983145415 70	
20	Navrose, V. Yogeswaran, Subhankar Sen and Sanjay Mittal	2014	Free vibrations of elliptic cylinders at low Reynolds numbers	Journal of Fluids and Structures	51	55-67
21	Ehtesham Hasan, S. K. Ghoshal, and K. Dasgupta	2014	Speed Control of a Hydraulic Motor	Applied Mechanics and Materials	592 - 594	2239- 2243
22	Singh, S.N and A. K. Goel	2014	Effect of Geometrical Parameters on Thermal Behavior of a Jet Plate Solar Air Heater	International Journal of Energy and Technology	6 (18)	1-8
23	Singh, S.N	2014	Experimental	International	6	1-7

	and Bhupal Kumar		Investigation of Flow and Heat Transfer in a Plane Surface Plate Type Heat Exchanger	Journal of Energy and Technology (American Society of Science and Engineering)-	(28)	
24	Singh, S.N and Bhupal Kumar	2015	Analytical studies on hydraulic performance of a Chevron Type Plate Heat Exchanger	International Journal of Heat and Technology	33	17-24
25	Sachin K Singh and Rajiv Tiwari	2014	Detection and Localization of Multiple Cracks in a Shaft System: An Experimental Investigation	Measurement	53	182-193
26	Md. Sikandar Azam, Vinayak Ranjan, Bipin Kumar	2015	Finite element modelling and analysis of free vibration of a square plate with side crack	Differential Equations and Dynamical Systems	DOI 10.1007/s12591-015-0241-2	
27	Md. Sikandar Azam, Vinayak Ranjan, Bipin Kumar,	2015	Effect of a Crack on the Eigenvalues of Rectangular Isotropic Plate Using Finite Element Method,	International Journal of Applied Engineering Research,	10 (1)	231-243
28	Rajendra Vishwakarma, Vinayak Ranjan, J Kumar	2015	Dynamic response and effect of apertures on explosion parameters of flameproof apparatus,	Journal of Loss Prevention in the Process Industries,	33	245-249
29	Rajendra Vishwakarma, Vinayak Ranjan, J Kumar	2014	Comparison of explosion parameters for Methane Air mixture in different cylindrical flameproof enclosures,	Journal of Loss Prevention in the Process Industries,	31	82-87

30	Atul, Vinayak Ranjan, Ankit L. Pandey,	2014	Finite Element Modeling of Piezoelectric Cantilever with 31 Effects for Sensor Application,	Sensors & Transducers	182	281-28
31	Bipin Kumar, Vinayak Ranjan,	2014	The Effects of Attached Discrete Patches and Point Masses on Eigenvalues and Sound Radiation of a Rectangular Plate.	Journal of the Institution of Engineers (India): Series C (Springer)	95(4)	359–366
32	Jai Prakash, P. K. Sarkar, Vinayak Ranjan, -	2014	Contact Stress Analysis in Wheel–Rail by Hertzian Method and Finite Element Method	Journal of the Institution of Engineers (India): Series C (Springer)	DOI 10.1007/s40032-014-0145-x.(2014)	
33	Saurabh Dewangan, Somnath Chattopadhyaya, Sergej Hloch	2014	Wear assessment of conical pick used in coal cutting operation	Rock Mech Rock Eng	DOI 10.1007/s00603-014-0680-z	
34	Saurabh Dewangan, Somnath Chattopadhyaya	2015	Characterization of wear mechanisms in distorted conical picks after coal cutting	Rock Mech Rock Eng	DOI 10.1007/s00603-015-0726-x	
35	Saurabh Dewangan, Somnath Chattopadhyaya	2014	Discussion on ranking the sawability of rock using a combined multiple attributes decision making method	Applied mechanics and materials	5	592-594
36	Saurabh Dewangan, Somnath Chattopadhyaya, Sergej Hloch	2014	Investigation into coal cutting operation by using conical pick of cast iron with LH710 coated tip	Applied mechanics and materials	6	592-594
37	Saurabh Dewangan, Somnath	2014	Investigation into coal fragmentation	Procedia Materials Science	5	7

	Chattopadhyaya, Sergej Hloch		analysis by using conical picks			
38	Mayukh Sarkar, Subrata Kr. Ghosh, P. S. Mukherjee	2015	Analysis of Wear Generation in Mine Excavator Bucket	Industrial Lubrication and Tribology	67/1	52-58
39	Vikram Sharma, Amit Rai Dixit, Mohd. Asim Qadri and Sanjay Kumar	2015	An interpretive hierarchical model for lean implementation in machine tool sector”	International Journal of Productivity & Quality Management	15 (3)	381-406
40	Anuj Sharma, Arun K Tiwari; Amit R Dixit,	2015	Progress of nanofluids in machining: A review	Materials and Manufacturing Processes.	doi-10.1080/10426914.2014.973583	
41	Vikram Sharma, Amit Rai Dixit, Mohd. Asim Qadri and sanjay Kumar	2014	Analysis of Barriers to Lean Implementation in Machine Tool Sector	Int. Journal of Lean Thinking,	5 (31)	7

### 3.15.7.2 Papers presented in International Seminars/Conferences

Sl. No.	Author(s)	Title	Seminar/Conference	Date	Place
1.	S. Datta and S. Sarkar	Review on Pipe Line Hazard Detection Using Vibration Analysis Method	Proceedings of IRF International Conference, Organised by IRAJ Research Forum,	09th November 2014	Pune, India,
2.	D. Kumar and S. Sarkar	A Review on The Design Efficient Blade of Hydrokinetic Turbines	19 <sup>th</sup> International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering	Dec 18-20, 2014	MNIT Bhopal, India under aegis of Indian Society for Hydraulic

			(HYDRO 2014)		s (ISH)
3.	N. K. Gautam, S. Sarkar	An overview of Pipe Network Transient Analysis Considering leak Using HAMMER	Advances in Mechanical Engineering, Proceedings of the International Mechanical Engineering Congress (IMEC),	June 13-15 2014	NIT Tiruchirappalli, India,
4.	S. Mundra R. Ranjan and A. Mallick	Application of Mean Value theorem for thermal stresses in an annular fin	59th Cong. of ISTAM (An Int. Conf.)	Dec 17 - 20, 2014	Alliance University, Bangalore
5.	Prashant Rawat and Kalyan Kumar Singh	Synthesis of MWCNTs using Arc Discharge Method for CNT/FRP epoxy composites fabrication	International Conference	April 9-11, 2015	NIT Tiruchirappalli
6.	Nand Kishore Singh and Kalyan Kumar Singh	Numerically Analysis the effect of Pre-Crack on Impact Response of Quasi-Isotropic Systematic GFRP Laminates	International Conference	April 9-11, 2015	NIT Tiruchirappalli
7.	Dhiraj Kumar & K. K. Singh	Study of Delamination and Surface Roughness in the Milling of MWCNT Based GFRP Nanocomposite	International Conference	December 5-7 <sup>th</sup> , 2014	IIT-Roorkee
8.	S. K. Chaudhary & K. K. Singh	Synthesis of CNTs by arcing process without catalyst	International Conference	December 5-7 <sup>th</sup> , 2014	IIT-Roorkee
9.	P. Jayant & K. K. Singh	Finite Element Modeling of	International Conference	December 5-7 <sup>th</sup> , 2014	IIT-Roorkee

		Burr Formation in Orthogonal Cutting of Glass Fibre Reinforced Polymer Composites			
10.	K. K. Singh	Damage Tolerance and Microscopy Study of GFRP Laminates	International Conference at USA	June 8-12 <sup>th</sup> , 2014	Stony Brook University, Long Island, New York, USA.
11.	P. Tripathi & K. K. Singh	Tribological Properties of Bidirectional Oriented GFRP Composites	International Conference	May 30-31, 2014	IIT Patna
12.	Nishant Kumar & K. K. Singh	Finite Element Analysis of GFRP Composites modified with different sizes of Silica particles	International Conference	May 30-31, 2014	IIT Patna
13.	Anand Gaurav & K. K. Singh	Micro-mechanical characterization of GFRP nano-composites using ANSYS	International Conference	May 30-31, 2014	IIT Patna
14.	Nand Kishore Singh & K. K. Singh	Loading Rate Dependency of GFRP Laminate with different orientation of Plies	International Conference	April 5-6 <sup>th</sup> , 2014	IIT-Roorkee, Saharanpur Campus
15	Azam, M. S., Ranjan, V., Kumar, B.	Influence of crack on the vibration of Rectangular Isotropic plates	Advancement and Current Trends (IC IMPACT 2014),	27-29 November, 2014	MANIT Bhopal, India
16	Azam, M. S., Ranjan, V., Kumar, B.	Impact of Multiple Cracks on the Free Vibration of	International Conference on Advances in Design and	5-7 December, 2014	NIT Trichy, India



		Mindlin Plates	Manufacturing (ICAD&M'14)		
17	Azam, M. S., Ranjan, V., Kumar, B.	Effect of Pre-Existing Crack on Free Vibration of Rhombic Plates	International symposium on Aspects of Mechanical Engineering and Technology for industry (AMET I-2014),	6-8 December, 2014	Itanagar, Arunachal Pradesh, India,
18	Rahul Kumar and Md. Sikandar Azam	Numerical Solution to Thermo EHL Problems: A Review	International symposium on Aspects of Mechanical Engineering and Technology for industry (AMET I-2014),	6-8 December, 2014	Itanagar, Arunachal Pradesh, India,
19	S. Narayanan, P. Joseph, S. Haeri, J. W. Kim	Noise reduction studies from the leading edge of serrated flat plates	20 <sup>th</sup> AIAA/CEAS Aeroacoustics Conference	17/06/2014	Atlanta Georgia, USA
20	S. Haeri, J. W. Kim, S. Narayanan and P. Joseph,	3D calculations of aerofoil-turbulence interaction noise and the effect of wavy leading edges.	20 <sup>th</sup> AIAA/CEAS Aeroacoustics	17/06/2014	Atlanta Georgia, USA
21	Tiwari Vidhika and N. K. Singh	“Comparative Study of Machining Processes by Process Capability Indices”	Proceedings of Intl. Conference on Industrial Engineering Science and Applications (IASA-2014)	2-4 April 2014	NIT Durgapur (Paschim Banga)
22	Hemant Kumar and N.K. Singh	“Development of new methods to obtain high penetration depth in TIG welding : A Literature review”	Proceedings of International Mechanical Engg Congress (IMEC)- 2014	13-15 June, 2014	NIT Thiruchirappalli (Tamil Nadu)
23	Swati and N.K. Singh	Developments in Gas Metal Arc Welding	Proceedings of International Conference on	27-29 November 2014	MANIT Bhopal

		Process: A Review	Industrial. Mechanical and Production Engineering : Advancements and Current Trends (ICIMPACT)		
24	E. Carrera, M. Filippi, P. K. Mahato, and A. Pagani	. Analysis of laminated box beams using 1d Carrera unified formulation	11th World Congress on Computational Mechanics (WCCM XI)	July 2014	Bercelona, Spain
25	E. Carrera, M. Filippi, P. K. Mahato, and A. Pagani	One-dimensional cut models for the analysis of laminated structures	8th Australian Congress on Applied Mechanics (ACAM 8)	November 2014.	Melbourne, Australia
26	Tripathi JP, Ghoshal SK and Dasgupta K	Investigation of spool movement of direction control valve in a typical hydraulic system used for load lifting: A simulation study.	Proceedings of International Mechanical Engineering Congress (IMEC)	June 13-15, 2014	Tiruchirappalli, India
27	Tripathi JP, Ghoshal SK and Dasgupta K	Towards Energy Saving of a Hydraulic Lifting System: A Bond Graph Simulation	Proceedings of International Conference on Advances in Design and Manufacturing (ICAD&M'14)	December 5 – 7, 2014	Tiruchirappalli, India
28	Singh, S.N	Numerical Investigation of Conjugate Free Convection with Surface Radiation From a Left Vertical Wall of Closed/Open Cavities with Uniform Volumetric	proceedings of 10th International Conference on HEFAT	July 14-16, 2014.	Orlando (Florida), USA

		Heat Generating Source			
29	Singh, S.N. and Nayak, R.K.	Analytical Study of Flow and Heat Transfer in Cross and Non Cross Flow Jet Plate Solar Air Heater	10th International Conference on HEFAT	July 14-16, 2014	Orlando(F lorida), USA
30	Singh, S.N. and Bhupal Kumar	Hydraulic Performance Study of A Chevron Type Plate Heat Exchanger	5 <sup>th</sup> international and 41st national conference on fluid mechanics and fluid power	December 12-14,2014	IIT Kanpur
31	Singh, S.N and D.K.Singh	Investigation of Fluid Flow in Cavities Partially Heated from Below	5 <sup>th</sup> international and 41st national conference on fluid mechanics and fluid power	December 12-14,2014	IIT Kanpur
32	Saurabh Dewangan & Somnath Chattopadh yaya	Wear of the Rock Cutting tools	International Conference held at Poprad, Slovakia in the month of September,2015	31 <sup>st</sup> August – 5 <sup>th</sup> September, 2015	Poprad, High Tatra, Slovakia
33	Laxmi Kant, A R Dixit, A K Das and A Mandal	Multiobjective optimization of Cutting parameters for turning operation of EN36B Steel using Taguchi Method	International Conference on Advance Research in Engineering and Technology (ICARET- 2014)	18-19 April 2014	Tamil Nadu
34	Rajesh Bajaj, Arun Kumar Tiwari, Amit Rai Dixit	Current trends in electric discharge machining using micro and nano powder materials- A Review	4 <sup>th</sup> Int Conf Material Processing & Characterizatio n ICMPC-2015	14-15 March 2015	Hyderaba d
35	Anuj Kumar Sharma, Arun	Improved Machining Performance	4 <sup>th</sup> Int Conf Material Processing &	14-15 March 2015	Hyderaba d

	Kumar Tiwari, Amit Rai Dixit	with Nanoparticle Enriched Cutting Fluids under Minimum Quantity Lubrication (MQL) Technique: A Review	Characterization ICMPC-2015		
36	Anuj Kumar Sharma, Arun Kumar Tiwari, Amit Rai Dixit	Mechanism of Nanoparticles functioning and Effects in Machining Processes: A Review	4 <sup>th</sup> Int Conf Material Processing & Characterization ICMPC-2015	14-15 March 2015	Hyderabad

### 3.15.7.3 Papers presented in National Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar/Conference	Date	Place
1	Rahul Kumar and Md. Sikandar Azam	Thermo-hydrodynamic analysis of finite journal bearing with surface waviness	Advances in Thermal Engineering	December 19-20, 2014	ISM Dhanbad, India
2	V Sagar & Rakesh Kumar	Design, Fabrication and Calibration of Coaxial Thermocouples for Transient Measurement	Proceeding of 1 <sup>st</sup> National Conference, AITE2014, Page No. 224-229	19 <sup>th</sup> – 20 <sup>th</sup> December 2014	ISM Dhanbad
3	A Narayn & Rakesh Kumar	Surface Heat Flux Measurement Analysis over an Aerodynamics Vehicle Surface	Proceeding of 1 <sup>st</sup> National Conference, AITE2014, Page No. 81-86	19 <sup>th</sup> – 20 <sup>th</sup> December 2014	ISM Dhanbad
4	R Goswami & Rakesh Kumar	Transient Temperature Data Analysis of Thin film Heat Transfer Gauges	Proceeding of 1 <sup>st</sup> National Conference, AITE2014, Page No. 230-234	19 <sup>th</sup> – 20 <sup>th</sup> December 2014	ISM Dhanbad

5	Singh, S.N. and Bhupal Kumar	Effect of Corrugation Pitch On Flow Maldistribution and Pressure Drop In Plate Heat Exchanger	Proceedings of 1 <sup>st</sup> National Conference on AITE2014	Dec 19-20, 2014	ISM Dhanbad
6	Singh, S.N. and D.K. Singh	Analytical Study of Flow and Heat Transfer in Cross and Non Cross Flow Jet Plate Solar Air Heater	Study of Conjugate Free Convection with Surface Radiation from Left Volumetric Heat Generating Vertical Wall in Closed Cavities	Dec 19-20, 2014	ISM Dhanbad
7	Subrata Kr. Ghosh, Ankit Kotia, Gaurab Kr. Ghosh	Mathematical modelling for density of nanofluid considering the effect of interfacial nano layer	National conference on Advances in Thermal Engineering	December 2014	ISM Dhanbad
8	Subrata Kr. Ghosh, Ankit Kotia, Gaurab Kr. Ghosh	Effect of change in specific heat of nanofluid as a coolant on heat transfer in HEMM	National conference on Advances in Thermal Engineering	December 2014	ISM Dhanbad
9	Niharika Gupta, Ashwani Kumar, Subrata Kr. Ghosh	Lubricating oil analysis of coal mining equipment using analytical ferrography and FESEM	National conference on Advances in Thermal Engineering	December 2014	ISM Dhanbad

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

National Conference on “Advances in Thermal Engineering” (AITE) 2014	Dec 19-20, 2014
International Workshop on Computational Methods in Vibration and Acoustics	16-21 March 2015
Workshop of COMSOL Multi physics	25 July 2014

### 3.15.9 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Dr. K. K. Singh	Damage Tolerance and Microscopy Study of GFRP Laminates	June 8-12 <sup>th</sup> , 2014	Stony Brook University, Long Island, New York, USA.
Dr. N. K. Singh	3 <sup>rd</sup> International Conference and Exhibition on Material Science & Engineering (Material Science)	6-8 October 2014	Hotel Hilton Airport San Antonio Texas USA
Dr. P. K. Mahato	11th World Congress on Computational Mechanics (WCCM XI)	20-25 July, 2014	Bercelona, Spain
Dr. S.N. Singh	10 <sup>th</sup> International Conference on "Heat Transfer, Fluid Mechanics and Thermodynamics" (HEFAT-2014)	July 14-16, 2014	Orlando, USA

### 3.15.10 VISITS OF FACULTY MEMBERS ABROAD

Dr. K. K. Singh, Department of Mechanical Engineering visited Stony Brook University, Long Island, New York, USA, June 8-12th, 2014

Dr. N. K. Singh visited and presented paper on "Prediction and optimization of heat affected zone width of submerged arc welding process" in the 3<sup>rd</sup> International Conference and Exhibition on Material Science & Engineering (Material Science) 2014 held during 6-8 October 2014 at Hotel Hilton Airport San Antonio Texas USA.

Dr. P K Mahato has visited Polytechnico di Torino, Italy, for Post-Doctoral research during 1st December 2013 to 30<sup>th</sup> September 2014.

Dr. S.N. Singh has visited Orlando, USA during July 14-16, 2014 to participate in the 10<sup>th</sup> International Conference on "Heat Transfer, Fluid Mechanics and Thermodynamics" (HEFAT-2014).

Dr. Somnath Chattopadhyaya attended international conference at Poprad, Slovakia in the month of September, 2015 to deliver key note address and chair one of the technical session.

Dr. Subrata K. Ghosh visited University of Trento, Italy as Postdoctoral Research fellow for a period of six months from 02.12.2014 to 22.5.2015

Dr. A. K. Das visited Politecnico Di Torino, Italy as Postdoctoral Research fellow for a period of six months from 02.12.2014 to 22.5.2015

### **3.15.11 TESTING SERVICES (LAB FACILITIES AVAILABLE FOR TESTING IN THE DEPARTMENT / CENTRE)**

The test facilities available

In Strength of Materials Laboratory (As per ASTM standards):

- Tension Test
- Compression Test
- Mode-I Test
- Mode-II Test
- Fatigue Test

In CAM Lab:

- Measurement of Micro Hardness of different materials.

### 3.16 MINING ENGINEERING

The Department of Mining Engineering was established in 1926 with the founding of the School in that year by the then Viceroy of India, Lord Irwin. Over the Past 88 years, it has developed and grown to become the largest Department of its kind in the country with excellent facilities for teaching and research and widespread activities in both coal and non-coal/metalliferous mining sectors. Its high reputation attracts students from all parts of India as well as from abroad.

The Department has been recognized as a QIP Centre for the faculty members of other Mining Engineering Departments of the country to pursue higher studies. The Department has been accorded the status of “Centre of Advanced Studies” in Mining Engineering by the University Grant Commission, in recognition of its high standards 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.

The students passing out from this Department have traditionally occupied top positions in the government departments as well as in the mining industry, both in India and abroad. The posts of Director-General of Mines Safety; Chairmen and Managing Directors of most of the mining companies and top executives of many other companies, both in the public and private sectors, have been traditionally occupied by the ex-students of the Department. Over 400 ex-students of Indian School of Mines are working in the USA and other countries, in highly respectable positions.

#### 3.16.1 FIELD VISITS/EXCURSIONS/TRAINING PROGRAMMES UNDERTAKEN BY THE STUDENTS

Particulars	Batch of students	Place of visit	Period of visit
Local Excursion (Monsoon Semester)	III Semester B. Tech and Dual Degree	Sendra Bansjora Colliery, BCCL CIMFR (Explosive and Blasting Division)	04.09.2014 to 06.09.2014
	V Semester B. Tech and Dual Degree	Sonepur Bazari, OCP, ECL Moonidih Project, BCCL	01.09.2014 to 03.09.2014
	VII Semester B. Tech and Dual Degree	Rescue Station Dhansar, BCCL	28.08.2014 to 30.08.2014
	I Semester M. Tech	Sonepur Bazari, OCP, ECL Sendra Bansjora Colliery, BCCL	02.09.2014 to 03.09.2014
Singhbhum Excursion (Winter Semester)	IV Semester B. Tech and Dual degree	Jaduguda Mines, Narwapahar mines, Jaduguda Mill, HPU Units of UCIL Noamundi Iron Ore Mines of Tata Steel	04.01.2015 to 10.01.2015



Local Excursion (Winter Semester)	VI Semester B. Tech and Dual degree	Nudhkuri Block –II , OCP, BCCL Putki Balihari Project, BCCL Godhar Colliery, BCCL	08.01.2015 to 10.01.2015
	VIII Semester B. Tech and Dual degree	Jogta Mine Fire Area BCCL, Bhela Tand Coal Washery, Tata Steel	16.12.2014 to 18.12.2014

### 3.16.2 INTRODUCTION OF NEW PROGRAMMES

M.Tech programme in Opencast Mining

### 3.16.3 BRIEF LIST OF ONGOING R & D PROJECTS

Project Title	Sponsoring Agency	Coordinator	Project Value (Rs. In Lakhs)	Date of Commencement	Findings
Development of Underground Coal Gasification Technology in India	Council of Scientific and Industrial Research (CSIR).	Prof. D. C. Panigrahi (PI) Co-PIs: Prof. Atul K Varma, Prof. V K Saxena, Prof. S Chaudhuri, Shri P K Behera, Prof. R K Das, Dr. D P Mishra	Rs. 91.60 lakhs	20.03.2013	The experimental facilities are being developed and the research will be carried out after these developments

Development of Self Advancing (Mobile) Goaf Edge Supports (SAGES) for Depillaring Operations in Underground Coal Mines	Ministry of Coal, Govt. of India	Prof. U. K. Singh, Dr. Dheeraj Kumar, Mr. N.V.N. Reddy, JBEPL	Rs. 197.75 lakhs	01.09.2010	Six numbers of SAGES have been developed. The field trials of SAGES 1 and 2 have been undertaken in Bastacola underground coal mines. Based on the results of the field trials, SAGES 3 and 4 were developed and put for the field trial in the same mine. Based on the performance of the SAGES 3 and 4, SAGES 5 and 6 have been fabricated. The SAGES 3 and 4 will remain gainfully deployed as goaf edge supports in Batacola Mines.
FIST project to strengthen teaching facilities in the areas “Geomatics & Underground Space Technology”	FIST, DST	Prof. V.M.S.R.Murthy Dr. Dheeraj Kumar	Rs. 257 Lakhs	06.06.2012	All the procurement work are over

Development Of Low Density Emulsion Explosives For Energy Efficient Blasting In Environmetally Sensitive Areas	Ministry of Mines, GOI	Prof. A. K. Mishra Dr. B. S. Choudhary	Rs. 29.134 Lakhs	01.01.15	Indents for equipment procurement has been done
Development and validation of coupled Thermo-Hydro-Mechanical (THM) models for radioactive waste repositories in fractured rocks	DST	Dr. A.K.Verma	Rs 35 Lakhs	05.02.2013	Equipment procurement
Stability analysis of roof rock and establishing hard cover for coal exploitation below ground during conversion of opencast mine to underground mine	DST	Dr. A. K.Verma	Rs. 9.0 Lakhs	01.07.2014	Literature review going on
Landslide hazard assessment along NH-22 Road Cut Slopes in and around Luhri area, Himachal Pradesh, India	UGC	Dr. A. K.Verma	Rs. 6.0 Lakhs	01.07.2014	Literature review going on

### 3.16.4 IMPORTANT COLLABORATIVE WORKS

Organization/Lab	Nature of interaction
Central Institute of Mining and Fuel Research, Dhanbad	Execution of the research project on “Development of Underground Coal Gasification Technology in India.”
Rock Excavation	Study Abroad India Programme for University of South Florida St Petersburg, USA(05.08.2014 to 18.08.2014)

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

Name of Equipment	Purpose	Value (Rs)
Force and displacement transducers	For drillability and cuttability studies on rocks	7,30,000
Data Acquisition Systems	For experimental data recording	5,37,000
Cavity Scanner	Borehole scanning of cavities for void mapping	37,00,000
Slim borehole scanner	Scanning of boreholes for characterizing rock layers	33,00,000
High Speed Desktop Computer	For PG Programme M.Tech (Geomatics)	8,32,800
ArcGIS Master Lab kit 10.2.2 and upgradation of old ArcGIS 9.2	For PG and UG teaching in surveying including research	9,97,500
Sarscape Basic + Interferometry module and Envi Software	For PG Programme M.Tech (Geomatics)	9,91,692
Reflector less Total Station of Topcon DS101-AC	For teaching at UG and PG level in mine surveying methods and research.	9,97,250
S/I of Drager make model X-am 7000,Multigas detector with internal pump data logger	Measurement of Gas in Mine air samples.	11,09,800
Self-advancing goaf edge support (2 nos. of SAGES)	Support systems developed in R&D project for depillaring operation in Mines.	43,62,942
Datamine studio software consisting core, data source drivers,3D visualization wire frame modelling	Mine planning and design software for practical classes at UG and PG level.	8,51,812

### 3.16.6 RESEARCH PUBLICATION

#### 3.16.6.1 Books Edited

Verma A.K., Pradeep Gautam, T. N. Singh, R. K. Bajpai (2015) Numerical Simulation of High Level Radioactive Waste for Disposal in Deep Underground Tunnel, Engineering Geology for Society and Territory - Volume 1 , pp 499-504, Edited by Lollino, Giorgio, Manconi, Andrea, E Clague, John, Shan, Wei, Chiarle, Marta, DOI: 10.1007/978-3-319-09300-0\_94, Online ISBN978-3-319-09300-0, Springer International Publishing

## 3.16.6.2 Papers published in International Journals

Sl. No.	Author(S)	Year	Title	Journal	Vol. No.	Page No.
1.	Agarwal, A., Prasad, P.K. and Mishra, D.P.	2015	CCRs and their potential use in mine stowing	Journal of Basic and Applied Engineering Research	2(2)	56-59
2.	Dohare Y. S., Maity, Tanmoy, Das, P. S. and Paul, P. S.	2015	Wireless Communication & Environment Monitoring in Underground Coal Mines–Review	IETE Technical Review	32(2)	140-150
3.	Dohare, Y. S., Maity, T., Das, P. S. and Paul. P. S.	2014	A simple Wireless Real-time Environment Monitoring system for Safety of Underground Miners	Disaster Advances, India		82-88
4.	Kumar D.	2015	Application of Modern Tools and Techniques for Mine Safety & Disaster Management	Journal of the Institution of Engineers (India): Series D	June 2015, (Online edition)	
5.	Kumar, D. Behera, P.K. and Singh U.K.	2015	A New Approach to Estimate Joint Roughness Coefficient and its Influence on Bond Strength of Steel Fibre Reinforced Shotcrete	Journal of Rock Mechanics & Tunnelling Technology (JRMTT)	21(2)	77-88
6.	Mishra, D.P. and Das, S.K.	2014	Comprehensive characterization of pond ash and pond ash slurries for hydraulic stowing in underground coal mines	Particulate Science and Technology	32(5)	456-465
7.	Mishra, D.P. and Das, S.K.	2015	Evaluation of some parameters in relation to hydraulic stowing of pond ash in underground coal mines – a prototype study	Journal of the Institution of Engineers (India): Series D	96(1)	37–42
8.	Murthy, V.M.S.R Lokhande, R. D. and Singh K. B.	2014	Predictive models for pot-hole depth in underground coal	Arabian Journal of Geosciences	07(11)	4697-4705

			mining- Some Indian Experiences			
9.	Murthy, V.M.S.R. Venkateswarlu, V. Singh, K. B. and Lokhande R. D.	2015	Assessment of Pot-hole Subsidence Risk for Indian Coal Mines	International Journal of Mining Science and Technology	25(2015)	185-192
10.	Murthy, V.M.S.R. Soni, A.K. Raina, A. K.	2015	Estimating flyrock distance in bench blasting through blast hole pressure measurements – An Approach	International Journal of Rock Mechanics and Mining Science	76(2015)	209-216
11.	Panda, M K, Mohanty, S., Pingua, BMP, and Mishra, A K	2014	Engineering geological and geotechnical investigations along the head race tunnel in Teesta Stage-III hydroelectric project, India	Engineering Geology	181	297-308
12.	Panigrahi, D.C. and Mishra, D.P.	2014	CFD simulations for selection of appropriate blade profile for improving energy efficiency in axial flow mine ventilation fans	Journal of Sustainable Mining	13(1)	15–21
13.	Panigrahi, D.C., Mishra, D.P., Sahu, P.,	2015	Evaluation of inhalation exposure contributed by backfill mill tailings in underground uranium mine.	Environmental Earth Sciences	74	4327-4334
14.	Panigrahi, D.C., Mishra, D.P., Sahu, P., Bhowmik, S.C.	2015	Assessment of radiological parameters and radiation dose received by the miners in Jaduguda uranium mine, India.	Annals of Nuclear Energy, Elsevier	78	33-39
15.	Panigrahi, D.C., Ray, S.K.	2014	Assessment of self-heating susceptibility of Indian coal seams- a neural network approach. Archives of Mining Science	Polish Academy of Sciences Committee of Mining	59(4)	1061-1076
16.	Panigrahi, D.C., Sahu, P. and	2015	An improved mathematical model	Journal of Environmental	140	95-104

	Mishra, D.P.		for prediction of air quantity to minimize radiation levels in underground uranium mines	Radioactivity, Elsevier		
17.	Panigrahi, D.C., Sahu, P. and Mishra, D.P., Jha, V.N. and Patnaik, R.L.	2014	Assessment of inhalation exposure potential of broken uranium ore piles in low-grade uranium mine	Journal of Radioanalytical and Nuclear Chemistry, Springer	302	433-439
18.	Ray, S.K., Panigrahi, D.C.	2015	Recent Development in Determining Spontaneous Heating Susceptibility of Indian Coals and Its Correlation with Intrinsic Parameters of Coal	Journal of the Institution of Engineers (India)	96	159-167
19.	Roy M P, Singh P K, Mishra A K, & Jawed M	2014	Impact of total explosive weight detonated in blasting round on blast induced ground vibration, World of Mining	Surface & Underground	66(3)	177-182
20.	S. Sengupta, D. S. Subrahmanyam and R. K. Sinha,	2014	State of ground stress – its use and measurement in rock engineering with special reference to weak rocks	ISRM (India) Journal	3(2)	11-29
21.	Sahu, P., Mishra, D.P., Panigrahi, D.C., Jha, V.N., Patnaik, R.L. and Sethy, N.K.	2014	Radon emanation from backfilled mill tailings in underground uranium mine	Journal of Environmental Radioactivity, Elsevier	130	15-21
22.	Sahu, P., Panigrahi, D.C. and Mishra, D.P.	2014	Sources of radon and its measurement techniques in underground uranium mines – an overview	Journal of Sustainable Mining	13(3)	11–18
23.	Sahu, P., Panigrahi, D.C. and Mishra, D.P.	2015	Evaluation of effect of ventilation on radon concentration and occupational exposure to radon daughters in low ore grade underground uranium mine	Journal of Radio analytical and Nuclear Chemistry, Springer	303(3)	1933-1941

24.	Sen, P., Soren, K.; Budi, G.	2014	Stability analysis of open pit slopes by finite difference method	Int. J. of Research in Engineering and Technology	3(5)	326-334
25.	Syed Hali Manzoor & B.S. Choudhary	2014	Detonator: Evaluation, Classification and Comparison	Int. Jour. of Research in Aeronautical and Mechanical Engineering	2(4)	20-28
26.	Thota Sivasankar, T. Srivastava, H.S. Sharma, P. K. Kumar, D. and Patel P.	2015	Study of Hybrid Polarimetric Parameters Generated from RISAT-1 SAR Data For Various Land Cover Targets	International Journal of Advancement in Remote Sensing, GIS and Geography, IROSSS	3(1)	32-42
27.	V.M.S.R.Murthy, K.B.Singh, Amar Prakash,	2015	A new rock cuttability index for predicting key performance indicators of surface miners	International Journal of Rock Mechanics and Mining Science	77(2015)	339-347
28.	Verma A.K	2014	A Comparative Study of Various Empirical Methods to Estimate the Factor of Safety of Coal Pillars	American Journal of Mining and Metallurgy	2(1)	17-22
29.	Verma A.K, T. N Singh, Sachin Maheshwar	2014	Comparative Study of Intelligent Prediction Models for Pressure Wave Velocity	Journal of Geosciences and Geomatics	2(3)	130-138
30.	Verma A.K., Pradeep Gautam, Singh T. N. , Bajpai R. K	2015	Discrete element 242odeling of conceptual deep geological repository for high-level nuclear waste disposal	Arab J Geosci	DOI 10.1007/s12517-014-1762-7	
31.	Verma, A.K. and Sirvaiya A.	2015	Intelligent Prediction of Langmuir Isotherms of Gondwana coals in India	Journal of Petroleum Exploration and Production Technology	DOI:10.1007/s13202-015-0157-y	

### 3.16.6.3 PAPERS PUBLISHED IN NATIONAL JOURNALS

Sl. No.	Author(S)	Year	Title	Journal	Vol.No.	Page No.
1.	Dash, A. K., Paul, P. S. &	2014	Accident Analysis of Indian Non-coal Mines	Geominetech, The Mineral	2(2)	47-51



	Bhattacharjee, R. M		– Need for Change in Focus of Accident Investigation	Industry Journal		
2.	Mishra D.P, Sahu, P., and Panigrahi, D.C.	2015	Emanation of radon in underground uranium mines – an overview	Journal of Mines, Metals & Fuels	63(3)	45 – 49
3.	Mishra, A. K	2014	Usage of Underground Bulk Explosives – Indian Perspective	Journal of Mines, Metals & Fuels	62(5&6)	152-163
4.	Mishra, A. K. Panigrahi, D. C. and Paul B.	2014	Prospects and opportunities of mining tourism in India	Journal of Mines, Metals & Fuels	62(8)	207-212
5.	Panigrahi, D.C., Mahato, Tikeswar, Sinha Satish K.	2014	Safe extraction of developed coal pillars by opencast method: a case study of Ramagundam opencast mine	Journal of Mines, Metals & Fuels, INSIO Scientific Books and Periodicals	62 (11&12)	286-295
6.	Sen, Phalguni, Sen, Shrabani; and Kumar, Vipin	2014	Feasibility of Cymbopogon citrates (DC) ex nees in revegetation of coal mine overburden dumps – a study	Journal of Mines, Metals & Fuels	62(4)	96-104

#### 3.16.6.4 Paper presented in International Seminars/Conferences

Sl No.	Author(s)	Title	Seminar/Conference	Date	Place
1.	Bhattacharjee, R.M., Panigrahi, D.C.	Development of a model for categorization of pillars with respect to their proneness to spontaneous heating in bord and pillar mines of Indian coal fields	Proceedings of 10th International Mine Ventilation Congress	2 - 8 August 2014	Sun City, South Africa
2.	Hemant Kumar Debashish Chakravarty	Performance Analysis of Rock Bolts at the Stope Back to Determine Suitable Reinforcement”	International Symposium ROCK INDIA-2014	21-22 August 2014	New Delhi, India
3.	Kumar D.	Soil Erosion Hazard	Geospatial World Forum	May 05 -09, 2014	Geneva

		Evaluation by Integrating Revised Universal Soil Loss Equation (RUSLE) with GIS Technique			
4.	Kumar, S. Kumar, D. and Jain M.K.	Multi-classifier fusion for land use land cover mapping in Jharia Coal Field	16 <sup>th</sup> Annual Conference of Mathematical Geosciences on Geostatistical and Geospatial approaches for the characterization of natural resources in the environment: challenges, process and strategies	October 17-20, 2014	New Delhi
5.	Kumar, A. Singh, K.B.P. Chouhan, M. Kumar, D.	An illustration of strategic mine planning in a typical open pit using modern mine planning softwares and techniques	International Conference on “Innovative surface and underground mining technology for performance enhancement, Journal of Mine Metals & Fuels,	16 – 18, January 2014	Kolkata
6.	Mishra, A. K. and Sen, P.	Precise Surveying in Drilling and Blasting – Key of Success in Mining Operation, pp. 283-288.	Proc. CET AFC 2013 – International Conf. on Coal and Energy – Technological Advances and Future Challenges	15-17 Dec., 2013	Kolkata
7.	Mishra, D.P., Kumar, P., Panigrahi, D.C.	CFD simulation of methane roof layering in underground coal mines	Proceedings of 10th International Mine Ventilation Congress	2 - 8 August 2014	Sun City, South Africa
8.	Ray, S.K., Panigrahi, D.C., Sahay, N.	Assessing self-heating susceptibility of Indian coals – an alternative	Proceedings of 10th International Mine Ventilation Congress	2 - 8 August 2014	Sun City, South Africa

		approach			
9.	Sahu, P., Mishra, D.P. and Panigrahi, D.C.	Studies on $^{222}\text{Rn}$ emanation from uranium ore and effect of ventilation on $^{222}\text{Rn}$ concentration in mine air	10 <sup>th</sup> International Mine Ventilation Congress (10 <sup>th</sup> IMVC)	2 to 8 August, 2014	Sun City, South Africa
10.	Sen, P.	“Highwall Mining of Coal Seams and Its Current Indian Scenario”, pp. 97-106.	Proc. CETAFC 2013 – International Conf. on Coal and Energy – Technological Advances and Future Challenges	15-17 Dec., 2013	Kolkata
11.	Singh, U.K. Reddy, N. V. N. and Kumar. D	Development of a FLP control system for Self Advancing Goaf Edge Support (SAGES)	International Seminar and Exhibition on “Recent Trends in Design, Development, Testing & Certification of Ex-equipment for Explosive Atmosphere’ (DTEX 2014)	November 7 -9, 2014	Kolkata
12.	Sinha, S.K., Panigrahi, D.C.	An investigation to control fire in coal seams occurring at shallow depth and developed by bord and pillar method of mining	Proceedings of 10th International Mine Ventilation Congress	2 - 8 August 2014	Sun City, South Africa

## 3.16.6.5 Papers presented in National Seminars/Conferences

Sl No.	Author(s)	Title	Seminar/ Conference	Date	Place
1	Ashish Kumar Dash, R M Bhattacharjee and P.S. Paul	Study and analysis of accidents due to wheeled trackless transportation machinery in Indian coal mines – identification of gap in current investigation system	International conferences	17-18 April, 2015	NITK, Surathkal
2	Bhattacharjee, R. M., Dash A. K. and Paul, P. S.	Changing Philosophy of Accident Investigation In Indian Mines – Need for Shifting Focus from Human Error to System Error	Proceedings of the National Seminar on Surface Mining (NSSM),	January 10-11, 2014	Department of Mining Engineering, I.S.M., Dhanbad
3	Budi, G., Soren, K., Sen, P. and Kumar, A.	Numerical Analysis of Open Pit Slope Stability, pp.297-310	Proc. 6 <sup>th</sup> National Seminar on Surface Mining	10-11 January, 2014	ISM, Dhanbad.
4	Choudhary B. S	Effect of stemming plug on muckpile shape parameters in bench blasting,	National Symp. On Socio-mechanics of mining-present and future, Neyveli	17-19 July, 2014	Neyveli
5	Choudhary B. S	Effect of Firing Patterns on Fragmentation and Muckpile Shape Parameters in Quarry Blasts- Case Study	National seminar organised by MEAI Jodhpur chapter	Feb 13-14, 2015	Jodhpur
6	Choudhary B. S	Safe and Sustainable	National seminar organised by MEAI	Feb 13-14, 2015	Jodhpur.

		Mining through Mining Engineering Education	Jodhpur chapter		
7	Choudhary B. S and Rajesh Arora	Influence of some of blast design parameters on blasting results in limestone mines	National seminar organised by MEAI Jodhpur chapter	Feb 13-14, 2015	Jodhpur
8	Dwivedi, R.D., Singh Ajay K., Mishra, A.K. and Goel,R.K	Time-dependent Tunnel Deformation in Weak Rock Mass	Proceedings of INDOROCK 2014,	November 12-14, 2014	New Delhi
9	Manjunath. A, Paul, P. S. &Paul, Biswajit	Environmental and Socio-economical Impacts due to Mine Closure	Proceedings of the National Seminar on Mining – Recent Advances, Challenges and Scenario Beyond 2015 (MRACSB15-2014), Organised by The Institution of Engineers (India)	November 8-9	
10	Mishra, A. K., Singh, A. K., and Rout, M.	Controlled blasting using electronic detonators while conducting mining operations near habitat area	Proceedings of National seminar on sustainable development in mineral & earth resources	2014, June 21-22	SDFMinER
11	R K Sinha and R K Pathak	Scope and challenges for robotics in Mining Engineering Applications	National Seminar on “Robotics: Applications & Challenges”	15 <sup>th</sup> Sep-15	Ranchi, Jharkhand
12	R M Bhattacharjee Ashish Kumar Dash, and P.S. Paul	Accident Analysis of Indian Non-coal Mines-Need for Change in Focus of Accident Investigation	National journal (The Indian Mineral Industry Journal)	11-12 May,2014	Bhubaneswar

13	R.M Bhattacharjee P.S.Paul and Ashish Kumar Dash	Development of Accident Investigation Methodologies for Indian Coal Mines-An Approach	National conferences	12-13 Dec 2014	Raniganj
14	R.M. Bhattacharjee and D.C. Panigrahi	Development of a model for categorization of pillars with respect to their proneness to spontaneous heating in bord and pillar mines of Indian coalfields	10 <sup>th</sup> International Mine Ventilation Congress, IMVC2014	2-8 Aug, 2014	South Africa
15	R.M. Bhattacharjee	Science and Art of Modern Accident and Incident Management System in Mining- Need For Change Focus in Mining	International conferences	29-31 Jan, 2015	Kolkata
16	V.M.S.R.Murthy, Manoj S Tiwari and Dheeraj Kumar	Demands of mining industry vis-a- vis mining education	Organised by VRCE Mining Alumni Association, Nagpur.	22-23, November	Nagpur
17	A.K.Verma, S. Roy and Nikhil Kumar	Estimation of groundwater seepage rate into Maneri- Uttarkashi power tunnel: An Analytical Approach	ROCKINDIA	2014	New Delhi
18	Nikhil Kumar, A.K. Verma. T.N. Singh, and K. Sarkar	Comparative Analysis of methods for prediction of a Landslide	ROCKINDIA	2014	New Delhi

### 3.16.7 MAJOR ACADEMIC CONTRIBUTIONS

- Prof D. C. Panigrahi is nominated as a member of Governing Body and General Body of National Institute of Rock Mechanics, Kolar Gold Fields, Karnataka.
- Prof D. C. Panigrahi is nominated as a member of Governing Council of Association of Indian Universities, New Delhi.
- Prof D. C. Panigrahi is nominated as a member of Executive Council of Central University of Jharkhand under Ministry of Human Resource Development, Govt. of India.
- 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.
- For the eighth 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.
- Prof. D. C. Panigrahi, as the Chairman of International Mine Ventilation Committee for the duration 2009-2014, started all the processes for organization of Tenth International Mine Ventilation Congress in South Africa.
- Prof D. C. Panigrahi is nominated as a member of Mentor Council for Mining and Mineral Sector of the country to bridge the burgeoning gap faced by the Indian economy under Ministry of Labour and Employment, Govt. of India.
- Prof. D. C. Panigrahi continues as 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.
- 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.
- Prof. D. C. Panigrahi continued as an expert member of Bureau of Indian Standards, Govt. of India for reviewing the standards related to Mines Safety in the country.
- Prof. D. C. Panigrahi was the Chief Guest of CSIR Foundation day Programme held on 24.09.2014 at CSIR-Central Mechanical Engineering Research Institute, Durgapur and delivered the Foundation Day lecture.
- Prof. D. C. Panigrahi chaired a Session on 30.01.2015 and participated in the Panel Discussion on 31.01.2015 during the International Conference on Safety & Health Management in Mining Industry organized by the Alumni Association Kolkata Chapter at Taj Bengal, Kolkata during January 29-31, 2015.
- Prof. D. C. Panigrahi was the Chief Guest of the Foundation day Programme of the CSIR-Institute of Minerals & Materials Technology (CSIR-IMMT) held on 13.04.2015 at CSIR-IMMT, Bhubaneswar and delivered the Foundation Day lecture.

- Dr. D. P. Mishra received Sukumar Rakshit Award for the year 2013-14 in the 108th Annual General Meeting of The Mining, Geological and Metallurgical Institute of India (MGMI) for his outstanding contribution on stowing system in coal mines.
- Dr. Dheeraj Kumar, as a University Programme Coordinator, successfully got enlisted ISM Dhanbad to get the students of ISM Dhanbad participated in the evening mode Satellite based Indian Institute of Remote Sensing (IIRS) Outreach Programmes

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

National workshop on Self Advancing Goaf Edge Support (SAGES), at ISM Dhanbad	April 25, 2014
---	----------------

### 3.16.9 PARTICIPATION OF FACULTY IN SEMINARS / WORKSHOPS / CONFERENCES

Dr. B.S Choudhary	National Seminar on Sustainable Development in Mineral & Earth Resources, SDMinER	June 21-22, 2014	New Delhi
Dr. D. P. Mishra	10th International Mine Ventilation Congress (10th IMVC)	August 2 -8, 2014	Sun City, South Africa
	Workshops on topics “Safety, health and ventilation cost benefit optimization with simulation and control” and “Mine refrigeration and cooling distribution”	August 2-3, 2014	Sun City, South Africa
	Certificate course on Anglo Coal Explosion and Fire Awareness	August 4, 2014	Kloppersbos Test Facility, CSIR, South Africa
Dr. Dheeraj Kumar	80th Annual Conference of the Indian Mathematical Society	December 27 – 30, 2014	ISM Dhanbad
	7th Indian Mineral Congress & Exhibition (IMC-2015)	February 7, 2015	ISM, Dhanbad, India
	India Geospatial Forum 2015	February 10 – 12, 2015	HICC, Hyderabad
Dr. Hemant Kumar	One day workshop on Intellectual Property Rights	February 14, 2014	Indian School of Mines, Dhanbad



	Workshop on Open Pit Mining	August 20, 2014	New Delhi India
Dr. P. S. Paul	International conference on Mine Health and Safety Management organized by ISM alumni Association, Kolkata Chapter.	January 29-31, 2015	Hotel Taj Bengal, Kolkata
Prof. R M. Bhattacharjee	10th International Mine Ventilation Congress, IMVC2014	August 2-8, 2014	South Africa
	International Conference on Safety & Health Management in Mining Industry, Kolkata, India	January 29-31, 2015	Kolkata

### 3.16.10 VISIT OF FACULTY MEMBERS ABROAD

- Prof. D. C. Panigrahi visited Sun City, South Africa during 31.07.2014 to 10.08.2014 to attend the 10<sup>th</sup> International Mine Ventilation Congress.
- Dr. Dheeraj Kumar visited Geneva, Switzerland during 5-9 May 2014 to attend Geospatial World Forum 2014 and present a technical paper therein.
- Dr. Dheeraj Kumar visited ISSAN, Frankfurt Germany during July 1 -4, 2014 to attend user-training course on Gyromat 3000 sponsored by DMT GmbH & Co.
- Dr. D. P. Mishra, Assistant Professor, Department of Mining Engineering visited Sun City, South Africa to attend the 10th International Mine Ventilation Congress (10<sup>th</sup> IMVC) held during 2-8 August, 2014.

### 3.16.11 TESTING SERVICES

#### 1. Mine Ventilation Laboratory

- |           |                                 |
|-----------|---------------------------------|
| Sl.<br>No | Description of Testing Services |
|-----------|---------------------------------|
- Evaluation of performance and behavior of self-contained chemical self-rescuers (SCSR) as per EN (European Norms) 401 and IS 15803:2008.
  - Determination of Crossing Point Temperature, Ignition Point Temperature and Moisture content of one coal sample.
  - Determination of Thermal Conductivity of coal, coal major rocks and other mineral samples.
  - Chromatographic analysis of Mine Air Sample and sample collected from sealed off fire areas (For all component gases such as CO, O<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>4</sub>, N<sub>2</sub> and other components), Calculation of different gas ratios, Assessment of combined Explosibility by Coward's diagram and Ellicott Extension of Coward's diagram.
  - Calibration of Methanometer at four standard gas concentrations.
  - Calibration of Toximeter at four standard gas concentrations.

- g) Calibration of LMD at four standard gas concentrations.
- h) Calibration of Multigas detector at sixteen different standard concentrations.
- i) Calibration of Oxymeter at four standard concentrations.
- j) Execution of measures for dust control' as per Regulation 123 A (1A)(a)(i) & (ii) of Coal Mine Regulations, 1957.
- k) Calibration of anemometer by low speed wind-tunnel.
- l) Testing of different parameters of quick setting cement capsules as per DGMS Circular No. 5 dated 27.12.2010.
- m) Evaluation of performance and behavior of self-contained chemical self-rescuers (SCSR) as per EN (European Norms) 401 and IS 15803:2008.
- n) Determination of Crossing Point Temperature, Ignition Point Temperature and Moisture content of one coal sample.
- o) Determination of Thermal Conductivity of coal, coal major rocks and other mineral samples.
- p) Chromatographic analysis of Mine Air Sample and sample collected from sealed off fire areas (For all component gases such as CO, O<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>4</sub>, N<sub>2</sub> and other components), Calculation of different gas ratios, Assessment of combined Explosibility by Coward's diagram and Ellicott Extension of Coward's diagram.
- q) Calibration of Methanometer at four standard gas concentrations.
- r) Calibration of Toximeter at four standard gas concentrations.
- s) Calibration of LMD at four standard gas concentrations.
- t) Calibration of Multigas detector at sixteen different standard concentrations.
- u) Calibration of Oxymeter at four standard concentrations.
- v) Calibration of anemometer by low speed wind-tunnel.
- w) Testing of different parameters of quick setting cement capsules as per DGMS Circular No. 5 dated 27.12.2010.

## 2. Rock Mechanics

### Mine Support

#### Hydraulic Support

Cyclic and non-cyclic test (Axial load, overload, eccentric load test) of Hydraulic leg used for powered roof supports as per DGMS guidelines. (This is a new facility that has been developed in the Rock Mechanics Laboratory).

#### Other Supports

- Load - yield characteristics of timber prop, hydraulic prop, friction prop, Steel Cogs etc.
- Anchorage/grouted strength and Cube compressive strength of cement/resin capsules used for rock bolting.

- Testing and Calibration of Anchorage Testing machine.

### Rock Properties

- Physico-mechanical properties of coal, coal measure rocks and hard rocks.
- Strength indices determination of rock & coal samples.
- Direct/Residual shear strength determination of rock.
- Crushing strength determination of building materials.
- Abrasivity, hardness, weatherability of rock samples.
- Soil Properties
- Direct/Residual shear strength determination of soil.
- Consistency test & Atterberg's limits tests of soil samples.
- Calibration of load cells, hydraulic jacks & probing rings.

### 3. Rock Excavation

- Compressional wave (p-wave) & Shear wave (s-wave) of the rock samples and the dynamic elastic constants.
- Cerchar Hardness Index for rocks (helps in selecting cutting tools, mechanical excavation systems)
- Cerchar Abrasivity Index for rocks (helps in predicting tool consumption in machine cutting)
- Brittleness Index
- Sievers J Value
- Drilling Rate Index
- Fracture toughness of rock samples.
- Vicker hardness for rocks (helps in determining micro-hardness of minerals for selecting dimension stone cutting systems etc.)

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

Name of the Visitors	Purpose
Prof. Hari Vuthalur, Department of Chemical Engineering, Curtin University, Western Australia on 21 <sup>st</sup> May 2015.	Visit to Mine Ventilation Laboratory Department of Mining Engineering.
Mr. Parag Satpute, Managing Director, Mr. Subhashis Das and Mr. Joe, Head of R&D Sandvik Asia on 29 <sup>th</sup> June 2015.	Visit different laboratories of Mining Engineering Department.

### 3.16.13 MISCELLANEOUS

- Dr. A.K. Mishra Delivered a talk on “Environmental Hazards and Mitigation during Tunnelling” at American Society for Civil Engineers student chapter of Department of Civil Engineering, ITER, SOA University, Bhubaneswar on 14.08.2014.
- Dr. A.K. Mishra delivered a talk on “Environmental hazards of Explosives and its Mitigation” at specialized training programme for Managers, Asst Managers, Safety Officers at Mines Safety and Health Academy (MSHA), Vikash Bhavan, DGMS, Dhanbad on 18.11.2014.
- Dr. A.K. Mishra delivered a talk on “Safe blasting and better fragmentation” at one week course for senior managers of BCCL, held at BCCL on 18.07.2014
- Dr. A.K. Mishra delivered talks on “Explosives and blast design in surface mines” on 06.08.2014 at Course Module for the Study Abroad – India programme for the students of University of South Florida-St Petersburg, USA on Mining, Environment and Sustainable Development.
- Dr. D. P. Mishra is nominated as a member of the Program Committee, 3rd Annual International Conference on Geological and Earth Sciences (GEOS - 2014) to be held in Singapore during 22-23 September, 2014.
- Prof. V.M.S.R. Murthy delivered a series of lectures at LEO workshop MTI, SAIL Ranchi during March 2-3, 2015

### 3.17 MINING MACHINERY ENGINEERING

The Department of 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.

#### 3.17.1 FIELD VISITS/EXCURSIONS/ TRAINING PROGRAMMES UNDERTAKEN BY STUDENTS

Particulars	Batch of Students	Place of visit	Period of visit
Vocational Training	3rd year B.Tech MME Students	Sinidih Workshop, BCCL	15.12.2014- 02.01.2015
Summer Training	2nd year B.Tech MME Students	Tata Steel, Jharia	11.05.2015- 17.06.2015
Summer Training	2nd year B.Tech MME Students	Hindustan Copper Ltd, Khetri	11.05.2015- 17.06.2015
Summer Training	2nd year B.Tech MME Students	ECL, Jhanjra	11.05.2015- 17.06.2015
Summer Training	2nd year B.Tech MME Students	SCCL, Andhra	11.05.2015- 17.06.2015
Summer Training	2nd year B.Tech MME Students	BCCL, Dhanbad	11.05.2015- 17.06.2015
Summer Training	3rd year B.Tech MME Students	SECL, Bilashpur (Chhatisgarh)	18.05.2015- 26.06.2015
Summer Training	3rd year B.Tech MME Students	Western Coal Fields Limited, Nagpur	18.05.2015- 26.06.2015
Summer Training	3rd year B.Tech MME Students	BCCL, Dhanbad	18.05.2015- 26.06.2015
Summer Training	1st year M.Tech MME Students	UCIL, Jamshedpur	18.05.2015- 26.06.2015
Summer Training	1st year M.Tech MME Students	NCL, Madhya Pradesh	18.05.2015- 26.06.2015
Summer Training	1st year M.Tech MME Students	SECL, Chhatisgarh	18.05.2015- 26.06.2015
Summer Training	1st year M.Tech MME Students	HEC, Ranchi	18.05.2015- 26.06.2015
Field Visit	2nd year B.Tech MME Students	KOCP, BCCL	21.02.2015
Field Visit	2nd year B.Tech MME Students	PutiBalihari, BCCL	14.03.2015
Field Visit	3rd year B.Tech MME Students	Moonidih, BCCL	13.02.2015

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

Project Title	Sponsoring Agency	Coordinators	Project Value	Date of commencement	Findings
Current status, enablers and barriers of implementation of cellular manufacturing system in Indian industries	DST, New Delhi	Dr. L.A.Kumaraswamidhas	17.40 Lakh	Sept, 2013	In progress

### 3.17.3 IMPORTANT NEW EQUIPMENT ACQUISITIONED (ABOVE RS 5, 00,000/-)

Name of Equipment	Purpose	Date of Purchase	Value (Rs)
NI cRIO-0976 Integrated 400 MHz Real Time Controller	Control of existing hydraulic set-up	15.03.2015	6,41,502/-
Screw Compressor Test Rig	To study construction and operation	16.09.2014	7,09,251/-
Hydraulics – Basics + Elector – 02 Local + Imported Hydraulics Proportional DCV - 02 Hydraulics Proportional DCV - 02 Teachwares Automation Studio	Hydraulic trainer	31.03.2014	33,05,860/-
Variable and fixed displacement hydraulic motor with amplifier	Installed in existing hydraulic set-up	31.03.2015	9,70,000/-

### 3.17.4 RESEARCH PUBLICATIONS

#### 3.17.4.1 Papers published in International Journals

Sl. No.	Author (s)	Year	Title	Journal	Vol.No.	Page No.
1.	N.Kumar and K.Dasgupta	2014	Steady state performance investigation of hydrostatic summation drive using bent-axis hydraulic motor	Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science	095440 621455 9410	1-18
2.	DinkarB.Kishorilal,	2014	Reliability	Applied	592-	1756-

	A.K.Mukhopadhyay		Investigations of Overhauled Engines of Dumpers	Mechanics and Materials	594	1760
3.	R.K.Upadhyay and L.A.Kumaraswamid has	2014	A review on tribology of surfaces and interfaces	Advanced Materials Letters	5	486-495
4.	R.K.Upadhyay and L.A.Kumaraswamid has	2014	On the influence of surfactant over friction properties of steel	Chemical Physics letters	608	167-172
5.	DipenK.Rajak,L.A. Kumaraswamidhas and S.Das	2014	An energy absorption behavior of foam filled materials	Procedia Materials Science	5	164-172
6.	K.K. Selva Kumar and L.A.Kumaraswamid has	2014	Experimental investigation of flow induced vibration excitation in the elastically mounted square cylinders	Journal of Vibroengineering	17	468-477
7.	K.K. Selva Kumar, K. Aruna Devi and L.A.Kumaraswamid has	2014	SSPS : A data mining tool for analyzing the results of flow induced vibration excitation in an elastically mounted circular cylinder at different interference conditions	Applied Mechanics and Materials	592-594	2086-2090
8.	K.K. Selva Kumar and L.A.Kumaraswamid has	2014	A study on flow induced vibration excitation in solid square structures	International Journal of Mechanical and Production Engineering	4	15-22

				Research and Development		
9.	Chandra Prakash Yadav, Satya Narayan Kumar and L.A.Kumaraswamidhas	2014	Study of axial flow fan components and its failure affecting the performance	International Journal for Scientific Research and Development	2	29-32
10.	DipenK.Rajak,L.A. Kumaraswamidhas and S.Das	2014	Mechanical Behaviour and Energy Absorption Foam Filled Structures of Square Section and Compressive Loading	Applied Mechanics and Materials	592-594	1109-1113
11.	K.K. Selva Kumar and L.A.Kumaraswamidhas	2014	Numerical Study on Fluid Flow Characteristics over the Side-by-Side Square Cylinders at different Spacing Ratios	International Review of Mechanical Engineering	8	962-969
12.	Santosh Sonar TanmoyMaity	2014	Performance analysis of the simple low cost buck-boost ac-ac converter	International Journal of Energy Engineering	4 (3)	105-110
13.	Y.S.Dohare T. Maity P.S.Das, P.S. Paul	2014	A simple Wireless Real-time Environment Monitoring system for Safety of Underground Miners	Disaster Advances	7(8)	82-88
14.	Parthasarathi Das, TanmoyMaity and Yogendra Singh Dohare	2014	Modeling of Wireless Environment Monitoring System for an	Indian Journal of Natural Sciences	5 (26)	1861-72



			Industrial Zone like Underground Mines.			
15.	Ananya Sarkar, P. P. Bhattacharya, AlokKole, TanmoyMaity	2014	Neural network Based Energy Efficiency Enhancement in Wireless Sensor Networks	International Journal of Applied Engineering Research	9 (22)	11807-11818
16.	H. Prasad, T. Maity, V.K.Singh	2014	A Simple Transformerless Buck-Boost Switching Voltage Regulator	Asian Power Electronics Journal	8 (2)	57-61
17.	Bindu Sharma, IndranilSarkar, TanmoyMaity, P. P. Bhattacharya	2014	An introduction to smart antenna system	International Journal of Business and Engineering Research	8	22-26
18.	Y.S.Dohare T. Maity P.S.Das, P.S. Paul	2015	Wireless Communication & Environment Monitoring in Underground Coal Mines– Review	IETE Technical Review	32(2)	140-150
19.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar, Santosh Kr.Mishra and Sujitkumar	2014	Performance analysis of directional control valve :an overview	Applied Mechanics and Materials	592-594	1983-1987
20.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar, Santosh Kr.Mishra and Sujitkumar	2014	Hydraulic circuit in damper :an overview	Applied Mechanics and Materials	592-594	2056-2060
21.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar, Santosh Kr.Mishra and Sujitkumar	2014	Modern Advancement of Hydraulic Motor: A Review	Applied Mechanics and Materials	592-594	2179-2183
22.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar,	2014	Study of energy saving system for	Applied Mechanics and Materials	592-594	2210-2214

	Santosh Kr.Mishra and Sujitkumar		hydrostatic drive- A Review			
23.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar, Santosh Kr.Mishra and Sujitkumar	2014	Simulation study on different energy efficient hydraulic system: an overview	Applied Mechanics and Materials	592-594	2234-2238
24.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar, Santosh Kr.Mishra and Sujitkumar	2014	Study of energy recycling in electro-hydraulic system	Applied Mechanics and Materials	592-594	2244-2248
25.	RamashanakarPaswan , J.Das , N.Kumar, Ajit Kumar, Santosh Kr.Mishra and Sujitkumar	2014	Study on Hybridization of Hydraulic System used in Heavy Machinery	Applied Mechanics and Materials	592-594	2249-2253

### 3.17.4.2 Papers presented in International Seminars/ Conferences

Sl. No.	Author (s)	Title	Seminar/Conference	Date	Place
1	Rajen K. Nayak, J. Das and RamashankarPaswan	Comparative studies on longitudinal fins solar air heater with parallel plate (unglazed solar plater) solar collector	5 <sup>th</sup> International and 41 <sup>st</sup> National Conference on Fluid Mechanics and Fluid Power	December 12-14,2014	IIT Kanpur
2	M.K.Barnawal, J.Das , N.Kumar and Ajit Kumar,	Effect of Hydraulic Accumulator on the system parameters of an Open loop transmission system	5 <sup>th</sup> International and 26 <sup>th</sup> All India Manufacturing Technology , Design and Research Conference (AIMTDR 2014)	December 12-14,2014	IIT Guwahati
3	Dinkar B. K.	Reliability	International	13-15 <sup>th</sup>	NIT

	Kishorilal	Investigation s of Overhauled Engines of Dumpers	Mechanical Engineering Congress (IMEC- 2014)	June, 2014	Trichy
4	K.K. Selva Kumar and L.A.Kumaraswamid has	Numerical study on flow induced vibration excitation in an elastically mounted circular cylinder	International Conference on Innovative Trends in Science, Engineering and Management 2014, ICITSEM 2014	12-15 <sup>th</sup> February, 2014	Dubai, UAE
5	Dr.TanmoyMaity	Study of the sustainability of recently proposed Quasi Z- source Inverter for wind power conversion	International Conference on Renewable Energy Research and Applications, ICRERA 2014	19-22 <sup>nd</sup> October, 2014	USA
6	Y.S.Dohare T. Maity P.S. Paul, P.S.Das	Design of Surveillance and Safety System for underground coal mines based on Low Power WSN	IEEE 2014 International Conference on Signal Propagation and Computer Technology (ICSPCT)	July 2014	Ajmer, India
7	P.S.Das, T. Maity	Design of a disaster management System for industrial zone like Underground mines	Proc. of Int. Conference on Computing, Communication, Electrical, Electronics, Devices and Signal Processing	March 2015	Hyderaba d, India

### 3.17.5 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC

Mr.DinkarB.K.Kishorilal	International Mechanical Engineering Congress (IMEC-2014)	13-15 <sup>th</sup> June, 2014	NIT Trichy
Dr.L.A.Kumaraswamidhas	ICITSEM 2014 (International Conference on Innovative Trends in Science, Engineering and Management 2014)	12-15 <sup>th</sup> February,2014	Dubai, UAE
Dr.TanmoyMaity	ICRERA 2014 (International Conference on Renewable Energy Research and Applications)	19-22 <sup>nd</sup> October, 2014	USA

### 3.17.6 VISITS OF FACULTY MEMBERS ABROAD

Dr.L. A. Kumaraswamidhas, Associate Professor in Mining Machinery Engineering Department visited Dubai, UAE to attend ICITSEM 2014 (International Conference on Innovative Trends in Science, Engineering and Management 2014) during 12-15<sup>th</sup> February,2014

Dr.TanmoyMaity, Associate Professor in Mining Machinery Engineering Department visited USA, Hotel Hilton City Centre, Milwaukee City to attend ICRERA 2014 (International Conference on Renewable Energy Research and Applications) during 19-22 October, 2014

### 3.17.7 DISTINGUISHED VISITORS TO THE SCHOOL (INDICATING OCCASION/ PURPOSE)

Prof. Oliver Langefeld (Univ.-Prof.Dr-Ing) from Clausthal University of Technology	To interact with faculty members of the department as to look into research facilities existing in the department
--	---

### 3.17.8 SPECIAL LECTURES BY DISTINGUISHED GUESTS

Mr.Joby Antony , MS (USA) , working as Senior Engineer at Inter University Research Centre (IUAC) of UGC, New Delhi and currently in-charge of Electronics division for Cryogenics delivered lecture on mechatronics	07.01.2015
Mr.R.K.Sharma, Chief Manager, Excavation, ADI,Dhansar, KOCP, BCCL, Dhanbad delivered a lecture on "Preventive Maintenance on HEMM"	30.01.2015
Mr.Uday Kumar, Professor at Lulea University Sweden, delivered a lecture on Reliability Analysis of plant equipment	26.02.2015

### 3.18 DEPARTMENT OF PETROLEUM ENGINEERING

The Department of Petroleum Engineering was established in the year 1957 to cater and train the Petroleum Engineers of the country. It was the first Institute of its kind in Asia. Still it is maintaining its quality as the best Petroleum Engineering Department of the country and continuing its global recognition. The alumni of the Department have occupied top positions of industry of E & P business and academia, both in India and abroad.

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 Engineering and one 2-years M. Tech. in Petroleum Engineering. In addition to these, the Department offers doctoral degree programs.

#### 3.18.1 (A) 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 Ahmedabad Asset	26.05.2014 to 16.06.2014
Summer Training	IV B.Tech PE	ONGC Mehsana Asset	26.05.2014 to 16.06.2014
Summer Training	II M.Tech PE	ONGC Ankleshwer Asset	26.05.2014 to 16.06.2014
Summer Training	IV B.Tech PE	ONGC Cambay Asset	15.05.2014 to 30.06.2014
Summer Training	IV B.Tech PE	Uran Processing Plant	26.05.2014 to 27.06.2014
Summer Training	IV B.Tech PE	Hazira Gas Processing Plant	26.05.2014 to 27.06.2014
Industrial Training	VI B. Tech. PE	ONGC, IOGPT Mumbai/Panvel	26.05.2014 to 25.06.2014
Summer Internship	VI B.Tech PE	Baker &Huges, Andheri East, Mumbai	26.05.2014 to 16.06.2014
Summer Internship	VI B.Tech PE	Weatherford	26.05.2014 to 16.06.2014
Summer Internship	VI B.Tech PE	Shell Technology, India	26.05.2014 to 16.06.2014
Summer Internship	VI Dual Degree PE	IRS ONGC Ahmedabad	26.05.2014 to 20.06.2014
Summer Internship	VI B.Tech PE	Halliburotn	26.05.2014 to 16.06.2014
Summer Training	VI B.Tech PE	Well Stimulation Services ONGC Chand Kheda Ahmedabad	26.05.2014 to 16.06.2014
Summer Training	VI B.Tech PE	Oil India Limited	26.05.2014 to 16.06.2014
Summer Training	VI B.Tech PE	CBM Bokaro	26.05.2014 to

			16.06.2014
Winter Training	VI B.Tech PE	ONGC Ahmedabad	15.12.2014 to 09.01.2015
Winter Training	V B.Tech PE	ONGC Mehsana Asset	15.12.2014 to 09.01.2015
Winter Training	V B.Tech PE	ONGC Ahmedabad Asset	15.12.2014 to 09.01.2015
Winter Training	V B.Tech PE	ONGC Ankleshwer Asset	15.12.2014 to 09.01.2015
Winter Training	V B.Tech PE	ONGC Mehsana Asset	15.12.2014 to 09.01.2015
Winter Training	VII Dual Degree	IRS ONGC Ahmedabad	15.12.2014 to 09.01.2015
Winter Training	VII Dual Degree	WSS Ahmedabad	15.12.2014 to 09.01.2015
Winter Training	V B.Tech PE	ONGC Cambay	15.12.2014 to 09.01.2014
Winter Training	VI B. Tech & I M. Tech	Essar Oil Ltd. , Durgapur	15.12.14-9.01.15

**(B) FIELD VISIT UNDERTAKEN BY STUDENTS**

Particulars	Students	Place of Visit	Period of Visit
Winter Excursion (2 batches)	IV Semester B. Tech. (PE) Students	Indane Bottling plant, IOC, Bokaro	Dec. 2014
Winter Excursion (2 batches)	IV Semester B. Tech. (PE) Students	Indane Bottling plant, IOC, Bokaro	March, 2015
Field Visit	-	Oil India Ltd., Duliajan	14-16 Dec., 2014

**3.18.2 BRIEF LIST OF ON-GOING R & D PROJECTS**

Sl No	Project Title	Sponsoring agency	Coordinators	Project value, Lacs Rs.	Date of commencement	Findings
1.	Functionalization of Nano Fly Ash for Drilling Fluid Application.	UGC	Prof. A K Pathak and Dr. C Guria	14.512	April, 2013	Nano fly ash was prepared and complete characterizations were made
2.	Characterization of nano-particle stabilized emulsion and	Oil India Ltd.	Dr. Ajay Mandal	24.40	April 2013	Oil-water nano emulsion is developed and

	its use in Enhanced Oil Recovery					characterized . It gives extra recovery.
3.	Experimental and Modeling Studies of Chemically Enhanced water alternating gas (CEWAG) process	CSIR	Dr. Ajay Mandal	17.97	May, 2014	Chemicals has been selected and characterized
4.	Development of Fracturing Fluid for High Pressure High Temperature (HPHT) Reservoirs with Minimum Formation Damage	CSIR	Dr. Keka Ojha	14.0	April, 2014	Surfactant based chemicals have been develop which can withstand a temperature upto 120°C
5.	Development of Nanoparticle Induced Chemicals for Consolidating Loose Formation to Improve Oil Production	UGC	Dr. Keka Ojha	13.288	April, 2014	Chemicals are being tested, characterized
6.	Development of foam based drilling fluid for CBM wells	DST	Dr. Keka Ojha	16.8	June, 2013	Foam fluid has been developed, characterized and optimized
7.	Study of Organic Solid Deposition in Petroleum Reservoir Rock	Oil India Ltd.	Dr. Vikas Mahto	8.58	January, 2014	Detail characterizati on of crude oil samples from OIL ltd were carried out and it was found that these

						crude oil samples may cause severe solid deposition problems in the reservoir
8.	Carbon dioxide sequestration and simultaneous bio-fuel generation using micro algae in a photo bioreactor	DST	Dr. Chandan Guria, Prof. A. K. Pathak	14.398	March, 2013	NaHCO <sub>3</sub> assisted microalgal cultivation using NPK-10:26:26 fertilizer was completed
9.	Selective Catalytic Oxidation of Karanja oil: An Alternative Source of Petrochemical Products.	UGC	Dr. Chandan Guria, Prof. A. K. Pathak	14.50	April, 2013	Biodiesel was synthesized using ion-exchange resin and bentonite catalyst at elevated temperature
10.	Studies on Multiphase Flow of Oil, Water and Gas in Horizontal and Vertical	UGC	Dr. T. K. Naiya, Dr. Ajay Mndal	13.78	April, 2013	Two surfactants from natural source synthesized and there effects on rheology are studying.
11.	Development of Advanced Reservoir Engineering Laboratory	DST (FIST)	Dr. Keka Ojha, Prof. A. K. Pathak, Dr. Ajay Mandal and Dr. T. K. Naiya	160	September, 2014	started



**3.18.3 IMPORTANT NEW EQUIPMENTS ACQUISITIONED (ABOVE RS. 5,00,000)**

Name of the Equipment	Purpose	Date of purchase/installation	Value
Experimental set-up for hydraulic fracturing	Fracturing of rock	27/05/2014	Rs. 9,34,800
Proximate Analyser	Coal analysis	08/09/2014	Rs. 15,62,344
COMET-3	CBM Simulator	30/06/2014	US\$20,000.00
Sym Dis software, GC	Crude oil analysis software in Gas Chromatograph	02/05/2014	Rs. 7, 69, 438/

**3.18.4 RESEARCH PUBLICATIONS****3.18.4.1 Papers published in International journals**

Sl. No.	Author (s)	Year	Title	Journal	Vol. No.	Page No.
1.	Saxena, Amit; Ojha, Keka; Pathak, AK;	2015	Development of an Empirical Model for Settling of Solids in Gelled Foams	Arabian Journal for Science and Engineering	40	1757-1776
2.	Baruah, Atrayee; Pathak, Akhilendra K; Ojha, Keka;	2015	Phase behaviour and thermodynamic properties of lamellar liquid crystal developed for viscoelastic surfactant based fracturing fluid	Chemical Engineering Science	131	146-154
3.	Bera, Achinta; Kumar, T; Ojha, Keka; Mandal, Ajay;	2014	Screening of microemulsion properties for application in enhanced oil recovery	Fuel	121	198-207
4.	Baruah, Atrayee; Chauhan, Geetanjali; Ojha, Keka; Pathak, Akhilendra Kumar;	2014	Phase Behavior and Thermodynamic and Rheological Properties of Single-(SDS) and Mixed-Surfactant (SDS+ CAPB)-Based Fluids with 3-Methylbutan-1-ol as the Cosurfactant and Pine Oil as the Organic Phase	Industrial & Engineering Chemistry Research	53	19765-74
5.	Saxena, A; Pathak, AK; Ojha, K;	2014	Optimization of Characteristic Properties of Foam-Based Drilling Fluids	Brazilian Journal of Petroleum and Gas	8 (2)	57-71
6.	Saxena, Amit; Pathak, Akhilendra	2014	Synergistic Effects of Ionic Characteristics of Surfactants on Aqueous	Industrial & Engineering Chemistry	53 (49)	19184 - 19191

	Kumar; Ojha, Keka;		Foam Stability, Gel Strength, and Rheology in the Presence of Neutral Polymer	Research		
7.	Saxena, A; Ojha, K, Pathak, Akhilendra Kumar	2014	Underbalanced Drilling and Its Advancements: An Overview	Journal of Petroleum Engineering & Technology	4 (2)	37-51
8.	K. Rajesh, K. Vineet, D. K. Rajak, C. Guria	2014	An improved estimation of shear rate using rotating coaxial-cylinder Fann viscometer: A rheological study of bentonite and fly ash suspensions	International Journal of Mineral Processing	126	18-29
9.	C. Guria, K. K. Goli, A. K. Pathak	2014	Multi-objective Optimization of Oil Well Drilling Using Elitist Non-dominated Sorting Genetic Algorithm	Petroleum Science	11	98-111
10.	A Kumari, A Kumar, A. K. Pathak, C. Guria	2014	Carbon dioxide assisted Spirulina platensis cultivation using NPK-10:26:26 complex fertilizer in sintered disk chromatographic glass bubble column	Journal of CO <sub>2</sub> Utilization	8	49-59
11.	A Kumari, A Kumar, A. K. Pathak, C. Guria	2014	Cultivation of Spirulina platensis using NPK-10:26:26 complex fertilizer and simulated flue gas in sintered disk chromatographic glass bubble column	Journal of Environmental Chemical Engineering	2	1859-1869
12.	B Hazra, A. K. Pathak, C. Guria	2014	Optimal synthesis of methyl ester of Sal oil (Shorea robusta) using ion-exchange resin catalyst	International Journal of Industrial Chemistry	5	95-106
13.	D. K. Rajak, A. K. Pathak, C. Guria	2014	Improved Determination of Apparent and Plastic Viscosity for Aqueous Solution of Drilling Fluid Additives	International Journal of Petroleum Technology	1	8-13
14.	M. S. Sisodia, D. K. Rajak, A. K. Pathak, C. Guria	2015	An improved estimation of shear rate for yield stress fluid using rotating coaxial cylinder Fann Viscometer	Journal of Petroleum Science and Engineering	125	247-255

15.	Achinta Bera, Ajay Mandal and Tarkeshwar Kumar,	2014	Physicochemical Characterization of Anionic and Cationic Microemulsions: Water Solubilization, Particle Size Distribution, Surface Tension and Structural Parameters	J. Chem. Eng. Data	59 (8)	2490–2498
16.	Himangshu Kakati, Shranish Kar, Ajay Mandal, Sukumar Laik,	2014	Methane Hydrate Formation and Dissociation in Oil-in-Water Emulsion	Energy & Fuels	28 (7)	4440–4446
17.	Saurabh Mishra, Achinta Bera and Ajay Mandal	2014	Effect of Polymer Adsorption on Permeability Reduction in Enhanced Oil Recovery	Journal of Petroleum Engineering	3958	1-9
18.	Ravindra Kumar, Sambeet Mohapatra, Ajay Mandal, Tarun Kumar Naiya	2014	Studies on the Effect of Surfactants on Rheology of Synthetic Crude	Journal of Petroleum Science Research	3 (2)	90-99
19.	Vikash Kumar Saw, Manoj Kumar Gudala, G. Udayabhanu, Ajay Mandal, Sukumar Laik	2014	Kinetics of Methane Hydrate Formation and its Dissociation in Presence of Non-Ionic Surfactant Tergitol	Journal of Unconventional Oil and Gas Resources	6	54–59
20.	Achinta Bera, B. B. Guha and Ajay Mandal,	2014	Synergistic Effect of Surfactant and Salt Mixture on Interfacial Tension Reduction between Crude Oil and Water in Enhanced Oil Recovery	J. Chem. Eng. Data	59 (1)	89–96
21.	Yatin Suri, Ankit Dutt and Ajay Mandal	2014	A comparative analysis of offshore and onshore fields using derivative and second derivative plot (without type curves)”	Petroleum Science & Technology	32	535-542
22.	Vikash Kumar Saw, Bimal Bihari Das, Ajay Mandal and Sukumar Laik,	2014	Influence of Electrolytes on Methane Hydrate Formation and Dissociation	Energy Sources, Part A	36	1659–1669

23.	Ajay Mandal and Achinta Bera	2015	Modeling of Flow of Oil-in-Water Emulsions through Porous Media	Pet. Sci.	12	273–281
24.	Ajay Mandal	2015	Chemical Flood Enhanced Oil Recovery: A Review	Int. J. Oil, Gas and Coal Technology	9 (3)	241-64.
25.	Sumit Rai, Achinta Bera and Ajay Mandal	2015	Modeling of Surfactant and Surfactant-Polymer Flooding for Enhanced Oil Recovery using STARS (CMG) Software	J Petrol Explor Prod Technol	5	1–11
26.	Achinta Bera, Ajay Mandal, T. Kumar	2015	Effect of Rock-Crude oil-Fluid Interactions on Wettability Alteration of Oil-Wet Sandstone in Presence of Surfactants	Petroleum Science and Technology	33(5)	542-549
27.	Keshak Babu, Achinta Bera, Kamlesh Kumari, Ajay Mandal,* V. K. Saxena	2015	Characterization and Application of Methylcellulose and Potato Starch Blended Films in Controlled Release of Urea	Journal of Polymer Engineering	35 (1)	79–88.
28.	Chauhan Geetanjali, Das Akashdeep, Agarwal Subham and Ojha Keka	2015	Hydraulic Fracturing for Oil and Gas and its Environmental Impacts	Research Journal of Recent Sciences	4	1-5
29.	Banerjee, S., Kumar, R., Mandal, A., Naiya, T.K.,	2015	Use of Novel Natural Surfactant for Improving Fowability of Indian Heavy Crude Oil	Petroleum Science and Technology	33	819-826
30.	T.K Naiya, S. K Das	2015	Removal of Cr (VI) from aqueous solution using fly ash of different sources	Desalination and Water Treatment	DOI:10.1080/19443994.2014.1003611	
31.	P.K Jha, Vikas Mahto & V.K. Saxena,	2014	Emulsion Based Drilling Fluids: An Overview	International Journal of Chemical Tech Research	6(4)	2306-2315
32.	U.S. Yadav & Vikas Mahto	2014	Insitu Gelation Study of Organically Crosslinked Polymer Gel System for Profile Modification Jobs	Arabian Journal for Science and Engineering	39	5229-5235

33.	Vikas. Mahto Dharmendra Verma, Ajay Kumar & V.P.Sharma.	2014	Wax Deposition in Flow Lines under Dynamic Conditions	Petroleum Science and Technology	32	1996- 2003
34.	A.K. Maurya & Vikas Mahto	2014	Study the potential of amino resin to control excessive water production in the Indian oilfields	Petroleum Science and Technology	32	1443- 1447
35.	Rajat, Jain, Naveen Kumar & Vikas Mahto	2014	Effect of Fly Ash on the Rheological and Filtration Properties of Palm Oil-in- Water Emulsion Based Drilling Fluid	Recent Trends in Fluid Mechanics	1	13-17
36.	Rajat Jain., Tinku Saikia, & Vikas Mahto.	2014	Development of inhibitive water based drilling fluid system for shale formation	Recent Trends in Fluid Mechanics	2	12-16
37.	Rajat, Jain, Vikas Mahto & T. K. Mahto	2014	Study of the Effect of Xanthan Gum Based Graft Copolymer on Water Based Drilling Fluid	Journal of Macromolecul ar Science Part A: Pure and Applied Chemistry	51 (12)	976- 982

#### 3.18.4.2 Papers presented in International Seminars/Conferences

Sl. No.	Author (s)	Title	Seminar	Date	Place
1.	Saurabh Mishra, Keka Ojha	Application of Silicates as binding Agent for Sand Consolidation in Oil Industry	4th International Science Congress (ISC-2014)	8-9 December, 2014	Pacific University , Udaipur, Rajasthan, India
2.	Kapil Garg, Rabi Bastia and Sukumar Laik	Reservoir characteristics of shale gas : case studies from Cambay Basin	International Conference on Petroleum Science and Technology 2014 (ICPST 2014)	03.11.2014 - 05.11.2015	IIT- Madras, Chennai
3.	Chauhan Geetanjali, Das Akashdeep, Agarwal Subham and Ojha Keka	Hydraulic Fracturing for Oil and Gas and its Environmental Impacts	4th International Science Congress (ISC-2014)	8-9 December, 2014	Pacific University , Udaipur, Rajasthan, India

4.	Himangshu Kakati, Ajay Mandal, Sukumar Laik,	Experimental observation of effect of initial pressure on hydrate formation and dissociation in CH <sub>4</sub> and CO <sub>2</sub> mixture	9th International Methane Hydrate R&D (IMHRD) Workshop	9-12 November, 2014.	Hyderabad
5.	D. K. Rajak, A. K. Pathak, C. Guria	Improved determination of apparent and plastic viscosity for aqueous solution of drilling fluid additives	International Conference on Petroleum Science and Technology 2014 (ICPST 2014)	03.11.2014 - 05.11.2015	IIT-Madras, Chennai
6.	Shashikant Kumar, Chandan Guria and Ajay Mandal	Characterization and stability analysis of crude oil-in-water emulsions	International Conference on Petroleum Science and Technology 2014 (ICPST 2014)	03.11.2014 - 05.11.2015	IIT-Madras, Chennai
7.	Shirsendu Banerjee, Md. Irshad Ansari, Ravindra Kumar, Ajay Mandal and Tarun Kumar Naiya	Effect of novel natural surfactant on flow behavior of heavy crude oil	International Conference on Petroleum Science and Technology 2014 (ICPST 2014)	03.11.2014 - 05.11.2015	IIT-Madras, Chennai
8.	Shirsendu Banerjee, Ravindra Kumar, Ajay Mandal and Tarun Kumar Naiya	Comparative studies on rheology of Indian heavy crude oil with natural and synthetic surfactant	International Conference on Petroleum Science and Technology 2014 (ICPST 2014)	03.11.2014 - 05.11.2015	IIT-Madras, Chennai
9.	S. Laik, V.P. Sharma & Vikas Mahto	Emerging developments on flare gas recovery technologies: An overview	2nd International Seminar and Exhibition on "Recent Trends in Design, Development, Testing & Certification of Ex- equipment for Explosive Environment	November 7-9, 2014	Science City Kolkata

### 3.18.4.3 Papers presented in national Seminars/Conferences

Sl. No.	Authors	Title	Seminar/Conference	Date	Place
1.	Saurabh Mishra & Keka Ojha	Development of chemical composition for consolidating the incompetent loose formation in the oil fields	National Symposium on Recent Advances in Chemistry & Industry-2014, Kolkata	Aug 1-2, 2014	Indian Chemical Society, Kolkata
2.	Banerjee, S., Kumar, R., Mandal, A., Naiya, T.K. Shirsendu Banerjee	Use of Natural Surfactant for Enhancing Rheological Properties of Heavy Crude	National Symposium on Recent Advances in Chemistry and Industry, 1 <sup>st</sup> August, 2014,	Aug 1-2, 2014.	Indian Chemical Society, Calcutta University.
3.	Banerjee, S., Mandal, A., Naiya, T.K.	Use of Natural Surfactant for pipeline transportation of crude oil	National Conference on Recent Trends in Chemical and Allied Industries: Engineering, Economics and environment,	29 <sup>th</sup> June, 2014.	IChE, Calcutta Regional Centre, Jadavpur University.
4.	Kumar, R. , Mandal, A., Naiya, T.K.,	Rheological Studies of synthetic crude for transportation through pipe line	National Conference on Recent Trends in Chemical and Allied Industries: Engineering, Economics and environment,	29 <sup>th</sup> June, 2014.	IChE, Calcutta Regional Centre, Jadavpur University.

### 3.18.5 MAJOR ACADEMIC CONTRIBUTIONS

Ajay Mandal:

- Best Research Award from ISM-Canara Bank in 2014
- Synthesized a new polymeric surfactant applied successfully in enhanced oil recovery.

Dr. Vikas Mahto:

- Filed two patents on synthesis and characterization of acrylate esters as pour point depressant and effectiveness of Sorption Mono Oleate as pour depressant on Indian Waxy crude oil.

### 3.18.6 PARTICIPATION OF FACULTY/OFFICERS/STAFF IN SEMINARS/ CONFERENCES ETC. :

Name of the faculty	Conference/Seminar	Date	Venue
Prof V P Sharma	Urja Sangam 2015 Organised by ONGC Videsh at Delhi	March 27.03.2015	New Delhi
Prof A K Pathak	Urja Sangam 2015 Organised by ONGC Videsh at Delhi	March 27.03.2015	New Delhi
Dr. Vikas Mahto	2nd International Seminar and Exhibition on "Recent Trends in Design, Development, Testing & Certification of Ex-equipment for Explosive Environment	November 7-9, 2014	Science City Kolkata

### 3.18.7 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, Coal analysis.
- 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.
- Instrumentation Laboratory: FTIR, UV-VIS spectrophotometer, Physica Rheometer, Easy dyne Tenseometer, Spinning Drop Tensiometer, Cross polarized microscope, Ultrasonic Interferometer, Drop Shape Analyzer, Atomic Absorbance Spectrophotometer.



**3.18.8 DISTINGUISHED VISITORS TO THE SCHOOL**

Sl No.	Guest	Purpose
1.	Mr. Rana Sinha Roy	Guest Lecture
2.	Shri Atul Tyagi	Guest Lecture
3.	Shri Niladri Sinha	Guest Lecture
4.	Shri Debasis Sanyal	Guest Lecture
5.	Dr. Anil Kumar	Guest Lecture
6.	Mr. Shashi Shanker, Director, ONGC	Basant Samman, 2015

**3.18.9 SPECIAL LECTURES BY DISTINGUISHED GUESTS**

Sl No.	Speaker	Topic	Date
1.	Mr. Rana Sinha Roy	Drilling Engineering Manager in Chevron.	25.07.2014
2.	Shri Atul Tyagi	Drilling Operations	19.08.2014
3.	Shri Niladri Sinha	Production of Oil and Gas	02.09.2014
4.	Shri Debasis Sanyal	New Oil Field Development	02.12.2014
5.	Dr. Anil Kumar	Well Drainage Area in Edge Water Drive Reservoirs.	05.02.2015
6.	Dr. Anil Kumar	A General Theory for Pressure Transient Behavior in Partial Water Drive Reservoir	06.02.2015

**3.18.10 MISCELLANEOUS :****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.
- Member BOCS of RGIPT Rae Bareli
- Member-Subcommittee to formulate PNGRB regulations on POL terminal
- Member- subcommittee to draft PNGRB regulations on Refineries and Gas Processing Plants

**Prof. V P Sharma:**

- Member Board of courses & studies for Petroleum Engineering at Rajasthan Technical University, Kota.

**Dr. A. K. Pathak :**

- Technical Member of Diamond Core and Water well Drilling Sectorial Committee MED 21, BIS New Delhi.

- Member of “Sectoral Innovation Council for Petroleum and Natural Gas” constituted by Government of India

**Students’ Achievement:**

- SPE student Chapter won the “Gold Standard” award for its activity by SPE-USA
- Petrotech Students chapter received 2<sup>nd</sup> best chapter award in 2014.
- Student team received Best presentation award in 2014 at Petrotech Annual convention held in UPES, Dehradun.
- Shirsendu Banerjee (Research Scholar) won Young Scientist Award for Oral Presentation in National Symposium on Recent Advances in Chemistry and Industry (2014) organized by Indian Chemical Society at Calcutta University.

## 4.0 STUDENTS' ACTIVITIES

### Cultural Scientific & Literary Society (CSLS)

Cultural Scientific Literary Society (CSLS) has been an active student's society of Indian School of Mines, Dhanbad. This society consist of 04 active clubs namely Abhay Dramatics Club, Dance club, Literary Club and Dhruva Club.

The society conducted many activities starting with a play "**Kharashe**". The play was performed on 19<sup>th</sup> April 2014 by Abhay Dramatic Club and it was appreciated by the ISM crowd. Another two wonderful English Plays "**The Foreigner**" & "**Black & White**" were performed by the Abhay Dramatics Club on 09<sup>th</sup> September 2014 & 13<sup>th</sup> September 2014 respectively. Another Hindi Play "**Saket**" was performed by Abhay Dramatics Club on 11<sup>th</sup> March, 2015. The play highlighted various social issues and their effect on the lives of young children and their future.

A series of lectures on "**Leading Meaningful Lives**" was organised by the Dhurva Club of CSLS on 23<sup>rd</sup> August 2014, 24<sup>th</sup> August 2014 and 03<sup>rd</sup> September 2014. Moving ahead, this club has conducted a lecture on "**Balance among Intelligence, Emotional & Spiritual**" on 11<sup>th</sup> October 2014. The Literary Club of CSLS organized the "**ISM Talks**" on various topics ranging from Personality Development to Social Awareness on 21<sup>st</sup> March 2015.

An inter hostel dance competition "**Kryptoes**" was organized by Dance club of CSLS on 06<sup>th</sup> September 2014. This club organized a "**Flash Mob**" on 25<sup>th</sup> March 2015 to promote the Dance events and competitions among students. In the starting of Winter Semester, the students of Abhay Dramatics club and Dance Club visited IIT Kharagpur & IIT Bhubaneshwar to participate in cultural fest of these institutes "**Spring Fest-2015**" (IIT Kharagpur) & "**Alma-Fiesta-2015**" (IIT Bhubaneshwar) during 23<sup>rd</sup> -26<sup>th</sup> January 2015 & 29<sup>th</sup> January - 1<sup>st</sup> February 2015.

Besides all of these above events, regular meetings were being conducted by different clubs of CSLS in the Student Activity Centre (SAC) rooms to motivate & enhance the skill of students.

### Music Society

The music Society of ISM Dhanbad performed the following events during this year:

'ALIVE - A Musical Concert' (12-04-14 & 07-09-14), National anthem and invocation song sung in various occasions, Selection in 'Antragni Idol - cultural festival of IIT Kanpur' on 13-10-14, Concerto on 17-10-14, Reunion of Indian & Afghani students (15-04-14), Classes (Drums, Guitar, synthesiser, Vocal) started after 18-09-14, Monday With Manthan from 30-10-14, organized Intra-club singing competition on 08-12-14, Indian Mineral Congress (IMC) 2015 on 07-02-15, Basant 2015 on 08-02-15, Basant Silver Jubilee Celebration on 14-02-15, Geo-Confluence on 26-02-15, AAPG on 13-03-15, Conference on Computational Methods on Vibrations and Acoustics on 17-03-15, The Last Stage was successfully coordinated and organized 25-03-15, SRIJAN on 27-29 March 2015.

## Cyber Society

The Cyber Society and Robotics Club of Indian School of Mines, Dhanbad was actively involved in creating Cyber and robotic related awareness among the students of the institute through various workshops and events during the academic session 2014-2015. All such workshops and 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 during this period is given below:

Month	Activities
September 2014	One day Matlab and Simulink workshop
January 2015	<ul style="list-style-type: none"> <li>➤ 4 discussion sessions for member of the Cyber Society</li> <li>➤ 1 review session,</li> <li>➤ introduction event of new members</li> <li>➤ Weekly Robotics discussion/tutorial sessions</li> </ul>
February 2015	<ul style="list-style-type: none"> <li>➤ 4 discussion sessions for member of the Cyber Society</li> <li>➤ 1 review session, project initiation session</li> <li>➤ 1 Campus Tour to Computer Centre for network visualization</li> <li>➤ Weekly Robotics discussion/tutorial sessions</li> </ul>
March 2015	<ul style="list-style-type: none"> <li>➤ 2 discussion sessions for member of the Cyber Society</li> <li>➤ 1 review session, project review session</li> <li>➤ Weekly Robotics discussion/tutorial sessions</li> </ul>

## Chayanika Sangh

- A number of events were organized by the Chayanika Sangh, the society that works for promotion of Hindi among the students of ISM. Events like Hindi debate and speech competition were organized for attracting participation of the students in the society.
- Chayanika Sangh actively participated in the organization of Hindi Pakhwada, the annual function organized by Raj Bhasha Department.
- A Kavita Hafta was organised in the 3rd week of August.
- Events like Hindi essay competition, précis writing, and debates was organized during 1-15 September 2014.
- A Hindi poetry week was organized during 6-12 October, 2014 in which the participants presented works of famous Indian poets and writers.
- Published Ankur 2014 - the Chayanika Sangh magazine.

## **NATIONAL SERVICE SCHEME**

The following events were organized during the year:

1. Cleanliness Drive on April 6, 2014.
2. Article and Essay Writing Competition on 25th September, 2014.
3. Debate on 2nd October 2014.
4. Rastriya Ekta Diwas on October 31, 2014.
5. The Frustrated Indian on 14<sup>th</sup> November 2014.
6. Poster Making Competition on 19<sup>th</sup> January 2015.
7. Model Parliament on 26 January 2015.
8. Udaan& Tree Plantation on 27<sup>th</sup> of March 2015.
9. Collection of money for the support of visually challenged students.

## **SRIJAN-2015**

Indian School of Mines (ISM) organized SRIJAN every year which is one of the largest socio-cultural and educational event of Eastern India. Through this event, ISM explored a wide variety of talents by students in the field of art and drama, music, literary debates and technical innovations, etc., apart from academics.

Events organized during Srijan-2015 during March 27-29, 2015 includes: talent quiz, art, music, dance, drama, humour, debate along with special star performances like Vh1 supersonic EDM night, Mind shift and Saleem Suleman Live. The specific events are enlisted as Footloose, ISM Mun, Corral (LITC), Avalanche, Khamoshi, Paridhan, Unplugged, Ground zero, Duet Dance, Hustle Herd, Halla Bol, Sursangram, Rangmanch etc. under which more than 200 participants have participated in one form or other.

The event was sponsored by ISM, ONGC, TATA Steel, NMDC, NALCO, HCL COMNET, ISM Alumni and many more apart from local sponsors.

## **CONCETTO-2014**

The fourth annual Techno-management festival of Indian School of Mines, Dhanbad Concetto-2014 was successfully held during 17<sup>th</sup> to 19<sup>th</sup> October 2014. The basic objective of this event was to provide a platform and an excellent opportunity for the young buzzing minds to compete with the best and the biggest from all over the country and hone their techno-management skills.

CONCETTO'14 witnessed more than 500 participants including 57 outsiders' participants from seven different colleges. The participants witnessed a total of 60+ events and various informal Events. The events were organized in the form of workshop, guest lecture, paper presentations, model design and case study etc. Some of the most sought after events were Aerodrones conducted by Department Mechanical Engineering, Geo-modelling by the Dept. of Applied Geology, Super mine design from Mining engineering, Circuit debugging from Electrical Engineering and Gizmo from Department of Computer Science & Engineering.

## 5.0 PLACEMENT OF STUDENTS

The Training & Placement Cell 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:

<b>COMPERATIVE STATEMENT OF LAST FIVE YEARS</b>					
<b>4-Years B.Tech Programme</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	311	357	501	637	713
Campus Placement	289	321	407	404	537
Placement after the course completion	5	17	7	0	0
No information	17	19	87	233	176
<b>% of selected students</b>	<b>94.53</b>	<b>94.68</b>	<b>82.63</b>	<b>63.42</b>	<b>75.32</b>
<b>5-Years Dual Degree Programmes</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	37	35	43	48	45
Campus Placement	30	34	34	37	29
Placement after the course completion	4	0	3	0	0
No information	3	1	6	11	16
<b>% of selected students</b>	<b>91.89</b>	<b>97.14</b>	<b>86.05</b>	<b>77.08</b>	<b>64.44</b>
<b>5-Years Integrated M.Sc. Programmes</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	12	15	16	17	15
Campus Placement	9	11	6	4	7
Placement after the course completion	2	3	4	0	0
No information	1	1	6	13	8
<b>% of selected students</b>	<b>91.67</b>	<b>93.33</b>	<b>62.50</b>	<b>23.53</b>	<b>46.67</b>
<b>5-Years Integrated M.Sc. Tech Programmes</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	10	21	24	21	25
Campus Placement	5	19	11	17	12
Placement after the course completion	5	0	2	0	0
No information	0	2	11	4	13
<b>% of selected students</b>	<b>100.00</b>	<b>90.48</b>	<b>54.17</b>	<b>80.95</b>	<b>48.00</b>
<b>5-Years Integrated M.Tech Programme (M&amp;C)</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	NA	NA	10	9	12
Campus Placement	NA	NA	6	5	8
Placement after the course completion	NA	NA	3	0	0
No information	NA	NA	1	4	4
<b>% of selected students</b>	<b>NA</b>	<b>NA</b>	<b>90.00</b>	<b>55.56</b>	<b>66.67</b>

<b>3-Years M.Sc.Tech Programmes (AGL &amp; AGP)</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	71	82	102	90	100
Campus Placement	44	36	30	25	22
Placement after the course completion	15	38	1	0	0
No information	12	8	71	65	78
<b>% of selected students</b>	<b>83.10</b>	<b>90.24</b>	<b>30.39</b>	<b>27.78</b>	<b>22.00</b>
<b>2-Years M.Sc. Programmes</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	80	81	99	99	98
Campus Placement	10	9	1	6	8
Placement after the course completion	20	42	44	0	0
No information	50	30	54	93	90
<b>% of selected students</b>	<b>37.50</b>	<b>62.96</b>	<b>45.45</b>	<b>6.06</b>	<b>8.16</b>
<b>2-Years M.Tech Programmes</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	157	130	157	226	297
Campus Placement	56	84	29	38	55
Placement after the course completion	25	16	38	0	0
No information	76	30	90	188	242
<b>% of selected students</b>	<b>51.59</b>	<b>76.92</b>	<b>42.68</b>	<b>16.81</b>	<b>18.52</b>
<b>2-Years MBA Programme</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	41	59	55	50	53
Campus Placement	20	40	13	20	16
Placement after the course completion	5	1	10	2	0
No information	16	18	32	28	37
<b>% of selected students</b>	<b>60.98</b>	<b>69.49</b>	<b>41.82</b>	<b>44.00</b>	<b>30.19</b>
<b>1-Year M.Phil Programme</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	26	10	30	42	35
Campus Placement	0	0	0	0	0
Placement after the course completion	0	NA	NA	NA	NA
No information	0	NA	NA	NA	NA
<b>% of selected students</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>GRAND TOTAL</b>					
<b>Session</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>
Total Registered Students	745	790	1037	1239	1393
No. of selected students	544	671	649	557	694
<b>% of selected students</b>	<b>73.02</b>	<b>84.94</b>	<b>62.58</b>	<b>44.96</b>	<b>49.82</b>

<b>Salary (2014-15)</b>	<b>PG(Lakhs P.A)</b>
Maximum	26.00
Minimum	2.80
Average	7.18



## 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.536.23 lakhs.

1	Cons/2497/2014-15	Analysis and Interpretation of gas Samples of Haripur Colliery,	Prof. D. C. Panigrahi, CI	Haripur Colliery, ECL
2	Cons/2498/2014-15	Determination of CPT, IPT and Moisture Content of Coal Samples Shankarpur Colliery, ECL	Prof. D. C. Panigrahi, CI	Shankarpur Colliery, ECL
3	Cons/2499/2014-15	Analysis and Interpretation of gas samples of Shyampur B. Incline ECL	Prof. D. C. Panigrahi, CI	Shyampur B. Incline ECL
4	Cons/2500/2014-15	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Surekhechar Colliery, SECL	Prof. D. C. Panigrahi, CI	Surekhechar Colliery, SECL
5	Cons.2501/2014-15	Determination of degree of gassiness of R-VIII( Jambad) Seam of Moira Colliery, Bankola Area, ECL	Prof. D. C. Panigrahi, CI	Moira Coliery Bankola Area, ECL
6	Cons/2502/2014-15	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Lodna Coliery, BCCL	Prof. D. C. Panigrahi, CI	Lodna Colliery, BCCL
7	Cons/2503/2014-15	Evaluation of Performance and Behavior of Ventilation and Safety Instruments of Kanhan Areas Patherkhera Area WCL	Prof. D. C. Panigrahi, CI	Kanhan Area & Patherkhera Area, WCL

8	Cons/2504/2014-15	Analysis of 1 air Sample of the Surface of the Mine One Water Sample from the Main discharge of Mine Water	Mr. B. K. Mishra, CI Dr. S. K. Gupta, CO-CI	Bararee Colliery Lodna Area, BCCL
9	Cons/2505/2014-15	Analysis of Coal Sample from Anpara Thermal Power Station	Dr. Shalini Goutam, CI Sri Satrugan Soren, CO-CI	Central Work Contract Division III, Sonebhadra
10	Cons/2506/2014-15	Mineralogical Characterization of Manganese Ore Fines.	Prof. A. S. Venkatesh, CI Dr. P.R. Sahoo, CO- CI Prof. A. K. Verma, CO-CI	Tata Steel, Jamshedpur
11	Cons/2507/2014-15	Question Paper Setting for Written Examination for BCCL	Prof. P. Sen, CI	BCCL, Koyla Bhawan
12	Cons/2508/2014-15	Analysis and Interpretation of air Samples of Jarangdih Colliery, CCL	Prof. D. C. Panigrahi, CI	Jarangdih Colliery, CCL
13	Cons/2509/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Bohara band Mine.	Prof. D. C. Panigrahi, CI	Bahoraband Mine SECL
14	Cons/2510/2014-15	Analysis and Interpretation of air Samples of Bagdigi Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bagdigi Colliery, BCCL
15	Cons/2511/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Jhiria and Malga Collieries SECL	Prof. D. C. Panigrahi, CI	Malga Colliery, SECL
16	Cons/2513/2014-15	Testing of Coal Sample	Prof. V. K. Saxena, CI Shri Shravan Kumar, CO-CI	Coal Controllers, Org. Dhansar, Dhanbad
17	Cons/2514/2014-15	Testing of Coal Sample	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Bankola Area, BCCL
18	Cons/2515/2014-15	Testing of Coal Sample	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	AKA Logistics Pvt. Ltd. Kolkata
19	Cons/2516/2014-15	Determination of Cerchar Abrasive Index and Uniaxial Compressive Strength of Some rock sample	Prof. V. M. S. R. Murthy, CI Dr. A. K. Mishra, CO-CI	MMD (India) Pvt. Ltd., Kolkata
20	Cons/2519/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Mines Rescue Station, Dhansar.	Prof. D. C. Panigrahi, CI	Mines Rescue Station Dhansar
21	Cons/2520/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Khotadih Colliery, ECL	Prof. D. C. Panigrahi, CI	Khotadih Colliery, ECL
22	Cons/2521/2014-15	Evaluation of Performance of dust Collectors deployed along with their drilling Machines of M/s Revathi Equipment Ltd.	Prof. D. C. Panigrahi, CI	Revathi Equipment Ltd. Coimbatore.

23	Cons/2522/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Kurja UG Mine, Hansdeo Area SECL.	Prof. D. C. Panigrahi, CI	Kurja UG Mine Hansdeo Area SECL
24	Cons/2523/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Dharam Incline, Raigarh Area SECL	Prof. D. C. Panigrahi, CI	Dharam Incline Raigarh Area SECL
25	Cons/2524/2014-15	Testing of Coal Sample	Shri S. Soren, CI Prof. N. R. Mandre, CO-CI	Testing of Coal Samples.
26	Cons/2525/2014-15	Proximate Analysis of Wash Coal (Power) Samples	Prof. S. Bhattacharya, CI Mr. Anand Anupam, CO-CI	Moonidih Coal Washery, BCCL
27	Cons/2526/2014-15	Testing of Coal Samples	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Rajmahal Coal Mining Ltd. Godda.
28	Cons/2527/2014-15	Testing of Gypsum Samples	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Satguru Gum Industries, Mumbai
29	Cons/2528/2014-15	Testing of Mn Ore	Prof. S. Bhattacharya, CI Mr. Anand Anupam, CO-CI	Mcnelly Sayaji Engineering Ltd. Kumardhubi
30	Cons/2529/2014-15	Testing of Geotechnical and Environmental Parameters of LD/BF Slag for Stowing Purpose.	Dr. Biswajit Paul, CI	Sijua Colliery, Tata Steel
31	Cons/2530/14-15	Electrical Resistivity Imaging and Self Potential Survey for locating of Fracture Zones and Seepages Analysis at Talabira-1 Coal	Dr. Sanjit Kr. Paul, CI Dr. U. K. Singh, CO-CI Prof. Shalivahan, CO-CI Prof. P. R. Mohanty, CO-CI	APEX Geotech Engineers New Delhi
32	Cons/2531/14-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Somna Colliery Hasdeo Area, ECL	Prof. D. C. Panigrahi, CI	Somna Colliery, Hasdeo Area ECL
33	Cons/2532/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of SSI Colliery ECL	Prof. D. C. Panigrahi, CI	SSI Colliery ECL
34	Cons/2533/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Ghusik ® Colliery, ECL	Prof. D. C. Panigrahi, CI	Ghusik ® Colliery, ECL
35	Cons/2534/2014-15	Written Test for Tata Steel Employees (IL6 Process)	Prof. P. S. Gupta, CI Prof. Chandan Bhar, CO-CI Prof. J. K. Pattanayak, CO-CI	Tata Steel

36	Cons/2535/2014-15	Scientific Study for optimization of Drilling and Blasting Pattern in view of Controlled blast induced Ground Vibration and Improvement in Blasting Performance at T74-R Dharam-Banihal Section of Udhampur Srinagar Baramulla Rail Link Project for one year	Dr. A. K. Mishra, CI Dr. B. S. Choudhari, CO-CI	AFCON Infrastructure Ltd.
37	Cons/2536/2014-15	Technical Consultancy for bidding for Jhirki and Jhirki West Coal Block Pat I and II	Prof. S. Choudhari, CI Prof. N. C. Jha, CO-CI	SAIL, Kulti
38	Cons/2537/2014-15	Collection of Raw Coal Sample for Kulda OCP and Analysis of Heavy Metales in Raw Coal Washed Coal and Raject	Prof. Gurdeep Singh, CI	MCL, Sambalpur
39	Cons/2538/2014-15	Proximate Analysis and GCV Estimation of Damoda Colliery Coal Sample	Prof. N. Suresh, CI	MCL, Burla
40	Cons/2539/2014-15	analysis of Coal Sample of Washed Coal (Powder) of Mahuda Coal Washery	Prof. V. K. Saxena, CI	BCCL Mohuda Coal Washery
41	Cons/2540/2014-15	Testing of Coal Samples.	Prof. V. K. Saxena, CI Shri Shravan Kumar, CO-CI	BCCL EJ Area Bhowra
42	Cons/2541/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Saoner Sub Area WCL	Prof. D. C. Panigrahi, CI	WCL Saoner Sub Area
43	Cons/2542/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Sodepur ® Colliery, ECL	Prof. D. C. Panigrahi, CI	Sodepur® Colliery ECL
44	Cons/2543/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Chatarpur Mine I WCL	Prof. D. C. Panigrahi, CI	Chatarpur Mine No.1 Patherkhera, WCL
45	Cons/2544/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Rayt Bachra Colliery, CCL	Prof. D. C. Panigrahi, CI	Ray Bachra Colliery, CCL
46	Cons/2545/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Advance Welding Corporation Dhanbad	Prof. D. C. Panigrahi, CI	Advance Welding Corporation Dhanbad
47	Cons/2546/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Talchar Colliery, MCL	Prof. D. C. Panigrahi, CI	Talchar Colliery, MCL
48	Cons/2547/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Methani Colliery, ECL	Prof. D. C. Panigrahi, CI	Methani Colliery, ECL

49	Cons/2548/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of Narsumunda Colliery, ECL	Prof. D. C. Panigrahi, CI	Narsumunda Colliery, ECL
50	Cons/2549/2014-15	Functional ability tests of self rescuers of NCPH R-6 Colliery SECL	Prof. D. C. Panigrahi, CI	NCPH R-6 Colliery SECL
51	Cons/2550/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of PB Project Colliery, BCCL	Prof. D. C. Panigrahi, CI	P.B. Project Colliery, BCCL
52	Cons/2551/2014-15	Functional Ability tests of Self Rescuers of Chirimiri UG sub Area SECL	Prof. D. C. Panigrahi, CI	Chirimiri UG Sub Area SECL
53	Cons/2552/2014-15	Functional Ability tests of Self Rescuers of Rani Atari UG Mine SECL	Prof. D. C. Panigrahi, CI	Rani Atari UG Mine SECL
54	Cons/2555/2014-15	Determination of RMR of R VIII A seam at Tiulaboni Unit of Tilaboni Colliery	Dr. A. K. Mishra, CI Dr. B. S. Choudhari, CO-CI	Tilaboni Colliery ECL
55	Cons/2556/2014-15	Strata monitoring at CM District (Sub-Panel P9 to Sub-Panel P16) of Saripi Project, SSPur Colliery Bankola Area ECL	Dr. A. K. Mishra, CI	SS Pur Colliery Bankola Area ECL
56	Cons/2557/2014-15	Testing of two Waste Water Samples for M/S ENC Ltd.	Dr. S. K. Gupta, CI Mr. B. Mishra, CO-CI	Eastern Naphtha - Chem Ltd. Dhanbad.
57	Cons/2558/2014-15	Monitoring of Ambient air (onestation) and Analysis of Mine Water (one Sample) for Bararee Colliery of BCCL	Mr. B. K. Mishra, CI Dr. S. K. Gupta, CO-CI	BCCL Bararee Colliery,
58	Cons/2559/2014-15	Analysis of Washed Coal (Power) Samples.	Mr. Anand Anupam, CI Prof. V. K. Saxena, CO-CI	BCCL Koyla Nagar
59	Cons/2560/2014-15	Evaluation of Performance and Behavior of Safety instruments Silwara Sub Area Nagpur	Prof. D. C. Panigrahi, CI	Silwara Sub Area Nagpur, WCL
60	Cons/2561/2014-15	Evaluation of Performance and Behavior of Safety Instruments Govindpur Area BCCL	Prof. D. C. Panigrahi, CI	Govindpur Area, BCCL
61	Cons/2562/2014-15	Evaluation of Performance and Behaviour of Safety Instruments K. B. Colliery BCCL	Prof. D. C. Panigrahi, CI	K. B. Colliery BCCL
62	Cons/2563/2014-15	Evaluation of degree of gassiness of III Seam of Phularitand Colliery Barora Area BCCL	Prof. D. C. Panigrahi, CI	Phularitand Colliery Barora Area, BCCL
63	Cons/2564/2014-15	Evaluation of Performance and Behavior of Safety Instruments Huriladih Colliery, BCCL	Prof. D. C. Panigrahi, CI	Huriladih Colliery, BCCL

64	Cons/2565/2014-15	Field Investigations Modelling and Simulation Studies for designing Ventilation System of Rajpura Darioba Mines HZL (2nd years)	Prof. D. C. Panigrahi, CI	Rajpura Dariba Mines, HZL (2nd Year)
65	Cons/2566/2014-15	Evaluation of Performance and Behavior of Safety Instruments Mine Rescue Room, Parasia WCL	Prof. D. C. Panigrahi, CI	MRS Parasia WCL
66	Cons/2567/2014-15	Evaluation of Performance and Behavior of Safety Instruments MRS Sitarampur ECL	Prof. D. C. Panigrahi, CI	MRS Sitarampur ECL
67	Cons/2568/2014-15	Design of Settling Pond at Ambuja Cement Plant	Dr. S. K. Supta, CI Dr. Alok Sinha, CO-CI	Ambuja Cement Ltd. Ambujanagar
68	Cons/2569/2014-15	Sampling and Analysis of 20,000 MT Slurry of Moonidih Coal Washery	Prof. S. Bhattacharya, CI	Moonidih Coal Washery, BCCL
69	Cons/2570/2014-15	Testing of Coal Samples.	Shri Shravan Kumar, CI Prof. N. R. Mandre, CO-CI	BCCL, Koyla Bhawan
70	Cons/2571/2014-15	Guest faculty for the LEO Workshop on Reduction of Gangue Content from Iron Ore fines.	Prof. N. Suresh, CI Shri Shravan Kumar, CO-CI	SAIL, Ranchi
71	Cons/2572/2014-15	Testing of Coal Samples.	Shri Shravan Kumar, CI	BCCL, Koyla Bhawan
72	Cons/2573/2014-15	Testing of Coal Samples.	Shri Shravan Kumar, CI	ECL, Kapasara Colliery.
73	Cons/2575/2014-15	Determination of degree of gassiness of U. K. Bottom Seam of Meera Incline, Kotma Govindpur Sub Area SECL	Prof. D. C. Panigrahi, CI	Katma-Govindpur Sub Area SECL
74	Cons/2576/2014-15	Evaluation of Performance and Behavior of Safety Instruments Swati Safesecure(P) Ltd.	Prof. D. C. Panigrahi, CI	Swati Safesecure(P) Ltd., Mumbai
75	Cons/2577/2014-15	Evaluation of Performance and Behavior of Safety Instruments Salanpur Colliery, BCCL	Prof. D. C. Panigrahi, CI	Salanpur Colliery, BCCL
76	Cons/2578/2014-15	Evaluation of Performance and Behavior of Safety Instruments Bhagaband Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bhagaband Colliery, BCCL
77	Cons/2579/2014-15	Evaluation of Performance and Behavior of Safety Instruments Jhanjra Project Colliery, ECL.	Prof. D. C. Panigrahi, CI	Jhanjra Colliery, ECL
78	Cons/2580/2014-15	Characterization of Phosphate fines and Associated test work for Flowsheet.	Dr. S. Bhattacharya, CI Dr. A.K. Bhowmick, CO-CI Dr. Pankaj Kr. Jain	Polytechnical University of Madrid (UPM)
79	Cons/2581/2014-15	Chemical testing of Steel for Manufacturing of high set remote Prop.	Prof. D. C. Panigrahi, CI	PVR Inshield Bituminous (P) Ltd.

80	Cons/2582/2014-15	Chemical testing of Steel for Manufacturing of high set remote Prop.	Prof. D. C. Panigrahi, CI	Boldie Mining Sealants (P) Ltd.
81	Cons/2583/2014-15	Evaluation of Performance and Behavior of Safety Instruments and Analysis of air Samples of Sawang Colliery.	Prof. D. C. Panigrahi, CI	Sawang Colliery, CCL
82	Cons/2584/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Mekon International.	Prof. D. C. Panigrahi, CI	Mekon International
83	Cons/2585/2014-15	Analysis and Interpretation of air Samples of Hariajam Colliery ECL	Prof. D. C. Panigrahi, CI	Hariajam Colliery, ECL
84	Cons/2586/2014-15	Testing of Coal Samples.	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	CCL Kaju Area.
85	Cons/2587/2014-15	Testing of Coal Samples.	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	ECL Chapapur II Colliery
86	Cons/2588/2014-15	Determination of RMR of III Coal Seam of Phularitand Colliery.	Dr. Amit Kr. Verma, CI Dr. A. K. Mishra, CO-CI	Phularitand Colliery Barora Area, BCCL
87	Cons/2589/2014-15	Physico-Mechanical Properties of high Set Remote Prop.	Dr. A. K. Mishra, CI	Boldie Mining Sealants (P) Ltd.
88	Cons/2590/2014-15	Physico-Mechanical Properties of high Set Remote Prop.	Dr. A. K. Mishra, CI	PVR Inshield Bituminous (P) Ltd.
89	Cons/2591/2014-15	Determination of Cerchar Hardness and Abrasivity Index of Some rock Samples.	Prof. VMSR Murthy, CI	CIMFR, Dhanbad
90	Cons/2592/2014-15	Testing of Coal Samples	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Rajmohal Coal Mining Ltd.
91	Cons/2593/2014-15	Evaluation of Performance and Behavior of Safety Instruments and Analysis of air Samples of Damoda Nandira and Natraj Collieries BCCL & MCL	Prof. D. C. Panigrahi, CI	BCCL & MCL
92	Cons/2594/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Moonidih Colliery, BCCL.	Prof. D. C. Panigrahi, CI	BCCL Moonidih Colliery
93	Cons/2595/2014-15	Development of an Underwater Drilling and Controlled Blasting Methodology for Hard rock Dredging Between VCTPL and ore Berth of Vizag Port, Port of Vishakhapatnam	Prof. V.M.S.R. Murthy, CI	ISDL, Vishakhapatnam
94	Cons/2596/2014-15	Testing of Coal Samples	Shri S. Soren, CI Mr. Shruvan Kumar, Co-CI	ECL Mugma
95	Cons/2597/2014-15	Calibration of Force Measuring Device of Muva Industries Ltd.	Dr. A. K. Mishra, CI	Muva Industries Ltd.

96	Cons/2598/2014-15	Analysis and Interpretation of Mine air Sample of Badjna Colliery ECL	Prof. D. C. Panigrahi, CI	Badjna Colliery, ECL
97	Cons/2599/2014-15	Evaluation of Performance and Behavior of Safety Instruments Phularitand Colliery, BCCL	Prof. D. C. Panigrahi, CI	Phularitand Colliery, BCCL
98	Cons/2600/2014-15	Evaluation of Performance and Behavior of Safety Instruments Godhar Colliery, BCCL	Prof. D. C. Panigrahi, CI	Govindpur Colliery, BCCL
99	Cons/2601/2014-15	Evaluation of Performance and Behavior of Safety Instruments G Begunia Colliery, ECL	Prof. D. C. Panigrahi, CI	Begunia Colliery, ECL
100	Cons/2602/2014-15	Evaluation of Performance and Behavior of Safety Instruments Sudamdih Incline mine BCCL	Prof. D. C. Panigrahi, CI	Sudamdih Incline Mine BCCL
101	Cons/2603/2014-15	Scientific Study for delineation of fire at Gaslitand mine for Safety of Adra Gomo South Eastern Railway Line, BCCL	Prof. D. C. Panigrahi, CI Prof. S. Choudhari, CO-CI Dr. D. P. Mishra, CO-CI	BCCL, Katras Area
102	Cons/2604/2014-15	Analysis and Interpretation of Mine air Samples for Ascertaining the Atmospheric Concolitions including the conditions of fire Areas for Improving Safety in Sijua Colliery Tata Steel Ltd.	Prof. D. C. Panigrahi, CI	Tata Steel Ltd.
103	Cons/2605/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Palkimara Incline SECL	Prof. D. C. Panigrahi, CI	Palkimara Incline, SECL
104	Cons/2606/2014-15	Analysis and Interpretation of air Samples of Kumardhubi Colliery, ECL	Prof. D. C. Panigrahi, CI	Kumardhubi Colliery, ECL
105	Cons/2607/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Dhori (Khas) Colliery, CCL	Prof. D. C. Panigrahi, CI	Dhori (Khas) Colliery, CCL
106	Cons/2608/2014-15	Written Test for Tata Steel Employees (IL6 Process)	Prof. P. S. Gupta, CI Prof. Chandan Bhar, CO-CI Prof. J. K. Pattanayak, CO-CI	Tata Steel
107	Cons/2610/2014-15	Electrical Resistivity Imaging Survey for Stability Mapping of Proposed Area, Jogidih.	Dr. U. K. Singh, CI Dr. S. K. Pal, CO-CI Prof. Shalivahan, CO-CI Prof. P. R. Mohanty, CO-CI	Jogidih Colliery, BCCL
108	Cons/2612/2014-15	Testing of Ground Water Sample of Korba.	Mr. Brijesh Kumar, CI Dr. S. K. Gupta, CO-CI	Aditi R & D Services Sindri, Dhanbad
109	Cons/2613/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Kenda Area ECL	Prof. D. C. Panigrahi, CI	Kenda Area ECL



110	Con/2614/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Chapapur Colliery, ECL	Prof. D. C. Panigrahi, CI	Chapapur Colliery, ECL
111	Cons/2615/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Mandaman Colliery, Mugma Area, ECL	Prof. D. C. Panigrahi, CI	Mandaman Colliery, Mugma Area, ECL
112	Cons/2616/2014-15	Modelling and design of Ventilation System for Producing 0.9 to 1 Million tonnes of Coal from Newly developed underground coal Mine of Jindal Power Ltd.	Prof. D. C. Panigrahi, CI	Jindal Power Ltd., Raigarh
113	Cons/2617/2014-15	Evaluation of Performance and Behavior of Safety Instruments Kandhan Area WCL	Prof. D. C. Panigrahi, CI	Kanhan Area WCL
114	Cons/2618/2014-15	Analysis and Interpretation of air Samples of Lakhimata Colliery, ECL	Prof. D. C. Panigrahi, CI	Lakhimata Colliery, ECL
115	Cons/2619/2014-15	Evaluation of Performance and Behavior of Safety Instruments MRS Dhansar, BCCL	Prof. D. C. Panigrahi, CI	MRS Dhansar BCCL
116	Cons/2620/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Badjna Colliery and Chinakuri Mine No.III ECL	Prof. D. C. Panigrahi, CI	Badkma Colliery and Chinakuri Mine No.III ECL
117	Cons/2621/2014-15	Analysis and Interpretation of air Samples of Jarangdih Colliery, CCL	Prof. D. C. Panigrahi, CI	Jarangdih Colliery, CCL
118	Cons/2622/2014-15	Evaluation of Performance and Behavior of Safety Instruments and Analysis and Interpretation of air Samples of Bhurkunda Project CCL	Prof. D. C. Panigrahi, CI	Bhurkunda Project, CCL
119	Cons/2623/2014-15	Testing of Coal Samples.	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Coal Controllers, Org. Dhansar, Dhanbad
120	Cons/2624/2014-15	Testing of Coal Samples.	Shri Shravan Kumar, CI Prof. N. R. Mandre, CO-CI	Sendra Bansjora Colliery, BCCL Sijua Area
121	Con/2628/2014-15	A Study of fire in the leasehold of Karo-IOCP and dealing their of B & K Area CCL	Prof. D. C. Panigrahi, CI Prof. S. Choudhari, CO-CI Dr. D. P. Mishra, CO-CI	B & K Area CCL
122	Cons/2629/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Patherdih Colliery BCCL	Prof. D. C. Panigrahi, CI	Patherdih Colliery, BCCL
123	Cons/2630/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Amalgamated Keshalpur West Colliery, BCCL	Prof. D. C. Panigrahi, CI	Amlgamated Keshalpur West Colliery, BCCL

124	Cons/2631/2014-15	Evaluation of Performance and Behavior of Safety Instruments MRS Ramgarh, CCL	Prof. D. C. Panigrahi, CI	MRS Ramgarh CCL
125	Cons/2632/2014-15	Evaluation of Performance and Behavior of Safety Instruments of MRS Ramgarh, CCL	Prof. D. C. Panigrahi, CI	MRS Ramgarh CCL
126	Cons/2633/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Simlabahal Colliery, BCCL	Prof. D. C. Panigrahi, CI	Simlabahal Colliery, BCCL
127	Cons/2634/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Kuja Colliery, CCL	Prof. D. C. Panigrahi, CI	Kuju Colliery, CCL
128	Cons/2635/2014-15	Discussions and Preliminary Assessment of Problems related to GCV Mismatch at Power Plants of CESC Ltd.	Prof. S. Bhattacharya, CI Mr. Anand Anupam, CO-CI	CESC Ltd.
129	Cons/2636/2014-15	Evaluation of Performance and Behavior of Self Rescuers (SCSRs) of Intech Safety Pvt. Ltd.	Prof. D. C. Panigrahi, CI	Intech Safety Pvt. Ltd. Calcutta
130	Cons/2637/2014-15	Testing of Coal Samples.	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Central Coalfield Limited, Kolkata
131	Cons/2638/2014-15	Development of Course Modules for Mining Technician under The Skill Development Training Programme SCTE & VT, Got of Odisha.	Prof. V. M. S. R. Murthy, CI Dr. B. S. Choudhary, CO-CI	SCTE & VT Odisha
132	Cons/2639/2014-15	Vetting of drawings for development of Surda Underground Copper Mines of HCL	Prof. U. K. Singh, CI	Mecon, Ranchi
133	Cons/2640/2014-15	Scientific Study of Effect of Extraction of Panel No.33 on Surface and Shaft of Murulidih 20/21 Pits Colliery	Prof. U. K. Singh, CI	WJ Area BCCL
134	Cons/2642/2014-15	Washability Studies on Some of the CCL Colliery Coal Sample.	Prof. N. Suresh, CI	AGM (Coal) SAIL/CCSO
135	Cons//2643/2014-15	Analysis and Interpretation of air Samples of Khoodia Colliery ECL	Prof. D. C. Panigrahi, CI	Khoodia Colliery, ECL
136	Cons/2644/2014-15	Testing of Coal Samples	Dr. Shalini Goutam, CI	BCCL NT-ST Project
137	Cons/2645/2014-15	Testing of Coal Samples	Dr. Shalini Goutam, CI Dr. B. K. Nandi, CO-CI	Kendra Area ECL
138	Cons/2646/2014-15	Analysis of Coal Samples from Obara Thermal Power Station	Dr. Shalini Goutam, CI Shri Satrugan Soren, CO-CI	EE CWCD Sonebhadra

139	Cons/2648/2014-15	A Study of fire on Dhanbad - Chandrapura Railway Line at Sendra Bansjora Colliery and Suggestion of Precautionary Measures there of Sijua Area, BCCL.	Prof. D. C. Panigrahi, CI Prof. S. Choudhuri, CO- CI Dr. D. P. Mishra, CO- CI	Sijua Area, BCCL
140	Cons/2649/2014-15	To Study Blast Induced Ground Vibration during trial blasting with SMS/SME in Opencast Working of New Akashkinaree Colliery	DR. A. K. Mishra, CI Dr. B. S. Sastry, CO-CI	Akashkinaree Colliery, BCCL
141	Cons/2650/2014-15	Calibration of Force Measuring device of Pre-Stressed Udyog (India) Pvt. Ltd.	Dr. A. K. Mishra, CI	Pre-Stressed Udyog (I) Pvt. Ltd. Ashok Nagar, Dhanbad
142	Cons/2651/2014-15	Analysis of Ambient air Sample & Water Sample from Main Mine discharge of Bararee Colliery.	Mr. B. K. Mishra, CI Dr. S. K. Gupta, CO-CI	Bararee Colliery, BCCL
143	Cons/2653/2014-15	Testing of Coal Samples.	Shri S. Soren, CI Shri S. Kumar, CO-CI	GM(Min) Vigilance, CIL
144	Cons/2654/2014-15	Testing of SS Wire Cloths, BCCL	Dr. L.A.Kumarasamidhas, CI	BCCL, Koyla Nagar
145	Cons/2655/2014-15	Analysis and Interpretation of Mine air Samples of Mandaman Colliery ECL.	Prof. D. C. Panigrahi, CI	Mandaman Colliery, ECL
146	Cons/2656/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Bararee Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bararee Colliery, BCCL
147	Cons/2657/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Saoner Sub Area WCL	Prof. D. C. Panigrahi, CI	Saonaer Sub Area, WCL
148	Cons/2658/2014-15	Determination of Some Physical and Chemical Properties of quick Setting Cement Capsule of Moonidih Project, BCCL	Prof. D. C. Panigrahi, CI	Moonidih Project, BCCL
149	Cons/2659/2014-15	Determination of Compressive and Anchorage Strength of quick Setting Cement Capsule of Moonidih Project, BCCL	Dr. A. K. Mishra, CI	Moonidhi, Project, BCCL
150	Cons/2661/2014-15	2 days Off-Campus course on Mining Equipment for SCCL officials on 18/19 July, 2014	Prof. K. Dasgupta, CI Prof. T. K. Chatterjee, CI	SCCL
151	Cons/2662/2014-15	Training on Selected Topics in Coal Preparation.	Prof. S. Bhattacharya, CI Mr. Anand Anupam, CO-CI	Tata Steel West Bokaro
152	Cons/2663/2014-15	Evaluation of Performance and Behavior of Safety Instruments of MRS Sitarampur, ECL	Prof. D. C. Panigrahi, CI	MRS Sitarampur ECL

153	Cons/2664/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Baheraband Mine Hansdeo Area, SECL	Prof. D. C. Panigrahi, CI	Baheraband Mine Hansdeo Area, SECL
154	Cons/2665/2014-15	Analysis and Interpretation of Mine air Samples of Karo Special Project Phase II CCL	Prof. D. C. Panigrahi, CI	Karo Special Project Phase - II, CCL
155	Cons/2666/2014-15	Evaluation of Performance and Behavior of Safety Instruments of AB Incline - Silwara Sub Area, WCL	Prof. D. C. Panigrahi, CI	AB Incline - Silwara Sub Area WCL
156	Cons/2667/2014-15	Analysis and Interpretation of Mine Air Samples of Mandaman Colliery, ECL	Prof. D. C. Panigrahi, CI	Mandaman Colliery, ECL
157	Cons/2669/2014-15	Evaluation of Performance and Behavior of Safety Instruments as given by MRS Patherkhera Area, WCL	Prof. D. C. Panigrahi, CI	MRS Patherkhera Area WCL
158	Cons/2670/2014-15	To Determine the 800m Wide Zone based on the Slope distance at the Interface of Trambari DPF and the Mining Lease boundary of Harish Cement Ltd.	Prof. P. Sen, CI	Harish Cement Ltd. Sundernagar (HP)
159	Cons/2671/2014-15	Preparation cum Interactives Sessions on Coal Quality Issues for Senior Executive of CESC at Kolkata.	Prof. S. Bhattacharya, CI Dr. B. K. Nandi, CO-CI	CESC Ltd., Kolkata
160	Cons/2672/2014-15	Scientific Study to Suggest blast design for controlling blast induced vibration flying fragments and Blasting in fire areas in the vicinity of inhabited Area at Ena Colliery Kusunda area, BCCL	DR. A. K. Mishra, CI Dr. B. S. Choudhury, CO-CI	Ena Colliery Kusunda Area, BCCL
161	Cons/2673/2014-15	Testing of Coal Samples.	Shri Shravan Kumar, CI Prof. N. R. Mandre, CO-CI	Aka Logistics Kolkata
162	Cons/2674/2014-15	Impact of Mining Activities on Hydrology and Hydrogeology of Core Zone Covering all 5 underground Mines of Tata Steel.	Dr. S. K Gupta, CI Dr. Brijesh Mishra, CO-CI	Tata Steel, Jharia Division
163	Cons/2675/2014-15	Monitoring of Environmental Parameters in Respect of (i) Stack Emission test (ii) Effluent discharge test (iii) Ambient air quality test (iv) Noise level Measurement for unit 1,2,3,7 & 8 DVC CTPS Chandrapura	Dr. S. K. Gupta, CI Dr. Alok Sinha, CO-CI	DVC, Bokaro

164	Cons/2676/2014-15	Scientific Study on Ground Vibration Due to Blasting in an Open Cast Mine of Jindal Chromite Mines, Jindal Stainless Ltd. Chrome Valley Jajpur, Odisha.	Prof. V. M. S. R. Murthy, CI	Jindal Chromite Mines Kaliapani, Jindal Stainless Ltd.
165	Cons/2677/2014-15	Evaluation of Performance and Behaviour of Safety Instruments as given by Sodepur® Colliery, ECL	Prof. D. C. Panigrahi, CI	Sodepur9R) Colliery, ECL
166	Cons/2678/2014-15	Analysis and Interpretation of Mine air Sample of Orient Mine No. 1 & 2 MCL	Prof. D. C. Panigrahi, CI	Orient Mine No.1 & 2 MCL
167	Cons/2679/2014-15	Evaluation of Performance and Behaviour of Safety Instruments as given by Ghusik® Colliery, ECL	Prof. D. C. Panigrahi, CI	Ghusik® Colliery, ECL
168	Cons/2680/2014-15	Evaluation of Performance and Behavior of Safety Instruments as given by Amalgamated Angrapathra Colliery, BCCL	Prof. D. C. Panigrahi, CI	Amalgamated Angrapathra Colliery, BCCL
169	Cons/2681/2014-15	Magnetic Content and Chemical Analysis.	Dr. Pankaj Kr. Jain, CI Prof. R. Venugopal, CO-CI	Iron and Ferroalloy Group Tata Steel
170	Cons/2684/2014-15	Testing of Coal Samples.	Mr. S. Soren, CI Dr. B. K. Nandi, CO-CI	Coal Controllers Org. Burdwan.
171	Cons/2685/2014-15	Testing of Coal Samples.	Dr. B. K. Nandi, CI Mr.S. Soren, CO-CI	Coal Controller Org. Asansol.
172	Cons/2686/2014-15	Testing of Coal Samples.	Mr. S. Soren, CI Dr. B. K. Nandi, CO-CI	Coal Controller Org. Asansol.
173	Cons/2687/2014-15	Testing of Coal Samples.	Dr. B. K. Nandi CI Mr. S. Soren, CO-CI	Coal Controller Org. Asansol.
174	Cons/2688/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Kanhan Area WCL.	Prof. D. C. Panigrahi, CI	Kanhan Area, WCL
175	Cons/2689/2014-15	Analysis and Interpretation of Mine Air Samples of Mandaman Colliery, ECL	Prof. D. C. Panigrahi, CI	Mandaman Colliery, ECL
176	Cons/2690/2014-15	Analysis and Interpretation of Mine Air Samples of Mine No. 1 & 2 Orient Colliery, MCL	Prof. D. C. Panigrahi, CI	Orient Mine No.1 & 2 MCL
177	Cons/2691/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Kajora Area, ECL	Prof. D. C. Panigrahi, CI	Kajora Area, ECL
178	Cons/2692/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Hasdeo Area SECL	Prof. D. C. Panigrahi, CI	Hasdeo Area, SECL
179	Cons/2693/2014-15	Evaluation of Performance and Behavior of Safety Instruments as given by Saoner Sub Area, WCL	Prof. D. C. Panigrahi, CI	Saoner Sub Area, WCL

180	Cons/2694/2014-15	Evaluation of Performance and behavior of safety of Lakhimata Colliery, ECL	Prof. D. C. Panigrahi, CI	Lakhimata Colliery, ECL
181	Cons/2695/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Shyampur B. Incline , ECL	Prof. D. C. Panigrahi, CI	Shyampur B. Incline ECL
182	Cons/2696/2014-15	Function ability test of Self Rescuers of Tipong Colliery, NECL	Prof. D. C. Panigrahi, CI	Tipong Colliery, NECL
183	Cons/2697/2014-15	Analysis and Interpretation of Mine air Samples of Jarangdih UG Mine, CCL	Prof. D. C. Panigrahi, CI	Jarangdih UG Mine, CCL
184	Cons/2698/2014-15	Evaluation of Performance and Behavior of Closed Circuit Breathing Apparatus Model CCBA 5000 Joseph Leslie Dynamics Ltd.	Prof. D. C. Panigrahi, CI	JOSEPH Leslie Dynamics Ltd.
185	Cons/2699/2014-15	Estimation of GCV of Coal Samples.	Prof. V. K. Saxena, CI	Sripur Area ECL
186	Cons/2700/2014-15	Testing of Water Samples Around Rajrappa Area	Mr. Brijesh Kumar CI, Dr. S. K. Gupta, CO-CI	Hindalco Industries Ltd. Muri, Ranchi
187	Cons/2701/2014-15	Analysis and Interpretation of Air Samples of CIMFR Dhanbad.	Prof. D. C. Panigrahi, CI	CIMFR, Dhanbad
188	Cons/2702/2014-15	Evaluation of Performance and Behaviour of safety Instruments of Bararee Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bararee Colliery, BCCL
189	Cons/2705/2014-15	Monitoring of Environmental Parameters in respect of Ambient air Stack Monitoring Noise Level and effluent discharge of BTPS'B	Dr. Alok Singh, CI Dr. S. K. Gupta, CO-CI	DVC Bokaro B Thermal Power Station () & M)
190	Cons/2706/2014-15	Heat Auditing of Coal handling Plant of Southern Generating Station, Kolkata of CESC Ltd.	Prof. S. Bhattacharya, CI Mr. Anand Anupam, CO-CI Dr. B. K. Nandi, CO-CI	SESC Ltd., Kolkata
191	Cons/2707/2014-15	Electrical Resistivity Tomography for Locating of Cavity Zones Around Nirsa.	Dr. Sanjit Kr. Paul, CI Dr. U. K. Singh, CO-CI Prof. Shalivahan, CO-CI Prof. P. R. Mohanty, CO-CI	L & T Construction.
192	Cons/2708/2014-15	Testing of Coal Samples	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Coal Controllers Org. Dhansar, Dhanbad
193	Cons/2709/2014-15	Analysis and Interpretation of air samples of Hariajam Colliery, ECL	Prof. D. C. Panigrahi, CI	Hariajam Colliery, ECL
194	Cons/2710/2014-15	Evaluation of Behavior and Performance Ventilation and Safety Instruments of SSI Colliery ECL	Prof. D. C. Panigrahi, CI	SSI Colliery ECL
195	Cons/2711/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Parbatpur Colliery Electrosteel Castings Ltd.	Prof. D. C. Panigrahi, CI	Parbatpur Colliery Electrosteel Consulting Ltd.

196	Cons/2712/2014-15	Analysis of Six Coal Samples of Washed Coal Power of Mahuda & Moonidih Coal Washeries.	Prof. S. Bhattacharya, CI Mr. Anand Anupam, CO-CI	BCCL Koyla Nagar
197	Cons/2713/2014-15	Determination of RMR of III Seam Amala SP Colliery, EJ Area Bhowra BCCL	Dr. A. K. Mishra, CI Shri P. K. Behera, CO-CI	SP Colliery EJ Area Bhowra BCCL
198	Cons/2716/2014-15	Assessment of Effect of feed quality on DRI Process and Sponge Iron Production.	Prof. R. Venugopal, CI Mr. Pankaj Kr. Jain, CO-CI Mr. Shatrughan Soren, CO-CI	Rashmi Group, Kolkata
199	Cons/2717/2014-15	Determination of degree of Gassiness of III Seam of SP Botton and B.P. Bottom Seam Kumardhubi Colliery ECL	Prof. D. C. Panigrahi, CI	Kumardhubi Colliery, ECL
200	Cons/2718/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Pootkee Colliery, BCCL	Prof. D. C. Panigrahi, CI	Pootkee Colliery, BCCL
201	Cons/2719/2014-15	Functional ability test of self Rescuers of NCPH Colliery, SECL	Prof. D. C. Panigrahi, CI	NCPH Coliery, SECL
202	Cons/2720/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Kankanee Colliery, BCCL	Prof. D. C. Panigrahi, CI	Kankanee Colliery, BCCL
203	Cons/2721/2014-15	GCD Determination of Coal Sample	Dr. Shalini Gautam, CI Sri S. Soren, CO-CI	Ponki Thermal Power Station, Panki. Kanpur
204	Cons/2722/2014-15	Testing of Coal Samples	Mr. S. Soren, CI Mr. S. Kumar, CO-CI	Patmohana Colliery, ECL
205	Cons/2724/2014-15	Evaluation of performance and behavior of Safety instruments and Monitoring of Noise and airborne Respirable dust in Chasnalla Colliery, SAIL	Prof. D. C. Panigrahi, CI	Chasnalla Colliery, SAIL
206	Cons/2725/2014-15	Evaluation of performance and behavior of safety instrument of MRS, Ramgarh	Prof. D. C. Panigrahi, CI	Ramgarh, CCL
207	Cons/2726/2014-15	Evaluation of performance and behavior of safety instruments of ADI Colliery, BCCL	Prof. D. C. Panigrahi, CI	ADI Colliery, BCCL
208	Cons/2727/2014-15	Evaluation of performance and behavior of safety instruments of Kumardhubi Colliery, ECL	Prof. D. C. Panigrahi, CI	Kumardhubi Colliery, ECL
209	Cons/2728/2014-15	Evaluation of performance and behavior of safety instruments of Sonar sub-area, WCL	Prof. D. C. Panigrahi, CI	Sonar sub-area, WCL
210	Cons/2729/2014-15	Analysis and Interpretation of air Samples of Kumardhubi Colliery, ECL	Prof. D. C. Panigrahi, CI	Kumardhubi Colliery, ECL

211	Cons/2730/2014-15	Evaluation of performance and behavior of safety instruments of MRs, Ramgarh, CCL	Prof. D. C. Panigrahi, CI	MRS, Ramgarh, CCL
212	Cons/2731/2014-15	Study at Rolep Biodiversity, Hydro Electric Project.	Dr. Anshumali, CI	Velankani Renewable Energy (P) Ltd. Bangalore.
213	Cons/2732/2014-15	Evaluation of performance and behavior of safety instruments of Rescue Room Balgi, SECL	Prof. D. C. Panigrahi, CI	Rescue Room-Balgi, SECL
214	Cons/2733/2014-15	Evaluation of performance and behavior of safety instrument of Roy-Bachhara Colliery, CCL	Prof. D. C. Panigrahi, CI	Ray-Bachhara Colliery, CCL
215	Cons/2734/2014-15	Evaluation of performance and behavior of safety instruments or Rajnagar RO Colliery, SECL	Prof. D. C. Panigrahi, CI	Rajnagar RO Colliery, SECL
216	Cons/2735/2014-15	DGPS Survey of Demarked Boundary Pillars Vijay-II Iron Ore mine M/s Usha Martin Ltd.	Dr. Dheeraj Kumar, CI Prof. P. Sen, CO-CI	M/s Usha Martin Ltd. Barajamda West Singhbhum.
217	Cons/2736/2014-15	Testing of Coal Samples	Sri Shravan Kumar, CI Dr. B. K. Nandi, CO-CI	
218	Cons/2737/2014-15	Testing of Coal Samples	Prof. N. R. Mandre, CI Mr. Shravan Kumar, CO-CI	AKA Logistics Pvt. Ltd. Kolkata
219	Cons/2738/2014-15	Determination of some Physical and Chemical Properties of quick setting cement capsule of BSI Kargil UG Mine, B & K Area, CCL	Prof. D. C. Panigrahi, CI	BSI Kargil UG Mine, B&K Area, CCL
220	Cons/2739/2014-15	Determination of Compressive and Anchorage Strength of quick setting cement capsule of BSI Kargil UG Mine B & K Area, CCL	Dr. A. K. Mishra, CI	Kargil UG Mine B & K Area, CCL
221	Cons/2743/2014-15	Field Investigations, modelling and simulation studies for designing the ventilation systems of all UCIL Mines (2nd Year), Jaduguda.	Prof. D. C. Panigrahi, CI	UCIL, Jaduguda
222	Cons/2744/2014-15	Field Investigations, modelling and simulation studies for designing the ventilation systems of all UCIL Mines (Part of the 1st year completed work), Jaduguda	Prof. D. C. Panigrahi, CI	UCIL, Jaduguda
223	Cons/2745/2014-15	Evaluation of performance and behavior of safety instruments of Rescue Room, Urimari, CCL	Prof. D. C. Panigrahi, CI	Urimari, CCL
224	Cons/2746/2014-15	Evaluation of performance and behavior of safety instruments of Mekon	Prof. D. C. Panigrahi, CI	Mekon International, Dhanbad



		International, Dhanbad		
225	Cons/2747/2014-15	Evaluation of performance and behavior of safety instruments of Silwara Mine, WCL	Prof. D. C. Panigrahi, CI	Silwara Mines, WCL
226	Cons/2748/2014-15	Analysis and interpretation of Mine air samples of Mandaman Colliery, ECL	Prof. D. C. Panigrahi, CI	Mandaman Colliery, ECL
227	Cons/2749/2014-15	Evaluation of performance and behavior of safety instruments of Mudidih Colliery, BCCL	Prof. D. C. Panigrahi, CI	Mudidih Colliery, BCCL
228	Cons/2750/2014-15	Evaluation of performance and behavior of safety instruments of Damoda Colliery, BCCL	Prof. D. C. Panigrahi, CI	Damoda Colliery, BCCL
229	Cons/2751/2014-15	Field Investigations, Modelling and design of Ventilation System for Mochia, Balaria, Baroi and Zawarmala Mines (Zawar Group of Mines) HZL (2nd year Study)	Prof. D. C. Panigrahi, CI	Zawar Group of Mines, Rajasthan
230	Cons/2752/2014-15	Field Investigations, Modelling and designing of Ventilation Systems of Rampura-Agucha Mines (end years study period) HZL.	Prof. D. C. Panigrahi, CI	Rampura - Agucha Mines, HZL.
231	Cons/2753/2014-15	Testing of Coal Samples.	Prof. N. R. Mandre, CI Sri Shravan Kumar, CO-CI	AKA Logistics Pvt. Ltd. Kolkata
232	Cons/2754/2014-15	Conducting Scientific Study for Expansion Planning and Safety Issues of Nongtroi Limestone Mines, Meghalaya.	Prof. V.M.S.R. Murthy, CI Dr. B. S., Choudhuri, CO-CI Prof. P. Sen, CO-CI	CIMFR, Nagpur
233	Cons/2755/2014-15	Evaluation of Performance and behavior of safety instruments of Somna Colliery, SECL	Prof. D. C. Panigrahi, CI	Somna Colliery, SECL
234	Cons/2756/2014-15	Evaluation of performance and behavior of safety instruments of MRS-Dhansar, BCCL	Prof. D. C. Panigrahi, CI	MRS Dhansar, BCCL
235	Cons/2757/2014-15	Evaluation of performance and behavior of safety instruments of Moonidih Project, BCCL	Prof. D. C. Panigrahi, CI	Moonidih Project, BCCL
236	Cons/2758/2014-15	Evaluation of performance and behavior of safety instruments of Baheraband and Bijuri Collieries, SECL	Prof. D. C. Panigrahi, CI	Baheraband and Bijuri Collieries, SECL
237	Cons/2759/2014-15	Evaluation of performance and behavior of safety instruments of Burragarh Colliery, BCCL	Prof. D. C. Panigrahi, CI	Burragarh Colliery, BCCL

238	Cons/2760/2014-15	Determination of RMR of III Seam Incline of Salanpur Colliery, BCCL	Dr. A. K. Mishra, CI Shri P. K. Behera, CO-CI	Salanpur Colliery, BCCL
239	Cons/2761/2014-15	Estimation of Support Capacity of LW Panel and Cavability Analysis of XVI Top Seam, Moonidih Project, BCCL	Prof. U. K. Singh, CI	Moonidih Project, BCCL
240	Cons/2762/2014-15	Compressive strength testing of RCC tramline sleeper.	Dr. A. K. Mishra, CI	Balaji Minechem Dhansar, Dhanbad
241	Cons/2763/2014-15	Evaluation of performance and Behavior of Ventilation and Safety instrumentations of Saunda D. Colliery, CCL	Prof. D. C. Panigrahi, CI	Saunda D Colliery, CCL
242	Cons/2764/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Saunda D Colliery, CCL	Prof. D. C. Panigrahi, CI	Saunda D Colliery, CCL
243	Cons/2765/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Govindpur Area, BCCL	Prof. D. C. Panigrahi, CI	Govindpur Area, BCCL
244	Cons/2766/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Narsamunda Colliery, ECL	Prof. D. C. Panigrahi, CI	Narsamunda Colliery, ECL
245	Cons/2767/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Jhanjra Project Colliery, ECL	Prof. D. C. Panigrahi, CI	Jhanjra Project Colliery, ECL
246	Cons/2768/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Dhemomain Colliery, ECL	Prof. D. C. Panigrahi, CI	Dhemomain Colliery, ECL
247	Cons/2769/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Tawa Mine, WCL	Prof. D. C. Panigrahi, CI	Tawa Mine, WCL
248	Cons/2770/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Sarni Mine, WCL	Prof. D. C. Panigrahi, CI	Sarni Mine, WCL
249	Cons/2771/2014-15	Evaluation of performance and Behavior of Ventilation and Safety Instruments of Parbelia Colliery, ECL	Prof. D. C. Panigrahi, CI	Parbelia Colliery, ECL
250	Cons/2772/2014-15	Determination of Specific Density of different Seams of Kali Mandir Patch-II of Jamunia OCP under Block II Area BCCL Seam XI/XII/ to Seam IV/V/VI/VII	Prof. Vinod P. Sinha, CI Mr. P. K. Behera, CO-CI	BCCL Block II Nawagarh Dhanbad
251	Cons/2773/2014-15	GCV Determination of Coal Sample and analysis of magnetite content, BCCL	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	BCCL

252	Cons/2774/2014-15	Sampling and analysis of Heep No.12 (Near Bargad Tree) of Sudamdih Coal Washery	Mr. Anand Anupam, CI Prof. N. R. Mandre, CO-CI	Sudamdih Coal Washery, BCCL
253	Cons/2777/2014-15	Determination of magnetic content in the coal sample, BCCL	Shri S. Soren, CI Prof. N. R. Mandre, CO-CI	Vigilance Department, Koyla Bhawan (Level - V), BCCL
254	Cons/2778/2014-15	Preparation of Environmental Statement in DVC Bermo Mines	Dr. Biswajit Paul, CI	DVC Bermo Bokaro
255	Cons/2779/2014-15	Calibration of Force Measuring device.	Dr. A. K. Mishra, CI	MUVA Industries Ltd.
256	Cons/2780/2014-15	Scientific Studies to Ascertain Cavability of roof at R-II/II Seam of Khotadih Colliery and to Suggest Suitable Method for Extraction of Pillars by Continuous Miner or by LHD.	Prof. U. K. Singh, CI	Khotadih Colliery, ECL, Burdwan
257	Cons/2781/2014-15	Evaluation of performance and behavior of Safety instruments of Kanhan Area, WCL	Prof. D. C. Panigrahi, CI	Kanhan Area, WCL
258	Cons/2782/2014-15	A study of performance and behavior of Dust Ioniser (HR) of PVR Inshield Bituminous Pvt. Ltd., West Bengal.	Prof. D. C. Panigrahi, CI	PVR Inshield Bituminous Pvt. Ltd., West Bengal
259	Cons/2783/2014-15	A study of performance and behavior of Dust Bond (OC) of Calcutta Mining Sealants Pvt. Ltd., West Bengal.	Prof. D. C. Panigrahi, CI	Calcutta Mining Sealants Pvt. Ltd., West Bengal.
260	Cons/2784/2014-15	Analysis and interpretation of mine air samples of Orient Colliery, MCL	Prof. D. C. Panigrahi, CI	Orient Colliery, MCL
261	Cons/2785/2014-15	Evaluation of performance and behavior of safety instruments of Dharam Incline, SECL	Prof. D. C. Panigrahi, CI	Dharam Incline, SECL
262	Cons/2786/2014-15	Analysis and interpretation of mine air samples of Ghusik (R) Colliery, ECL	Prof. D. C. Panigrahi, CI	Ghusik (R) Colliery, ECL
263	Cons/2787/2014-15	Evaluation of performance and behavior of safety instruments of Jhanjra Colliery, ECL	Prof. D. C. Panigrahi, CI	Jhanjra Colliery, ECL
264	Cons/2788/2014-15	Analysis and interpretation of mine air samples of Jhanjra Colliery, ECL	Prof. D. C. Panigrahi, CI	Jhanjra Colliery, ECL
265	Cons/2791/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Jarangdih UG Mines, CCL	Prof. D. C. Panigrahi, CI	Jarangdih UG Mine, CCL
266	Cons/2792/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Govindpur	Prof. D. C. Panigrahi, CI	Govindpur Project, CCL

		Project , CCL		
267	Cons/2793/2014-15	Analysis of Ambient air Sample and Water Sample from Main Mine discharge of Bararee Colliery, BCCL	Dr. B. K. Mishra, CI Dr. S. K. Gupta, CO-CI	Bararee Colliery, Lodna Area - X, BCCL
268	Cons/2794/2014-15	Technical Consultancy for Wastewater Management and Control of Water Pollution from plant and Mines of Kirandul Complex	Dr. S. K. Gupta, CI Mr. B. Mishra, CO-CI	NMDC, Kirandul
269	Cons/2641/2014-15	Subsidence monitoring at Essar Raniganj CBM Block at Durgapur (RG(E)-CBM-2001/1 Block	Dr. Dheeraj Kumar, CI Prof. P. Sen, CO-CI	Essar Raniganj
270	Cons/2796/2014-15	Analysis of Coal Sample of III Seam at PB Incline of Phularitand Colliery.	Dr. A. K. Verma, CI	Phularitand Colliery, BCCL
271	Cons/2797/2014-15	Testing of Dust Bond (OC)	Prof. S. K. Maiti, CI Dr. S. R. Samadder, CO-CI	Calcutta Mining Sealants Pvt. Ltd. Burdwan
272	Cons/2798/2014-15	Testing of Dust Ioniser (HR)	Dr. S. R. Samadder, CI Prof. S. K. Maiti, CO-CI	PVT Inshield Bituminous Pvt. Ltd. Burdwan
273	Cons/2799/2014-15	Scientific study for blast vibration Measurement on quarterly basis for 2014-15 at Rajapur OCP	Dr. A. K. Mishra, CI Dr. B. S. Choudhary, CO-CI	Rajapur OCP, BCCL
274	Cons/2800/2014-15	Determination of Specific gravity of Coal Seam I, II and III of Amalgamated NTST Colliery	Dr. Shalini Goutam, CI	Amal NT-ST Colliery, BCCL
275	Cons/2801/2014-15	Scientific Studies to Predict Surface Subsidence due to Extraction of Coal in Continuous Mines Panel at Jhanjra Project Colliery/	Prof. U. K. Singh, CI	Jhanjra Area, ECL
276	Cons/2082/2014-15	Testing of Coal Samples	Prof. N. R. Mandre, CI Shri Sharvan Kumar, CO-CI	Mugma Area, ECL
277	Cons/2803/2014-15	Testing of Coal Samples	Shri Sharvan Kumar, CI Prof. N. R. Mandre, CO-CI	AKA Logistics Pvt. Ltd. Kolkata
278	Cons/2804/2014-15	Technical Consultant for Guiding SAIL in e-auction of Coal Blocks.	Prof. S. Choudhuri, CI Prod. D. C. Panigrahi, CO-CI	SAIL Kulti
279	Cons/2805/2014-15	To Study Blast Induced Ground Vibration, Fly rock and Noise due to blasting Operation at Dobari Colliery BCCL in the Vicinity of Inhabited Area.	Dr. A.K. Mishra, CI Dr. B. S. Choudhary, CO-CI	Dobari Colliery, BCCL
280	Cons/2807/2014-15	Geotechnical lab testing of drill core samples from RA mine HZL.	Dr. A. K. Mishra, CI Prof. D. C. Panigrahi, CO-CI	HZL, Udaipur
281	Cons/2808/2014-15	Evaluation of performance and Behavior of Safety Instruments of Sodepur ®	Prof. D. C. Panigrahi, CI	Sodepur ® Coliery, ECL

		Colliery, ECL		
282	Cons/2809/2014-15	Evaluation of performance and Behavior of Safety Instruments of Phularitand Colliery, BCCL	Prof. D. C. Panigrahi, CI	Phularitand Colliery, BCCL
283	Cons/2810/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Tetulmari Colliery, BCCL	Prof. D. C. Panigrahi, CI	Tetulmari Colliery, BCCL
284	Cons/2811/2014-15	Evaluation of Performance and Behaviour of Safety Instruments of Loyabad Colliery, BCCL	Prof. D. C. Panigrahi, CI	Loyabad Colliery, BCCL
285	Cons/2812/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Saoner Sub Area WCL	Prof. D. C. Panigrahi, CI	Saoner Sub Area, WCL
286	Cons/2813/2014-15	Determination of Crushability Index and Bonds ball Mill Work Index for grinding and abrasion characteristics of the Iron Ore Samples from DMT Consulting (P) Ltd.	Prof. Vinod P. Sinha, CI Prof. N. Suresh, CO-CI	DMT Consulting (P) Ltd. Kolkata - 56
287	Cons/2815/2014-15	Teaching Assignment of QMB-II Course for PGDM program at IIM Ranchi 19 - 21 Nov. 2014 and 15 - 17 Dec. 2014.	Dr. Sandeep Mandal, CI	Indian Institute of Management Ranchi
288	Cons/2816/2014-15	Conducting Examination for BCCL	Dr. Saymuya Singh, CI Prof. Pramod Pathak, CI	BCCL Koyla Bhawan, Dhanbad
289	Cons/2817/2014-15	Mix of Concrete (M25 Grade)	Dr. Sanket Nayak, CI Dr. S. K. Gupta, CO-CI	CPWD, Dhanbad
290	Cons/2820/2014-15	Field Investigations Modelling and Design of Ventilation System of Sindesar Khurd Mine HZL (1st year Period their Order No.HZL/Proj/Order/SKMine 170 Ammendment 1 dated 13-11, 2014	Prof. D. C. Panigrahi, CI	Sindesar Khurd Mine, HZL
291	Cons/2821/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Bararee Colliery, BCCL	Prof. D. C. Panigrahi, CI	Bararee Colliery, BCCL
292	Cons/2822/2014-15	Evaluation of Performance and Behavior of Safety Instruments of MRS Ramgarh, CCL	Prof. D. C. Panigrahi, CI	MRS-Ramgarh, CCL
293	Cons/2823/2014-15	Evaluation of Performance and Behavior of Safety Instruments of MRS Ramgarh, CCL	Prof. D. C. Panigrahi, CI	MRS/ Ramgarh, CCL
294	Cons/2824/2014-15	Investigation into degree of gassiness of XV Seam KB 10/12 Pits Colliery, PB area, BCCL	Prof. D. C. Panigrahi, CI	KB 10/12 Pits Colliery, PB Area BCCL

295	Cons/2825/2014-15	Determination of Specific gravity of Coal Sample of Seam No.11 of Rani Atari U/G Mine Chirimiri Area, SECL	Prof. D. C. Panigrahi, CI	Rani Atari U/G Mine, Chirimiri Area, SECL
296	Cons/2827/2014-15	Scientific Study of Steel Screw Prop for Axial loading.	Prof. A. K. Mishra, CI	Tata Steel Ltd.
297	Cons/2828/2014-15	Determination of bulk density of coal of RVIII Seam, RIII Seam and R11 Seam of Sonepur Bazari Mine, ECL	Prof. D. C. Panigrahi, CI	Sonepur Bazari Mine ECL
298	Cons/2829/2014-15	Evaluation of Performance and Behaviour of Safety Instruments of AB Incline WCL	Prof. D. C. Panigrahi, CI	WCL, AB Incline
299	Cons/2830/2014-15	Analysis of Coal Sample	Prof. V. K. Saxena, CI Mr. S. Soren, CO-CI	Coal Controllers Org., Dhansar, Dhanbad
300	Cons/2831/2014-15	To suggest blast for controlled blasting and study of blast induced ground vibration due to blasting operation at OC Patch II of Gaslitand Colliery, BCCL	Prof. A. K. Mishra, CI Dr. B. S. Choudhary, CO-CI	BCCL
301	Cons/2819/2014-15	Determination of Striping ratio of Laikdih Quarry of Ramnagar Colliery, SAIL	Dr. Dheeraj Kumar, CI Prof. P. Sen, CO-CI	SAIL, Kulti
302	Cons/2833/2014-15	Evaluation of Performance and Behavior of Safety Instruments of Baharaband Colliery, SECL	Prof. D. C. Panigrahi, CI	Baharaband, Colliery, SECL
303	Cons/2834/2014-15	Evaluation of performance and behavior of safety instruments of Damoda Colliery, BCCL	Prof. D. C. Panigrahi, CI	Damoda Colliery, BCCL
304	Cons/2835/2014-15	Evaluation of performance and behavior of mine safety instruments, analysis of air samples, air borne respirable dust and noise measurements of Noonudih-Jitpur Colliery, ISP-SAIL	Prof. D. C. Panigrahi, CI	Noonudih-Jitpur Colliery, ISP SAIL
305	Cons/2835/2014-15	Evaluation of performance and behavior of mine safety instruments, analysis of air samples, air borne respirable dust and noise measurements of Noonudih-Jitpur Colliery, ISP-SAIL	Prof. D. C. Panigrahi, CI	Noonudih-Jitpur Colliery, ISP SAIL
306	Cons/2837/2014-15	Evaluation of performance and behavior of mine safety instruments, analysis of air samples, air borne respirable dust and noise measurements of Chasnala Colliery, ISP-SAIL	Prof. D. C. Panigrahi, CI	Chasnala Colliery, ISP-SAIL

## 6.2 PROFESSIONAL DEVELOPMENT PROGRAMME HELD DURING APRIL 2014 TO MARCH 2015

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 2014-15 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 744(1881 participant-weeks) and the value of these training programmes was about Rs. 594.62 Lakhs. 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)	No. of participants	Weeks	Participants weeks
1	Cons/2625/2014-15	Intensive Training Programme for Management Trainees (E & M) of CIL Executives from 26.05.2014 to 27.06.2014	Prof. A. K. Mukhopadhyaya, CI Prof. K. Dasgupta, CI Prof. T. K. Chatterjee, CI	19	5	95
2	Cons/2626/2014-15	Intensive Training Programme for Management Trainees (Excavation) of CIL Executives from 26.05.2014 to 27.06.2014	Prof. K. Dasgupta, CI Prof. A. K. Mukhopadhyaya, CI Prof. P. S. Mukherjee, CI	20	5	100
3	Cons/2683/2014-15	Intensive Training Programme for Management Trainees (E & M) of CIL Executives from 30.06.2014 to 01.08.2014	Prof. A. K. Mukhopadhyaya, CI Prof. K. Dasgupta, CI Prof. T. K. Chatterjee, CI	22	5	110
4	Cons/2682/2014-15	Intensive Training Programme for Management Trainees (Excavation) of CIL Executives from 30.06.2014 to 01.08.2014	Prof. K. Dasgupta, CI Prof. A. K. Mukhopadhyaya, CI Prof. P. S. Mukherjee, CI	29	5	145
5	Cons/2512/2014-15	Application of power Electronics in Renewable Energy from 30.06.2014 to 04.07.2014	Prof. P. K. Sadhu, CI Dr. N. Paul, CI	60	1	60

6	Cons/2517/2014-15	Rock Mechanics in Hard Rock Mining Basic Rock Mechanics Some Field Applications for HZL Executives Part - B From 30 June, 2014 to 27 Sept, 2014	Prof. V. M. S. R. Murthy, CI Prof. D. C. Panigrahi, CI Shri P. K. Behera, CI	15	12	180
7	Cons/2518/2014-15	Application of power Electronics in Renewable Energy from 07.07.2014 to 11.07.2014	Prof. P. K. Sadhu, CI Dr. N. Paul, CI	41	1	41
8	Cons/2553/2014-15	Microwave Instrumentation and Simulation Tools from 30.06.2014 to 04.07.2014	Dr. Santanu Dwari, CI Dr. Sushrut Das, CI	27	1	27
9	Cons/2554/2014-15	Matlab Based Soft-Computing Techniques from 30.06.2014 to 04.07.2014	Dr. Kalyan Chatterjee, CI Dr. S. Das, CO-CI	28	1	28
10	Cons/2574/2014-15	Safety Engineering and Management in Coal Mines from 23-06-2014 to 28-06-2014	Dr. P. S. Paul, CI Prof. S. Choudhary, CI	24	1	24
11	Cons/2609/2014-15	Power Hydraulics in Heavy Earth Moving Machineries (HEMM) from 4 - 8 August, 2014	Prof. Kabir Dasgupta, CI Dr. A. R. Dixit, CI	19	1	19
12	Cons/2611/2014-15	Study Abroad Programme on Mining, Environment and Sustainable Development for University of South Florida - ST. Petersburg, USA, From 5 - 18 August, 2014	Prof. VMSR Murthy, CI Dr. Ashim Kr. Pal, CI Shri Vinayak Ranjan, Co-CI Dr. Biswajit Paul, CO-CI	3	2	6
13	Cons/2627/2014-15	Mineral Processing for Officials of Ministry of Mines, Govt. of Afghanistan. From 2 Aug. to	Prof. Nikkam Suresh, CI Prof. N. R. Mandre, CO-CI	14	2	28



		18 Aug., 2014				
14	Cons/2660/2014-15	Mining Environment and Sustainable Development for Officials of Ministry of Mines, Govt. of Afghanistan. From 16.08.2014 to 01.09, 2014	Prof. A. K. Pal, CI Prof. S. K. Maiti, CO-CI	15	2	30
15	Cons/2703/2014-15	Intensive Training Programme for Management Trainees (E & M) of CIL Executives from 04.08.2014 to 05.09.2014	Prof. A. K. Mukhopadhyaya, CI Prof. K. Dasgupta, CI Prof. T. K. Chatterjee, CI	27	5	135
16	Cons/2704/2014-15	Intensive Training Programme for Management Trainees (Excavation) of CIL Executives from 04.08.2014 to 05.09.2014	Prof. K. Dasgupta, CI Prof. A. K. Mukhopadhyaya, CI Prof. P. S. Mukherjee, CI	32	5	160
17	Cons/2647/2014-15	Condition Based Maintenance of Mining Equipment from 1 - 5 September, 2014	Dr. S. K. Ghosh, CI Prof. A. K. Mukhopadhyaya, CO-CI	8	1	8
18	Cons/2652/2014-15	A Primer on Geostatistics. From 6 - 21 Sept. 2014 for Scientists of AMDER	Prof. B. C. Sarkar, CI	12	2	24
19	Cons/2668/2014-15	Rock Mechanics in Hard Rock Mining Basic Rock Mechanics Some Field Applications for HZL Executives Part - A From 30 June, 2014 to 27 Sept, 2014	Prof. V. M. S. R. Murthy, CI Prof. D. C. Panigrahi, CI Shri P. K. Behera, CI	15	2	30
20	Cons/2714/2014-15	5 days Training Programme for Orientation Programme on "Underground Coal Mining" from 17th Nov.	Prof. V. P. Sinha, CI Prof. P. Sen, CO-CI	25	1	25

		2014 to 21st Nov., 2014				
21	Cons/2715/2014-15	Advance Power Electronics from 29.11.2014 to 3.12.2014	Prof. P. K. Sadhu, CI Dr. Nitai Pal, CI	82	1	82
22	Cons/2723/2014-15	Advances in Mine Surveying Technology from 27/10/2014 to 5/12/2014	Dr. Dheeraj Kumar, CI Shri Vasant G.K. Villuri, CO	8	5	40
23	Cons/2740/2014-15	Digital Image Processing and Its Applications. From 26 - 30 December, 2014	Dr. Anup Kr. Pal, CI	38	1	38
24	Cons/2742/2014-15	Environmental Impact Assessment of Mining Projects for Officials of Ministry of Mines. From 6 - 22 Dec. 2014	Dr. Biswajit Paul, CI Dr. Alok Sinha, CO-CI	15	2	30
25	Cons/2775/2014-15	Drilling & Blasting NHPC from 8 - 10 December, 2014.	Prof. V. M. S. R. Murthy, CI	9	1	9
26	Cons/2776/2014-15	Cognitive Radio Using USRP from 6 - 10 January, 2015	Prof. Debjani Metra, CI	21	1	21
27	Cons/2789/2014-15	Intensive Training Programme for Management Trainees (E & M) of CIL Executives from 27.10.2014 to 28.11.2014	Prof. A. K. Mukhopadhyaya, CI Prof. K. Dasgupta, CI Prof. T. K. Chatterjee, CI	23	5	125
28	Cons/2790/2014-15	Intensive Training Programme for Management Trainees (Excavation) of CIL Executives from 04.08.2014 to 05.09.2014	Prof. K. Dasgupta, CI Prof. A. K. Mukhopadhyaya, CI	30	5	150
29	Cons/2795/2014-15	Four Weeks Advanced Training on Mining Operations for Hindustan Zinc Ltd. from 19 Jan., 2015 to 15	Dr. Dheeraj Kumar, CI Prof. U. K. Singh, CO-CI	16	4	64

		Feb. 2015				
30	Cons/2806/2014-15	Agglomeration Techniques. From 16 - 20 Feb., 2015	Prof. R. Venugopal, CI Prof. N. R. Mandre, CO- CI Shri S. Soren, CO-CI	13	1	13
31	Cons/2814/2014-15	Mining & Equipment & Electricals from 23 - 27 Feb. 2015	Prof. A. K. Mukhopadhyaya, CI Dr. Tanmoy Maiti, CI	9	1	9
32	Cons/2826/2014-15	Digital Image Processing and Its Applications	Dr. Sushila Maheshkar, CI	25	1	25

### **FIVE CERTIFICATE COURSE WE CONDUCTED IN THE FINANCIAL YEARS 2014-15**

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 2014-15 Certificate Course have been conducted for executives of various Government, Public Sector and Private Sector companies. Number of Executives trained was 205(205 participant-weeks) and the value of these training programmes was about Rs. 3.77 Lakhs. As per the revised Consultancy Rules the Professional Development Programmes are also treated as consultancy projects.

<b>Sl. No</b>	<b>PROGRAMME</b>	<b>COORDINATOR(S)</b>	<b>No. of Participants</b>	<b>Weeks</b>
1	MATLAB Programming and its Applications. 7 – 11 April, 2014	Mr. Dipankar Roy, CI	22	1
2	Research Methodology and Data Analysis. 14 – 18 July, 2014	Dr. Sandeep Mondal, CI	43	1
3	Measurement Control and Simulation through Lab VIW Software. 28th July to 1st August, 2014	Dr. Jayanta Das, CI Dr. Alok Kumar Das, CO-CI	53	1
4	Matlab and Simulink for Engineering Application. 5-10Dec. 2014	Dr. S. K. Paul, CI	38	1
5.	MATLAB Programming & Its Applications. 9 – 13 March 2015	Mr. Dipankar Roy, CI	49	1

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

1.	DST/10/MS/2013-14	FDP for Entrepreneurship Awareness and Development. From 3 – 7 March, 2014	Dr. Niladri Das, CI Prof. J. K. Pattanayak, CO-CI	28	1
2.	DST/11/MS/2014-15	Project Officer, Entrepreneurship Development Institute of India Gujrat Gandhinagar. From 2 – 5 March, 2015	Dr. Niladri Das, CI Prof. J. K. Pattanayak, CO-CI	30	1
3.	DST/12/AGP/2014-15	Basic Geophysical Techniques. 18 – 25 January, 2015	Dr. P. K. Khan, CI	16	1
4.	DST/MNRE/13/APH/14-15	Training Programe on Advances in New and Renewable Energy Materials and Technology-2015.	Dr. R. B. Choudhary, CI	59	1

## 7.0 INFRASTRUCTURE FACILITIES

### 7.1 CENTRAL LIBRARY

The Central Library is part and parcel of Indian School of Mines providing direct academic support to all departments. The library tried to provide a silent environment for study. Enhanced with Wi-Fi connections the library served the library users for reference services, semester exam preparations, project writing and research. There are the following different sections of the library associated with its different goals and activities:

- 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 2014-15 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 10 pm except in summer vacation. The library remained open from Monday to Saturday 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. It has about 123,517 books, 38,400 bound volumes of journals, 291 current journals, 10,203 theses, dissertations, 966 donated/ gratis books. During this academic period 8,720 books were added to the library holding. The CD/DVD collection comprises books, abstracts, journals, teaching aids and so on. The library continued to paste bar-code labels on new and old documents. In addition, Central Library continued attaching magnetic tapes and RFID tags to library books to put in place enhanced document security, faster circulation of books and records management.

Within the library all records of library collection are accessible online through Online Public Access Catalogue (OPAC) touch-screen kiosks connected to the library's Local Area Network (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. The speed of searching enhanced reference service delivery. The library has its own official website that facilitates information search from the library's bibliographic and book transactions records of the library users of the Central Library through web based online public access catalogue (WEBOPAC) on ISM campus wide LAN.

All processes at Book Acquisition Section – ordering, bill processing, receiving of books, cataloguing, etc. were done through Libsys Library Management Software. At Technical

Processing Section books, dissertations, PhD theses, etc. were labeled with system-generated bar-codes, 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 bar-code 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 like ordering, bill processing, receiving of issues, etc. at the Journal Section proceeded also 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. The library website has been linked to 15 online journal database links namely IEL Online, Springer Link, Science Direct, AIP (Journal of Applied Physics), APS All Journals, ACS Web Edition, ACS Legacy Archive, One Petro, ASME, ASCE, EBSCO Business Source Premier cum LISTA, Project Muse, Cambridge Structural Database System and Scopus to facilitate academic and research activities. In addition, the library also subscribed to Springer e-Books 2014 in the fields of Chemistry & Materials Science, Computer Science, Earth & Environment Sciences, Mathematics & Statistics, Physics & Astronomy, Engineering and Business & Management. With coverage across all subjects it continued to facilitate research and academic activities of ISM. Reference helps from Journal Desk and Circulation Desk facilitated the study and academic activities of the school. The Central Library also continued book circulation services on Saturday and Sunday for two hours (5 PM-7 PM) for the Executive MBA students.

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 pilferage. Finally, the library tried to maintain a clean and convenient study and work environment despite space and seating capacity crunch and decrease in library staff.

## **7.2 COMPUTER CENTRE**

The Computer 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 provides intranet and internet services 24 hours a day, 365 days a year. It supports campus wide fiber optic LAN comprising of 5000 nodes that connects all the academic Departments and Centres, Central Library, Senior Academic Hostel (SAH), Executive Development Centre (EDC), Administrative Sections, Hostels, Residence of Faculty Members and Officers. The centre is equipped with UTM, Managed Gigabit Switches and number of state of the art blade servers and rack mount servers. Various network services like DHCP, HTTP, DNS, SNMP (for NMS) are being run and monitored by the Centre. 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 links provided by BSNL under the project NMEICT of Govt. of India and a dedicated 500 Mbps (1:1) internet bandwidth provided by Bharti Airtel Ltd. Two video-

conferencing units one each at conference hall of Admin. Block and new EDC were installed and being supported by Computer Centre.

The Centre has Linux and Windows labs. Computer practical classes of undergraduates and postgraduates are being conducted here. The Centre conducts computer training programmes for ISM staff members from time to time. Online tests for placement of students are also arranged here. Institutional jobs like semester examination result processing, ISM Website maintenance, Student Feedback System, Attendance Monitoring, ISM Campus Network maintenance and monitoring are done here.

### **7.3 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 are CNC Programming Laboratory and sophisticated Flexible Manufacturing System (FMS) Laboratory consisting of latest CAM Software, CNC turning (trainer) and CNC milling (trainer) machines and Flexible Manufacturing System facility {CNC Lathe machine fitted with AGV (Automatic Guided Vehicle) and Automatic Storage and Retrieval System (ASRS)}. 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, Metallurgical Microscope and Vickers Microhardness Tester are important measuring instruments. All these laboratories/facilities are housed in new workshop building. There are Electrical Discharge Machine (EDM) laboratory, Electrochemical Machine (ECM) Laboratory and Die Sinking EDM laboratory for nontraditional/advanced machining. There is also Laser Welding Laboratory with CNC Setup.

Every year around 1000 first year undergraduate students are imparted hands-on training on basic manufacturing facilities, around 140 students of pre-final year Mechanical and Mining Machinery and 40 students of M Tech first year are imparted hands-on training on advanced manufacturing and dimensional measuring facilities. Each year a large 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. Research scholars related to manufacturing work on various machines/equipments.

Many students fabricate various equipments e.g. vehicles, robots, air tunnels etc. for national level competitions. Sometimes short-term training courses related to manufacturing process/workshop technology for engineers/ officers/ executives are also conducted on demand. The consultancy is also provided by the faculty 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.

HMT high precision Sliding Surface & Screw Cutting lathe with Piezoelectric 3 Dimensional Force Sensor, Polishing Machine and Hot Mounting Press as well as Compact Rill Controller hardware have been procured. The procurement for various manufacturing facilities like Ball Mill, Ultrasonic Machining System, Abrasive Cut-off machine, Robotic Welding Manipulator Ultrasonic Testing Machine and Extrusion Die casting machine etc. has been started.

#### 7.4 ISM HEALTH CENTRE

ISM Health Centre Provides medical care to students, teachers, officers and staff including their Dependent family members. From 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 for both morning & evening shifts. From this year Health Centre, ISM is taking care of 50 nos. Of Afghanistan Students for their treatment purpose.

#### Inclusion of 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 time to time patients are being referred for their treatment in above hospitals.
6. Geetasri Clinic, opposite Combined Building,  
Luby Circular Road, Dhanbad. --- For Eye treatment only.
7. Prudence Hospital, Ophthalmology Centre,  
MIG-B/66, Housing Colony, Dhanbad. --- For Eye treatment only.
8. Park Clinic, Park Market, Hirapur Dhanbad. --- For General treatment only.
9. ASG Eye Hospital Pvt.Ltd.  
Unit No. G1 Ground Floor Ozone Centre,  
Ashok Nagar, Dhanbad. --- For Eye treatment only.
10. RELIEF Diagnostic & Imaging Centre,  
Saraidhella, Dhanbad. --- For Pathological test &  
Radiology test only.
11. OM Dental Clinic,  
Shop No. 144, City Centre,  
Near Combined Building, Dhanbad. --- For Dental treatment only.



**Inclusion of other 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

**Inclusion of other Hospital at New Delhi:**

1. Centre of Sight (for Ophthalmological treatment)
2. Delhi Heart & Lung Institute (for Cardiological/Pulmonary treatment. Max Devki Devi & other Hospital chain in Max Hospital at Delhi – for treatment of Cardiological Problems and other general diseases.
3. Mohinder Hospital – for General treatment.
4. Sukhmani Hospital, New Delhi - for specialized treatment.
5. Sir Ganga Ram Hospital, New Delhi – for specialized treatment.

**Inclusion of 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. RTIICS Hospital, Kolkata – for general purpose.

**Inclusion of Hospital at Durgapur:**

1. The Mission Hospital, Durgapur.

On an average 200–250 patients including Afghanistan students visit ISM Health Centre daily. Medicines are dispensed from the Health Centre. For medicines, that are not available in the Health Centre, reimbursement is made to Teachers, Officer & staffs. Reimbursement of students is made in DSW Office through Insurance scheme.

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 specialized 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.

## 7.5 SPORTS AND PHYSICAL EDUCATION CENTRE

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, ISM Open Boxing Championship, ISM Open & Inter year Table Tennis Championship and ISM Open Chess Tournament.

86<sup>th</sup> Annual Sports Meet was held on 16<sup>th</sup> January 2015 and inaugurated by Shri Rahul Guha, Director General, DGMS in presence of Hon'ble Director Prof. D. C. Panigrahi, Prof. Chandan Bhar, DSW, Col (Retd.) M. K. Singh, Registrar, Prof. A. K. Pathak, President SPEC and many other distinguished faculty members and Officers and Staff. The whole programme was witnessed by about five thousand students and other spectators. In all two-day sports meet witnessed 19 Olympic and 07 number Non-Olympic events. DSW graced the occasion during closing ceremony as Chief Guest.

Parakram, the All India Inter College Sports Fest was organised at ISM Dhanbad on 13-15 February 2015. This year the fest witnessed participation of 667 students from 21 different institutes like NHSM College Campus, Sriram CIG College. Bengal College of pharmaceutical sciences, XISS Ranchi, Techno India- , Heritage Institute of Technology, JIS College, Kalyani, IMPS College Malda, GGS Bokaro, JEC Jabalpur, AOT, Kolkata, BIT Deoghar, NITMAS, Jadavpur, Ranchi College, BCET, Sriram College, IEST- , AEC, NIFFT Ranchi and ISM.

### Teams Participation in Extramural Competitions:

- ➡ On behalf of Jharkhand Body Building Association, Our **Gymnasium Team** took the opportunity to participate in Senior Mr. Jharkhand Body Building Championship - 2015 held at Jamshedpur on 14<sup>th</sup> Feb'2015. In which 80 participants participated and our students Mr. G. Ragesh, M. Tech Final Yr. and Mr. Khemchand Joya, B. Tech. 2<sup>nd</sup> Yr. secured the 3<sup>rd</sup> and 4<sup>th</sup> position respectively.
- ➡ Mr. V. Murahari, B. Tech. final year student, CSE Department was selected to represent Indian Universities Athletics team (combined universities) for 54th Sr. National Open Athletics Championship held at J. N. Stadium, New Delhi from 2<sup>nd</sup> to 5<sup>th</sup> Nov. 2014. He was one of the 4 athletes and only one male athlete among the hundreds of Indian Universities achieved the qualifying standard specified by Athletic Federation of India.
- ➡ Our Athletic Team (M) took part in All India Inter University Athletic Championship, 2014-15 held at Mangalore (Karnataka) organised by Rajiv Gandhi University of Health Science 16-20 January 2015.
- ➡ 117 member contingent comprising of students and 02 officials had gone to IIT Roorkee on 17.03.2015 to participate in Sangram Sports Festival which was held at IIT Roorkee from 20<sup>th</sup> March to 22<sup>nd</sup> March 2015.

- Our Basketball Team (M) comprising of students (13) and officials (2) took part in East Zone Inter University Basketball (M) tournament 2014-15 organised by Mahatma Gandhi Kashi Vidyapith, Varanasi from 13<sup>th</sup> Dec. to 17<sup>th</sup> Dec. 2014.
- Our Cricket Team had participated in Dhanbad District Cricket Leagues and won the championship.

## 7.6 HINDI CELL

Hindi Cell has been playing significant role in the implementation of Official Language Policy of the Union Government in day to day official business of the Institute.

Hindi Cell of the Indian School of Mines, Dhanbad deals with the following:

- (i) Implementation of Official Language Policy, and compliance of provisions of Official Language, Act 1963 and Rule 1976 in the Institute.
- (ii) Organisation of quarterly meeting of Official language committee to discuss various aspects of implementation so that target prescribed in annual programme can be achieved.
- (iii) Organising Hindi Fortnight in the month of September every year involving Faculties, Officer, Students and Staff of the Institute. Various types of Hindi Competition were held during 01-16 Sep 2014.
- (iv) Hindi workshop for the staff who have working knowledge of Hindi to inculcate interests among the staff and remove their hesitation regarding working in Hindi.
- (v) Publication of Institute's Hindi Magazine "ANKUR" in collaboration of Chayanika Sangh.
- (vi) Submission of online quarterly report to Rajbhasha Vibhag and reports pertaining to the year ending on 31 March 2014.
- (vii) Translation Work of Annual Report and all other circulars, orders and official correspondences as and when required.

## **8.0 ACTIVITIES UNDER INTERNATIONAL RELATIONS AND ALUMNI AFFAIRS (IRAA)**

### **A) International Relations**

#### **1. Memorandum of Understanding**

A standard MoU format was prepared for enhancing the academic and research collaboration with reputed universities across the globe. This was done with due approvals from Academic Council and EB followed by the directives of MHRD. It is envisaged that faculty members and students from different departments are expected to benefit from this through collaborative research, professional development programmes and exchange studies.

Signed MoU with Arkansas State University, USA, TU Clausthal, Germany and Botho University, Botswana.

#### **2. International Student/Faculty Exchange Projects:**

##### **i. Erasmus Mundus India 4EUII, Project No.: IPEM(1)/2013-14/367/INST:**

No. of mobilities: 23(completed)

Total man-months: 194

Total Value (excluding international travel and insurance): Euro 3000 + Rs. 211 lakhs(completed)

##### **ii. Erasmus Mundus AREAS+, Project No.: Project No.: IPEM(2)/2014-15/399/INST:**

No. of mobilities: 21(selected in two calls)

Total man-months: 117

Total Value (excluding international travel and insurance): Euro 6000 + Rs. 120 lakhs(excluding incoming mobilities)

#### **3. Erasmus Mundus EMINTE Scholarship**

One student from Department of Electronics Engineering has moved to Europe under this fellowship for a period of six months for exchange study and has completed his course successfully and returned.

#### **4. Study Abroad India Programme for University of South Florida St Petersburg, USA during 05-18 August 2014.**

## 5. International Research projects obtained with funding details:

Project Title: “Design of novel bifunctional gold-Ti- and Fe modified zeolite functional materials for the catalytic oxidation of hydrocarbons”

DST No: INT/NL/FM/P-002/2013 (layout 58.29 lakh INR)

Co-Ordinators (Name & Address):

Indian Principal investigator (Key Person): Dr.Biswajit Chowdhury, Indian School of Mines, Dhanbad and Dr.Vinod Prabakaran, National Chemical Laboratory, Pune.

Dutch Principal Investigator: Prof. Emiel Hensen and Prof. T.A Nijhuis from Eindhoven University of Technology, Eindhoven, Netherlands.

## 6. Visits of Students Abroad

Mr. Chiranjit Santra, Research Scholar, Department of Applied Chemistry was selected for participation in Research Opportunity Week at Technical University of Munchen Germany for Post-Doctoral Research.

## 7. Admission of Foreign Students

Two students from Republic of Ghana took admission at ISM in PG programmes namely M.Tech.(Petroleum Engineering) and M.Tech.(Electronics & Communication Engineering) taking our foreign student strength in campus to 51.

## B) Alumni Affairs

### 1. Invited Talks

An invited lecture by a distinguished Alumni, Dr A R Samal, M Tech (ISM) was arranged by ISM in coordination with SME ISM Chapter on “Concept of value chain and Career planning” on 06.12.2014.

Prof. R.V.Ramani, President, ISMAANA Chapter, USA visited ISM and interacted with faculty members of Department of Mining Engineering.

### 2. Basant Samman

Basant was organised on 08.02.2015 and the awardees for Basant Samman 2015 were, Prof. N K Pattanaik, Prof. B K Kar, Prof. B. P. Pandey, Shri Atul Chandra and Prof. D.Mukhopadhyay.

## 9.0 PERSONNEL

### 9.1 ACADEMIC ADMINISTRATION

Director	: Prof. D. C. Panigrahi,
Dean (Research & Development) (up to 31.12.2014)	: Prof. R. Venugopal
(from 01.01.2015)	: Prof. Vishnu Priye
Dean (Faculty & Planning) (up to 07.01.2015)	: Prof. P. S. Gupta
(from 08.01.2015)	: Prof. K. Dasgupta
Dean (Academic)	: Prof. S. Mohanty
Dean (Students' Welfare)	: Prof. Chandan Bhar
Associate Dean (Academic & Research)	: Prof. G. Udayabhenu
Associate Dean (Students' Welfare)	: Prof. J. Manam
Associate Dean (International Relation & Alumni Affairs)	: Prof. VMSR Murthy
Associate Dean (Projects & Infrastructure Development)	
(up to 23.07.2014)	: Prof. T. K. Chatterjee
(from 24.07.2014 to 09.01.2015)	: Prof. P. Pathak
(from 10.01.2015)	: Prof. J.K. Pattanayak

### 9.2 ACADEMIC

#### List of Faculty Members from 01.04.2014 to 31.03.2015

Sl. No.	Salutation	Name of the employee	Designation	Department
1	Professor	D C Panigrahi	Professor (HAG) (Director)	Mining
2	Professor	Gurdeep Singh	Professor (HAG) (on lien)	ESE
3	Professor	R Venugopal	Professor (HAG)	FME
4	Professor	U K Singh	Professor (HAG)	Mining
5	Professor	T Kumar	Professor (HAG) (on Deputation)	PET
6	Professor	P S Gupta	Professor (HAG)	APH
7	Professor	S Laik	Professor (HAG)	PET
8	Professor	R K Singh	Professor (HAG)	HSS
9	Professor	M Jawed	Professor	Mining
10	Professor	Phalguni Sen	Professor	Mining
11	Professor	P K Sarkar	Professor	Mech
12	Professor	S K Paul	Professor	ECE
13	Professor	G S Seth	Professor	AMT
14	Professor	V Kumar	Professor	ECE
15	Professor	S Mohanty	Professor	AGL
16	Professor	B C Sarkar	Professor	AGL
17	Professor	A Sarkar	Professor	ACH
18	Professor	A K Pathak	Professor	PET
19	Professor	Pramod Pathak	Professor	MS
20	Professor	Chandan Bhar	Professor	MS

21	Professor	T K Chatterjee	Professor	MME
22	Professor	J Manam	Professor	APH
23	Professor	N Suresh	Professor	FME
24	Professor	K Dasgupta	Professor	MME
25	Professor	A K Mukhopadhyay	Professor	MME
26	Professor	V M S R Murthy	Professor	Mining
27	Professor	P C Pal	Professor	AMT
28	Professor	S Bhattacharya	Professor	FME
29	Professor	J K Pattanayak	Professor	MS
30	Professor	P R Mohanty	Professor	AGP
31	Professor	A K Varma	Professor	AGL
32	Professor	D Asthana	Professor	AGL
33	Professor	V Priye	Professor	ECE
34	Professor	V K Saxena	Professor	Chemical
35	Professor	N R Mandre	Professor	FME
36	Professor	G P Biswas	Professor	CSE
37	Professor	Subrata Bhattacharya	Professor	ECE
38	Professor	G Udayabhanu	Professor	ACH
39	Professor	A K Pal	Professor	ESE
40	Professor	S Gupta	Professor	AMT
41	Professor	G N Singh	Professor	AMT
42	Professor	Somnath Pan	Professor	EE
43	Professor	D D Pathak	Professor	ACH
44	Professor	A S Venkatesh	Professor	AGL
45	Professor	P K Jana	Professor	CSE
46	Professor	Shalivahan	Professor	AGP
47	Professor (Ms)	Debjani Mitra	Professor	ECE
48	Professor	P K Sadhu	Professor	EED
49	Professor	R K Das	Professor	Mech
50	Professor (Ms)	B Mukherjee	Professor	AMT
51	Professor	S K Maiti	Professor	ESE
52	Professor	G S Pathak	Professor	MS
53	Professor	R K Upadhyay	Professor	AMT
54	Professor	A K Nirala	Professor	APH
55	Professor	Vineet Kumar	Professor	CE
56	Professor	Shekhar Chandra Dutta	Professor	Civil
57	Professor	A Chattopadhyay	Professor (Re-employed)	AMT
58	Professor	V P Sharma	Professor (Re-employed)	PET
59	Professor	S Chaudhuri	Professor (Chair)	Mining
60	Professor	A K Singh	Professor (Chair)	ESE
61	Professor	V.P. Sinha	Professor (Chair)	Mining
62	Professor	Ram Pravesh Bhagat	Professor (Chair)	FME
63	Professor	Vinay Krishna Singh	Professor (Chair)	Mining

1	Shri	P K Behra	Associate Professor	Mining
2	Dr.	Kailash Jha	Associate Professor	Mech
3	Dr. (Ms.)	Rima Chatterjee	Associate Professor	AGP
4	Dr.	Biswajit Paul	Associate Professor	ESE
5	Dr.	A K Mishra	Associate Professor	Mining
6	Dr.	S Chattopadhyay	Associate Professor	Mech
7	Dr.	S N Singh	Associate Professor	Mech
8	Dr.	Chiranjeev Kumar	Associate Professor	CSE
9	Dr.	Vinayak Ranjan	Associate Professor	Mech
10	Dr. (Ms)	Saumya Singh	Associate Professor	MS
11	Dr.	M K Singh	Associate Professor	AMT
12	Dr.	S Chatterjee	Associate Professor	AMT
13	Dr.	Kalyan Chatterjee	Associate Professor	EE
14	Dr.	S K Gupta	Associate Professor	ESE
15	Dr. (Ms)	Keka Ojha	Associate Professor	PET
16	Dr.	Vikas Mahto	Associate Professor	PET
17	Dr.	Ajay Mandal	Associate Professor	PET
18	Dr.	P K Singh	Associate Professor	ESE
19	Dr.	Dhiraj Kumar	Associate Professor	Mining
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	APH
25	Dr. (Ms)	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	ACH
29	Dr.	S Mukhopadhyay	Associate Professor	CSE
30	Dr.	B. Bhattacharya	Associate Professor	EE
31	Dr.	M K Mukherjee	Associate Professor	AGL
32	Dr.	Sandeep Mandal	Associate Professor	MS
33	Dr.	Akhilesh Prasad	Associate Professor	AMT
34	Dr.	S P Tiwari	Associate Professor	AMT
35	Dr.	S K Ghosal	Associate Professor	Mech
36	Dr.	B Choudhury	Associate Professor	ACH
37	Dr.	Rohith P John	Associate Professor	ACH
38	Dr.	N K Singh	Associate Professor	Mech
39	Dr.	Upendra Kumar Singh	Associate Professor	AGP
40	Dr.	Nitai Pal	Associate Professor	EE
41	Dr.	Sukanta Dey	Associate Professor	AGL
42	Dr.	Vineet Kumar Rai	Associate Professor	APH
43	Dr.	Asit Kumar Kar	Associate Professor	APH
44	Dr.	Sanjoy Mandal	Associate Professor	EE



45	Dr.	Jitendra Kumar	Associate Professor	ECE
46	Dr.	Bobby K Antony	Associate Professor	APH
47	Dr.	Syed Tajdarul Hassan	Associate Professor	AGL
48	Dr.	M K Das	Associate Professor	ECE
49	Dr.	A R Dixit	Associate Professor	Mech
50	Dr.	Shushanta Sarangi	Associate Professor	AGL
51	Dr.	L A Kumaraswamidhas	Associate Professor	MME
52	Dr.	Chandan Guria	Associate Professor	PET
53	Dr.	V K Singh	Associate Professor	APH
54	Dr.	Tanmay Maity	Associate Professor	MME
55	Dr.	Haider Banka	Associate Professor	CSE
56	Dr.	R M Bhattacharyee	Associate Professor	Mining
57	Dr.	Sagar Pal	Associate Professor	ACH
58	Dr.	Ashis Mallick	Associate Professor	Mech
59	Dr.	Rabindra Nath Hota	Associate Professor	Mech
60	Dr.	Arun Kumar Samanta	Associate Professor	Chemical
61	Dr.	B S Kushvah	Associate Professor	AM
62	Dr.	Anup Krishna Prasad	Associate Professor	AGL

1	Dr.	Alok Sinha	Assistant Professor	ESE
2	Dr.	V Mukherjee	Assistant Professor	EE
3	Dr.	Partha Sarathi Paul	Assistant Professor	Mining
4	Dr.	Kalyan Kumar Singh	Assistant Professor	MECH
5	Dr.	A K Bhaumik	Assistant Professor	AGL
6	Dr.	Swapan Dey	Assistant Professor	ACH
7	Dr.	Sushrut Das	Assistant Professor	ECE
8	Dr.	Subrata Kumar Ghosh	Assistant Professor	MECH
9	Dr.	Anshumali	Assistant Professor	ESE
10	Dr.	Niladri Das	Assistant Professor	MS
11	Dr.	Devi Prasad Mishra	Assistant Professor	Mining
12	Dr.	Subindu Kumar	Assistant Professor	ECE
13	Dr.	Santanu Dwari	Assistant Professor	ECE
14	Dr.	Sachin Tripathi	Assistant Professor	CSE
15	Dr.	Pankaj Mishra	Assistant Professor	APH
16	Dr.	Anurag Jayswal	Assistant Professor	AMT
17	Dr.	R B Choudhary	Assistant Professor	APH
18	Dr.	S K Samadder	Assistant Professor	ESE
19	Dr.	Sanjit Kr. Pal	Assistant Professor	AGP
20	Dr.	Hari Om	Assistant Professor	CSE
21	Dr.	P S Rao	Assistant Professor	AMT
22	Dr. (Ms)	Mrinalini Pandey	Assistant Professor	MS
23	Dr.	Sarat Kumar Panda	Assistant Professor	Civil
24	Dr.	Alok Kumar Das	Assistant Professor	MECH
25	Dr. (Ms)	Shalini Gautam	Assistant Professor	FME
26	Dr.	Sahendra Singh	Assistant Professor	AGL

27	Dr.	B S Choudhary	Assistant Professor	Mining
28	Dr.	Abhay Kr. Singh	Assistant Professor	AMT
29	Dr.	Vipin Kumar	Assistant Professor	ESE
30	Dr.	S K Raghuvanshi	Assistant Professor	ECE
31	Dr.	Tarun Kumar Naiya	Assistant Professor	PET
32	Dr.	Somnath Yadav	Assistant Professor	ACH
33	Dr.	Aju Aravind	Assistant Professor	HSS
34	Dr.	P K Mahato	Assistant Professor	MECH
35	Dr.	Haripada Nayak	Assistant Professor	ACH
36	Dr.	Kausal Kumar	Assistant Professor	APH
37	Dr.	Shibayan Sarkar	Assistant Professor	MECH
38	Dr.	Pranab Das	Assistant Professor	AGL
39	Dr.	Sridhar Sahu	Assistant Professor	APH
40	Dr.	Rajalingam Thangavel	Assistant Professor	APH
41	Dr.	G K Vishwakarma	Assistant Professor	AMT
42	Dr.	Saumen Maiti	Assistant Professor	AGP
43	Dr.	Srinivas Pasupuleti	Assistant Professor	Civil
44	Dr.	Prabodha Ranjan Sahoo	Assistant Professor	AGL
45	Dr.	Kripamoy Sarkar	Assistant Professor	AGL
46	Dr.	R Anand	Assistant Professor	AGL
47	Dr.	Jhasaketan Nayak	Assistant Professor	APH
48	Dr.	Bibhas Chandra	Assistant Professor	MS
49	Dr.	Barun Kr. Nandi	Assistant Professor	FME
50	Dr.	Shantimoy Kundu	Assistant Professor	AMT
51	Dr.	Sarun P.M.	Assistant Professor	APH
52	Dr.	Suman Dutta	Assistant Professor	Chemical
53	Dr.	R K Gangwar	Assistant Professor	ECE
54	Dr.	Abhishek Kumar Singh	Assistant Professor	AMT
55	Dr.	Suresh Pandian E	Assistant Professor	ESE
56	Dr.	Durbha Krishna Sandilya	Assistant Professor	Chemical
57	Dr.	Sumanta Kumar Sahu	Assistant Professor	ACH
58	Dr. (Ms)	Sheeja Jagadevan	Assistant Professor	ESE
59	Dr.	Moirangthem R Singh	Assistant Professor	APH
60	Dr.	B K Mishra	Assistant Professor	ESE
61	Dr.	Sukanta Das	Assistant Professor	EE
62	Dr.	G C Nayak	Assistant Professor	ACH
63	Dr.	P K Kewat	Assistant Professor	AMT
64	Dr.	Prashant Kumar Sharma	Assistant Professor	APH
65	Dr.	Subramanian Narayanan	Assistant Professor	Mech E
66	Dr. (Ms)	Abha Rani	Assistant Professor	AMT
67	Dr.	Gnananandh Budi	Assistant Professor	Mining
68	Dr.	Sukomal Pal	Assistant Professor	CSE
69	Dr. (Ms).	Sushila Maheshkar	Assistant Professor	CSE
70	Dr.	S Anand Sahu	Assistant Professor	AMT
71	Dr.	Jayanta Das	Assistant Professor	MME
72	Dr.	K C Jana	Assistant Professor	EE

73	Dr. (Ms)	Sarita Kar	Assistant Professor	HSS
74	Dr.	Nirban Manna	Assistant Professor	HSS
75	Dr.	K S Thyagaraj	Assistant Professor	MS
76	Dr.	Chanchal Haladar	Assistant Professor	ACH
77	Shri	Mrinal Sen	Assistant Professor	ECE
78	Dr.	Sanket Nayak	Assistant Professor	Civil
79	Dr.	Soubhik Kr. Bhaumik	Assistant Professor	Chemical
80	Dr.	Rakesh Kumar	Assistant Professor	Mech
81	Dr.	Raghvendra K Chaudhary	Assistant Professor	ECE
82	Dr.	Amgoth Tarachand	Assistant Professor	CSE
83	Shri	A C S Rao	Assistant Professor	CSE
84	Shri	Vinay Kumar Rajak	Assistant Professor	PET
85	Shri	Rajendra Pamula	Assistant Professor	CSE
86	Ms.	Archana	Assistant Professor	PET
87	Shri	R K Ranjan	Assistant Professor	ECE
88	Shri	Shatrughan Soren	Assistant Professor	FME
89	Shri	Gauri Shankar	Assistant Professor	EE
90	Shri	B K Naick	Assistant Professor	EE
91	Md.	Sikandar Azam	Assistant Professor	MECH
92	Shri	Kashinath Pal	Assistant Professor	Mining
93	Dr.	Hemant Kumar	Assistant Professor	Mining
94	Shri	Niranjan Kumar	Assistant Professor	MME
95	Dr.	Dharavath Ramesh	Assistant Professor	CSE
96	Shri	Devendra Chack	Assistant Professor	ECE
97	Shri	Amitesh Kumar	Assistant Professor	ECE
98	Shri	Jaisingh Thangaraj	Assistant Professor	ECE
99	Dr.	Arup Kumar Paul	Assistant Professor	CSE
100	Shri	Amitava Mandal	Assistant Professor	MECH
101	Md.	Tanveer Alam	Assistant Professor	MME
102	Shri	K Priya Ajit	Assistant Professor	MME
103	Shri	D B Kr. Kishorilal	Assistant Professor	MME
104	Shri	M L Chandravanshi	Assistant Professor	MECH
105	Shri	Devara V Bhaskar	Assistant Professor	EE
106	Shri	Suresh Kumar Yatitirajula	Assistant Professor	Chemical
107	Dr.	K S Thyagaraj	Assistant Professor	MS
108	Shri	Anand Anupam	Assistant Professor	FME
109	Shri	Neetish Kumar Maurya	Assistant Professor	PET
110	Shri	Shravan Kumar	Assistant Professor	FME
111	Shri	Kaushik Mazumdar	Assistant Professor	ECE
112	Dr.	Amit Kumar Verma	Assistant Professor	Mining
113	Shri	Lutukurthi D NVV Konda	Assistant Professor	Chemical
114	Shri	Pankaj Kumar Jain	Assistant Professor	FME
115	Shri	Ajit Kumar	Assistant Professor	MME
116	Shri	Paidinaidu Paluri	Assistant Professor	Chemical
117	Shri	V G Kumar	Assistant Professor	Mining
118	Dr.	Suman Dutta	Assistant Professor	Chemical

119	Dr.	Upama Dutta	Assistant Professor	AGL
120	Ms.	Shweta R Malwe	Assistant Professor	CSE
121	Shri	Govind Murmu	Assistant Professor	ECE
122	Shri	Ananda Shankar Hati	Assistant Professor	MME
123	Ms.	Tanusree Kaibartta	Assistant Professor	CSE
124	Shri	Rahul Bhattcharya	Assistant Professor	ECE
125	Dr.	Nirupama Mandal	Assistant Professor	ECE
126	Dr.	Binata Panda	Assistant Professor	APH
127	Md.	Soyeb Alam	Assistant Professor	Mining
128	Dr.	Lohitkumar Nainegali	Assistant Professor	Civil
129	Dr. (Ms)	Sowmiya Chawla	Assistant Professor	Civil
130	Dr.	Siddhartha Sengupta	Assistant Professor	Chemical
131	Dr.	Arijit Baral	Assistant Professor	EE
132	Dr.	Paresh Kumar Nayak	Assistant Professor	EE
133	Dr.	Irfan	Assistant Professor	MS
134	Dr.	Rabindra Kumar Sinha	Assistant Professor	Mining
135	Dr.	Krishnendu Shaw	Assistant Professor	MSD
136	Dr.	Umakant Tripathi	Assistant Professor	APH
137	Dr.	Gyan Prakash	Assistant Professor	HSS
138	Dr.	Soumen Bag	Assistant Professor	CSE
139	Dr.	Ramanababu Kaligatla	Assistant Professor	AMT
140	Dr.	Soumitra Maiti	Assistant Professor	ACH
141	Dr.	Dinabandhu Pradhan	Assistant Professor	AMT
142	Dr.	Sachin Kumar Singh	Assistant Professor	MECH
143	Dr.	Bansanta Bhaduri	Assistant Professor	APH
144	Dr.	Subhankar Sen	Assistant Professor	MECH

### 9.3 List of Administrative Officers from 01.04.2014 to 31.03.2015

Sl. No.	Name	Designation
1	Professor D C Panigrahi	Director
2	Col (Retd) M K Singh	Registrar
3	Sri Y P K Murthy	Deputy Registrar
4	Dr. P Mathur	Deputy Registrar
5	Dr. Pavan Kumar Saini	Deputy Registrar
6	Sri S Mitra	System Manager
7	Dr. Pratha De	Librarian-in-charge
8	Dr. Praveen Kumar	Senior Medical Officer
9	Sri Sanatan Ghosh	Campus Engineer
10	Sri Anil Kumar	Assistant Registrar
11	Sri M S Champia	Assistant Registrar
12	Ms Sukhninder Kaur	Assistant Registrar
13	Sri Babulal Rajak	Assistant Registrar
14	Sri Ashok Kumar Gupta	Assistant Registrar
15	Dr. Gopal Sinha	Assistant Registrar

16	Sri Mahesh Kumar Pandey	Assistant Registrar
17	Dr. (Ms) T Banerjee	Lady Medical Officer
18	Sri Dipankar Ray	Programmer
19	Sri Anakapalli Kr. Swamy	Programmer
20	Sri Rajesh Mishra	System Analyst
21	Sri Rakesh Soni	System Analyst
22	Sri H R Singh	Technical Officer
23	Sri U P Sharma	Technical Officer
24	Sri K C Nandi	Assistant Campus Engineer (Civil)
25	Sri Anil Kumar Barnwal	Assistant Engineer (Electrical)
26	Sri D N Acharya	Sports Officer
27	Sri Shailendra Bhatia	Assistant Workshop Superintendent
28	Dr. L K Verma	Research Officer
29	Sri Rahul Kumar, SEO	Security-cum-Estate Officer

#### 9.4 Appointments during the period 01.04.2014 to 31.03.2015

Sl. No.	Name	Designation	Date of appointment	Department
1	Professor Vineet Kumar	Professor	22.12.2014	Chemical
2	Professor Sekhar Chandra Dutta	Professor	15.01.2015	Civil
3	Professor Ram Pravesh Bhagat	Chair Professor	27.11.2014	FME
4	Professor Vinay Kumar Singh	Chair Professor	25.02.2015	Mining
5	Dr. Sagar Pal	Associate Professor	19.08.2014	ACH
6	Dr. B S Kushvah	Associate Professor	03.12.2014	AMT
7	Dr. Anup Krishna Prasad	Associate Professor	30.04.2014	AGL
8	Dr. Lohitkumar Nainegali	Assistant Professor	15.05.2014	Civil
9	Dr. Sanket Nayak	Assistant Professor	28.05.2014	Civil
10	Dr. (Ms) Sowmiya Chawla	Assistant Professor	04.06.2014	Civil
11	Dr. Soubhik Kumar Bhaumik	Assistant Professor	03.07.2014	Chemical
12	Dr. Siddhartha Sengupta	Assistant Professor	22.07.2014	Chemical
13	Dr. Arijit Baral	Assistant Professor	14.08.2014	Electrical
14	Dr. Paresh Kumar Nayak	Assistant Professor	19.08.2014	Electrical
15	Dr. (Ms) Sheeja Jagadevan	Assistant Professor	11.09.2014	ESE
16	Dr. Md. Irfan	Assistant Professor	15.09.2014	Management
17	Dr. Rabindra Kumar Sinha	Assistant Professor	29.09.2014	Mining
18	Dr. Krishnendu Shaw	Assistant Professor	07.11.2014	Management
19	Dr. Umakant Tripathi	Assistant Professor	09.12.2014	APH
20	Dr. Gyan Prakash	Assistant Professor	11.12.2014	HSS
21	Dr. Soumen Bag	Assistant Professor	18.12.2014	CSE
22	Dr. Ramanababu Kaligatla	Assistant Professor	18.12.2014	AMT
23	Dr. Soumitra Maiti	Assistant Professor	22.12.2014	ACH
24	Shri Prasun Samir	Assistant Professor	22.12.2014	PET
25	Dr. Dinabandhu Pradhan	Assistant Professor	29.12.2014	AMT
26	Dr. Sachin Kumar Singh	Assistant Professor	12.02.2015	Mech
27	Dr. Bansanta Bhaduri	Assistant Professor	18.02.2015	APH
28	Dr. Subhankar Sen	Assistant Professor	23.02.2015	Mech
29	Dr. Subramanian Narayanan	Assistant Professor	10.03.2015	Mech

30	Dr. Pavan Kumar Saini	Deputy Registrar	27.06.2014	Establishment Section
31	Shri Sanatan Ghosh	Campus Engineer	11.07.2014	CMU
32	Shri M N Pandey	Assistant Registrar	25.04.2014	A/C Section
33	Ms Monalisa Nayak	Semi-Professional Assistant	18.02.2015	Central Library
34	Shri Sumit Kumar	Semi-Professional Assistant	26.02.2015	Central Library

#### 9.5 Promotions during the period from 01.04.2014 to 31.03.2015

Sl. No.	Name of the employee	Designation	Date of Promotion	Department/Section
1	Shri H K Mishra	UDC	14.01.2015	Diary & Dispatch Section
2	Shri B C Prasad	UDC	14.01.2015	Accounts Section
3	Shri S K Mandal	UDC	14.01.2015	CMU
4	Shri K Dey	UDC	14.01.2015	DT Secretariat
5	Shri O P Upadhyay	UDC	14.01.2015	Mining Engineering
6	Shri L P Rajak	UDC	14.01.2015	S & P Section
7	Shri Samar Kumar	UDC	14.01.2015	Establishment Section
8	Shri F X Indwar	UDC	14.01.2015	A/cs Section
9	Shri Anirban Dutta	UDC	14.01.2015	DSW
10	Shri S K Banerjee	UDC	14.01.2015	EDC
11	Shri Subhash Gope	UDC	14.01.2015	A/cs Section
12	Ramjee Prasad	UDC	14.01.2015	EDC
13	Shri Syeed Ansari	UDC	14.01.2015	Health Centre

#### 9.6 Retirements during the period 01.04.2014 to 31.03.2015

Sl. No.	Name of the faculty/ employee	Designation	Date of Retirement	Department/Section
1	Shri T K Chattopadhyay	P S	30.04.2014	DT's Secretariat.
2	Shri Shankar Mahato	Assistant Valveman	30.04.2014	CMU
3	Shri M K Mandal	Library Attendant	31.05.2014	Central Library
4	Shri A K Srivastava	Draftsman	31.05.2014	AGL
5	Shri D N Ram	Assistant	31.05.2014	Acad. Section
6	Shri Bikal Chandra Mandal	Daftry	30.06.2014	Exam. Section
7	Shri P C Mourya	Profession Assistant	31.07.2014	Central Library
8	Shri Pawn Mandal	Daftry	30.09.2014	Establishment Section
9	Shri B K Sinha	UDC	31.10.2014	A/cs Section
10	Professor P S Mukherjee	Professor	31.10.2014	Mech. Engineering
11	Shri Ashok Kumar	UDC	30.11.2014	CSE
12	Shri R P Kumar	UDC	30.11.2014	DT's Secretariat.
13	Shri D Singh	Library Attendant	30.11.2014	Central Library
14	Smt. Kashalya Mandal	Peon	30.11.2014	DSW
15	Shri B Yadav	P A	31.12.2014	Exam. Section
16	Shri L N Singh	UDC	31.12.2014	Mech. Engineering
17	Professor V K Srivastava	Professor	31.12.2014	AGP
18	Professor A Basu	Professor	31.12.2014	Applied Physics
19	Professor V P Sharma	Professor	31.12.2014	Pet. Engineering

20	Shri G S Das	Assistant	31.01.2015	Workshop
21	Shri Baldeo Rout	Peon	31.01.2015	Electronics Engineering
22	Shri R P Singh	Daftry	31.01.2015	DSW
23	Shri C L Manjhi	LDC	28.02.2015	HSS
24	Shri Sukhdeo Turi	Driver	31.03.2015	DT's Secretariat.

### 9.7 Voluntary Retirements during the period 01.04.2014 to 31.03.2015

Sl. No.	Name of the faculty/officer	Designation	Date of Retirement	Department/Section
1	Professor Kampan Mukherjee	Professor	29.07.2014	Management Studies
2	Shri Arobindo Ghosh	Deputy Registrar	31.12.2014	S & P Section

### 9.8 Service discontinued during the period 01.04.2014 to 31.03.2015

Sl. No.	Name of the faculty	Designation	Discontinued with effect from	Department/Section
1	Dr. Sreevalsa Kolathayar	Assistant Professor	13.06.2014	Civil Engineering
2	Dr. Sovan Sundar Dasgupta	Assistant Professor	05.01.2015	Mech. Engineering
3	Dr. (Ms) Pratima Gajbhiya	Assistant Professor	20.03.2015	FME

### 9.9 Training received during the period 01.04.2014 to 31.03.2015

Sl. No.	Name of the officer	Designation	Date of Training	Department/Section
1	Shri M S Champia	Assistant Registrar	29.05.2014 to 31.05.2014	Accounts Section
2	Shri Babulal Rajak	Assistant Registrar	13.07.2014 to 17.07.2014	Accounts Section
3	Shri Ashok Kr. Gupta	Assistant Registrar	21.07.2014 to 26.07.2014	Store & Purchase Section
4	Dr. Gopal Sinha	Assistant Registrar	13.07.2014 to 17.07.2014	Establishment Section

### 9.10 Re-employments during the period 01.04.2014 to 31.03.2015

Sl. No.	Name of the faculty	Designation	Date of Re-employed	Department/Section
1	Professor A Chattopadhyay	Professor	01.04.2014	Applied Mathematics
2	Professor V P Sharma	Professor	01.01.2015	Petroleum Engineering

## **10. MEMBER OF GENERAL COUNCIL, EXECUTIVE BOARD & FINANCE COMMITTEE (Period: 1.4.2014 – 31.3.2015)**

### **MEMBERS OF GENERAL COUNCIL**

#### **Chairman**

Shri P K Lahiri, IAS (Retd) [up to 03.02.2015]  
Chairman, ISM GC & EB  
8/2, Sarv Priya Vihar  
New Delhi – 110016

Prof D Misra [from 05.03.2015]  
Chairman, ISM GC & EB  
4, Arya Bhumi, Post- Patia  
Bhubaneswar – 751 024

#### **Representative of Ministry of HRD (Department of Higher Education)**

Ms Amita Sharma / Shri Amarjeet Sinha  
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**

Representations from Lok Sabha – Vacant

Representation from Rajya Sabha – Vacant

#### **Nominees of Central Government**

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 Daulatpur  
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  
Dean, Faculty of Engineering & Technology  
Chairman, Department of Petroleum Studies  
& Principal, ZH College of Engineering & Technology  
Aligarh Muslim University  
Aligarh – 202002

Chairman, Coal India Limited  
10, Netaji Subhas Road  
Kolkata – 700 001

**Representative of All India Council for Technical Education (AICTE)**

Prof. Souvik Bhattacharyaya  
Dept of Mechanical Engineering  
Deputy Director  
Indian Institute of Technology  
Kharagpur – 721 302

**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**

Mr. Naresh Kumar  
Joint Secretary  
Ministry of Mines, Govt. of India  
New Delhi

**Director General of Mines Safety**

Shri Rahul Guha  
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**

Shri K L Mehrotra  
Executive Director  
ONGC Academy  
Oil and Natural Gas Corporation Ltd.  
KDMIPE Campus,  
9 - Kaulagarh Road,  
Dehradun - 248 135

**Representative of NMDC**

Chairman-cum-Managing Director  
NMDC  
Khanij Bhavan 10-3-311/A  
Castle Hills, Masab Tank  
Hyderabad – 500 173

**Chairman-cum Managing Director, CMPDI**

Shri A K Debnath  
Chairman-cum Managing Director  
Central Mine Planning & Design Institute Ltd  
Gondwana Place, Ranchi – 834 008

**Controller General of Indian Bureau of Mines**

Controller General  
Indian Bureau of Mines  
Indira Bhawan, Civil Lines  
Nagpur – 440 102

**Representative of Hindustan Copper Limited**

Shri Mukteshwar 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**

Vacant

**Representative of Indian Mines Managers' Association**

Shri Rabindra Kr. Sharma  
Indian Mine Managers' Association  
701, Garden City  
Luby Circular Road  
Dhanbad – 826 001

**Representative of MGMI**

Shri Subrata Chakravorty  
Director (Technical)  
Eastern Coalfields Limited  
Sanctoria, Burdwan  
Dishergarh – 713 333  
West Bengal

**Representative of the Industry body such as CII, FICCI, ASSOCHAM**

Vacant

**Representative of Ministry of Finance**

Shri Yogendra Tripathi,  
Jt. Secretary, Financial Advisor to the Govt of India  
Ministry of HRD  
(Integrated Finance Division)  
Shastri Bhawan, New Delhi – 110115

**Representative of Ministry of Steel**

Dr. S. S. Tak  
Ministry of Steel  
Joint Industrial Advisor  
Ministry of Steel  
Room No. 190-A,  
Udyog Bhavan, New Delhi

**Representative of Ministry of Labour & Employment**

Shri B P Ahuja  
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. P Sen  
Head Department of Mining Engineering  
ISM, Dhanbad

Prof. A K Varma  
Head, Department of Applied Geology  
ISM, Dhanbad

Prof. Shalivahan  
Head, Department of Applied Geophysics  
ISM, Dhanbad

Prof. V P Sharma  
Head, Department of Petroleum Engineering  
ISM, Dhanbad

Prof. N R Mandre  
Head, Department of Fuel & Mineral Engineering  
ISM, Dhanbad

Prof. K Dasgupta [upto 24.07.2014]  
Head, Department of Mining Machinery Engineering  
ISM, Dhanbad

Prof. A K Mukhopadhyay [from 25.07.2015]  
Head, Department of Mining Machinery Engineering  
ISM, Dhanbad

Prof. P K Sadhu  
Head, Department of Electrical Engineering  
ISM, Dhanbad

Dr. Chiranjeev Kumar  
Head, Department of Computer Science & Engineering  
ISM, Dhanbad

Prof. Vishnu Priye [upto 09.01.2015]  
Head, Department of Electronics Engineering  
ISM, Dhanbad

Prof. Subrata Bhattacharya [from 10.01.2015]  
Head, Department of Electronics Engineering  
ISM, Dhanbad

Prof. J K Pattanayak [upto 09.01.2015 ]  
Head, Department of Management Studies  
ISM, Dhanbad

Prof. P Pathak [from 10.01.2015]  
Head, Department of Management Studies  
ISM, Dhanbad

Prof. G S Seth [upto 09.01.2015]  
Head, Department of Applied Mathematics  
ISM, Dhanbad

Prof. P C Pal [from 10.01.2015]  
Head, Department of Applied Mathematics  
ISM, Dhanbad

Prof. A K Nirala  
Head, Department of Applied Physics  
ISM, Dhanbad

Prof. A K Pal [up to 24.07.2014 ]  
Head, Department of Environmental Sc. & Engineering  
ISM, Dhanbad

Prof. S K Maiti [from 25.07.2014 ]  
Head, Department of Environmental Sc. & Engineering  
ISM, Dhanbad

Dr A K Behura  
Head, Department of Humanities & Social Sciences  
ISM, Dhanbad

Prof V K Saxena  
Head, Deptt of Chemical Engineering  
ISM, Dhanbad

Prof B C Sakar [up to 12.06.2014 ]  
Head, Department of Civil Engineering  
ISM, Dhanbad

Prof S K Gupta [from 13.06.2014 to 10.02.2015 ]  
Head, Department of Civil Engineering  
ISM, Dhanbad

Prof S C Dutta [from 11.02.2015 ]  
Head, Department of Civil Engineering  
ISM, Dhanbad

Prof R K Das  
Department of Mechanical Engineering  
ISM, Dhanbad

**Nominee from Associate Professors'**

Dr Rima Chatterjee [upto 24.02.2015]  
Associate Professor  
Department of Applied Geophysics  
ISM, Dhanbad

Dr Biswajit Paul [from 18.03.2015]  
Associate Professor  
Department of Environmental Science & Engg  
ISM, Dhanbad

**Nominee from Assistant Professors'**

Dr Subindu Kumar [upto 08.09.2014]  
Assistant Professor  
Department of Electronics Engineering  
ISM, Dhanbad

Dr Anshumali [from 10.12.2014 ]  
Assistant Professor  
Department of Environmental Science & Engg  
ISM, Dhanbad

**Registrar & Secretary**

Col (Retd) M K Singh  
Registrar  
ISM, Dhanbad

**Members of Executive Board**

Shri P K Lahiri, IAS (Retd) [up to 03.02.2015]  
Chairman, ISM GC & EB  
8/2, Sarv Priya Vihar  
New Delhi – 110016

Prof D D Misra [from 05.03.2015]  
Chairman, ISM GC & EB  
4, Arya Bhumi, Post- Patia  
Bhubaneswar – 751 024

**Representative of MHRD, GOI  
(Department of Higher Education)**

Ms Amita Shama / Shri Amarjeet Sinha  
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 AICTE**

Prof Souvik Bhattacharyaya  
Deptt of Mechanical Engineering  
Deputy Director  
Indian Institute of Technology  
Kharagpur – 721 302

**Nominee of General Council**

Prof Hamid Ali  
Dean, Faculty of Engineering & Technology  
Chairman, Department of Petroleum Studies  
& Principal, ZH College of Engineering & Technology  
Aligarh Muslim University  
Aligarh – 202002

**Representative of Ministry of Finance, GOI  
(Integrated Finance Division)**

Shri Yogendra Tripathi  
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 Rahul Guha  
Director General of Mines Safety  
DGMS  
Dhanbad – 826 001

**Nominee of Ministry of Coal, GOI**

Vacant

**Nominee of Ministry of Mines, GOI**

Mr. Naresh Kumar  
Joint Secretary  
Ministry of Mines, Govt. of India  
New Delhi

**Chairman-cum-Managing Director, CMPDI (Ranchi)**

Shri A K Debnath  
Chairman-cum Managing Director  
Central Mine Planning & Design Institute Ltd  
Gondwana Place, Ranchi – 834 008

**Professor's Representative**

Prof S Laik  
Department of Petroleum Engineering  
ISM, Dhanbad



**Nominee from Associate Professors**

Dr Rima Chatterjee [upto 24.02.15)  
Associate Professor  
Department of Applied Geophysics  
ISM, Dhanbad

Dr Biswajit Paul [from 25.02.15]  
Associate Professor  
Department of Environmental Science & Engg  
ISM, Dhanbad

**Nominee from Assistant Professors'**

Dr Subindu Kumar [upto 08.09.2014]  
Assistant Professor  
Department of Electronics Engineering  
ISM, Dhanbad

Dr Anshumali [ from 10.12.2014 ]  
Assistant Professor  
Department of Environmental Science & Engg  
ISM, Dhanbad

**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 – 12 J, Tower-4, South City  
375 Prince Anwar Shah Road  
Kolkata – 700 068

Chairman  
Coal India Limited  
10 Netaji Subhas Road  
Kolkata – 700 001

Chairman & Managing Director  
Oil & Natural Gas Corporation Ltd (ONGC)  
Jeevan Bharti, Tower-II  
124 – Indira Chowk, New Delhi- 110 001

Chief Secretary  
Government of Jharkhand  
1<sup>st</sup> Floor, Project Building  
Dhurwa, Ranchi – 834 004

**Registrar & Secretary**

Col (Retd) M K Singh  
Registrar  
ISM, Dhanbad

**Members of the Finance Committee**

Shri P K Lahiri, IAS (Retd) [upto 03.02.2015]  
Chairman, ISM GC & EB  
8/2, Sarv Priya Vihar  
New Delhi – 110016

Prof D D Misra [ from 05.03.2015]  
Chairman, ISM GC & EB  
4, Arya Bhumi, Post- Patia  
Bhubaneswar – 751 024

**Representative of MHRD, GOI  
(Department of Higher Education)**

Ms Amita Shama / Shri Amarjeet Sinha  
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)**

Shri Yogendra Tripathi  
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 Rahul Guha  
Director General of Mines Safety  
DGMS  
Dhanbad – 826 001

**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

**INDIAN SCHOOL OF MINES**  
**DHANBAD**



**ANNUAL ACCOUNTS FOR THE**  
**FINANCIAL YEAR 2014-15**



# INDIAN SCHOOL OF MINES

## DHANBAD

### ANNUAL ACCOUNTS 2014-15

#### INDEX

Sl No	Contents	Schedule	Page No
1	Balance Sheet		344
2	Income & Expenditure Account		345
3	Receipt & Payment Account		346
4	Capital Fund	I	349
5	Reserve & Surplus	II	350
6	Earmarked/ Endowment Fund	III	353
7	Current Liabilities & Provisions	IV	354
8	Fixed Assets	V	364
9	Investments	VI	367
10	Current Assets, Loans & Advances	VII	367
11	Grants-in-Aid	VIII	369
12	Fees from Students	IX	369
13	Interest Income	X	369
14	Other Income	XI	370
15	Establishment Expenses	XII	371
16	Other Administrative Expenses	XIII	371
17	Schedules of Receipt & Payment Account		375
18	GPF, CPF & DCPS Balance Sheet		385
19	GPF, CPF & DCPS Income & Exp A/c		386
20	GPF, CPF & DCPS Receipt & Payment A/c		387
21	Significant Accounting Policies	XIV	388
22	Notes on Accounts	XV	389

**BALANCE SHEET AS ON 31ST MARCH, 2015**

(Amount in Rs)						
<b>CORPUS/ CAPITAL FUND AND LIABILITIES</b>	<b>Sch No</b>	<b>Non Plan 2014-15</b>	<b>Plan 2014-15</b>	<b>Project 2014-15</b>	<b>Total Current year 2014-15</b>	<b>Total Previous Year 2013-14</b>
CAPITAL FUND	<b>I</b>	851,82,365.43	59429,37,890.83	2670,10,019.70	62951,30,275.96	56602,48,884.65
RESERVE AND SURPLUS	<b>II</b>	638,26,964.50	0.00	533,97,597.31	1172,24,561.81	750,63,105.81
EARMARKED/ ENDOWMENT FUND	<b>III</b>	6602,53,226.10	0.00	1662,33,084.77	8264,86,310.87	7213,17,557.20
CURRENT LIABILITIES AND PROVISIONS	<b>IV</b>	1320,78,190.00	837,83,060.55	4910,50,420.46	7069,11,671.01	5781,65,098.79
<b>TOTAL</b>		<b>9413,40,746.03</b>	<b>60267,20,951.38</b>	<b>9776,91,122.24</b>	<b>79457,52,819.65</b>	<b>70347,94,646.45</b>
<b>ASSETS</b>						
FIXED ASSETS	<b>V</b>	2020,35,556.00	28939,19,989.19	3687,88,368.73	34647,43,913.92	25273,69,280.73
LESS: PROVISION FOR DEPRECIATION		857,54,706.22	12363,09,148.22	2107,36,579.80	15328,00,434.24	11953,11,975.46
NET BLOCK (FIXED ASSETS)		<b>1162,80,849.78</b>	<b>16576,10,840.97</b>	<b>1580,51,788.93</b>	<b>19319,43,479.68</b>	<b>13320,57,305.26</b>
INVESTMENTS	<b>VI</b>	4858,51,900.00	0.00	7281,07,454.78	12139,59,354.78	9246,79,089.00
CURRENT ASSETS, LOANS, ADVANCES	<b>VII</b>	3392,07,996.25	43691,10,110.41	915,31,878.53	47998,49,985.19	47780,58,252.18
<b>TOTAL</b>		<b>9413,40,746.03</b>	<b>60267,20,951.38</b>	<b>9776,91,122.24</b>	<b>79457,52,819.66</b>	<b>70347,94,646.45</b>
SIGNIFICANT ACCOUNTING POLICIES	<b>XIV</b>					
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS	<b>XV</b>	(0.00)	0.00	(0.00)		

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIK)  
DIRECTOR

## INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD 1.4.2014 TO 31.3.2015

(Amount in Rs)

INCOME	Sch No	Non Plan 2014-15	Plan 2014-15	Project 2014-15	Total Current year 2014-15	Total Previous Year 2013-14
Grants-in-aid from MHRD, GOI	VIII	6249,40,000.00	11000,00,000.00	0.00	17249,40,000.00	16227,35,000.00
Less: Transferred to Capital Fund towards non-recurring expenses		16,59,851.00	9051,42,834.50	0.00	9068,02,685.50	7297,38,890.23
<b>Net Grants in Aid</b>		<b>6232,80,149.00</b>	<b>1948,57,165.50</b>	<b>0.00</b>	<b>8181,37,314.50</b>	<b>8929,96,109.77</b>
Fees from Students	IX	2959,60,100.00	0.00	0.00	2959,60,100.00	1862,49,341.00
Interest Income	X	50,67,550.00	73,06,852.50	333,29,746.45	457,04,148.95	697,95,864.72
Other Income	XI	586,85,309.50	0.00	0.00	586,85,309.50	408,44,831.00
<b>TOTAL (A)</b>		<b>9829,93,108.50</b>	<b>2021,64,018.00</b>	<b>333,29,746.45</b>	<b>12184,86,872.95</b>	<b>11898,86,146.49</b>
<b>EXPENDITURE</b>						
Establishment Expenses	XII	6679,79,033.00	0.00	0.00	6679,79,033.00	5695,68,092.00
Educational Expenses	XIII	1425,54,413.00	1310,28,670.00	0.00	2735,83,083.00	1754,01,714.00
General Expenses	XIII	1083,86,383.00	503,49,547.00	0.00	1587,35,930.00	1303,71,509.00
Departmental Expenses	XIII	201,19,399.00	62,084.00	0.00	201,81,483.00	192,35,544.00
Miscellaneous/ other Expenses	XIII	355,05,637.00	207,23,717.00	26,820.60	562,56,174.60	410,95,157.50
Travelling Expenses	XIII	69,05,257.00	0.00	0.00	69,05,257.00	52,99,151.00
Depreciation	V	45,57,506.86	0.00	0.00	45,57,506.86	2154,88,123.57
<b>TOTAL (B)</b>		<b>9860,07,628.86</b>	<b>2021,64,018.00</b>	<b>26,820.60</b>	<b>11881,98,467.46</b>	<b>11564,59,291.07</b>
<b>Excess of Income over Expenditure (A-B)</b>		<b>-30,14,520.36</b>	<b>0.00</b>	<b>333,02,925.85</b>		
<b>Balance being surplus/(Deficit) subject to Capital Fund 2014-15 (N.Plan). Project surplus transferred to Non Plan Endowment Fund.</b>		<b>-30,14,520.36</b>	<b>0.00</b>	<b>333,02,925.85</b>		
Significant Accounting Policies	XIV					
Contingent Liabilities and Notes on Accounts	XV					

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIGRAHI)  
DIRECTOR

**RECEIPT AND PAYMENT ACCOUNT FOR THE YEAR ENDING 31ST MARCH, 2015**

<b>RECEIPTS</b>	<b>Sch No</b>	<b>Non Plan 2014-15</b>	<b>Plan 2014-15</b>	<b>Project 2014-15</b>	<b>Total Current Year 2014-15</b>	<b>Total Previous Year 2013-14</b>
<b>Opening Balances:</b>						
(a) Cash in Hand	<b>R.1</b>	87,986.70	0.00	28,143.00	1,16,129.70	95,471.70
(b) Cash at Bank	<b>R.2</b>	2180,66,665.61	456,50,559.91	1027,70,510.18	3664,87,735.70	2889,86,829.87
Grants-in-aid from MHRD	<b>R.3</b>	7120,75,000.00	12000,00,000.00	0.00	19120,75,000.00	14544,00,000.00
Investment Encashed	<b>R.4</b>	8348,12,777.00	8975,53,425.00	2532,91,032.00	19856,57,234.00	21850,50,266.00
Fees from Students	<b>R.5</b>	2864,08,962.00	0.00	0.00	2864,08,962.00	2025,24,145.00
Interest from Investments/ Advances	<b>R.6</b>	155,47,686.36	91,24,687.00	91,04,488.77	337,76,862.13	376,18,224.72
Other Income	<b>R.7</b>	276,16,591.50	1,48,434.50	4,085.00	277,69,111.00	530,77,141.00
Statutory & other Receipts/ Recoveries	<b>R.8</b>	898,59,950.00	48,56,103.00	2319,71,817.12	3266,87,870.12	618,87,104.00
Recovery of Advances from Staff/ Suppliers/ Deposits/ EMD/ SD	<b>R.9</b>	2232,64,570.00	5458,62,139.00	0.00	7691,26,709.00	5408,91,480.00
Deductions in the Fixed Assets	<b>R.10</b>	0.00	4,16,970.00	0.00	4,16,970.00	42,25,818.00
Additions to Earmarked Funds	<b>R.11</b>	222,04,958.00	0.00	289,51,666.69	511,56,624.69	1080,12,413.69
Research and Development Projects	<b>R.12</b>	0.00	0.00	1329,84,357.00	1329,84,357.00	2719,74,942.74
Consultancy and Testing	<b>R.13</b>	0.00	0.00	1011,68,011.48	1011,68,011.48	1324,70,885.22
Departmental Development Fund	<b>R.14</b>	0.00	0.00	99,07,482.00	99,07,482.00	0.00
Fellowship and Assistantship	<b>R.15</b>				0.00	0.00
Professional Development Fund	<b>R.16</b>	0.00	0.00	42,74,825.00	42,74,825.00	0.00
Additions to Capital/ Other Reserve Funds	<b>R.17</b>				0.00	93,17,080.00
<b>TOTAL RECEIPTS (Rs.)</b>		<b>24299,45,147.17</b>	<b>27036,12,318.41</b>	<b>8744,56,418.24</b>	<b>60080,13,883.82</b>	<b>53505,31,801.94</b>



PAYMENTS	Sch No	Non Plan 2014-15	Plan 2014-15	Project 2014-15	Total Current Year 2014-15	Total Previous Year 2013-14
Departmental Expenses	P.1	194,72,048.00	24,300.00	0.00	194,96,348.00	182,76,016.00
Educational Expenses	P.2	1940,40,889.00	629,68,809.00	0.00	2570,09,698.00	1753,27,756.00
Establishment Expenses	P.3	6268,88,093.00	0.00	0.00	6268,88,093.00	5323,00,368.00
General Expenses	P.4	1094,58,551.00	498,52,635.00	0.00	1593,11,186.00	1362,69,365.00
Miscellaneous/ other Expenses	P.5	354,70,327.00	207,23,717.00	0.00	561,94,044.00	857,98,695.50
Travelling Expenses	P.6	68,03,828.00	0.00	0.00	68,03,828.00	48,07,396.00
Investment of Funds	P.7	7900,64,195.00	8800,00,000.00	3556,86,671.00	20257,50,866.00	23853,65,480.00
Advances to Staff/ Suppliers/ Contractors/ Deposits/ EMD/ SD	P.8	2105,73,464.00	7664,13,947.00	1029,71,937.19	10799,59,348.19	11172,21,634.00
Additions to Fixed Assets	P.9	100,49,790.00	7688,12,479.00	0.00	7788,62,269.00	2440,95,674.00
Transfer/ payment from Earmarked Funds	P.10	6,68,887.00	0.00	97,84,256.33	104,53,143.33	120,76,350.00
Statutory & other payments	P.11	2768,53,484.00	68,75,797.00	1315,29,731.60	4152,59,012.60	931,44,889.00
Transfers to Capital Fund/ Reserves	P.12	0.00	0.00	0.00	0.00	53,81,085.30
Research and Development Projects	P.13	0.00	0.00	1078,35,958.30	1078,35,958.30	813,60,458.00
Consultancy and Testing	P.14	0.00	0.00	1123,77,804.12	1123,77,804.12	925,01,823.74
Departmental Development Fund	P.15	0.00	0.00	25,12,922.00	25,12,922.00	0.00
Fellowship and Associate ship	P.16	0.00	0.00	0.00	0.00	0.00
Professional Development Fund	P.17	0.00	0.00	6,22,238.00	6,22,238.00	0.00
<b>TOTAL PAYMENTS (Rs.)</b>		<b>22803,43,556.00</b>	<b>25556,71,684.00</b>	<b>8233,21,518.54</b>	<b>56593,36,758.54</b>	<b>49839,26,990.54</b>
<b>Closing Balances:</b>					-	0.00
(a) Cash in Hand	P.18	1,40,634.70		27,686.00	1,68,320.70	1,16,129.70
(b) Cash at Bank/ Post Office	P.19	1494,60,956.47	1479,40,634.41	511,07,213.70	3485,08,804.58	3664,88,681.70
<b>TOTAL (Rs.)</b>		<b>24299,45,147.17</b>	<b>27036,12,318.41</b>	<b>8744,56,418.24</b>	<b>60080,13,883.82</b>	<b>53505,31,801.94</b>

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIGRAHI)  
DIRECTOR

# INDIAN SCHOOL OF MINES DHANBAD



***SCHEDULES FORMING PART OF BALANCE SHEET,  
INCOME & EXPENDITURE ACCOUNT AND  
RECEIPT & PAYMENT FOR THE  
YEAR ENDING 31<sup>st</sup> MARCH 2014-15***

**SCHEDULES FORMING PART OF BALANCE SHEET, INCOME & EXPENDITURE A/C AND RECEIPTS & PAYMENTS A/C FOR THE YEAR ENDING 31st MARCH 2015**

SCHEDULE - I: CAPITAL FUND		(Amount in Rs)			
Sl.No.	PARTICULARS	Current Year : 2014-15		Previous Year : 2013-14	
<b>1 (A) Plan:</b>					
1.1.1	Opening Balance	53361,96,290.33		46077,19,891.10	
1.1.2	Add : Previous Year Adjustment	0.00		0.00	
1.1.3	Add : Non-recurring grants-in-aid received during the year	9051,42,834.50		7284,76,399.23	
	Less : Depreciation	2984,01,234.00		0.00	
<b>1.1.4</b>	<b>Sub-total</b>		<b>59429,37,890.83</b>		<b>53361,96,290.33</b>
<b>1 (B) Non Plan:</b>					
1.2.1	Opening Balance	<b>875,07,620.70</b>		<b>858,02,144.70</b>	
1.2.2	Add: Non-recurring grants-in-aid received during the year	16,59,851.00		12,62,491.00	
1.2.3	Less: Rectification of error of previous period	0.00		0.00	
1.2.4	Add: Rectification for previous year			4,42,985.00	
1.2.5	Less: Deficit	129,61,995.27	762,05,476.43	0.00	875,07,620.70
1.2.6	Capitalised fund for Assets (Opening Bal)	61,19,888.00		29,73,639.00	
1.2.7	Add : Capitalised fund for Assets (During the Yr)	28,57,001.00	89,76,889.00	31,46,249.00	61,19,888.00
<b>1.2.8</b>	<b>Sub-total</b>		<b>851,82,365.43</b>		<b>936,27,508.70</b>
<b>1 (C) Project:</b>					
1.3.1	(a) Capital Fund (Opening Balance)	1211,73,812.44		1211,73,812.44	
1.3.2	Less : Payments from Old Consultancy Projects (See Notes on Accounts)			0.00	
1.3.3	Less : Transfer for creation of opening balance towards undisbursed consultancy projects (See Notes of Accounts)		1211,73,812.44	0.00	1211,73,812.44
1.3.4	(b) Project Endowment Fund	2,49,515.69		2,49,515.69	2,49,515.69
1.3.5	(c) Reserve fund	68,30,829.87		68,30,829.87	68,30,829.87
1.3.6	(d) Corpus Fund	44,10,060.50		44,10,060.50	44,10,060.50
1.3.7	(e) Capitalised fund for Assets (Opening Balance)	977,60,867.12		604,44,580.39	
1.3.8	Add: Additions during the year	711,14,652.00		629,36,028.00	
1.3.9	Less: Depreciation on Assets including adjustment for previous years	345,29,717.92	1458,36,207.26	256,19,741.27	977,60,867.12
<b>1.3.10</b>	<b>Sub-total</b>		<b>2670,10,019.70</b>		<b>2304,25,085.62</b>
<b>1.A</b>	<b>CAPITAL FUND - PLAN</b>		<b>59429,37,890.83</b>		<b>53361,96,290.33</b>
<b>1.B</b>	<b>CAPITAL FUND - NON PLAN</b>		<b>851,82,365.43</b>		<b>875,07,620.70</b>
<b>1.C</b>	<b>CAPITAL FUND - PROJECT</b>		<b>2670,10,019.70</b>		<b>2304,25,085.62</b>
<b>1.00</b>	<b>TOTAL (CAPITAL FUND)</b>		<b>62951,30,275.96</b>		<b>56541,28,996.65</b>

<b>SCHEDULE - II: RESERVES AND SURPLUS</b>					
<b>2 (A) Capital Reserve (Non Plan):</b>					
<b>Sl.No.</b>	<b>PARTICULARS</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
<b>Non-Plan:</b>					
2.2.1	Building Fund*	42,50,000.00	0.00	0.00	42,50,000.00
2.2.2	Computer Development Fund	0.00	0.00	0.00	0.00
2.2.3	Departmental Development Fund	1,33,045.00	0.00	0.00	1,33,045.00
2.2.4	Donation Fund	20,57,500.00	0.00	0.00	20,57,500.00
2.2.5	Laboratory Development Fund	0.00	0.00	0.00	0.00
2.2.6	Library Development Fund	35,016.00	2,75,520.00	0.00	3,10,536.00
2.2.7	School Development Fund*	174,92,261.50	67,46,895.00	4,000.00	242,35,156.50
2.2.8	Student Innovative Project Fund	163,82,518.00	165,65,509.00	1,07,300.00	328,40,727.00
<b>2.2.9</b>	<b>Total Reserves (Non Plan)</b>	<b>403,50,340.50</b>	<b>235,87,924.00</b>	<b>1,11,300.00</b>	<b>638,26,964.50</b>
<b>2 (B) Department Development Funds(Project):</b>					
		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
2.3.1	AGL Department DDF	10,34,764.00	4,22,439.00	78,600.00	13,78,603.00
2.3.2	AGL XRF Maintenance Fund	84,270.00			84,270.00
2.3.3	AGP Department DDF	1,16,251.00	1,68,392.00		2,84,643.00
2.3.4	APPLIED MATHEMATICS		47,400.00	9,970.00	37,430.00
2.3.5	Applied Physics	78,715.00	3,11,877.00		3,90,592.00
2.3.6	C.L.M.M Department	61,476.00			61,476.00
2.3.7	C.S.E Department	1,47,732.00	9,238.00		1,56,970.00
2.3.8	Central Administrative Charges	8,01,760.00	21,40,483.00	16,77,366.00	12,64,877.00
2.3.9	Chemical Engineering Dept.	4,648.00			4,648.00
2.3.10	Chemistry Department	40,966.30	2,42,742.00	56,317.00	2,27,391.30
2.3.11	CME Department	38,36,371.92	14,00,267.00	2,09,794.00	50,26,844.92
2.3.12	Computer Centre		1,244.00		1,244.00
2.3.13	Director Discretionary Fund	4,16,837.00			4,16,837.00
2.3.14	E & I DEPARTMENT	11,992.00	38,288.00		50,280.00
2.3.15	EDC Development Fund	19,18,174.77	27,25,382.00	12,911.00	46,30,645.77
2.3.16	EDC Support Services	33,36,222.00	67,59,995.00	18,72,543.00	82,23,674.00
2.3.17	EDC Xeroxing (4000) Fund	2,89,295.42	49,883.00	11,970.00	3,27,208.42
2.3.18	ELECTRICAL ENGINEERING(DEPT.)	2,09,788.00	46,758.00		2,56,546.00
2.3.19	FME Department	12,40,383.25	3,06,791.00	59,280.00	14,87,894.25
2.3.20	Gas Chromatography Maint. Fund of ME	2,440.00			2,440.00
2.3.21	Geology Xeroxing (6000) Fund	41,454.00			41,454.00
2.3.22	Lab. Development Fund	4,48,393.52			4,48,393.52
2.3.23	Library Card	23,057.00	24,000.00	200.00	46,857.00
2.3.24	Library Development Fund	7,72,204.85	19,602.00	76,865.00	7,14,941.85
2.3.25	Library Fine	15,437.00	93.00		15,530.00
2.3.26	M S DEPARTMENT	7,71,920.50	86,466.00	51,465.00	8,06,921.50
2.3.27	ME&MME Department	6,76,195.40			6,76,195.40
2.3.28	MECHANICAL ENGINEERING DEPT.		47,076.00		47,076.00
2.3.29	Mining Engineering Department	81,16,934.21	20,86,630.00	48,975.00	101,54,589.21
2.3.30	Mining Machinery Engineering Dept.	4,14,045.00	7,95,153.00	27,906.00	11,81,292.00
2.3.31	MINING MACHINERY ENGINEERING DEPARTMENT			500.00	-500.00
2.3.32	P.E. Department	15,30,815.50	3,18,303.00		18,49,118.50
2.3.33	Reprographic Unit	31,553.00			31,553.00
<b>2.3.34</b>	<b>Sub-total (DDF)</b>	<b>264,74,096.64</b>	<b>180,48,502.00</b>	<b>41,94,662.00</b>	<b>403,27,936.64</b>
<b>2 (C) Professional Dev. Funds (Project):</b>					
		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
2.3.35	Achamma Bobby, PDF		16,600.00		16,600.00
2.3.36	A. CHATTOPADHYAY,(MATHS) PDF	10,285.00			10,285.00

2.3.37	A CHATTOPADHYAY PDF	32,390.00			32,390.00
2.3.38	AJAY MANDAL, PDF	19,344.00			19,344.00
2.3.39	AJOY KUMAR BHAUMIK, PDF		36,000.00		36,000.00
2.3.40	A. K. BASU, PDF(ME&MME)	5,276.00			5,276.00
2.3.41	AKHILESH PRASAD, PDF		3,900.00		3,900.00
2.3.42	A K MISHRA, PDF	43,850.00	53,308.00		97,158.00
2.3.43	A K MUKHOPADHYAY, ME & MME PDF	6,21,061.00	2,75,386.00		8,96,447.00
2.3.44	A. K. PAL,PDF	95,520.00		3,800.00	91,720.00
2.3.45	A K Pathak PDF	36,284.00	59,047.00		95,331.00
2.3.46	A K VARMA, PDF	875.00	24,500.00		25,375.00
2.3.47	A L AGGARWAL , PDF	58,203.00			58,203.00
2.3.48	ALOK SINHA, PDF	57,255.00	16,520.00	10,045.00	63,730.00
2.3.49	Amit Kr. Verma, PDF	7,000.00	2,025.00		9,025.00
2.3.50	Anand Anupam, PDF	2,188.00	1,138.00		3,326.00
2.3.51	ANSHUMALI, PDF (ESE)		19,240.00		19,240.00
2.3.52	ANURAG JAYSWAL, PDF		12,800.00		12,800.00
2.3.53	A R DIXIT, PDF	10,000.00	93,473.00		1,03,473.00
2.3.54	A. SARKAR, PDF (CHEM)	31,264.67			31,264.67
2.3.55	ASHISH MALLICK, PDF (MECH.)		20,000.00		20,000.00
2.3.56	A. S. Venkatesh PDF	15,823.00	3,570.00		19,393.00
2.3.57	BADAM SINGH KUSHVAH, PDF		29,800.00		29,800.00
2.3.58	B. C. SARKAR, PDF	1,27,311.00	1,65,611.00	4,950.00	2,87,972.00
2.3.59	BISWAJIT CHOWDHURY, PDF		30,414.00	4,207.00	26,207.00
2.3.60	Biswajit Paul, PDF		1,18,690.00		1,18,690.00
2.3.61	B K Mishra, PDF	5,461.00	47,945.00	36,290.00	17,116.00
2.3.62	B K NANDI, PDF		1,050.00		1,050.00
2.3.63	B. M. KUMAR, PDF	665.00			665.00
2.3.64	Bobby K Antony, PDF (PHYSICS)		12,640.00		12,640.00
2.3.65	B S CHOUDHARY, PDF	10,670.00	10,557.00		21,227.00
2.3.66	CHANCHAL HALDER, PDF (CHEMISTRY)		20,000.00		20,000.00
2.3.67	CHANDAN BHAR, DR PDF	1,32,059.00	8,720.00		1,40,779.00
2.3.68	Chandan Guria, PDF		78,999.00		78,999.00
2.3.69	D C Panigrahi, PDF	19,86,201.00	8,59,735.00	105.00	28,45,831.00
2.3.70	DEBJANI MITRA, PDF		15,428.00		15,428.00
2.3.71	DHEERAJ KUMAR PDF	3,48,509.00	3,24,954.00	1,20,238.00	5,53,225.00
2.3.72	Dipankar Roy, PDF	3,272.00	1,244.00		4,516.00
2.3.73	G C NAYAK, PDF		20,000.00		20,000.00
2.3.74	G. P. KARMAKAR, PDF	840.00			840.00
2.3.75	G S PATHAK, PDF		8,120.00		8,120.00
2.3.76	Gurdeep Singh, PDF	8,95,420.00	3,51,760.00		12,47,180.00
2.3.77	H P NAYAK, PDF		60,000.00	9,000.00	51,000.00
2.3.78	JIARAM MANAM, PDF (PHYSICS)		60,000.00		60,000.00
2.3.79	J K PATTANAYAK, PDF	74,410.00	8,520.00		82,930.00
2.3.80	Kalyan Chatterjee, PDF	6,862.00	4,034.00		10,896.00
2.3.81	KAMPAN MUKHERJEE PDF	36,404.00			36,404.00
2.3.82	Kaushal Kumar, PDF (Appl. Physics)		4,000.00		4,000.00
2.3.83	K.DASGUPTA, PDF	3,40,086.00	2,32,050.00		5,72,136.00
2.3.84	KEKA OJHA, PDF	628.00	33,160.00		33,788.00
2.3.85	K K SINGH, PDF		3,000.00		3,000.00
2.3.86	K S THYAGARAJ, PDF		11,560.00		11,560.00
2.3.87	L. N. JHA, PDF	1,576.00			1,576.00
2.3.88	MANISH KR. JAIN, PDF	6,147.00			6,147.00
2.3.89	M Jawed, PDF	97,311.00	87,662.00	49,698.00	1,35,275.00
2.3.90	M K MUKHERJEE,PDF	83,278.00			83,278.00
2.3.91	M L Chandravanshi, PDF		11,000.00		11,000.00
2.3.92	NILADRI DAS, PDF	24,500.00	28,520.00		53,020.00
2.3.93	NITAI PAL, PDF		7,967.00		7,967.00
2.3.94	N R Mandre, PDF	61,949.00	4,739.00		66,688.00
2.3.95	N Suresh, Assoc. PDF	3,22,231.00	94,033.00	1,908.00	4,14,356.00
2.3.96	Pankaj Kr. Jain, PDF	700.00			700.00
2.3.97	Pankaj Mishra,PDF		20,175.00		20,175.00

2.3.98	PHALGUNI SEN, PDF		83,351.00		83,351.00
2.3.99	P K Behra, PDF	63,952.00	91,175.00		1,55,127.00
2.3.100	P K JANA, PDF	1,890.00	3,079.00		4,969.00
2.3.101	P K KHAN, PDF		26,000.00	13,999.00	12,001.00
2.3.102	P K SADHU, PDF		12,344.00		12,344.00
2.3.103	P K SINGH, PDF (ESE)	3,500.00	39,448.00	2,460.00	40,488.00
2.3.104	P N S SINGHA ROY, PDF	20,000.00		4,115.00	15,885.00
2.3.105	P Bahuguna, PDF	1,41,262.00			1,41,262.00
2.3.106	P. P. CHAKRABORTY, PDF	800.00			800.00
2.3.107	Pramod Pathak PDF	91,060.00			91,060.00
2.3.108	Prasant Kr. Sharma, PDF		31,255.00		31,255.00
2.3.109	P. R. MOHANTY, PDF	10,834.00	40,000.00		50,834.00
2.3.110	P. SEN, PDF	1,79,488.00	57,120.00	69,400.00	1,67,208.00
2.3.111	P S GUPTA, PDF	78,425.00	1,15,087.00		1,93,512.00
2.3.112	P S MUKHERJEE, PDF	2,02,991.00	63,462.00		2,66,453.00
2.3.113	P S PAUL, PDF	11,448.00	12,737.00		24,185.00
2.3.114	RIMA CHATTERJEE, PDF		10,000.00		10,000.00
2.3.115	R. K. DUBEY, PDF	175.00	900.00		1,075.00
2.3.116	R. L. MALHOTRA, PDF	83,456.00			83,456.00
2.3.117	Rohit P John, PDF		23,000.00		23,000.00
2.3.118	R. Venugopal, PDF	48,757.00	4,900.00		53,657.00
2.3.119	SAGAR PAL, PDF		61,320.00	45,311.00	16,009.00
2.3.120	SANJAY MANDAL, PDF		4,112.00		4,112.00
2.3.121	Sanjeev Kr. Paul, PDF (AGP)		12,000.00		12,000.00
2.3.122	SANTANU DWARI, PDF		18,015.00		18,015.00
2.3.123	SARUN PM, PDF (PHYSICS)		2,000.00		2,000.00
2.3.124	Sauma Singh, PDF	5,683.00	21,026.00		26,709.00
2.3.125	S. BHATTACHARYA, PDF	22,718.00	1,10,680.00	34,670.00	98,728.00
2.3.126	S. Bhattacharya, PDF (E & I)		11,160.00		11,160.00
2.3.127	S B SRIVASTAVA, PDF	36,171.00			36,171.00
2.3.128	S. CHATTOPADHYA, PDF		42,034.00		42,034.00
2.3.129	S. CHOUDHARI, PDF (CIL CHAIR)	1,16,682.00	30,235.00	5,563.00	1,41,354.00
2.3.130	SHALINI GOUTAM , PDF	2,260.00			2,260.00
2.3.131	SHALIVAHAN, PDF	48,197.00	60,000.00		1,08,197.00
2.3.132	Shatrughan Soren, PDF		2,828.00		2,828.00
2.3.133	SHRAVAN KUMAR, PDF	1,225.00	5,654.00		6,879.00
2.3.134	S K GHOSHAL, PDF	327.00			327.00
2.3.135	S. K. GUPTA, PDF	56,448.00	1,750.00		58,198.00
2.3.136	S.K. MAITI, PDF	10.00	46,056.00		46,066.00
2.3.137	S K PAL, (AGP), PDF		19,624.00		19,624.00
2.3.138	S K PAUL, (ECE), PDF	2,181.00			2,181.00
2.3.139	S K SAHU, PFD (CHEMISTRY)		5,000.00		5,000.00
2.3.140	S K SHARMA, (PHY), PDF		23,920.00		23,920.00
2.3.141	S LAIK PDF	27,853.00	28,875.00		56,728.00
2.3.142	S MOHANTY,PDF	39,751.00	83,558.00		1,23,309.00
2.3.143	S N Mukherjee, PDF	86,353.00			86,353.00
2.3.144	SOMNATH YADAV, PDF		26,600.00	22,118.00	4,482.00
2.3.145	S SARANGI, PDF		20,000.00		20,000.00
2.3.146	SUBINDU KUMAR, PDF		9,600.00		9,600.00
2.3.147	Subrato Kr. Ghosh, PDF		3,987.00		3,987.00
2.3.148	SWAPAN DEY, PDF		27,721.00		27,721.00
2.3.149	Tanmoy Maiti, PDF	8,286.00	11,370.00		19,656.00
2.3.150	Thangavel, PDF		4,000.00		4,000.00
2.3.151	T H Syed, PDF		37,200.00	7,682.00	29,518.00
2.3.152	T.K. CHATTERJEE, PDF	84,318.00	77,177.00		1,61,495.00
2.3.153	T K NAIYA, PDF		18,316.00		18,316.00
2.3.154	T KUMAR PDF	9,366.00			9,366.00
2.3.155	T Mazumdar, PDF	1,422.00			1,422.00
2.3.156	T Sharma, PDF	3,15,374.00			3,15,374.00
2.3.157	U K. Singh PDF	92,895.00	1,57,293.00	63,565.00	1,86,623.00
2.3.158	UPAMA DUTTA, PDF		8,000.00		8,000.00

2.3.159	UPENDRA KR. SINGH, PDF (AGP)	94,150.00	767.00		94,917.00
2.3.160	VIKASH MAHATO PDF	1,083.00			1,083.00
2.3.161	VINEET KR. RAI, PDF		22,200.00		22,200.00
2.3.162	VINOD P SINHA, PDF		28,000.00		28,000.00
2.3.163	VISHNU PRIYE	4,689.00			4,689.00
2.3.164	Vivekanand Mukherjee, PDF		1,000.00		1,000.00
2.3.165	V K GUPTA, PDF	27,773.00			27,773.00
2.3.166	V K Saxena, PDF	77,446.00	4,489.00		81,935.00
2.3.167	V K Srivastava, PDF	43,805.00		4,136.00	39,669.00
2.3.168	V KUMAR,PDF	2,444.00			2,444.00
2.3.169	V M S R Murthy, PDF	4,61,862.00	2,88,396.00	1,12,683.00	6,37,575.00
2.3.170	V.P. Sharma PDF	16,301.00	93,520.00		1,09,821.00
2.3.171	Y. R. DHAR PDF	449.00			449.00
<b>2.3.172</b>		<b>82,38,668.67</b>	<b>54,56,935.00</b>	<b>6,25,943.00</b>	<b>130,69,660.67</b>
<b>2.3.173</b>	<b>Sub-total Project (DDF+PDF)</b>	<b>347,12,765.31</b>	<b>235,05,437.00</b>	<b>48,20,605.00</b>	<b>533,97,597.31</b>
<b>2.A</b>	<b>RESERVE &amp; SURPLUS - PLAN</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>2.B</b>	<b>RESERVE &amp; SURPLUS - NON PLAN</b>	<b>403,50,340.50</b>	<b>235,87,924.00</b>	<b>1,11,300.00</b>	<b>638,26,964.50</b>
<b>2.C</b>	<b>RESERVE &amp; SURPLUS - PROJECT</b>	<b>347,12,765.31</b>	<b>235,05,437.00</b>	<b>48,20,605.00</b>	<b>533,97,597.31</b>
<b>2.00</b>	<b>TOTAL ( RESERVE &amp; SURPLUS)</b>	<b>750,63,105.81</b>	<b>470,93,361.00</b>	<b>49,31,905.00</b>	<b>1172,24,561.81</b>
<b>SCHEDULE - III: EARMARKED/ ENDOWMENT FUNDS:</b>					
<b>Non Plan:</b>					
<b>S No</b>	<b>Particulars</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
3.2.1	Basant Scholarship Fund	1,35,784.00	0.00		1,35,784.00
3.2.2	Benevolent Fund	57,16,188.00	25,23,016.00	2,98,400.00	79,40,804.00
3.2.3	Bihar Chief Minister Relief Fund	1,83,387.00	0.00	0.00	1,83,387.00
3.2.4	Budhwanti Mrig Memo. Sch.fund	62,81,893.00	0.00	32,000.00	62,49,893.00
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 B.G.Scheme)	5430,55,922.89	1119,14,718.21	382,42,677.00	6167,27,964.10
3.2.7	HOD Discretionary Fund	81,278.00	0.00	0.00	81,278.00
3.2.8	House Building Revolving Fund*	77,41,437.00	0.00	0.00	77,41,437.00
3.2.9	Ishan Rajbanshi Merit Scholarship	6,82,166.00	0.00	24,000.00	6,58,166.00
3.2.10	ISM Alumni Award Fund	20,00,000.00	0.00	1,05,500.00	18,94,500.00
3.2.11	ISS Scholarship Fund	1,53,194.00	0.00	6,000.00	1,47,194.00
3.2.12	Late J D M Dhawan M G Med End Fund	1,00,267.00	0.00	0.00	1,00,267.00
3.2.13	Matching grant for Deptt Societies	1,84,800.00			1,84,800.00
3.2.14	Mess Subsidy Fund	105,40,235.00	2,03,500.00	1,500.00	107,42,235.00
3.2.15	Platinum Jubilee Fund	2,500.00			2,500.00
3.2.16	Student Aid Fund	1,14,487.00			1,14,487.00
3.2.17	Student Medical Fund	45,10,025.00	27,11,335.00	90,187.00	71,31,173.00
3.2.18	Student Welfare Fund	2,06,590.00	6,500.00	0.00	2,13,090.00
<b>3.2.19</b>	<b>Sub-total Non Plan</b>	<b>5816,94,420.89</b>	<b>1173,59,069.21</b>	<b>388,00,264.00</b>	<b>6602,53,226.10</b>
<b>Project: Chair &amp; Scholarship Funds (Earmarked Funds)</b>					
<b>S No</b>	<b>Particulars</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
<b>Scholarship / Award Funds</b>					
3.3.1	ATLAS CAPCO SCH. FUND	5,23,254.00		12,000.00	5,11,254.00
3.3.2	Bhaskar Bhattacharya Memorial Fund	7,24,525.00	63,020.99	54,419.00	7,33,126.99
3.3.3	D N Prasad Memorial Fund	88,057.10	7,045.00		95,102.10
3.3.4	Inderjeet & Satyawat Bodhwar Scholarship	2,38,981.00	19,315.00	10,000.00	2,48,296.00
3.3.5	L J JHONSON AWARD	2,42,970.00		16,665.00	2,26,305.00
3.3.6	Mata Gurdev Kaur Memorial Fund	49,774.00	3,782.00	500.00	53,056.00
3.3.7	Mitali Sen Gold Medal Memorial End. Fund		5,50,000.00	46,380.00	5,03,620.00
3.3.8	N K Mukherjee Memorial Fund	67,310.00	5,385.00		72,695.00
3.3.9	NAA Scholarship Fund	5,57,500.00			5,57,500.00
3.3.10	Nirja Sahay Memorial Fund	1,24,842.00	5,688.00	11,450.00	1,19,080.00
3.3.11	Paritosh & Patikrit End. Fund	2,49,836.00	19,187.00	10,000.00	2,59,023.00
3.3.12	Petroleum Department Endow Fund	3,11,578.16	24,926.00		3,36,504.16
3.3.13	Platinum Jubilee Fund	3,97,401.11	31,792.00		4,29,193.11

3.3.14	Poonam (Khanna) Singh Endowment Mem. Fund	17,04,062.50	1,38,000.50	1,00,000.00	17,42,063.00
3.3.15	Prof N L Sharma Mem Fund	2,07,195.00	14,503.00	25,913.00	1,95,785.00
3.3.16	Prof S Srinivasan Mem. Fund	66,822.00	5,346.00		72,168.00
3.3.17	Renuka Rajhans Memorial Gold Medal Fund	3,40,475.00	27,300.00	11,450.00	3,56,325.00
3.3.18	Rollong Scholarship	87,139.00	6,971.00		94,110.00
3.3.19	S.L Sehgal Scholarship	3,45,803.00	27,104.00	7,000.00	3,65,907.00
3.3.20	Smt. Kaushalia Devi Gold Medal	1,95,349.00	15,628.00		2,10,977.00
3.3.21	Smt. Sneh Lata Srivastava Memorial Gold Medal	2,09,929.00		16,665.00	1,93,264.00
3.3.22	Subarna & Shashibhushan Bharracharya Mem End Fund	2,22,199.00	17,776.00		2,39,975.00
<b>3.3.23</b>	<b>Total Scholarship/Award funds</b>	<b>69,55,001.87</b>	<b>9,82,769.49</b>	<b>3,22,442.00</b>	<b>76,15,329.36</b>
<b>Chair Funds:</b>					
3.3.24	CIL Chair for Mining Department	214,38,133.78	34,34,524.55	20,49,288.33	228,23,370.00
3.3.25	MoLE Chair Professor Fund		102,37,002.00	1,33,419.00	101,03,583.00
3.3.26	NMDC Chair for Open Cast Mining	249,69,140.00	22,54,132.00	17,64,136.00	254,59,136.00
3.3.27	ONGC Chair	78,83,868.00	18,06,649.12	272.00	96,90,245.12
3.3.28	Rajeev Gandhi Memorial Chair	229,03,143.66	29,78,783.77	15,38,072.00	243,43,855.43
3.3.29	SAIL Chair (Gr.Rs.5000000)	163,10,707.00	104,73,056.78	6,17,457.00	261,66,306.78
3.3.30	Sandvik Chair Prof. Fund	79,32,050.00	12,47,645.09	15,25,209.00	76,54,486.09
3.3.31	Tata Steel Chair	199,68,640.00	20,66,903.33	14,09,892.00	206,25,651.33
3.3.32	URANIUM CHAIR	112,62,452.00	13,13,832.66	8,25,163.00	117,51,121.66
<b>3.3.33</b>	<b>Total Chair Funds</b>	<b>1326,68,134.44</b>	<b>358,12,529.30</b>	<b>98,62,908.33</b>	<b>1586,17,755.41</b>
<b>3.3.34</b>	<b>Total Chairs &amp; Scholarship funds</b>	<b>1396,23,136.31</b>	<b>367,95,298.79</b>	<b>101,85,350.33</b>	<b>1662,33,084.77</b>
<b>3.A</b>	<b>EARMARKED/ ENDOWMENT FUND - PLAN</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>3.B</b>	<b>EARMARKED/ ENDOWMENT FUND - NON PLAN</b>	<b>5816,94,420.89</b>	<b>1173,59,069.21</b>	<b>388,00,264.00</b>	<b>6602,53,226.10</b>
<b>3.C</b>	<b>EARMARKED/ ENDOWMENT FUND - PROJECT</b>	<b>1396,23,136.31</b>	<b>367,95,298.79</b>	<b>101,85,350.33</b>	<b>1662,33,084.77</b>
<b>3.00</b>	<b>TOTAL EARMARKED/ ENDOWMENT FUND</b>	<b>7213,17,557.20</b>	<b>1541,54,368.00</b>	<b>489,85,614.33</b>	<b>8264,86,310.87</b>
<b>SCH.- IV: CURRENT LIABILITIES &amp; PROVISIONS</b>					
<b>CURRENT LIABILITIES:(Plan)</b>					
<b>A</b>	<b>Statutory Liabilities:</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
4.1.1	Income Tax	0.00	21,92,182.00	21,92,182.00	0.00
4.1.2	Income Tax 94 J	0.00	27,689.00	27,689.00	0.00
4.1.3	Labour Welfare CESS	0.00	5,26,096.00	5,26,096.00	0.00
4.1.4	Sales Tax	0.00	21,04,369.00	21,04,369.00	0.00
4.1.5	Service Tax	0.00	5,767.00	5,767.00	0.00
<b>4.1.6</b>	<b>Sub Total</b>	<b>0.00</b>	<b>48,56,103.00</b>	<b>48,56,103.00</b>	<b>0.00</b>
	<b>Other Current Liabilities:</b>				
4.1.7	BRS Liability	0.00	8,27,178.00	0.00	8,27,178.00
4.1.8	Earnest/Security money-contractors	116,18,968.00	70,60,184.00	73,04,030.00	113,75,122.00
4.1.9	Jasper Hostel	67,500.00	0.00	0.00	67,500.00
4.1.10	Licence Fee	3,200.00	3,200.00	0.00	6,400.00
4.1.11	Miscellaneous Receipt	0.00			0.00
4.1.12	Non Plan Control A/c	-8,99,999.64	900,73,632.00	363,80,688.00	527,92,944.36
4.1.13	PF Control Account	0.00			0.00
4.1.14	Project Control Account	998,38,454.00	1122,13,916.19	1933,38,454.00	187,13,916.19
4.1.15	Room Rent	0.00			0.00
<b>4.1.16</b>	<b>Sub-total</b>	<b>1106,28,122.36</b>	<b>2101,78,110.19</b>	<b>2370,23,172.00</b>	<b>837,83,060.55</b>
<b>4.1.17</b>	<b>Total Current Liabilities &amp; Provisions (Plan)</b>	<b>1106,28,122.36</b>	<b>2150,34,213.19</b>	<b>2418,79,275.00</b>	<b>837,83,060.55</b>
<b>B</b>	<b>Statutory Liabilities: Non-Plan</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
4.2.1	Income Tax (TDS) - Contractors	0.00	23,35,953.00	23,35,953.00	0.00
4.2.2	Income Tax (TDS) - Contr-Project	0.00			0.00
4.2.3	Income Tax (TDS) - Emplo-Project	-2.00	164,21,971.00	164,21,969.00	0.00
4.2.4	Income Tax (TDS) - Employees	0.00	503,05,997.00	503,05,997.00	0.00
4.2.5	Income Tax (TDS) - Guest Faculty	0.00	2,53,100.00	2,35,930.00	17,170.00
4.2.6	Income Tax (TDS) - Plan	0.00	19,72,527.00	19,72,527.00	0.00



4.2.7	Income Tax (TDS) - TEQIP II	0.00	1,310.00	1,310.00	0.00
4.2.8	Income Tax (TDS) - U/S I	0.00	7,740.00	7,740.00	0.00
4.2.9	Jharkhand State Prof. Tax	0.00	9,36,234.00	9,36,134.00	100.00
4.2.10	Labour Welfare	0.00	1,89,103.00	1,89,103.00	0.00
4.2.11	Sales Tax	0.00	7,56,396.00	7,56,396.00	0.00
4.2.12	Service Tax	-200.00	34,46,884.00	34,37,864.00	8,820.00
4.2.13	Service Tax-Proj	0.00	123,86,942.00	123,86,942.00	0.00
<b>4.2.14</b>	<b>Sub Total</b>	<b>-202.00</b>	<b>890,14,157.00</b>	<b>889,87,865.00</b>	<b>26,090.00</b>
<b>C</b>	<b>Other Liabilities: Non-Plan</b>				
4.2.15	Accidental Insurance	0.00			0.00
4.2.16	Advance Fee	7,39,780.00	0.00	2,17,686.00	5,22,094.00
4.2.17	Advance Fee from IIT-JEE	40,55,944.00	0.00	40,55,902.00	42.00
4.2.18	Alumni Subscription	32,400.00	11,65,100.00	1,000.00	11,96,500.00
4.2.19	ANREMT	0.00	1,000.00	0.00	1,000.00
4.2.20	Backward Scholarship A/c	33,570.00			33,570.00
4.2.21	Basant Subscription	23,150.00	14,15,800.00	13,34,900.00	1,04,050.00
4.2.22	Bihar SC/ST Scholarship	49,560.00			49,560.00
4.2.23	BRS Liability	11,63,070.00			11,63,070.00
4.2.24	Canara Bank SDL Loan Recovery	0.00	74,42,315.00	74,42,315.00	0.00
4.2.25	Central Sector Scholarship for SC	9,93,431.00	0.00	9,84,483.00	8,948.00
4.2.26	Central Sector Scholarship for ST	11,99,966.00	0.00	11,29,165.00	70,801.00
4.2.27	Children Activity Centre	5,960.00	1,11,500.00	1,11,500.00	5,960.00
4.2.28	Concetto	0.00	1,00,000.00	1,00,000.00	0.00
4.2.29	Court Attachment Deduction	0.00	52,350.00	52,350.00	0.00
4.2.30	CPF Subscription & Loan Recovery	0.00	134,53,300.00	134,53,300.00	0.00
4.2.31	CSLS	9,882.00	0.00	0.00	9,882.00
4.2.32	Cyber Society	20,504.00			20,504.00
4.2.33	DCPS Subscription	4,326.00	194,75,772.00	193,31,525.00	1,48,573.00
4.2.34	DST Inspire Scholarship	16,28,070.00	85,07,787.00	112,26,824.00	-10,90,967.00
4.2.35	EMD from parties	131,16,317.00	95,65,540.00	105,00,580.00	121,81,277.00
4.2.36	Executive MBA	19,87,500.00	28,81,338.00	21,45,500.00	27,23,338.00
4.2.37	GIS Premium	95,114.00	23,84,272.00	23,71,696.00	1,07,690.00
4.2.38	GPF Subscription & Loan Recovery	500.00	398,08,640.00	398,08,640.00	500.00
4.2.39	Hostel Security Deposit	21,15,500.00	102,58,000.00	0.00	123,73,500.00
4.2.40	IEEE Student Chapter	0.00			0.00
4.2.41	Indo-Afgan Scholarship	0.00			0.00
4.2.42	Inspire Internship	0.00			0.00
4.2.43	ISM 89 Silver Jubilee Fund	0.00	25,50,000.00	0.00	25,50,000.00
4.2.44	Jasper Hostel	0.00	49,500.00	0.00	49,500.00
4.2.45	Library Security	8,20,707.00	30,980.00	0.00	8,51,687.00
4.2.46	LIC Premium	928.00	56,81,758.00	56,51,688.00	30,998.00
4.2.47	Lok Sabha Election 2014	0.00	2,20,800.00	2,20,400.00	400.00
4.2.48	Miscellaneous Receipts	3,82,319.00	2,65,893.00	1,97,783.00	4,50,429.00
4.2.49	Muqabla Tournament	1,894.00			1,894.00
4.2.50	Music Club	14,420.00			14,420.00
4.2.51	NEC Merit Scholarship	10,600.00			10,600.00
4.2.52	NPESMD 2011	0.00			0.00
4.2.53	Outside scholarship Control A/c	12,58,832.00	19,99,736.00	10,89,530.00	21,69,038.00
4.2.54	Outside Travel Assistance	0.00			0.00
4.2.55	Outstanding Expenses	388,25,438.00	420,81,470.00	388,25,438.00	420,81,470.00
4.2.56	Parliament Election Advance 2009	1,200.00	0.00	0.00	1,200.00
4.2.57	PF Control Account	0.00	88,74,260.00	100,00,000.00	-11,25,740.00
4.2.58	Photographic Society	9,548.00			9,548.00
4.2.59	PM Relief Fund	0.00			0.00
4.2.60	Post Office CTD/RD	0.00	3,81,800.00	3,81,800.00	0.00
4.2.61	Prakram 11	723.00	1,45,000.00	1,45,000.00	723.00
4.2.62	RAIT 2012	0.00			0.00
4.2.63	Relief fund (DBS)	64,593.00	0.00	0.00	64,593.00
4.2.64	Remunerations of GJLT/ Penman	450.00	0.00	16,700.00	-16,250.00
4.2.65	Scolomin Club	925.00	2,71,275.00	2,69,400.00	2,800.00

4.2.66	Security Deposit from parties*	85,85,650.00	56,29,568.00	60,29,334.00	81,85,884.00
4.2.67	SRIJAN	50,000.00	7,48,000.00	99,000.00	6,99,000.00
4.2.68	Staff Recreation Club	0.00	3,24,600.00	3,24,600.00	0.00
4.2.69	Student Caution Money	322,15,331.00	120,11,620.00	66,01,000.00	376,25,951.00
4.2.70	Student Insurance Scheme	11,43,178.00	60,73,500.00	50,81,784.00	21,34,894.00
4.2.71	Student Loan	34,000.00			34,000.00
4.2.72	Student Uniform Deposit	54,81,577.00	34,04,200.00	25,34,950.00	63,50,827.00
4.2.73	Undisbursed Pay	0.00	69,849.00	0.00	69,849.00
4.2.74	Unpaid Liability	1,74,993.00	13,600.00	18,500.00	1,70,093.00
4.2.75	Vidhan Sabha Election Advance 2009	2,400.00	2,96,000.00	2,94,000.00	4,400.00
<b>4.2.76</b>	<b>Sub Total</b>	<b>1163,54,250.00</b>	<b>2077,46,123.00</b>	<b>1920,48,273.00</b>	<b>1320,52,100.00</b>
<b>4.2.77</b>	<b>Total Current Liabilities (N Plan)</b>	<b>1163,54,048.00</b>	<b>2967,60,280.00</b>	<b>2810,36,138.00</b>	<b>1320,78,190.00</b>
<b>4.2.78</b>	<b>Total Current Liabilities &amp; Provisions (Non Plan)</b>	<b>1163,54,048.00</b>	<b>2967,60,280.00</b>	<b>2810,36,138.00</b>	<b>1320,78,190.00</b>
<b>Project: Current Liabilities &amp; Provisions</b>					
<b>Sl No</b>	<b>Particulars</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
<b>C</b>	<b>Statutory Liabilities:</b>				
4.3.1	Income Tax Cont - SAIL Chair	0.00	3,867.00	3,867.00	0.00
4.3.2	Income Tax Emp - CIL Chair	0.00	2,95,411.00	2,95,411.00	0.00
4.3.3	Income Tax Contractors	0.00	2,11,992.00	2,11,992.00	0.00
4.3.4	Income Tax Employees	0.00	164,68,779.00	164,60,539.00	8,240.00
4.3.5	Income Tax Employees - Rajeev Gandhi Chair	0.00	4,49,268.00	4,49,268.00	0.00
4.3.6	Income Tax Emp - NMDC Chair	0.00	5,08,212.00	5,08,212.00	0.00
4.3.7	Income Tax Cont - Sandvik Chair	0.00	7,101.00	7,101.00	0.00
4.3.8	Income Tax Emp - Sandvik Chair	0.00	3,15,184.00	3,15,184.00	0.00
4.3.9	Income Tax Cont - TEQIP-II	0.00	37,410.00	37,402.00	8.00
4.3.10	Income Tax Emp - Teqip-II	0.00	59,486.00	59,486.00	0.00
4.3.11	Income Tax Emp - SAIL NMDC Chair	0.00	86,639.00	86,639.00	0.00
4.3.12	Labour Cess Tax Teqip-II	0.00	1,299.00	1,299.00	0.00
4.3.13	SALES TAX TEQIP-II	0.00	5,197.00	5,197.00	0.00
4.3.14	Service Tax	0.00	124,47,141.00	124,46,041.00	1,100.00
<b>4.3.15</b>	<b>Sub-total</b>	<b>0.00</b>	<b>308,96,986.00</b>	<b>308,87,638.00</b>	<b>9,348.00</b>
<b>Project : Other Current Liabilities</b>					
<b>(a) UGC Sponsored Projects</b>		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
4.3.16	JRF/SRF Fellowship (F.17-161/98(SA-1)	4,26,637.00			4,26,637.00
4.3.17	Spl. Assistance/CAS Programme	10,34,801.32			10,34,801.32
4.3.18	UGC - Unassigned Grant	1,37,161.75			1,37,161.75
4.3.19	UGC Misc. Project	5,00,000.00			5,00,000.00
4.3.20	UGC/161/98/JRF	44,371.00	2,07,000.00	1,04,805.00	1,46,566.00
4.3.21	UGC/175/CAS/ME	81,491.00		81,491.00	0.00
4.3.22	UGC/192/AC	64,104.00			64,104.00
4.3.23	UGC/193/APPL. MATHS	3,700.00			3,700.00
4.3.24	UGC/195/APPL. MATHS	71,671.00			71,671.00
4.3.25	UGC/200/AGP	3,09,597.00		3,09,597.00	0.00
4.3.26	UGC/2007/BSR/7-79	0.00	19,91,484.00	19,28,582.00	62,902.00
4.3.27	UGC/202/FME	2,01,192.00			2,01,192.00
4.3.28	UGC/203/FME	2,34,711.00		2,34,711.00	0.00
4.3.29	UGC/204/AM	7,653.00			7,653.00
4.3.30	UGC/205/PET ENGG.	4,80,781.00			4,80,781.00
4.3.31	UGC/206/PE	9,27,631.00	1,50,000.00	9,27,631.00	1,50,000.00
4.3.32	UGC/214(43)/2008-09/AM	12,07,403.00			12,07,403.00
4.3.33	UGC/222(34)/2008-09/MS	21,799.00		6,830.00	14,969.00
4.3.34	UGC/224(35)/2008-2009/ME	47,726.00		47,726.00	0.00
4.3.35	UGC/243(46)/2009-2010/MS	52,496.00		52,496.00	0.00
4.3.36	Ugc/249(48)/2009-10/APH	1,01,267.00		8,420.00	92,847.00

4.3.37	UGC/255/AM	9,805.00			9,805.00
4.3.38	UGC/257/APPL. PHY	4,736.00		832.00	3,904.00
4.3.39	UGC/258/EE	7,543.00	18,611.00	26,154.00	0.00
4.3.40	UGC/266/PE	5,00,000.00			5,00,000.00
4.3.41	UGC/277/APH	10,800.00		1,267.00	9,533.00
4.3.42	UGC/278/APH	3,204.00			3,204.00
4.3.43	UGC/279/EE	72,741.00		72,741.00	0.00
4.3.44	UGC/282/APH	82,307.00		82,307.00	0.00
4.3.45	UGC/283/APH	47,648.00			47,648.00
4.3.46	UGC/284/FME	91,438.00		53,295.00	38,143.00
4.3.47	UGC/285/AC	0.00	4,60,705.00	4,41,886.00	18,819.00
4.3.48	UGC/286/AM	55,217.00	8,318.00	29,231.00	34,304.00
4.3.49	UGC/287/APH	13,869.00			13,869.00
4.3.50	UGC/288/10-11/ME&MME	19,450.00			19,450.00
4.3.51	UGC/289/HSS/10-11	1,29,023.00		18,611.00	1,10,412.00
4.3.52	UGC/292/AM	1,28,320.00	1,75,213.00	3,03,527.00	6.00
4.3.53	UGC/296/11-12/AGP	57,77,389.00	1,01,676.00	31,55,620.00	27,23,445.00
4.3.54	UGC/297/ECE	20,738.00	69,835.00	17,461.00	73,112.00
4.3.55	UGC/298/AM	15,550.00	2,86,304.00	2,76,570.00	25,284.00
4.3.56	UGC/302/2011-12/ECE	5,83,197.00		5,83,197.00	0.00
4.3.57	UGC/313/EE/12-13	8,32,698.00		8,13,345.00	19,353.00
4.3.58	UGC/316/CSE/2012-13	2,07,765.00		1,12,923.00	94,842.00
4.3.59	UGC/317/AGL/2012-13	4,51,197.00		76,106.00	3,75,091.00
4.3.60	UGC/318/ESE/2012-13	1,47,390.00		73,316.00	74,074.00
4.3.61	UGC/319/2012-13/AM	2,26,970.00		64,355.00	1,62,615.00
4.3.62	UGC/320/2012-13/HSS	55,266.00	1,70,000.00	2,25,266.00	0.00
4.3.63	UGC/323/APH	78,910.00	1,85,690.00	1,43,869.00	1,20,731.00
4.3.64	UGC/330/MS	2,89,692.00	8,730.00	2,57,064.00	41,358.00
4.3.65	UGC/331/13-14/MS	2,39,396.00		1,63,550.00	75,846.00
4.3.66	UGC/332/MS	89,792.00	28,000.00	1,09,187.00	8,605.00
4.3.67	UGC/333/MS	91,795.00		90,871.00	924.00
4.3.68	UGC/334/PF	7,71,725.00		6,66,323.00	1,05,402.00
4.3.69	UGC/335/PE/2013-14	5,37,098.00		4,09,126.00	1,27,972.00
4.3.70	UGC/336/PE/2013-14	3,32,230.00		2,74,384.00	57,846.00
4.3.71	UGC/337/AM/2013-14	1,74,139.00		94,581.00	79,558.00
4.3.72	UGC/338/MS	3,32,650.00		3,32,650.00	0.00
4.3.73	UGC/340/2013-14/PE	8,08,944.00		6,23,276.00	1,85,668.00
4.3.74	UGC/341/2013-15/EC	7,66,895.00		5,94,153.00	1,72,742.00
4.3.75	UGC/342/2013-14/EE	3,46,255.00		2,58,032.00	88,223.00
4.3.76	UGC/343/2013-14/ECE	3,63,308.00		3,07,949.00	55,359.00
4.3.77	UGC/345/2013-14/EE	6,56,100.00		48,640.00	6,07,460.00
4.3.78	UGC/346/EE	8,93,000.00		8,42,464.00	50,536.00
4.3.79	UGC/347/2013-14/EE	5,23,526.00		9,758.00	5,13,768.00
4.3.80	UGC/353/MECH/2013-14	10,16,000.00		10,898.00	10,05,102.00
4.3.81	UGC/354/MECH/2013-14	5,46,847.00		4,62,638.00	84,209.00
4.3.82	UGC/98/JRF/F.17-161	60,002.00	26,74,144.00	12,88,093.00	14,46,053.00
4.3.83	UGC/CAS/ME Phase-II (Grants)	4,84,687.87			4,84,687.87
4.3.84	UGC/HEPSN-TEPSE	4,18,302.00			4,18,302.00
4.3.85	UGC/SAP/179/AGP/Phase-III	2,17,006.00			2,17,006.00
4.3.86	UGC/SAP/AGP Phase - II	1,90,112.00			1,90,112.00
4.3.87	UGC/ST/SC/SCHOLARSHIP (PROJECT)	1,47,904.00			1,47,904.00
4.3.88	UGC-295/DCSR.APH	160.00			160.00
<b>4.3.89</b>	<b>Subtotal (UGC Projects)</b>	<b>258,26,929.94</b>	<b>65,35,710.00</b>	<b>171,17,805.00</b>	<b>152,44,834.94</b>
<b>(b) Other R&amp;D Projects:</b>		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
4.3.90	AICTE/EFIP/PS/ME/06	1,10,000.00			1,10,000.00
4.3.91	AICTE/NDF/NK/07	2,17,012.00			2,17,012.00
4.3.92	AICTE/NDF/Shankar Purby/MS/04	45,000.00			45,000.00
4.3.93	AICTE/PKB/I	16,384.00		16,384.00	0.00
4.3.94	AICTE/PKB/II	3,04,250.00		3,04,250.00	0.00

4.3.95	CIL(I) 2006-07/190/AC/ME&MME	3,53,231.00		3,53,231.00	0.00
4.3.96	CIL/410/AGP/2014-15		80,00,000.00		80,00,000.00
4.3.97	CME-4079	4,45,269.00			4,45,269.00
4.3.98	CME-ENVIS	2,84,325.00	12,11,447.00	14,52,844.00	42,928.00
4.3.99	CSIR/029	0.40			0.40
4.3.100	CSIR/09/85(102)2009-EMR-1	645.00			645.00
4.3.101	CSIR/106/EMR-I	2.00	2,79,200.00	2,79,202.00	0.00
4.3.102	CSIR/109/2012-EMR-I	36,000.00		35,988.00	12.00
4.3.103	CSIR/110/2013 EMR-1		1,42,473.00	1,42,178.00	295.00
4.3.104	CSIR/250/AC	5,41,645.00			5,41,645.00
4.3.105	CSIR/314/CSE/12-13	3,24,814.00		5,484.00	3,19,330.00
4.3.106	CSIR/326/2012-13/PE	10,97,383.00	1,32,546.00	11,00,852.00	1,29,077.00
4.3.107	CSIR/327/ME/2012-13	31,59,563.00		5,31,300.00	26,28,263.00
4.3.108	CSIR/362/AM/12-13		1,21,333.00	1,19,320.00	2,013.00
4.3.109	CSIR/369/PE/2013-14		9,62,113.00	2,63,496.00	6,98,617.00
4.3.110	CSIR/371/AC/13-14		2,35,000.00	2,32,143.00	2,857.00
4.3.111	CSIR/380/APH/2013-14		10,31,250.00	29,407.00	10,01,843.00
4.3.112	CSIR/ADHOC FELLOWSHIP GRANT	81,000.00			81,000.00
4.3.113	DAE/309(2)2012-13/AM	1,29,027.00	2,56,000.00	2,65,040.00	1,19,987.00
4.3.114	DAE/375/AGL/2013-14		3,86,900.00	40,459.00	3,46,441.00
4.3.115	DAE/386/APH/2014-15		16,23,275.00	1,11,525.00	15,11,750.00
4.3.116	DRDO/401/2014-15/ECE		14,80,000.00		14,80,000.00
4.3.117	DST/ Inspire Faculty Award AGL/14		19,00,000.00	5,65,316.00	13,34,684.00
4.3.118	DST/10/MS/13-13	52,693.00	72,500.00	1,25,193.00	0.00
4.3.119	DST/11/MS/14-15		1,75,000.00	1,75,000.00	0.00
4.3.120	DST/12/AGP/14-15		5,50,000.00	5,44,802.00	5,198.00
4.3.121	DST/161/ME&MME	1,94,409.00		1,94,409.00	0.00
4.3.122	DST/212-ME	38,529.00		38,529.00	0.00
4.3.123	DST/214/AC/07-08	2,593.00	800.00		3,393.00
4.3.124	DST/216/ME/07-08	95,341.00			95,341.00
4.3.125	DST/223/AM/08-09	86,307.00			86,307.00
4.3.126	DST/235/E&I/08-09	1,08,973.00			1,08,973.00
4.3.127	DST/244/MEMME/08-09	5,810.00			5,810.00
4.3.128	DST/247/APHY/09-10	3,14,363.00		3,14,363.00	0.00
4.3.129	DST/269/AP/10-11	80,978.00		78,000.00	2,978.00
4.3.130	DST/272/AC/10-11	28,284.00		28,284.00	0.00
4.3.131	DST/273/AC/10-11	1,68,205.00		1,68,205.00	0.00
4.3.132	DST/274/AM/10-11	24,978.00		800.00	24,178.00
4.3.133	DST/275/APH/10-11	19,867.00	832.00	20,699.00	0.00
4.3.134	DST/276/AGL/10-11	1,49,312.00	2,06,295.00	1,95,607.00	1,60,000.00
4.3.135	DST/280/AGP/10-11	38,24,885.00		2,89,896.00	35,34,989.00
4.3.136	DST/281/AC/10-11	1,42,807.00		1,26,728.00	16,079.00
4.3.137	DST/299/2011-12/APH	3,52,409.00	3,50,000.00	3,74,783.00	3,27,626.00
4.3.138	DST/300/AGL/11-12	2,01,439.00	4,00,000.00	5,59,795.00	41,644.00
4.3.139	DST/301/AGL/11-12	2,30,297.00	8,00,000.00	10,22,006.00	8,291.00
4.3.140	DST/303/2012-13/AGL	4,24,427.00	2,00,000.00	4,56,474.00	1,67,953.00
4.3.141	DST/304/AGL/11-12	1,22,708.00	6,00,000.00	5,95,967.00	1,26,741.00
4.3.142	DST/305/11-12/AGP	3,837.00		3,837.00	0.00
4.3.143	DST/310(65)2012-13/ME	73,70,512.00		45,55,464.00	28,15,048.00
4.3.144	DST/311/ECE/2012-13	87,056.00		51,518.00	35,538.00
4.3.145	DST/312/AC/12-13	8,85,766.00		7,91,580.00	94,186.00
4.3.146	DST/315/AC/12-13	2,47,509.00	4,00,000.00	4,29,926.00	2,17,583.00
4.3.147	DST/324/ECE/12-13	1,30,103.00		1,03,147.00	26,956.00
4.3.148	DST/325/2012-13/PE	3,90,817.00	2,50,000.00	6,32,517.00	8,300.00
4.3.149	DST/339/ME&MME/2013-14	45,00,000.00		39,94,415.00	5,05,585.00
4.3.150	DST/344/ECE/2013-14	82,14,954.00		28,00,000.00	54,14,954.00
4.3.151	DST/348/2013-14/AC	13,11,408.00	6,12,800.00	2,70,427.00	16,53,781.00
4.3.152	DST/349/13-14/MME	14,42,106.00		4,47,857.00	9,94,249.00
4.3.153	DST/350/2013-14/PE	11,26,818.00		3,90,777.00	7,36,041.00
4.3.154	DST/351/13-14/AGL	19,38,927.00	2,00,000.00	18,88,352.00	2,50,575.00
4.3.155	DST/352/AGP/2013-14	16,65,280.00	4,00,000.00	18,39,966.00	2,25,314.00

4.3.156	DST/356/13-14/AC	35,41,247.00		1,40,056.00	34,01,191.00
4.3.157	DST/358/2013-14/AGL	3,97,242.00		2,18,300.00	1,78,942.00
4.3.158	DST/359/APPL. PHYSICS/13-14	8,00,000.00		5,29,646.00	2,70,354.00
4.3.159	DST/360/MECH. ENGG	14,28,000.00		83,920.00	13,44,080.00
4.3.160	DST/361/AGL (FIST)/2013-14	118,00,000.00		3,07,841.00	114,92,159.00
4.3.161	DST/363/CE	7,57,316.00		3,67,870.00	3,89,446.00
4.3.162	DST/364/2013-14/AGP	5,52,803.00	4,00,000.00	7,32,921.00	2,19,882.00
4.3.163	DST/365/2013-14/AGP	5,42,581.00	2,00,000.00	4,69,743.00	2,72,838.00
4.3.164	DST/366/13-14/AM	3,76,929.00	2,50,000.00	2,56,089.00	3,70,840.00
4.3.165	DST/368/MECH/2013-14	39,00,000.00		1,70,652.00	37,29,348.00
4.3.166	DST/370/AC/2013-14	17,60,000.00		14,25,757.00	3,34,243.00
4.3.167	DST/372/2013-14/AC(FIST)		150,00,000.00	12,049.00	149,87,951.00
4.3.168	DST/373/APPL. PHY./13-14	14,11,059.00		3,40,580.00	10,70,479.00
4.3.169	DST/374/2013-14/AC	18,08,400.00		2,81,432.00	15,26,968.00
4.3.170	DST/376/APH/13-14		83,00,000.00	2,22,803.00	80,77,197.00
4.3.171	DST/378/APPL. PHY/13-14	14,40,000.00		5,37,181.00	9,02,819.00
4.3.172	DST/379/APPLIED PHYSICS/13-14	22,20,000.00		2,81,937.00	19,38,063.00
4.3.173	DST/381/2013-14/ESE		10,00,000.00	1,15,208.00	8,84,792.00
4.3.174	DST/382/APPLIED PHYSICS/2013-14	10,90,000.00		3,48,225.00	7,41,775.00
4.3.175	DST/383/APPL. PHYSICS/13-14	15,60,000.00		5,90,000.00	9,70,000.00
4.3.176	DST/384/AGP/14-16		22,10,000.00	2,47,704.00	19,62,296.00
4.3.177	DST/385/APH/14-15		14,00,000.00	10,41,323.00	3,58,677.00
4.3.178	DST/387/2014-15/AC		13,80,000.00	80,470.00	12,99,530.00
4.3.179	DST/388/2014-15/AC		20,00,000.00	2,47,355.00	17,52,645.00
4.3.180	DST/389/FME/2014-15		15,47,000.00	1,70,132.00	13,76,868.00
4.3.181	DST/390/14-15/APH		30,75,000.00	5,57,633.00	25,17,367.00
4.3.182	DST/391/ME/2014-15		3,68,000.00	55,937.00	3,12,063.00
4.3.183	DST/392/14-15/AC		19,00,000.00	3,72,262.00	15,27,738.00
4.3.184	DST/393/AM (FIST)/2014-15		23,00,000.00	1,37,620.00	21,62,380.00
4.3.185	DST/394/14-15/AC		18,80,000.00	2,70,122.00	16,09,878.00
4.3.186	DST/395/MS/14-15		6,50,000.00	4,99,373.00	1,50,627.00
4.3.187	DST/398/AC/14-15		36,00,000.00	2,81,842.00	33,18,158.00
4.3.188	DST/403/PE/2014-15		82,00,000.00		82,00,000.00
4.3.189	DST/404/AGL/14-15		10,30,000.00		10,30,000.00
4.3.190	DST/405/MECH/2014-15		22,10,000.00		22,10,000.00
4.3.191	DST/409/2014-15/AGL		11,50,000.00		11,50,000.00
4.3.192	DST/479/inspire Fellowship/2012	45,593.00	2,32,881.00	2,78,474.00	0.00
4.3.193	DST/Inspire Faculty/2013-17	15,34,762.00		5,57,837.00	9,76,925.00
4.3.194	EC(1)/2008-09/239/AGL	8,181.00			8,181.00
4.3.195	ICSSR/355/13-14/MS	22,501.00	1,35,000.00	1,57,413.00	88.00
4.3.196	IICP(I)/2007-2008/01/FME	5,73,106.00			5,73,106.00
4.3.197	INSPIRE/JRF	27,233.00	2,33,430.00	2,20,684.00	39,979.00
4.3.198	IPEM/399/INST/2014-15		2,40,060.00	69,608.00	1,70,452.00
4.3.199	ISRO/328/2012-13/AM	3,21,238.00	2,08,000.00	4,39,806.00	89,432.00
4.3.200	ISRO/400/2014-15/ECE		10,31,000.00	52,125.00	9,78,875.00
4.3.201	KRC/ESE/2014-15		5,96,500.00	4,56,123.00	1,40,377.00
4.3.202	MHRD/144	-0.16	0.16		0.00
4.3.203	MHRD/180	2,74,488.00		2,74,488.00	0.00
4.3.204	MHRD/402/INST/14-15		150,00,000.00	75,781.00	149,24,219.00
4.3.205	MIT/189/CSE	1,07,266.00		1,06,717.00	549.00
4.3.206	MOC(7)/2009-10/252/PE	-22,134.00	20,115.00		-2,019.00
4.3.207	MOC(8)/2010-11/271/ME	40,67,112.00	20,00,000.00	56,79,907.00	3,87,205.00
4.3.208	MOC/185/FME	7,41,114.00		7,41,114.00	0.00
4.3.209	MOC/186/AppI PHYSICS	84,114.00		84,114.00	0.00
4.3.210	MOEF/294/ (13)/2011-12.ESE	10,77,643.00	18,501.00	7,93,139.30	3,03,004.70
4.3.211	MOES/293/AGP/11-12	46,910.00	2,00,000.00	1,92,437.00	54,473.00
4.3.212	MOES/322/12-13/AGP	17,873.00	4,64,000.00	4,33,499.00	48,374.00
4.3.213	MOES/357/2013-14/AGP	85,56,519.00		68,52,063.00	17,04,456.00
4.3.214	MOES/396/ESE/2014-15		19,68,200.00	9,20,685.00	10,47,515.00
4.3.215	MOES/407/2014-15/AGL		62,27,880.00	8,74,440.00	53,53,440.00
4.3.216	MOM/329/FME/12-13	21,60,624.00		17,59,650.00	4,00,974.00

4.3.217	MRD(1)2010-2011/290/ESE	55,250.00	1,47,600.00	1,36,970.00	65,880.00
4.3.218	MWR/184/MIN	97,072.00			97,072.00
4.3.219	MWR/307/AGL (2)/2011-12	189,46,745.00			189,46,745.00
4.3.220	MWR/308/ESE (3)/2012-13	1,18,706.00	11,57,900.00	1,89,438.00	10,87,168.00
4.3.221	OIDB/4111	18,71,671.51			18,71,671.51
4.3.222	OIL/321/PE/12-13	5,93,137.00	11,43,792.00	1,39,299.00	15,97,630.00
4.3.223	OIL/377/2013-14/PE		1,93,050.00	1,20,589.00	72,461.00
4.3.224	OTHER PROJECT	146,35,016.13			146,35,016.13
4.3.225	PCRA(I)/2008-10/225/ME	-19,403.00			-19,403.00
4.3.226	SAC/183/AGP	4,425.00			4,425.00
4.3.227	TEQIP-II	444,19,327.00	114,92,823.00	275,10,096.00	284,02,054.00
4.3.228	UGC/397/ME/2014-15		6,00,000.00	61,138.00	5,38,862.00
<b>4.3.229</b>	<b>Subtotal (Other R&amp;D Projects)</b>	<b>1788,81,923.88</b>	<b>1263,40,496.16</b>	<b>899,29,359.30</b>	<b>2152,93,060.74</b>
<b>(c) ISM FRS PROJECTS</b>		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
4.3.230	FRS(10)/2010-2011/AC	33,379.00		26,161.00	7,218.00
4.3.231	FRS(11)/2010-2011/AC	88,902.00		86,328.00	2,574.00
4.3.232	FRS(1)2009-10/1/ESE	1,15,491.00			1,15,491.00
4.3.233	FRS(12)/2010-2011/AC	9,03,265.00		17,295.00	8,85,970.00
4.3.234	FRS(13)/2010-2011/AGL	1,800.00			1,800.00
4.3.235	FRS(14)/2010-2011/AGP	1,28,290.00			1,28,290.00
4.3.236	FRS(15)/2010-2011	1,30,066.00			1,30,066.00
4.3.237	FRS(16)/2010-2011	3,29,523.00		105.00	3,29,418.00
4.3.238	FRS(17)/2010-2011/AM	55,623.00		29,575.00	26,048.00
4.3.239	FRS(18)/2010-2011/APH	1,91,907.00		1,22,620.00	69,287.00
4.3.240	FRS(19)/2010-2011/APH	9,04,145.00			9,04,145.00
4.3.241	FRS(20)/2010-2011/EE	8,53,000.00			8,53,000.00
4.3.242	FRS(21)/2010-2011/EE	2,07,470.00			2,07,470.00
4.3.243	FRS(2)/2009-10/2/AC	4,928.00			4,928.00
4.3.244	FRS(22)/2010-2011/ECE	389.00			389.00
4.3.245	FRS(23)/2010-2011/ESE	1,659.00			1,659.00
4.3.246	FRS(24)/2010-2011/ME&MME	7,000.00		6,000.00	1,000.00
4.3.247	FRS(25)/2010-2011/ME&MME	10,48,471.00	2,19,971.00	10,48,471.00	2,19,971.00
4.3.248	FRS(26)/2010-2011/MS	82,040.00			82,040.00
4.3.249	FRS(27)/2010-2011/MS	4,32,728.00			4,32,728.00
4.3.250	FRS(28)/2010-2011/PE	60,674.00		17,194.00	43,480.00
4.3.251	FRS(29)/2010-2011/PE	35,448.00			35,448.00
4.3.252	FRS(30)/2012-13/AC	9,14,234.00		70,677.00	8,43,557.00
4.3.253	FRS(31)/2012-13/AC	4,18,753.00		2,49,213.00	1,69,540.00
4.3.254	FRS(3)/2009-10/3/AC	22,857.00			22,857.00
4.3.255	FRS(32)/2012-13/AC	4,79,054.00		3,51,097.00	1,27,957.00
4.3.256	FRS(33)/2012-13/AM	2,95,242.00		17,048.00	2,78,194.00
4.3.257	FRS(34)/2012-13/APH	5,83,449.00		67,699.00	5,15,750.00
4.3.258	FRS(35)/2012-13/EE	5,14,700.00		84,848.00	4,29,852.00
4.3.259	FRS(36)/2012-13/EE	3,00,000.00			3,00,000.00
4.3.260	FRS(37)/2012-13/EE	3,87,000.00			3,87,000.00
4.3.261	FRS(38)/2012-13/ECE	8,00,000.00		5,35,500.00	2,64,500.00
4.3.262	FRS(39)/2012-13/ESE	8,00,000.00			8,00,000.00
4.3.263	FRS(40)/2012-13/ESE	9,40,000.00		5,77,282.00	3,62,718.00
4.3.264	FRS(41)/2012-13/ME	5,46,224.00		38,271.00	5,07,953.00
4.3.265	FRS(4)/2009-10(4)APH	86,384.00			86,384.00
4.3.266	FRS(42)/2012-13/PE	8,21,154.00		5,56,358.00	2,64,796.00
4.3.267	FRS(43)/13-14/AC	8,80,000.00		1,29,953.00	7,50,047.00
4.3.268	FRS(44)/13-14/AC	6,95,818.00		1,36,611.00	5,59,207.00
4.3.269	FRS(45)/13-14/AC	8,49,361.00		8,33,693.00	15,668.00
4.3.270	FRS(46)/13-14/AGL	7,00,000.00		4,80,375.00	2,19,625.00
4.3.271	FRS(47)/13-14/AGL	7,00,000.00		31,489.00	6,68,511.00
4.3.272	FRS(48)/13-14/AGL	5,40,000.00			5,40,000.00
4.3.273	FRS(49)/13-14/AGP	5,20,000.00		2,64,138.00	2,55,862.00
4.3.274	FRS(50)/13-14/APH	3,60,000.00		1,26,637.00	2,33,363.00

4.3.275	FRS(51)/13-14/APH	9,15,000.00			9,15,000.00
4.3.276	FRS(5)/2009-10/5/EE	1,168.00			1,168.00
4.3.277	FRS(52)/13-14/APH	7,60,770.00		1,98,385.00	5,62,385.00
4.3.278	FRS(53)/13-14/APH	8,95,000.00		5,43,527.00	3,51,473.00
4.3.279	FRS(54)/13-14/APH	7,85,652.00		2,93,114.00	4,92,538.00
4.3.280	FRS(55)/13-14/APH	6,98,727.00		5,30,698.00	1,68,029.00
4.3.281	FRS(56)/13-14/CHE	6,30,000.00			6,30,000.00
4.3.282	FRS(57)/13-14/CHE	4,00,000.00			4,00,000.00
4.3.283	FRS(58)/13-14/CHE	6,50,000.00		25,095.00	6,24,905.00
4.3.284	FRS(59)/13-14/CHE	6,50,000.00			6,50,000.00
4.3.285	FRS(60)/13-14/CHE	5,80,000.00			5,80,000.00
4.3.286	FRS(61)/13-14/CHE	7,30,000.00		14,780.00	7,15,220.00
4.3.287	FRS(6)/2009-10/6/ME&MME	3,00,000.00			3,00,000.00
4.3.288	FRS(62)/13-14/CE	5,30,000.00		10,062.00	5,19,938.00
4.3.289	FRS(63)/13-14/ECE	6,80,000.00		37,958.00	6,42,042.00
4.3.290	FRS(64)/13-14/ECE	8,20,000.00		13,446.00	8,06,554.00
4.3.291	FRS(65)/13-14/FME	7,00,000.00		44,575.00	6,55,425.00
4.3.292	FRS(66)/13-14/FME	8,63,175.00		44,844.00	8,18,331.00
4.3.293	FRS(67)/13-14/FME	5,00,000.00		34,930.00	4,65,070.00
4.3.294	FRS(68)/13-14/FME	4,00,000.00		39,641.00	3,60,359.00
4.3.295	FRS(69)/13-14/MS	2,44,401.00		13,542.00	2,30,859.00
4.3.296	FRS(70)/13-14/MECH	3,14,746.00			3,14,746.00
4.3.297	FRS(71)/13-14/MECH	9,50,000.00			9,50,000.00
4.3.298	FRS(72)/13-14/ME	6,50,000.00		5,28,896.00	1,21,104.00
4.3.299	FRS(73)/2014-15/AC		10,55,000.00		10,55,000.00
4.3.300	FRS(74)/2014-15/APH		10,90,000.00		10,90,000.00
4.3.301	FRS(75)/2014-15/APH		9,60,000.00		9,60,000.00
4.3.302	FRS(76)/2014-15/CHE		11,15,000.00		11,15,000.00
4.3.303	FRS(77)/2014-15/CHE		11,50,000.00		11,50,000.00
4.3.304	FRS(78)2014-15/CE		8,80,000.00		8,80,000.00
4.3.305	FRS(79)/2014-15/CE		9,50,000.00		9,50,000.00
4.3.306	FRS(80)2014-15/CE		8,80,000.00		8,80,000.00
4.3.307	FRS(81)/2014-15/EE		10,00,000.00		10,00,000.00
4.3.308	FRS(8)/2009-10/8/CSE	1,95,197.00			1,95,197.00
4.3.309	FRS(82)/2014-15/EE		5,36,000.00		5,36,000.00
4.3.310	FRS(83)/2014-15/ECE		7,91,000.00		7,91,000.00
4.3.311	FRS(84)/2014-15/ECE		10,00,000.00		10,00,000.00
4.3.312	FRS(85)/2014-15/ECE		6,75,000.00		6,75,000.00
4.3.313	FRS(86)/2014-15/ESE		13,22,000.00		13,22,000.00
4.3.314	FRS(87)/2014-15/FME		9,10,000.00		9,10,000.00
4.3.315	FRS(88)/2014-15/HSS		2,25,000.00		2,25,000.00
4.3.316	FRS(89)/2014-15/ME		8,00,000.00		8,00,000.00
4.3.317	FRS(9)/2009-10/9/CSE	1,50,145.00			1,50,145.00
<b>4.3.318</b>	<b>Sub-total (ISM FRS PROJECTS)</b>	<b>337,64,409.00</b>	<b>155,58,971.00</b>	<b>82,78,131.00</b>	<b>410,45,249.00</b>
<b>4.3.319</b>	<b>Total R&amp;D /UGC/FRS Projects (b)</b>	<b>2384,73,262.82</b>	<b>1484,35,177.16</b>	<b>1153,25,295.30</b>	<b>2715,83,144.68</b>
<b>(d) Other Current Liabilities:</b>		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adjdurin g the year</b>	<b>Balance as on 31.03.2015</b>
4.3.320	Short Term Courses	85,000.00		74,000.00	11,000.00
4.3.321	Earnest Money	1,66,750.00			1,66,750.00
4.3.322	Security Deposit	4,95,878.85	63,992.00		5,59,870.85
4.3.323	Adv. DSA Certificate Course CSE-2013	1,00,647.00		1,00,647.00	0.00
4.3.324	ANREMT -2015		3,47,500.00	91,422.00	2,56,078.00
4.3.325	Athletica-2k8	206.00			206.00
4.3.326	B E Course for Afghan Students -2014	266,31,250.00	248,95,298.00	281,16,801.00	234,09,747.00
4.3.327	Best Research Award Fund		2,00,000.00	1,65,720.00	34,280.00
4.3.328	CALCIO CUP	248.00			248.00
4.3.329	CCL RANCHI	8,19,963.04			8,19,963.04
4.3.330	Certificate Course-DMS	15,765.00			15,765.00
4.3.331	Children Activity Centre	675.00			675.00
4.3.332	Course Fee for Foreign Language (French)	1,15,600.00		96,492.00	19,108.00

4.3.333	Course Fee for Foreign Language (German)	34,350.00		34,350.00	0.00
4.3.334	CRF - FESEM		48,000.00		48,000.00
4.3.335	CTC 2014-15/AM		1,53,318.00		1,53,318.00
4.3.336	DSA Certificate Course CSE-2014		67,000.00	67,000.00	0.00
4.3.337	DST/459/inspire Fellowship	95,250.00	2,31,200.00	1,56,000.00	1,70,450.00
4.3.338	DST/inspire-SHE/ISMU/2009	85,07,787.00		85,07,787.00	0.00
4.3.339	East Zone Inter University Youth	1,34,373.10			1,34,373.10
4.3.340	ECO CLUB DEPARTMENT OF ESE	4,500.00			4,500.00
4.3.341	HSS- Foreign Language Course, Monsoon, 2013-14	5,14,420.00	2,26,500.00	5,39,828.00	2,01,092.00
4.3.342	ICMAP-2013		50,000.00	50,000.00	0.00
4.3.343	IMS-2014		8,85,000.00	8,85,000.00	0.00
4.3.344	Income Tax From Uranium Chair (Cont./supp)		501.00	501.00	0.00
4.3.345	International Conf. on MSEMI-2007	15,38,817.00			15,38,817.00
4.3.346	ISM ALUMNI FUND	2,98,730.00	2,48,900.00		5,47,630.00
4.3.347	ISM Geological Society		1,98,501.00	1,98,501.00	0.00
4.3.348	IWCMVA		75,000.00	75,000.00	0.00
4.3.349	LAMP CERTIFICATE COURSE 2013/CC	18,995.00		18,995.00	0.00
4.3.350	Linux Certificate Course (CSE)	68,000.00			68,000.00
4.3.351	MATLAB CERTIFICATE COURSE EE 2012		94,000.00	10,691.00	83,309.00
4.3.352	Matlab Certificate Course of Computer Centre		1,05,000.00	53,622.00	51,378.00
4.3.353	Matlab Certificate Course of CSE	12,000.00	52,500.00		64,500.00
4.3.354	Methodology Certificate Course-2014 MS		1,29,000.00	1,29,000.00	0.00
4.3.355	Misc. Receipt	2,10,990.00	45,28,523.00		47,39,513.00
4.3.356	MSSEM		88,200.00	88,200.00	0.00
4.3.357	National Seminar MTGST-2007	1,721.00			1,721.00
4.3.358	National Workshop on E -Governance Awareness	1,778.00			1,778.00
4.3.359	NIT DURGAPUR	2,33,607.00			2,33,607.00
4.3.360	NSS (Regular)	3,537.00			3,537.00
4.3.361	NTPC LTD,	49,000.00			49,000.00
4.3.362	Parakram		49,000.00	49,000.00	0.00
4.3.363	RAG-2011	9,000.00			9,000.00
4.3.364	SAGES		8,000.00	8,000.00	0.00
4.3.365	Scolomin Club	5,100.00			5,100.00
4.3.366	Travel Grant	83,832.00	2,93,602.00	3,07,186.00	70,248.00
4.3.367	Unpaid Salary	12,516.75			12,516.75
4.3.368	Workshop on CFDA-2014		1,52,440.00	1,52,440.00	0.00
4.3.369	Workshop on NCEP Awareness	345.00			345.00
4.3.370	Workshop on Pandit M Malviya	1,37,922.00		1,37,898.00	24.00
4.3.371	WSME	0.00	25,950.00	25,950.00	0.00
4.3.372	BSWG 2014	0.00	1,46,950.00	1,46,950.00	0.00
4.3.373	Lab View Software Course	0.00	94,500.00	94,500.00	0.00
4.3.374	SBI Cash Award for Non-Teaching Staff	0.00	25,000.00	25,000.00	0.00
4.3.375a	SPPS 2013	0.00	1,09,000.00	1,09,000.00	0.00
4.3.375 b	Central Research Facility	0.00	1,06,370.00	0.00	1,06,370.00
<b>4.3.376</b>	<b>Sub-total</b>	<b>404,08,553.74</b>	<b>336,98,745.00</b>	<b>405,15,481.00</b>	<b>335,91,817.74</b>
<b>(e) Inter-Unit Liabilities (Project)</b>		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
4.3.377	Adm. Fee of Afgan Students		7,72,000.00	7,72,000.00	0.00
4.3.378	Benevolent Fund		21,40,468.00	21,40,468.00	0.00
4.3.379	CPF Cont	1,50,277.00		1,50,277.00	0.00
4.3.380	EDC Room Rent	1,35,060.00	61,71,581.00	62,69,141.00	37,500.00
4.3.381	EDC Room Rent From TEQIP-II		1,600.00	1,600.00	0.00
4.3.382	Electric Charges for CIL Chair		13,094.00	13,094.00	0.00
4.3.383	Electric Charges for Rajiv Gandhi Chair		6,598.00	6,598.00	0.00
4.3.384	Electric Charges From NMDC CHAIR		17,738.00	17,738.00	0.00
4.3.385	Electric Charges From Sandvik Chair		3,290.00	3,290.00	0.00
4.3.386	Licence Fee From Sandvik Chair	2,090.00		2,090.00	0.00
4.3.387	License Fee for Rajiv Gandhi Chair	2,497.00		2,497.00	0.00
4.3.388	Medical Charges for CIL Chair		6,000.00	6,000.00	0.00
4.3.389	N.Plan End. Fund (Surplus Payable)	409,12,346.03	333,02,925.85	409,12,346.00	333,02,925.88



4.3.390	Non Plan Control A/c	-845,86,460.00	1620,10,618.00	166,15,410.00	608,08,748.00
4.3.391	SAH (ROOM RENT) TEQIP-II		1,200.00	1,200.00	0.00
4.3.392	SAH Room Rent	7,200.00	1,14,200.00	1,20,200.00	1,200.00
4.3.393	School Development Fund	18,29,749.00	9,64,143.00	27,93,892.00	0.00
4.3.394	School Support Charges	-16,04,419.84	338,12,638.88	322,08,219.00	0.04
4.3.395	Scolomin Club for Cil Chair		1,375.00	1,375.00	0.00
4.3.396	Scolomin Club for Rajeev Gandhi Chair		500.00	500.00	0.00
4.3.397	Tuition Fee of Afgan Students		194,54,400.00	194,54,400.00	0.00
4.3.398	Vehicle Charge From Tequip-II	738.00	1,322.00	2,060.00	0.00
4.3.399	VEHICLE CHARGES	2,427.00	70,490.00	72,857.00	60.00
4.3.400	Vehicle Charges for CIL Chair		590.00	590.00	0.00
4.3.401	Vehicle Charges of Sandvik Chair		455.00	455.00	0.00
4.3.402	Vehicle Charges of NMDC CHAIR		99.00	99.00	0.00
<b>4.3.403</b>	<b>Sub-total</b>	<b>-431,48,495.81</b>	<b>2588,67,325.73</b>	<b>1215,68,396.00</b>	<b>941,50,433.92</b>
<b>4.3.404</b>	<b>Total Other Current Liabilities (Project)</b>	<b>-27,39,942.07</b>	<b>2925,66,070.73</b>	<b>1620,83,877.00</b>	<b>1277,42,251.66</b>
<b>4.3.405</b>	<b>Total Other Current Liabilities &amp; Provisions (Project)</b>	<b>2357,33,320.75</b>	<b>4718,98,233.89</b>	<b>3082,96,810.30</b>	<b>3993,34,744.34</b>
<b>(e) Consultancy Projects:</b>		<b>2014-15</b>	<b>2014-15</b>	<b>2013-14</b>	<b>2013-14</b>
4.3.406	Opening Balance	1154,48,661.68		854,13,947.62	
4.3.407	Add: Total Receipts during the year	1029,37,625.84		1325,82,007.09	
4.3.408	Less: Payments from consultancy projects during the year	1266,70,611.40		1025,47,293.03	
4.3.409	Add: Transfer from Capital Fund for creation of opening balance of Consultancy Projects towards undisbursed amount as on 1.4.2007 /adjustment		917,15,676.12	0.00	1154,48,661.68
4.3.410	<b>Balance as on 31 March</b>		<b>917,15,676.12</b>		<b>1154,48,661.68</b>
<b>4.3.411</b>	<b>TOTAL CURRENT LIABILITIES (PROJECTS)</b>	<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
<b>4.3.412</b>	TOTAL CURRENT LIABILITIES- Current year (Projects)	3511,81,982.43	4718,98,233.89	3937,10,757.92	4910,50,420.46
<b>4.00</b>	<b>Total Current Liabilities</b>	<b>5781,64,152.79</b>	<b>9836,92,727.08</b>	<b>9166,26,170.92</b>	<b>7069,11,671.01</b>
	CURRENT LIABILITIES - PLAN	1106,28,122.36	2150,34,213.19	2418,79,275.00	837,83,060.55
	CURRENT LIABILITIES - NON PLAN	1163,54,048.00	2967,60,280.00	2810,36,138.00	1320,78,190.00
	CURRENT LIABILITIES - PROJECT	5781,64,152.79	9836,92,727.08	9166,26,170.92	7069,11,671.01
	<b>TOTAL CURRENT LIABILITIES</b>	<b>8051,46,323.15</b>	<b>14954,87,220.27</b>	<b>14395,41,583.92</b>	<b>9227,72,921.56</b>

SCHEDULE - V : FIXED ASSETS										
S No	Particulars	Balance as on 01.04.2014	Additions during the year	Deduction/Adj during the year	Gross Total	Depreciation				
Plan:						Upto 2013-14	Dep. %	For 2014-15	Total Depreciation	Closing Balance as on 31.3.2015
5.1.1	Communication System	97,95,112.00	66,33,416.00	0.00	164,28,528.00	30,51,752.66	15%	20,06,516.30	50,58,268.96	113,70,259.04
5.1.2	Computer Software	141,63,648.00	84,70,808.00	0.00	226,34,456.00	117,64,010.22	60%	65,22,267.47	182,86,277.69	43,48,178.31
5.1.3	Computers, Peripherals & Internet Equipment	1400,67,880.00	328,25,131.00	0.00	1728,93,011.00	1329,55,301.92	60%	239,62,625.45	1569,17,927.37	159,75,083.63
5.1.4	Furniture & Fixtures	756,23,330.00	177,85,116.00	0.00	934,08,446.00	160,34,568.80	10%	77,37,387.72	237,71,956.52	696,36,489.48
5.1.5	Land - Freehold	146,62,250.00	0.00	0.00	146,62,250.00	0.00	0%	0.00	0.00	146,62,250.00
5.1.6	Library Books & Journals	2594,57,535.00	599,17,675.00	18,675.00	3193,56,535.00	2217,55,078.38	60%	585,60,873.97	2803,15,952.35	390,40,582.65
5.1.7	Office Automation	16,12,273.00	0.00	0.00	16,12,273.00	4,47,405.76	15%	1,74,730.09	6,22,135.84	9,90,137.16
5.1.8	Equipment/ Lab. Development : Plant, Machinery & Equipment	4588,75,981.00	2094,28,794.19	251,88,553.00	6431,16,222.19	2325,64,417.59	15%	615,82,770.69	2941,47,188.28	3489,69,033.91
5.1.9	Power & Water Supply Equipment	1560,22,766.00	143,09,636.00	0.00	1703,32,402.00	384,53,559.66	10%	131,87,884.23	516,41,443.89	1186,90,958.11
5.1.10	Roads & Buildings	9598,67,004.00	4489,67,108.00	52,54,570.00	14035,79,542.00	2686,22,090.49	10%	1221,25,593.15	3907,47,683.64	10128,31,858.36
5.1.11	Student Amenities	251,08,102.00	26,55,684.00	0.00	277,63,786.00	76,65,707.75	10%	20,09,807.83	96,75,515.57	180,88,270.43
5.1.12	Vehicles	70,16,278.00	11,16,260.00	0.00	81,32,538.00	45,94,022.50	15%	5,30,777.33	51,24,799.82	30,07,738.18
5.1.13	<b>Total - Current year (Plan)</b>	<b>21222,72,159.00</b>	<b>8021,09,628.19</b>	<b>304,61,798.00</b>	<b>28939,19,989.19</b>	<b>9379,07,915.71</b>		<b>2984,01,234.22</b>	<b>12363,09,148.22</b>	<b>16576,10,839.26</b>

S No	Particulars	Balance as on 01.04.2014	Additions during the year	Deduction/ Adj during the year	Gross Total	Depreciation				
						Upto 2013-14	%	For 2014-15	Total Depreciation	Closing Balance as on 31.3.2015
<b>Non-Plan:</b>										
5.2.1	Building including Gen set at NBCC Kolkata - Endowment Fund	0.00	9,00,95,299.00	0.00	9,00,95,299.00	0.00	0.00	0.00	0.00	9,00,95,299.00
5.2.2	Communication Facilities	78,70,252.00	11,33,351.00	0.00	90,03,603.00	45,79,472.59	15%	6,63,619.56	52,43,092.30	37,60,510.70
5.2.3	Computer Hardware	26,12,345.00	3,30,507.00	0.00	29,42,852.00	24,82,603.95	60%	2,76,148.83	27,58,753.38	1,84,098.62
5.2.4	Computer Software	16,13,826.00	4,300.00	0.00	16,18,126.00	15,99,263.66	60%	11,317.41	16,10,581.66	7,544.34
5.2.5	Electrical installations	40,52,962.00	0.00	0.00	40,52,962.00	18,90,048.43	10%	2,16,291.36	21,06,339.89	19,46,622.11
5.2.6	Equipment for Laboratories	1,39,64,076.00	0.00	0.00	1,39,64,076.00	1,15,71,672.00	15%	3,58,860.60	1,19,30,532.75	20,33,543.25
5.2.7	Furniture & Fixtures	1,42,89,645.00	0.00	0.00	1,42,89,645.00	1,04,66,050.51	10%	3,82,359.45	1,08,48,410.06	34,41,234.94
5.2.8	Library Books & Journals	3,57,61,766.00	10,83,009.00	0.00	3,68,44,775.00	3,50,54,162.07	60%	10,74,367.76	3,61,28,530.43	7,16,244.57
5.2.9	Office Equipment	1,40,54,976.00	17,81,751.00	0.00	1,58,36,727.00	67,21,644.57	10%	9,11,508.24	76,33,152.92	82,03,574.08
5.2.10	Roads & Buildings (On Freehold Land):	97,69,200.00	0.00	0.00	97,69,200.00	49,95,838.82	10%	4,77,336.12	54,73,175.03	42,96,024.97
5.2.11	Student Hostel furniture	14,44,548.00	0.00	0.00	14,44,548.00	6,98,633.28	10%	74,591.47	7,73,224.86	6,71,323.14
5.2.12	Tubewells & Water Supply Equipment	14,38,377.00	1,83,934.00	0.00	16,22,311.00	7,36,640.36	10%	88,567.06	8,25,207.52	7,97,103.48
5.2.13	Vehicles	5,51,432.00			5,51,432.00	4,01,171.97	15%	22,539.01	4,23,711.12	1,27,720.88
5.2.14	<b>Total - Current year (Non Plan)</b>	<b>10,74,23,405.00</b>	<b>9,46,12,151.00</b>	<b>0.00</b>	<b>20,20,35,556.00</b>	<b>8,11,97,202.21</b>		<b>45,57,506.86</b>	<b>8,57,54,706.22</b>	<b>2,61,85,545.07</b>
5.2.15	<b>Total (Plan &amp; Non Plan)</b>	<b>2,22,96,95,564.00</b>	<b>89,67,21,779.19</b>			<b>44,95,68,031.00</b>		<b>30,29,58,741.08</b>	<b>1,32,20,63,854.44</b>	<b>1,68,37,96,384.33</b>

S No	Particulars	Balance as on 01.04.2014	Additions during the year	Deduction/ Adj during the year	Gross Total	Depreciation				
						Project:	Upto 2013-14	%	For 2014-15	Total Depreciation
5.3.1	Books and Journals	19,49,347.00	3,75,352.00	0.00	23,24,699.00	16,59,061.51	60%	3,99,382.49	20,58,444.00	2,66,255.00
5.3.2	Computer Software	1,06,78,697.00	49,18,226.00	0.00	1,55,96,923.00	88,25,945.32	60%	40,62,586.61	1,28,88,531.93	27,08,391.07
5.3.3	Computers, Peripherals & Internet Equipment	2,56,52,475.40	53,15,165.00	0.00	3,09,67,640.40	2,37,06,005.15	60%	43,56,981.15	2,80,62,986.30	29,04,654.10
5.3.4	Furniture & Fixtures	28,68,243.00	3,88,258.00	0.00	32,56,501.00	7,82,884.85	10%	2,47,361.61	10,30,246.47	22,26,254.53
5.3.5	Office Equipment	25,80,520.00	1,25,251.00	0.00	27,05,771.00	6,17,966.19	10%	2,08,780.48	8,26,746.67	18,79,024.33
5.3.6	Plant, Machinery, & Equipment - Equipment/Lab. Development	21,34,64,985.27	5,98,62,485.00	0.00	27,33,27,470.27	11,51,24,231.15	15%	2,37,30,485.87	13,88,54,717.02	13,44,72,753.25
5.3.7	Roads & Buildings (On Freehold Land)	3,94,35,847.06	1,29,915.00	0.00	3,95,65,762.06	2,46,92,767.09	10%	14,87,299.50	2,61,80,066.59	1,33,85,695.47
5.3.8	Vehicles	10,43,602.00	0.00	0.00	10,43,602.00	7,98,000.62	15%	36,840.21	8,34,840.83	2,08,761.17
<b>5.3.9</b>	<b>Current year (Project)</b>	<b>29,76,73,716.73</b>	<b>7,11,14,652.00</b>	<b>0.00</b>	<b>36,87,88,368.73</b>	<b>17,62,06,861.88</b>		<b>3,45,29,717.92</b>	<b>21,07,36,579.80</b>	<b>15,80,51,788.93</b>
	<b>TOTAL - Current year</b>	<b>2,52,73,69,280.73</b>	<b>96,78,36,431.19</b>	<b>3,04,61,798.00</b>	<b>3,46,47,43,913.92</b>	<b>1,19,53,11,979.81</b>		<b>33,74,88,459.00</b>	<b>1,53,28,00,434.24</b>	<b>1,84,18,48,173.26</b>
	* Depreciation has been calculated as per prescribed rates (Details are explained under Notes on Accounts)									

SCHEDULE - VI : INVESTMENTS					
	PARTICULARS	Balance as on 01.04.2014	Investments/ Renewals during the year	Investments Encashed/ adj. during the year	Balance as on 31.03.2015
<b>Plan:</b>					
6.1.1	Bank Fixed Deposits	175,00,000.00	8900,53,425.00	9075,53,425.00	0.00
<b>6.1.2</b>	<b>Sub-total - Plan</b>	<b>0.00</b>	<b>8900,53,425.00</b>	<b>9075,53,425.00</b>	<b>0.00</b>
<b>Non-Plan:</b>					
6.2.3	8% GOI Bond (End. Fund Invst.)	700,00,000.00			700,00,000.00
6.2.4	Accrued Interest on End Fund FDRs	382,42,677.00	689,95,811.00	382,42,677.00	689,95,811.00
6.2.5	Accrued Interest on NP Investments	0.00			0.00
6.2.6	Endowment fund: Bank FDs	3809,09,764.00	380,00,000.00	840,75,500.00	3348,34,264.00
6.2.7	GIA & School income: Bank FDs	0.00	8253,15,188.00	8253,15,188.00	0.00
6.2.8	Scholarship funds: Bank FDs	95,21,825.00	26,25,000.00	1,25,000.00	120,21,825.00
<b>6.2.9</b>	<b>Sub-total - Non Plan</b>	<b>4986,74,266.00</b>	<b>9349,35,999.00</b>	<b>9477,58,365.00</b>	<b>4858,51,900.00</b>
<b>Projects:</b>					
6.3.1	Accrued Interest	525,31,558.00	787,96,909.02	525,31,558.00	787,96,909.02
6.3.2	Bank FDs & GOI Bonds	3559,73,265.00	6115,90,756.76	3182,53,476.00	6493,10,545.76
<b>6.3.3</b>	<b>Sub-total - Projects</b>	<b>4085,04,823.00</b>	<b>6903,87,665.78</b>	<b>3707,85,034.00</b>	<b>7281,07,454.78</b>
<b>6.00</b>	<b>GRAND TOTAL INVESTMENTS</b>	<b>9071,79,089.00</b>	<b>25153,77,089.78</b>	<b>22260,96,824.00</b>	<b>12139,59,354.78</b>
<b>SCH.- VII : CURRENT ASSETS, LOANS, ADVANCES, ETC.</b>					
<b>VII (A) - CURRENT ASSETS</b>					
<b>Cash and Bank Balances :</b>					
<b>Plan:</b>	<b>Particulars</b>	<b>2014-15</b>	<b>2014-15</b>	<b>2013-14</b>	<b>2013-14</b>
7.1.1	Cash at Bank :				
7.1.2	SBI, ISM Campus Br. Dhanbad (Plan C/A)	1479,40,634.41		456,50,559.91	
<b>7.1.3</b>	<b>Sub Total (Plan)</b>		<b>1479,40,634.41</b>		<b>456,50,559.91</b>
<b>Non-Plan:</b>					
7.2.1	<b>Bank Bal. with Scheduled Banks :</b>				
7.2.2	SBI, ISM Campus Br., Dhanbad (Non Plan C/A)	1378,49,321.46		2097,52,314.60	
7.2.3	Canara Bank, SDL Br., Dhanbad	28,953.00		28,953.00	
7.2.4	Canara Bank, Parlmt. St. Br., N.Delhi	9,841.00		9,841.00	
7.2.5	SBI, ISM, Dhanbad (Endowment Fund SB A/c)	23,57,729.01		15,14,767.01	
7.2.6	Online SBI Bank A/c	83,50,902.00		28,51,344.00	
7.2.7	SBI Power Jyoti online	8,17,132.00		38,99,500.00	
7.2.8	E-payment SBI Bank Account	47,078.00		10,892.00	
<b>7.2.9</b>	<b>Sub Total (Non Plan)</b>	<b>1494,60,956.47</b>	<b>1494,60,956.47</b>	<b>2180,67,611.61</b>	<b>2180,67,611.61</b>
<b>7.2.10</b>	<b>Cash in Hand</b>	<b>1,40,634.70</b>	<b>1,40,634.70</b>	<b>87,986.70</b>	<b>87,986.70</b>
<b>7.2.11</b>	<b>Total Cash &amp; Bank Balances (Non Plan)</b>	<b>1496,01,591.17</b>	<b>1496,01,591.17</b>	<b>2181,55,598.31</b>	<b>2181,55,598.31</b>
<b>Project:</b>		<b>2014-15</b>	<b>2014-15</b>	<b>2013-14</b>	<b>2013-14</b>
	<b>Balance with Scheduled Banks:</b>				
7.3.1	Bank of India, ISM Branch, SB A/c	56,051.00		230,42,061.91	
7.3.2	Canara Bank Sandvik Chair A/ C	13,47,536.00		7,45,272.00	
7.3.3	Canara Bank TEQIP Bank A/C	284,15,054.00		449,38,357.00	
7.3.4	CanBank, SDL Br., Dh. - S.B. A/c	169,85,463.95		190,68,873.91	
7.3.5	CIL Chair, Canara Bank A/c	17,675.44		4,95,263.43	
7.3.6	MOLE CHAIR SB A/C CANARA BANK	1,27,857.00			
7.3.7	NMDC Chair in Open Cast, Canara Bank A/c	8,49,377.00		8,02,381.00	
7.3.8	ONGC AMN Ghosh Chair, Canara Bank A/c	7,02,635.58			
7.3.9	Rajiv Gandhi Chair, Canara Bank A/c	7,31,838.83		10,85,821.03	
7.3.10	Sail Chair, Canara Bank A/c	1,82,163.00		118,00,000.00	
7.3.11	SBI, ISM Br., Dhn.- Current A/c	2,32,363.90		2,32,363.90	
7.3.12	TATA Steel Chair, Canara Bank A/c	9,49,419.00		5,60,116.00	
7.3.13	Uranium Chair Canara Bank A/c	5,09,779.00			
<b>7.3.14</b>	<b>Sub Total (Project)</b>	<b>511,07,213.70</b>	<b>511,07,213.70</b>	<b>1027,70,510.18</b>	<b>1027,70,510.18</b>
7.3.15	Cash Balance in hand	27,686.00	<b>27,686.00</b>	28,143.00	<b>28,143.00</b>
<b>7.3.16</b>	<b>Total Cash &amp; Bank Balances (Project)</b>	<b>511,34,899.70</b>	<b>511,34,899.70</b>	<b>2055,69,163.36</b>	<b>1027,98,653.18</b>
<b>7.00</b>	<b>Total Cash &amp; Bank Balances</b>		<b>3486,77,125.28</b>		<b>3666,04,811.40</b>

<b>VII (B) - LOANS, ADVANCES &amp; OTHER ASSETS:</b>					
<b>(a) Loans/Advances to employees:</b>					
<b>1. Plan:</b>					
Sl No	PARTICULARS	Balance as on 01.04.2014	Investments/ Renewals during the year	Investments Encashed / adj. during the year	Balance as on 31.03.2015
7.1.4	House Building Advance	59,235.00	0.00	0.00	59,235.00
7.1.5	Staff Advance	67,228.00	1,94,868.00	2,57,130.00	4,966.00
<b>7.1.6</b>	<b>Sub-total (Plan)</b>	<b>1,26,463.00</b>	<b>1,94,868.00</b>	<b>2,57,130.00</b>	<b>64,201.00</b>
<b>2. Non-Plan:</b>					
7.2.12	Cycle Advance	20,154.00	6,000.00	10,300.00	15,854.00
7.2.13	Car Advance	6,28,500.00	0.00	1,82,000.00	4,46,500.00
7.2.14	Festival Advance	5,22,724.00	11,49,000.00	10,62,225.00	6,09,499.00
7.2.15	H.B. Advance (Against Rev.Fund)	2,21,500.00	2,17,251.00	3,27,651.00	1,11,100.00
7.2.16	House Building Advance	116,85,000.00	93,20,670.00	48,44,670.00	161,61,000.00
7.2.17	Imprest Advances	1,51,176.00	2,97,000.00	2,83,932.00	1,64,244.00
7.2.18	PC Advance	16,42,800.00	9,97,518.00	6,16,118.00	20,24,200.00
7.2.19	Scooter/Motorcycle Advance	17,87,900.00	7,84,569.00	12,44,669.00	13,27,800.00
7.2.20	Staff Advance	28,53,989.00	120,32,151.00	119,12,281.00	29,73,859.00
<b>7.2.21</b>	<b>Sub-total (Non Plan)</b>	<b>195,13,743.00</b>	<b>248,04,159.00</b>	<b>204,83,846.00</b>	<b>238,34,056.00</b>
<b>3. Project</b>					
7.3.15	Staff Advance	7,14,711.02	32,05,376.00	37,64,898.00	1,55,189.02
<b>7.3.16</b>	<b>Sub-total (Project)</b>	<b>7,14,711.02</b>	<b>32,05,376.00</b>	<b>37,64,898.00</b>	<b>1,55,189.02</b>
<b>(b) Advances to suppliers/Contractors: Capital A/c</b>					
<b>1. Plan:</b>					
7.1.7	Adv. for ISM Work-in-progress	3,91,086.00	0.00	0.00	3,91,086.00
7.1.8	Advance of books and Journals	5,779.00	0.00	0.00	5,779.00
7.1.9	Advances to contractos	40857,34,618.00	5350,41,173.00	4185,96,617.00	42021,79,174.00
7.1.10	Advances to suppliers	59,39,902.00	70,90,184.00	11,16,260.00	119,13,826.00
7.1.12	Prepaid Expenses	29,78,100.00	0.00	4,96,350.00	24,81,750.00
<b>7.1.13</b>	<b>Sub-total</b>	<b>40950,49,485.00</b>	<b>5421,31,357.00</b>	<b>4202,09,227.00</b>	<b>42169,71,615.00</b>
<b>2. Non Plan:</b>					
7.2.22	Advances to suppliers	120,58,886.00	820,24,645.00	801,06,004.00	139,77,527.00
7.2.23	Adv.to foreign suppliers against LC	0.00			0.00
<b>7.2.24</b>	<b>Sub-total</b>	<b>120,58,886.00</b>	<b>820,24,645.00</b>	<b>801,06,004.00</b>	<b>139,77,527.00</b>
<b>3. Project:</b>					
7.3.17	Advance to suppliers	226,07,473.62	5,60,354.00	23,61,553.00	208,06,274.62
<b>7.3.18</b>	<b>Sub-total</b>	<b>226,07,473.62</b>	<b>5,60,354.00</b>	<b>23,61,553.00</b>	<b>208,06,274.62</b>
<b>(c) - Other Deposits</b>					
<b>1. Plan:</b>					
		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
7.1.14	Grants in aid receivable from MHRD	1000,00,000.00	0.00	1000,00,000.00	0.00
7.1.15	Non Plan Control Account (Please see Current Liabilities)	0.00	0.00	0.00	0.00
7.1.16	SD with DVC	50,000.00	0.00	0.00	50,000.00
7.1.17	SD with IOC/ Mahavir Gas, Dhanbad	78,342.00	0.00	0.00	78,342.00
7.1.18	SD with JSEB	40,05,318.00	0.00	0.00	40,05,318.00
<b>7.1.19</b>	<b>Sub-total</b>	<b>1041,33,660.00</b>	<b>0.00</b>	<b>1000,00,000.00</b>	<b>41,33,660.00</b>
<b>2. Non Plan:</b>					
		<b>Balance as on 01.04.2014</b>	<b>Additions during the year</b>	<b>Deduction/Adj during the year</b>	<b>Balance as on 31.03.2015</b>
7.2.25	Deficit Current Year	99,47,474.91	0.00	99,47,474.91	0.00
7.2.26	Grants-in-aid Receivable	871,35,000.00	0.00	871,35,000.00	0.00
7.2.27	Plan Control Account	-8,99,999.64	900,73,632.00	363,80,688.00	527,92,944.36
7.2.28	Project Control Account (End Fund)	409,12,345.87	333,02,925.85	409,12,346.00	333,02,925.72
7.2.29	Project Control Account (General)	-845,86,460.00	1641,33,984.00	187,38,776.00	608,08,748.00
7.2.30	SD with IOC/Mahavir Gas, Dh.	1,87,400.00	0.00	0.00	1,87,400.00
7.2.31	SD with Sunita Rani Marwaha	28,500.00	0.00	0.00	28,500.00
7.2.32	SD with BSNL, Dh.	67,500.00	0.00	0.00	67,500.00
7.2.33	SD with J.S.E.B.	38,77,000.00	0.00	0.00	38,77,000.00
7.2.34	TDS Receivable	7,29,804.00	0.00	0.00	7,29,804.00
<b>7.2.35</b>	<b>Sub-total</b>	<b>573,98,565.14</b>	<b>2875,10,541.85</b>	<b>1931,14,284.91</b>	<b>1517,94,822.08</b>
<b>3. Project:</b>					
7.3.19	Security Deposit with Samanta & Co	12,000.00	0.00	0.00	12,000.00
7.3.20	Plan Control Account	998,38,454.00	1145,53,937.19	1949,68,876.00	194,23,515.19
<b>7.3.21</b>	<b>Sub-total</b>	<b>998,50,454.00</b>	<b>1145,53,937.19</b>	<b>1949,68,876.00</b>	<b>194,35,515.19</b>

Total Loan, Advances & Deposits					
7.10	Total (Loan, Advances & Deposits) - PLAN	41993,09,608.00	6902,66,859.41	5204,66,357.00	43691,10,110.41
7.20	Total (Loan, Advances & Deposits)- N PLAN	889,71,194.14	5439,40,937.02	2937,04,134.91	3392,07,996.25
7.30	Total (Loan, Advances & Deposits) - PROJECT	1231,72,638.64	1183,19,667.19	2010,95,327.00	915,31,878.53
7	Total Current Assets	44114,53,440.78			47998,49,985.19
Sl.No.	Particulars	Current Year : 2014-15		Previous Year : 2013-14	
<b>SCH. VIII - GRANTS IN AID</b>					
8.1.1	Grants-in-aid from MHRD (Plan)	11000,00,000.00		11000,00,000.00	
8.1.2	Add: GIA Receivable for the year			0.00	
8.1.3	Total	11000,00,000.00		11000,00,000.00	
8.1.4	Less: Transferred to Capital Fund towards non-recurring expenses	0.00	11000,00,000.00	7284,76,399.23	3715,23,600.77
8.1.5	Grants-in-aid from MHRD (Non-Plan)	6249,40,000.00		5227,35,000.00	
8.1.6	Less: Transferred to Capital Fund towards non-recurring expenses	16,59,851.00		12,62,491.00	
8.1.7	Less: Balance of GIA transferred to Unspent GIA for VI Pay Commission Arrears	0.00	6232,80,149.00	0.00	5214,72,509.00
8	Total Grants in Aid	17249,40,000.00	17232,80,149.00	16227,35,000.00	8929,96,109.77
<b>SCH.- IX - FEES FROM STUDENTS:</b>					
<b>Non-Plan:</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>	
9.2.1	(a) Tuition fees	1966,44,563.00		1061,41,610.00	
9.2.2	(b) Less: Refund of tuition fees	0.00	1966,44,563.00	0.00	1061,41,610.00
9.2.3	Admission fees	13,20,660.00		14,16,668.00	
9.2.4	Annual fees	56,47,700.00		48,13,000.00	
9.2.5	Application Fees for Admission	63,74,350.00		120,35,500.00	
9.2.6	Computer & Internet Fee	108,86,000.00		81,09,000.00	
9.2.7	DEGREE CERTIFICATE	3,23,050.00		0	
9.2.8	Electric Charges (Students)	52,06,631.00		41,29,856.00	
9.2.9	Entrance Exam. Fees	8,17,750.00		0	
9.2.10	EXAM FEE	119,91,750.00		93,96,200.00	
9.2.11	Fine/Penalty From Students	14,22,416.00		1,64,526.00	
9.2.12	Hostel & Mess Management Fee	31,67,600.00		0	
9.2.13	Hostel admission fees	10,55,300.00		9,93,250.00	
9.2.14	Hostel seat rent	141,08,125.00		122,42,100.00	
9.2.15	Hostel seat rent(outside students)	68,050.00		3,150.00	
9.2.16	Identity card	3,54,800.00		4,26,500.00	
9.2.17	International EDC Annxe Lodgin Fee	3,80,907.00			
9.2.18	Library fees	78,49,205.00		53,97,000.00	
9.2.19	Mark sheet Fees	1,27,000.00		44,500.00	
9.2.20	Medical Fees From Students	13,04,200.00		15,15,450.00	
9.2.21	Migration certificate fees	8,29,350.00		6,73,350.00	
9.2.22	Outside Students Training Fee	2,36,000.00		1,76,000.00	
9.2.23	Registration Fee	26,74,695.00		14,28,300.00	
9.2.24	Semester Rule Book Fee	13,09,955.00		17,28,830.00	
9.2.25	Sports fees & entry fees	21,53,200.00		16,20,800.00	
9.2.26	Student Activity Centre Fee	46,640.00		14,32,570.00	
9.2.27	Student activity fees	64,72,832.00		2,14,700.00	
9.2.28	Student Other fees	8,38,421.00		35,13,653.00	
9.2.29	THESIS EVALUATION FEE	5,45,000.00			
9.2.30	Training & Placement Support Fee	110,14,000.00		84,61,528.00	
9.2.31	Transcript Fee	7,89,950.00			
9.2.32	University/Degree exam. Fees	0.00	993,15,537.00	1,71,300.00	801,07,731.00
9	<b>TOTAL</b>		<b>2959,60,100.00</b>		<b>1862,49,341.00</b>
<b>SCH. - X: INTEREST INCOME</b>					
<b>Plan:</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>	
<b>Interest from Bank</b>					
10.1.1	Interest on FDRs	71,58,418.00		228,03,492.00	
10.1.2	Miscellaneous Income	48,548.00		23,625.00	
<b>Income from BRS</b>		99,886.50		0.00	
10.1.3	<b>Sub Total (Plan)</b>		<b>73,06,852.50</b>		<b>228,27,117.00</b>

<b>Non Plan:</b>				
<b>A. Interest from Bank</b>				
10.2.1	Interest on Endowment Fund	9615981.36		
10.2.2	Less : Transfer to End Fund	-9615981.36		
10.2.3	Interest from FDRs	45,19,209.00	51,71,066.00	
10.2.4	Interest from Post Office SB a/c		<b>45,19,209.00</b>	<b>51,71,066.00</b>
<b>B. Interest from employees:</b>				
10.2.5	(a) Intt. from HBA to Employees	4,48,298.00	6,76,489.00	
10.2.6	(b) Less: Transfer to HBA		<b>4,48,298.00</b>	<b>6,76,489.00</b>
10.2.7	Interest on other Adv. to Employees:		0.00	
10.2.8	Interest from Cycle Adv.			
10.2.9	Interest on LTC Adv.	1,894.00		
10.2.10	Intt. on PC advance	78,480.00	78,762.00	
10.2.11	Interest from Scooter Advance	19,669.00	44,027.00	
10.2.12	Interest from Car Advance		22,973.00	<b>1,45,762.00</b>
10.2.13	<b>Sub Total (Non Plan)</b>		<b>50,67,550.00</b>	<b>59,93,317.00</b>
<b>Project:</b>				
<b>Interest from Bank</b>				
10.3.1	Interest on Investment	323,71,620.45	387,61,323.45	
10.3.2	Interest on S.B. A/cs	9,58,126.00	22,14,107.27	
10.3.3	Miscellaneous Income	0.00	0.00	409,75,430.72
10.3.4	<b>Subtotal (Project)</b>		<b>333,29,746.45</b>	<b>409,75,430.72</b>
<b>10.A</b>	<b>INTEREST INCOME - PLAN</b>		73,06,852.50	228,27,117.00
<b>10.B</b>	<b>INTEREST INCOME - NON PLAN</b>		50,67,550.00	59,93,317.00
<b>10.C</b>	<b>INTEREST INCOME - PROJECT</b>		333,29,746.45	409,75,430.72
<b>10</b>	<b>TOTAL - INTEREST INCOME</b>		<b>457,04,148.95</b>	<b>697,95,864.72</b>
<b>SCH. - XI: OTHER INCOME</b>				
<b>Non-Plan:</b>				
<b>A. Recoveries from employees:</b>				
11.2.1	Bus fare / vehicle charges	2,96,119.00	2,98,626.00	
11.2.2	Electricity charges	26,08,356.00	21,88,787.00	
11.2.3	License fees	22,04,971.00	22,67,189.00	
11.2.4	Medical charges	28,61,607.00	28,38,386.00	
11.2.5	Water charges	5,026.00	4,644.00	<b>75,97,632.00</b>
<b>B. Income from others:</b>				
11.2.6	Application fees for employment	86,600.00	1,39,000.00	
11.2.7	Contribution to Seminar Received	90,000.00	0.00	
11.2.8	CRF Analysis Charges	2,98,500.00	91,000.00	
11.2.9	EDC room rent	81,78,300.00	52,41,692.00	
11.2.10	Electric charges from tenants	22,20,299.00	16,54,260.00	
11.2.11	GJLT/Penman Rent	7,00,800.00	5,86,509.00	
11.2.12	Income from BRS	2,36,669.00	2,40,190.00	
11.2.13	License fees from tenants	8,61,927.00	6,92,561.00	
11.2.14	Miscellaneous income	1,78,251.50	11,08,337.00	
11.2.15	Sr. Acad. Hostel Room Rent	14,04,020.00	10,93,391.00	
11.2.16	Tender Cost	7,81,600.00	150,36,966.50	<b>117,41,080.00</b>
<b>C. Income from Consultancy /Projects:</b>				
11.2.17	School share from Consultancy		1,72,679.00	
11.2.18	School support from Consultancy/ Projects	356,72,264.00	<b>356,72,264.00</b>	<b>213,33,440.00</b>
11.2.19	<b>Sub Total (Other Income N Plan)</b>		<b>586,85,309.50</b>	<b>291,03,751.00</b>
<b>11</b>	<b>Total Other Income</b>		<b>586,85,309.50</b>	<b>291,03,751.00</b>
<b>9A</b>	<b>Total Fees from Students</b>		2959,60,100.00	1862,49,341.00
<b>10A</b>	<b>Total Interest Income</b>		457,04,148.95	697,95,864.72
<b>11A</b>	<b>Total Other Income</b>		586,85,309.50	291,03,751.00
	<b>Total Administrative Income</b>		<b>4003,49,558.45</b>	<b>2851,48,956.72</b>



SCH. XII - ESTABLISHMENT EXPENSES		Current Year : 2014-15		Previous Year : 2013-14	
<b>Plan:</b>					
12.1.1	Pay & Allowances		<b>0.00</b>	388,25,438.00	<b>388,25,438.00</b>
<b>Non-Plan:</b>					
<b>Pay and Allowances:</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>	
12.2.1	Arrears of VI Pay Commission	0.00		61,638.00	
12.2.2	Bonus	10,07,984.00		11,65,971.00	
12.2.3	Children Education Allowance	44,13,179.00		36,09,387.00	
12.2.4	City Compensatory Allowance	0.00		0.00	
12.2.5	Conveyance/Transport Allowance	85,12,935.00		76,55,846.00	
12.2.6	Dearness Allowance	2282,14,429.00		1684,16,041.00	
12.2.7	Grade Pay	375,23,154.00		329,32,329.00	
12.2.8	Honorarium	29,21,963.00		24,63,995.00	
12.2.9	Honorarium TATA Steel Chair	2,40,000.00		1,82,581.00	
12.2.10	House Rent Allowance	46,91,650.00		44,09,481.00	
12.2.11	House Rent for Accommodation to Faculty	0.00		0.00	
12.2.12	Interim Relief	0.00		0.00	
12.2.13	Leave Travel Concession	58,94,804.00		85,88,974.00	
12.2.14	Non-Practicing Allowance	2,71,659.00		2,41,577.00	
12.2.15	Other Allowances	14,17,013.00		9,34,063.00	
12.2.16	Overtime	4,13,663.00		3,03,670.00	
12.2.17	Pay arrears	0.00		0.00	
12.2.18	Pay of Officers	1401,27,410.00		1053,43,903.00	
12.2.19	Pay of Staff	510,84,137.00		492,14,658.00	
12.2.20	Personal pay	3,84,200.00		3,29,670.00	
12.2.21	Reimb.of profs. exp. to teachers/ Personal Development Allowance	163,31,960.00		107,46,472.00	
12.2.22	Special allowance to Director	0.00		50,000.00	
12.2.23	Wages	234,50,033.00		233,94,441.00	
12.2.24	Washing Allowance	1,46,364.00		1,40,742.00	
<b>12.2.25</b>	<b>Sub-total</b>	<b>5270,46,537.00</b>	<b>5270,46,537.00</b>	<b>4201,85,439.00</b>	<b>4201,85,439.00</b>
<b>Retirement Benefits:</b>					
12.2.26	Pension	823,56,464.00		700,02,457.00	
12.2.27	Gratuity	156,68,743.00		142,06,792.00	
12.2.28	Leave Salary	202,19,503.00		91,04,443.00	
<b>12.2.29</b>	<b>Sub Total</b>	<b>1182,44,710.00</b>		<b>737,95,308.00</b>	
12.2.30	Less: Received from other orgns.	0.00			
<b>12.2.31</b>	<b>Sub Total</b>	<b>1182,44,710.00</b>		<b>737,95,308.00</b>	
12.2.32	Retirement T.A.	6,17,129.00		5,81,195.00	
12.2.33	Medical allowance	1,91,400.00		1,70,749.00	
12.2.34	Deposit Linked Insurance	0.00		60,000.00	
12.2.35	Matching contribn.to CPF members	27,29,282.00		28,82,261.00	
12.2.36	Matching contribn.to DCPS members	191,49,975.00	<b>1409,32,496.00</b>	135,49,318.00	<b>910,38,831.00</b>
<b>12.2.37</b>	<b>T O T A L (Non Plan)</b>		<b>6679,79,033.00</b>		<b>5112,24,270.00</b>
<b>12.A</b>	<b>ESTABLISHMENT EXPS - PLAN</b>		<b>0.00</b>		<b>388,25,438.00</b>
<b>12.B</b>	<b>ESTABLISHMENT EXPS - NON PLAN</b>		<b>6679,79,033.00</b>		<b>5112,24,270.00</b>
<b>12</b>	<b>TOTAL - ESTABLISHMENT EXPENSES</b>		<b>6679,79,033.00</b>		<b>5500,49,708.00</b>
<b>SCH. XIII - OTHER ADMINISTRATIVE EXPENSES</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>	
<b>Plan:</b>					
<b>a.</b>	<b>Travelling Expenses</b>		<b>0.00</b>	0.00	<b>0.00</b>
<b>b.</b>	<b>Departmental Expenses</b>				
13.1.1	Applied Chemistry (Cont.)	0.00		3,95,554.00	
13.1.2	Electrical Engg Deptt	17,904.00		1,54,136.00	
13.1.3	Environmental Sc & Engg	0.00		68,675.00	
13.1.4	Chemical Engineering	44,180.00	<b>62,084.00</b>	4,35,509.00	<b>10,53,874.00</b>
<b>c.</b>	<b>Other Educational Exp.</b>				
13.1.5	Dual Degree Fellowship	17,86,662.00		2,53,200.00	
13.1.6	Entrance Exam. & Admission exp.	19,320.00		0.00	
13.1.7	Examination Section	5,02,021.00		14,48,889.00	

13.1.8	Grant for R&D Projects	153,39,000.00		199,95,000.00	
13.1.9	MCM Scholarship	147,98,245.00		191,93,320.00	
13.1.10	MESS Bill/ Pocket Money (SC/ ST)	24,39,098.00			
13.1.11	ONGC Scholarship	1,20,000.00			
13.1.12	PG Fellowship	59,05,250.00		267,31,171.00	
13.1.13	Research Fellowship	719,68,478.00		68,48,159.00	
13.1.14	Science Direct & E-Journals	166,03,833.00			
13.1.15	Student's Amenities and activities	9,64,763.00		8,40,531.00	
13.1.16	UGC Scholarship	5,82,000.00	<b>1310,28,670.00</b>	90,11,247.00	<b>843,21,517.00</b>
<b>d.</b>	<b>General Expenses:</b>				
13.1.17	Bank Charges	12,236.00		11,292.00	
13.1.18	Electricity Charges	201,12,894.00		236,76,152.00	
13.1.19	Generator Running & Maint. Exp.	82,93,989.00		7,78,941.00	
13.1.20	Health Centre & Medical Care Exp.	47,12,508.00		55,21,188.00	
13.1.21	Security Services	52,01,929.00		89,39,085.00	
13.1.22	Staff Selection Expenses	62,72,193.00		0.00	
13.1.23	Telephone/fax/internet/Website exp.	57,37,598.00		25,27,466.00	
13.1.24	Vehicle Running & Maint. Exp.	6,200.00	<b>503,49,547.00</b>	1,26,832.00	<b>415,80,956.00</b>
<b>e.</b>	<b>Miscellaneous Expenses</b>				
13.1.25	ISM Expansion Plan			0.00	
13.1.26	Public Health & Pest Control			23,73,504.00	
13.1.27	Repair & Maintenance	207,23,717.00		151,85,806.00	
13.1.28	Round off		<b>207,23,717.00</b>	0.00	<b>175,59,310.00</b>
<b>13.1.29</b>	<b>Sub-total (Plan)</b>		<b>2021,64,018.00</b>		<b>1445,15,657.00</b>
<b>Non-Plan:</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>	
<b>a.</b>	<b>Travelling Expenses:</b>				
13.2.1	TA to Employees	7,65,872.00		13,91,300.00	
13.2.2	TA for Trg/Seminar/Conf etc in India	63,227.00		1,22,873.00	
13.2.3	TA for Trg/Seminar/Conf etc abroad	0.00		0.00	
13.2.4	TA for Meetings & Meeting Exp.	39,23,067.00		22,62,045.00	
13.2.5	TA to External Experts/Officials	21,53,091.00	<b>69,05,257.00</b>	15,22,933.00	<b>52,99,151.00</b>
<b>b.</b>	<b>Departmental Expenses:</b>				
13.2.6	Administrative Dept Exp	5,62,596.00		12,83,274.00	
13.2.7	Applied Chemistry	11,93,386.00		14,04,653.00	
13.2.8	Applied Geology	13,54,892.00		12,42,100.00	
13.2.9	Applied Geophysics	9,25,439.00		7,88,694.00	
13.2.10	Applied Mathematics	4,32,450.00		3,44,871.00	
13.2.11	Applied Physics	6,19,454.00		4,97,691.00	
13.2.12	Central Library	4,79,975.00		3,44,909.00	
13.2.13	Centre for Mine Environment (ESE)	10,08,282.00		13,57,635.00	
13.2.14	Chemical Engineering	5,14,899.00		53,715.00	
13.2.15	Civil Engineering	2,42,273.00		13,00,629.00	
13.2.16	Computer Centre	2,44,465.00		1,98,584.00	
13.2.17	Computer Science & Engineering	3,36,955.00		2,75,458.00	
13.2.18	Electrical Engg	3,05,867.00		2,03,549.00	
13.2.19	Electronics & Instrumentation	8,26,603.00		6,78,807.00	
13.2.20	Executive Development Centre	13,82,203.00		8,94,328.00	
13.2.21	Fuel & Mineral Engg	8,44,871.00		7,67,736.00	
13.2.22	Humanities & Social Sciences	54,815.00		68,208.00	
13.2.23	Inter Disciplinary Research Contingency	39,965.00		3,33,327.00	
13.2.24	Management Studies	3,96,782.00		3,00,912.00	
13.2.25	Mech Engg & Mining Mach Engg	14,600.00		1,95,009.00	
13.2.26	Mechanical Engineering	6,20,118.00		3,45,636.00	
13.2.27	Mining Engineering	12,99,662.00		13,16,093.00	
13.2.28	Mining Mach Engg	5,19,923.00		3,83,249.00	
13.2.29	Petroleum Engg	11,87,363.00		7,39,402.00	
13.2.30	Sports & Gymnasium	30,99,333.00		12,47,168.00	
13.2.31	Workshop	16,12,228.00	<b>201,19,399.00</b>	16,16,033.00	<b>181,81,670.00</b>
<b>c.</b>	<b>Other Educational Expenses:</b>		<b>Current Year : 2014-15</b>	<b>Previous Year : 2013-14</b>	
13.2.32	B Tech - Entrance Examination Exps	5,80,590.00		4,87,010.00	
13.2.33	Contbn. to Seminars/Symposia	60,000.00		20,000.00	
13.2.34	Entrance Exam/Admission Expenses	0.00		4,49,224.00	
13.2.35	Examination Section Exp.	63,60,379.00		14,53,369.00	
13.2.36	JRF - Entrance Examination Exps	13,38,638.00		10,66,264.00	
13.2.37	Library Periodicals	4,26,969.00		5,51,930.00	
13.2.38	M Tech - Entrance Examination Exps	13,49,760.00		13,37,434.00	
13.2.39	MBA - Entrance Examination Exps	1,19,682.00		1,50,630.00	
13.2.40	MSC/ MSC Tech - Entrance Exam Exps	16,71,424.00		13,00,597.00	

13.2.41	Prizes to Students	4,05,789.00		91,250.00	
13.2.42	Students Activities	26,33,000.00		15,17,363.00	
13.2.43	Students Amenities	13,98,844.00	<b>163,45,075.00</b>	9,50,961.00	<b>93,76,032.00</b>
13.2.44	<b>Scholarship to Students:</b>				
13.2.45	Dual Degree Contingency	67,345.00		4,17,335.00	
13.2.46	Dual Degree Fellowship	16,35,389.00		18,79,697.00	
13.2.47	MCM SCHOLARSHIP	396,01,909.00		0.00	
13.2.48	Mess bill/Pocket Exp to SC/ST students	25,10,399.00		36,68,532.00	
13.2.49	PG Contingency	16,30,854.00		7,26,606.00	
13.2.50	Research Contingency	102,37,095.00		47,05,239.00	
13.2.51	Research Fellowship	421,31,399.00		693,77,830.00	
13.2.52	Student Scholarship (PG)	280,42,948.00		0.00	
13.2.53	Student Scholarship (UG)	3,52,000.00	<b>1262,09,338.00</b>	9,28,926.00	<b>817,04,165.00</b>
<b>13.2.54</b>			<b>1425,54,413.00</b>		<b>910,80,197.00</b>
<b>d.</b>	<b>General Expenses:</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>
13.2.55	Advertisement & Publicity	60,97,633.00		58,41,165.00	
13.2.56	Electricity Charges	198,94,750.00		159,88,989.00	
13.2.57	Generator Running & Maint. Exp.	165,01,408.00		145,53,261.00	
13.2.58	Health Centre Expenses/Medical cover to Employees/Students	165,22,230.00		143,44,423.00	
13.2.59	Horticulture & Gardening	41,08,163.00		26,05,839.00	
13.2.60	Hospitality & Public Relations	5,11,250.00		3,75,725.00	
13.2.61	Liasioning Office Expenses	5,70,056.00		5,78,522.00	
13.2.62	Postage & Telegram	10,88,310.00		7,23,226.00	
13.2.63	Printing & Stationery	39,91,539.00		40,72,844.00	
13.2.64	School's membership to professional bodies	1,91,987.00		15,74,040.00	
13.2.65	Security Services	280,25,752.00		201,10,944.00	
13.2.66	Telephone/Telex/Fax/Internet Connectivity	31,23,131.00		12,55,897.00	
13.2.67	Uniform to Staff	2,95,873.00		72,625.00	
13.2.68	UNIVERSITY MEM SHIP OF PROF. BODIES	1,73,544.00		0.00	
13.2.69	Vehicle Running & Maint. Expenses	20,29,805.00		15,60,540.00	
13.2.70	Water Supply expenses	52,60,952.00	<b>1083,86,383.00</b>	51,32,513.00	<b>887,90,553.00</b>
<b>e.</b>	<b>Miscellaneous Expenses</b>		<b>Current Year : 2014-15</b>		<b>Previous Year : 2013-14</b>
13.2.70	Audit Fees & Expenses	2,66,398.00		7,22,657.00	
13.2.71	Bank Charges	10,748.00		36,239.50	
13.2.72	Contingent Expenses	17,15,415.00		12,07,827.00	
13.2.73	Convocation / Annual Day / Exhibition / Fair	13,83,383.00		-5,80,510.00	
13.2.74	CRF REVENUE EXP.	1,50,911.00			
13.2.75	Deficit Set Off	0.00		0.00	
13.2.76	Legal expenses	4,65,903.00		2,19,284.00	
13.2.77	Loss by theft	0.00		0.00	
13.2.78	MISCELLANEOUS EXP.	8,250.00		0.00	
13.2.79	Public Health & Pest Control	61,44,308.00		8,70,758.00	
13.2.80	Publications	3,96,127.00		2,48,503.00	
13.2.81	Rajbhasha & Other Statutory Exp.	4,19,120.00		3,12,561.00	
13.2.82	Senior Academic Hostel	2,72,625.00		1,05,162.00	
13.2.83	Trng. of Teachers/Staff incl.seminars etc.	3,72,295.00		1,92,138.00	
13.2.84	Visiting Part-time Lecturers	11,49,663.00		9,25,171.00	
13.2.85	Welfare Measures	7,45,588.00	<b>135,00,734.00</b>	7,74,919.00	<b>50,34,709.50</b>
<b>13.2.86</b>	<b>Maintenance Exps(Repairing):</b>				
a	Civil Maintenance	173,36,830.00		140,58,914.00	
b	Computer Maintenance	3,67,984.00		6,54,353.00	
c	Electrical Maintenance	32,44,971.00		29,83,973.00	
c	Furniture & Fixtures	6,84,222.00		5,01,822.00	
d	Office & Lab Equipment	3,70,896.00		2,38,992.00	
e	Refrigeration & Air-conditioning		<b>220,04,903.00</b>		<b>184,38,054.00</b>
<b>13.2.87</b>	<b>Sub Total (NP Miscellaneous Exp)</b>		<b>355,05,637.00</b>		<b>234,72,763.50</b>

Project Account		Current Year : 2014-15		Previous Year : 2013-14	
<b>Miscellaneous Expenses:</b>					
13.3.1	Bank Charges	26820.60		63084.00	
13.3.2	Miscellaneous	0.00	<b>26820.60</b>		<b>63084.00</b>
<b>13.3</b>	<b>Total Admn Expenses Projects</b>		<b>26,820.60</b>		<b>63,084.00</b>
<b>13.1.a</b>	Travelling Exp - PLAN		0.00		0.00
<b>13.2.a</b>	Travelling Exp - NON PLAN		69,05,257.00		52,99,151.00
	<b>TOTAL - Travelling Exp</b>		<b>69,05,257.00</b>		<b>52,99,151.00</b>
<b>13.1.b</b>	Departmental Exp - PLAN		62,084.00		10,53,874.00
<b>13.2.b</b>	Departmental Exp - N PLAN		201,19,399.00		181,81,670.00
	<b>TOTAL - Departmental Exp</b>		<b>201,81,483.00</b>		<b>192,35,544.00</b>
<b>13.1.c</b>	Other Educational Exp - PLAN		1310,28,670.00		843,21,517.00
<b>13.2.c</b>	Other Educational Exp - N PLAN		1425,54,413.00		910,80,197.00
	<b>TOTAL - Other Educational Exp</b>		<b>2735,83,083.00</b>		<b>1754,01,714.00</b>
<b>13.1.d</b>	General Expenses - NON PLAN		503,49,547.00		415,80,956.00
<b>13.2.d</b>	General Expenses - PLAN		1083,86,383.00		887,90,553.00
	<b>TOTAL - General Expenses</b>		<b>1587,35,930.00</b>		<b>1303,71,509.00</b>
<b>13.1.e</b>	Misc Expenses - PLAN		207,23,717.00		175,59,310.00
<b>13.2.e</b>	Misc Expenses - NON PLAN		355,05,637.00		234,72,763.50
<b>13.3.e</b>	Misc Expenses - PROJECT		26,820.60		63,084.00
	<b>TOTAL - Misc Expenses</b>		<b>562,56,174.60</b>		<b>410,95,157.50</b>
<b>13.A</b>	<b>OTHER ADMIN EXPS - PLAN</b>		2021,64,018.00		1445,15,657.00
<b>13.B</b>	<b>OTHER ADMIN EXPS - NON PLAN</b>		2554,34,253.00		1796,14,737.50
<b>13.C</b>	<b>OTHER ADMIN EXPS - PROJECT</b>		26,820.60		63,084.00
<b>13</b>	<b>TOTAL - OTHER ADMIN EXPS</b>		<b>4576,25,091.60</b>		<b>3241,93,478.50</b>

## SCHEDULES: RECEIPT AND PAYMENT ACCOUNT FOR THE YEAR ENDING 31ST MARCH, 2015

Sch No	RECEIPTS	Non Plan 2014-15	Plan 2014-15	Project 2014-15	Total Current Year 2014-15
	<b>Opening Balances:</b>				
R.1	Cash in Hand	87,986.70	0.00	28,143.00	1,16,129.70
R.2	Cash at Bank	<b>2180,67,611.61</b>	<b>456,50,559.91</b>	<b>1027,70,510.18</b>	3664,88,681.70
R.2.1	Unknown Difference to be located	946.00	0.00	0.00	946.00
R.2.2	<b>Total Cash at Bank</b>	<b>2180,66,665.61</b>	<b>456,50,559.91</b>	<b>1027,70,510.18</b>	3664,87,735.70
R.3	<b>Grants-in-aid from MHRD</b>				0.00
R.3.1	GIA Receivable From GOI, MHRD, N.Delhi	871,35,000.00			871,35,000.00
R.3.2	Grants in Aid	6249,40,000.00			6249,40,000.00
R.3.3	Grants-in-Aid Receivable		1000,00,000.00		1000,00,000.00
R.3.4	Grants in Aid		11000,00,000.00		11000,00,000.00
R.3.5	<b>Total GIA</b>	<b>7120,75,000.00</b>	<b>12000,00,000.00</b>	<b>0.00</b>	<b>19120,75,000.00</b>
R.4	<b>Investment Encashed</b>				
R.4.1	Endowment Fund Investment	840,75,500.00			840,75,500.00
R.4.2	GIA & School Income Investment	7507,37,277.00			7507,37,277.00
R.4.3	Investment encashed		8975,53,425.00		8975,53,425.00
R.4.4	FD with Bank of India ISM Br. Project Account			34,52,542.00	34,52,542.00
R.4.5	FD with Bank of India, Cil Chair			127,00,000.00	127,00,000.00
R.4.6	FD with Bank of India, ISM (ONGC Chair)			40,22,157.00	40,22,157.00
R.4.7	FD with Bank of India, ISM Branch Mine Env. Chair			40,29,106.00	40,29,106.00
R.4.8	FD with Bank of India, ISM Branch Rajeev Gandhi Cha			80,00,000.00	80,00,000.00
R.4.9	FD With Bank of India, Rajeev Gandhi Chair			105,00,000.00	105,00,000.00
R.4.10	FD with Bank of India,ISM(Sail Chair)			74,69,721.00	74,69,721.00
R.4.11	FD with BOI, Jharia, CIL Chair Investment			100,19,178.00	100,19,178.00
R.4.12	FD with Canara Bank, Seraidhela, SAIL NMDC Chair			17,00,000.00	17,00,000.00
R.4.13	Fixed Deposits			1856,21,468.00	1856,21,468.00
R.4.14	Inderjeet Satyawati Buadhar Fund Inv. Canara Bank			2,00,000.00	2,00,000.00
R.4.15	Sandvik Chair Fund Inv. with Canara Bank			55,76,860.00	55,76,860.00
R.4.16	<b>Total Investment Encashed</b>	<b>8348,12,777.00</b>	<b>8975,53,425.00</b>	<b>2532,91,032.00</b>	<b>19856,57,234.00</b>
R.5	<b>Fees from Students</b>	<b>2864,08,962.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2864,08,962.00</b>
R.6	<b>Interest from Investments/ Advances</b>				
R.6.1	Interest Income	59,31,705.00			59,31,705.00
R.6.2	Interest Endowment Fund	96,15,981.36			96,15,981.36
R.6.3	Interst From Investments		91,24,687.00		91,24,687.00
R.6.4	Interest Received			1,04,488.77	91,04,488.77
R.6.5	<b>Total Interest from Investments/ Advances</b>	<b>155,47,686.36</b>	<b>91,24,687.00</b>	<b>91,04,488.77</b>	<b>337,76,862.13</b>
R.7	<b>Other Income</b>				
R.7.1	Income Form Projects	37,39,263.00			37,39,263.00
R.7.2	Other Income	166,55,014.50			166,55,014.50
R.7.3	CRF Analysis Charges	2,98,500.00			2,98,500.00
R.7.4	Departmental Expenses	7,145.00			7,145.00
R.7.5	Establishment Expense	31,80,274.00			31,80,274.00
R.7.6	General Expenses	19,44,308.00			19,44,308.00
R.7.7	Miscellaneous Expenses	12,48,040.00			12,48,040.00
R.7.8	Other Educational Expenses	5,01,380.00			5,01,380.00
R.7.9	Travelling Expenses	42,667.00			42,667.00
R.7.10	Income Through BRS		99,886.50		99,886.50
R.7.11	MISC. INCOME		48,548.00		48,548.00
R.7.12	Bank Charges			4,085.00	4,085.00
R.7.13	<b>Total Other Income</b>	<b>276,16,591.50</b>	<b>1,48,434.50</b>	<b>4,085.00</b>	<b>277,69,111.00</b>
R.8	<b>Statutory &amp; other Receipts/ Recoveries</b>				
R.8.1	JASPER HOSTEL	49,500.00			49,500.00
R.8.2	Misc. Receipts (Liab)	2,65,893.00			2,65,893.00

R.8.3	Vidhan Sabha Election	2,96,000.00			2,96,000.00
R.8.4	Income Tax Employees	503,05,997.00			503,05,997.00
R.8.5	Jharkhand State Professional Tax	9,36,234.00			9,36,234.00
R.8.6	Income Tax Contractor	23,35,953.00			23,35,953.00
R.8.7	Labour Welfare	1,89,103.00			1,89,103.00
R.8.8	Sales Tax 4%	7,56,396.00			7,56,396.00
R.8.9	Service Tax	34,46,884.00			34,46,884.00
R.8.10	TEQIP Income Tax	1,310.00			1,310.00
R.8.11	Income - Tax (Guest Faculties/ Adj. Prof.)	2,53,100.00			2,53,100.00
R.8.12	Income Tax {U/S 194 (I)}	7,740.00			7,740.00
R.8.13	Plan Income Tax A/c	19,72,527.00			19,72,527.00
R.8.14	Project Income Tax A/c ( Employees)	164,21,971.00			164,21,971.00
R.8.15	Project Service Tax A/c	123,86,942.00			123,86,942.00
R.8.16	Unpaid	13,600.00			13,600.00
R.8.17	Loksabha Election 2014	2,20,800.00			2,20,800.00
R.8.18	Income Tax		21,92,182.00		21,92,182.00
R.8.19	Income Tax (94 J )		27,689.00		27,689.00
R.8.20	Labour Welfare		5,26,096.00		5,26,096.00
R.8.21	SALES TAX @ 4%		21,04,369.00		21,04,369.00
R.8.22	Service Tax		5,767.00		5,767.00
R.8.23	Other Current Liability			335,44,375.00	335,44,375.00
R.8.24	Income Tax (Const) From Sail Chair			3,867.00	3,867.00
R.8.25	Income Tax Empleness, Cil Chair			2,95,411.00	2,95,411.00
R.8.26	Income Tax From Contractors			2,11,992.00	2,11,992.00
R.8.27	Income Tax From Employees			164,68,779.00	164,68,779.00
R.8.28	Income Tax From Employees, Rajeev Gandhi Chair			4,49,268.00	4,49,268.00
R.8.29	Income Tax From NMDC Chair (Employees)			5,08,212.00	5,08,212.00
R.8.30	Income Tax From Sandvik Chair (Contractors)			7,101.00	7,101.00
R.8.31	Income Tax From Sandvik Chair (Employees)			3,15,184.00	3,15,184.00
R.8.32	INCOME TAX FROM TEQIPII (Contractors)			37,410.00	37,410.00
R.8.33	Income Tax From TeqipII (Employees)			59,486.00	59,486.00
R.8.34	Income Tax SAIL NMDC CHAIR (EMPLOYEEES)			86,639.00	86,639.00
R.8.35	Labour Cess Tax From Teqip II			1,299.00	1,299.00
R.8.36	SALES TAX FROM TEQIPII			5,197.00	5,197.00
R.8.37	Service Tax			124,41,208.00	124,41,208.00
R.8.38	Adm. Fee of Afgan Students			7,72,000.00	7,72,000.00
R.8.39	Benevolent Fund			21,40,468.00	21,40,468.00
R.8.40	EDC Room Rent			1,96,200.00	1,96,200.00
R.8.41	Electric Charges for CIL Chair			13,094.00	13,094.00
R.8.42	Electric Charges for Rajiv Gandhi Chair			6,598.00	6,598.00
R.8.43	Electric Charges From NMDC CHAIR			17,738.00	17,738.00
R.8.44	Electric Charges From Sandvik Chair			3,290.00	3,290.00
R.8.45	Medical Charges for CIL Chair			6,000.00	6,000.00
R.8.46	Non Plan Control A/c			150,00,000.00	150,00,000.00
R.8.47	School Development Fund			9,64,143.00	9,64,143.00
R.8.48	School Support Charges			301,04,653.12	301,04,653.12
R.8.49	Scolomin Club for Cil Chair			1,375.00	1,375.00
R.8.50	Scolomin Club for Rajeev Ghandhi Chair			500.00	500.00
R.8.51	Tuition Fee of Afgan Students			194,54,400.00	194,54,400.00
R.8.52	VEHICLE CHARGES			78.00	78.00
R.8.53	Vehicle Charges for CIL Chair			590.00	590.00
R.8.54	Vehicle Charges of Sandvik Chair			110.00	110.00
R.8.55	Advance to Supplier			20,10,990.00	20,10,990.00
R.8.56	Advance ot Employee			18,75,286.00	18,75,286.00
R.8.57	Plan Control Account			949,68,876.00	949,68,876.00
<b>R.8.58</b>	<b>Total Statutory &amp; other Receipts/ Recoveries</b>	<b>898,59,950.00</b>	<b>48,56,103.00</b>	<b>2319,71,817.12</b>	<b>3266,87,870.12</b>
					0.00
<b>R.9</b>	<b>Recovery of Advances from Staff/ Suppliers/ Deposits/ EMD/ SD</b>				0.00
R.9.1	CPF Subscription & Loan Recovery	134,53,300.00			134,53,300.00
R.9.2	DCPS SUBSCRIPTION	194,75,772.00			194,75,772.00
R.9.3	GPF Subscription & Loan Recovery	398,08,640.00			398,08,640.00
R.9.4	<b>Current Liability to Employee</b>				0.00

R.9.5	Can Bank, SDL Br. Loan to Employees	78,42,315.00			78,42,315.00
R.9.6	Children Act. Centre Subscription	1,11,500.00			1,11,500.00
R.9.7	Court Attachment Deduction	52,350.00			52,350.00
R.9.8	GIS Premium	23,84,272.00			23,84,272.00
R.9.9	LIC Premium	56,81,758.00			56,81,758.00
R.9.10	Post Office CTD/RD	3,81,800.00			3,81,800.00
R.9.11	Scolomin Club	2,71,275.00			2,71,275.00
R.9.12	Staff Recreation Club	3,24,600.00			3,24,600.00
R.9.13	Undisbursed Pay	69,849.00			69,849.00
R.9.14	<b>Current Liability - Party</b>				
R.9.15	EARNEST MONEY DEPOSIT	95,65,540.00			95,65,540.00
R.9.16	SECURITY DEPOSIT	56,29,568.00			56,29,568.00
R.9.17	<b>Current Liability - Students</b>				
R.9.18	Alumni Subscription	11,65,100.00			11,65,100.00
R.9.19	ANREMT	1,000.00			1,000.00
R.9.20	Basant Subscription	14,15,800.00			14,15,800.00
R.9.21	CONCETTO	1,00,000.00			1,00,000.00
R.9.22	DST/INSPIRE/SCHOLARSHIP	85,07,787.00			85,07,787.00
R.9.23	Executive MBA	28,81,338.00			28,81,338.00
R.9.24	Hostel Security Deposit	102,58,000.00			102,58,000.00
R.9.25	ISM 89 Silver Jubilee Fund	25,50,000.00			25,50,000.00
R.9.26	Library Security	30,980.00			30,980.00
R.9.27	Outside Scholarships	19,99,736.00			19,99,736.00
R.9.28	PRAKARM 11	1,45,000.00			1,45,000.00
R.9.29	SRIJAN FUND	7,48,000.00			7,48,000.00
R.9.30	STUDENT CAUTION MONEY	120,11,620.00			120,11,620.00
R.9.31	Student Insurance Scheme	60,73,500.00			60,73,500.00
R.9.32	Student Uniform Deposit	34,04,200.00			34,04,200.00
R.9.33	<b>Current Assets</b>				0.00
R.9.34	Advance to Employee	122,64,821.00			122,64,821.00
R.9.35	Plan Control A/C	339,80,688.00			339,80,688.00
R.9.36	Project Control A/c (Endowment Fund)	29,12,346.00			29,12,346.00
R.9.37	Project Control A/c (General)	177,62,115.00			177,62,115.00
R.9.38	<b>Current Liabilities</b>				0.00
R.9.39	Earnest / Security Money Deposit		70,11,014.00		70,11,014.00
R.9.40	LICENCE FEE		3,200.00		3,200.00
R.9.41	NON PLAN CONTROL A/C		373,40,634.00		373,40,634.00
R.9.42	Project Control A/c		935,00,000.00		935,00,000.00
R.9.43	B R S LIABILITIES		8,27,178.00		8,27,178.00
R.9.44	Advances to Contractors		4071,79,647.00		4071,79,647.00
R.9.45	ADVANCE TO STAFF		466.00		466.00
<b>R.9.46</b>	<b>Total Recovery of Advances from Staff/ Suppliers/ Deposits/ EMD/ SD</b>	<b>2232,64,570.00</b>	<b>5458,62,139.00</b>	<b>-</b>	<b>7691,26,709.00</b>
<b>R.10</b>	<b>Deductions in the Fixed Assets</b>				
R.10.1	Equipment & Lab. Development		2,76,214.00		2,76,214.00
R.10.2	Road & Building		1,22,081.00		1,22,081.00
R.10.3	Books & Journals		18,675.00		18,675.00
<b>R.10.4</b>	<b>Total Deductions in the Fixed Assets</b>	<b>-</b>	<b>4,16,970.00</b>	<b>-</b>	<b>4,16,970.00</b>
<b>R.11</b>	<b>Additions to Earmarked Funds</b>				
R.11.1	Library Development Fund	2,75,520.00			2,75,520.00
R.11.2	School Development Fund	39,53,003.00			39,53,003.00
R.11.3	Student Innovative Project Fund	146,72,500.00			146,72,500.00
R.11.4	Benevolent Fund	3,82,600.00			3,82,600.00
R.11.5	Mess Subsidy Fund	2,03,500.00			2,03,500.00
R.11.6	Student Medical Fund	27,11,335.00			27,11,335.00
R.11.7	Student Welfare Fund	6,500.00			6,500.00
R.11.8	<b>Earmark Fund</b>				0.00
R.11.9	CIL Chair for Mining Department			19,85,157.34	19,85,157.34
R.11.10	MoLE Chair Professor Fund			100,24,502.00	100,24,502.00
R.11.11	NMDC Chair for Open Cast Mining			17,96,132.00	17,96,132.00
R.11.12	ONGC Chair			13,03,610.58	13,03,610.58
R.11.13	Rajeev Gandhi Memorial Chair			21,83,465.80	21,83,465.80
R.11.14	SAIL Chair (Gr.Rs.5000000)			86,04,567.48	86,04,567.48
R.11.15	Sandvik Chair Prof. Fund			4,48,296.00	4,48,296.00
R.11.16	Tata Steel Chair			17,99,195.00	17,99,195.00
R.11.17	URANIUM CHAIR			3,416.00	3,416.00
R.11.18	Bhaskar Bhattacharya Memorial Fund			63,020.99	63,020.99
R.11.19	Inderjeet & Satyawat Bodhwar Scholarship			19,315.00	19,315.00

R.11.20	Mitali Sen Gold Medal Memorial End. Fund			5,50,000.00	5,50,000.00
R.11.21	Nirja Sahay Memorial Fund			5,688.00	5,688.00
R.11.22	Poonam (Khanna) Singh Endowment Mem. Fund			1,38,000.50	1,38,000.50
R.11.23	Renuka Rajhans Memorial Gold Medal Fund			27,300.00	27,300.00
<b>R.11.24</b>	<b>Total Additions to Earmarked Funds</b>	<b>222,04,958.00</b>	<b>-</b>	<b>289,51,666.69</b>	<b>511,56,624.69</b>
<b>R.12</b>	<b>Research and Development Projects</b>				
R.12.1	ISM R&D Projects			2,19,971.00	2,19,971.00
R.12.2	R&D Project			1262,92,335.00	1262,92,335.00
R.12.3	UGC Sponsored Projects			64,72,051.00	64,72,051.00
<b>R.12.4</b>	<b>Total Research and Development Projects</b>	<b>-</b>	<b>-</b>	<b>1329,84,357.00</b>	<b>1329,84,357.00</b>
<b>R.13</b>	<b>Consultancy and Testing</b>				
R.13.1	Consultancy Services			1010,61,641.48	1010,61,641.48
R.13.2	Central Research facility			1,06,370.00	1,06,370.00
<b>R.13.3</b>	<b>Total Consultancy and Testing</b>	<b>-</b>	<b>-</b>	<b>1011,68,011.48</b>	<b>1011,68,011.48</b>
<b>R.14</b>	<b>Departmental Development Fund</b>				
R.14.1	AGL Department DDF			2,77,239.00	2,77,239.00
R.14.2	AGP Department DDF			19,624.00	19,624.00
R.14.3	Applied Physics			1,15,087.00	1,15,087.00
R.14.4	C.S.E Department			9,238.00	9,238.00
R.14.5	Central Administrative Charges			21,40,483.00	21,40,483.00
R.14.6	Chemistry Department			9,900.00	9,900.00
R.14.7	CME Department			13,69,807.00	13,69,807.00
R.14.8	Computer Centre			1,244.00	1,244.00
R.14.9	E & I DEPARTMENT			4,268.00	4,268.00
R.14.10	EDC Development Fund			25,90,232.00	25,90,232.00
R.14.11	EDC Xeroxing (4000) Fund			120.00	120.00
R.14.12	ELECTRICAL ENGINEERING(DEPT.)			39,958.00	39,958.00
R.14.13	FME Department			3,06,791.00	3,06,791.00
R.14.14	Library Card			24,000.00	24,000.00
R.14.15	Library Development Fund			19,602.00	19,602.00
R.14.16	Library Fine			93.00	93.00
R.14.17	M S DEPARTMENT			21,026.00	21,026.00
R.14.18	MECHANICAL ENGINEERING DEPT.			13,076.00	13,076.00
R.14.19	Mining Engineering Department			19,33,230.00	19,33,230.00
R.14.20	Mining Machinery Engineering Dept.			7,94,153.00	7,94,153.00
R.14.21	P.E. Department			2,18,311.00	2,18,311.00
<b>R.14.22</b>	<b>Total Departmental Development Fund</b>	<b>0.00</b>	<b>0.00</b>	<b>99,07,482.00</b>	<b>99,07,482.00</b>
<b>R.15</b>	<b>Fellowship and Associateship</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>R.16</b>	<b>Professional Development Fund</b>				
R.16.1	A K MISHRA, PDF			53,308.00	53,308.00
R.16.2	A K MUKHOPADHYAY, ME & MME PDF			2,75,386.00	2,75,386.00
R.16.3	A K Pathak PDF			43,687.00	43,687.00
R.16.4	A K VARMA, PDF			24,500.00	24,500.00
R.16.5	A R DIXIT, PDF			93,473.00	93,473.00
R.16.6	A. S. Venkatesh PDF			3,570.00	3,570.00
R.16.7	ALOK SINHA, PDF			16,520.00	16,520.00
R.16.8	Amit Kr. Verma, PDF			2,025.00	2,025.00
R.16.9	Anand Anupam, PDF			1,138.00	1,138.00
R.16.10	B K Mishra, PDF			47,945.00	47,945.00
R.16.11	B K NANDI, PDF			1,050.00	1,050.00
R.16.12	B S CHOUDHARY, PDF			10,557.00	10,557.00
R.16.13	B. C. SARKAR, PDF			1,65,611.00	1,65,611.00
R.16.14	BISWAJIT CHOWDHURY, PDF			10,614.00	10,614.00
R.16.15	Biswajit Paul, PDF			1,18,690.00	1,18,690.00
R.16.16	Chandan Guria, PDF			43,687.00	43,687.00
R.16.17	D C Panigarhi, PDF			7,86,335.00	7,86,335.00
R.16.18	DEBJANI MITRA, PDF			4,268.00	4,268.00
R.16.19	DHEERAJ KUMAR PDF			3,24,954.00	3,24,954.00
R.16.20	Dipankar Roy, PDF			1,244.00	1,244.00
R.16.21	Gurdeep Singh, PDF			3,51,760.00	3,51,760.00



R.16.22	K.DASGUPTA, PDF			2,32,050.00	2,32,050.00
R.16.23	Kalyan Chatterjee, PDF			4,034.00	4,034.00
R.16.24	M Jawed, PDF			87,662.00	87,662.00
R.16.25	N R Mandre, PDF			4,739.00	4,739.00
R.16.26	N Suresh, Assoc. PDF			94,033.00	94,033.00
R.16.27	NITAI PAL, PDF			6,767.00	6,767.00
R.16.28	P K Behra, PDF			91,175.00	91,175.00
R.16.29	P K JANA, PDF			3,079.00	3,079.00
R.16.30	P K SADHU, PDF			12,344.00	12,344.00
R.16.31	P K SINGH, PDF (ESE)			28,228.00	28,228.00
R.16.32	P S GUPTA, PDF			1,15,087.00	1,15,087.00
R.16.33	P S MUKHERJEE, PDF			63,462.00	63,462.00
R.16.34	P S PAUL, PDF			12,737.00	12,737.00
R.16.35	P. SEN, PDF			57,120.00	57,120.00
R.16.36	PHALGUNI SEN, PDF			83,351.00	83,351.00
R.16.37	R. Venugopal, PDF			4,900.00	4,900.00
R.16.38	S K PAL, (AGP), PDF			19,624.00	19,624.00
R.16.39	S LAIK PDF			28,875.00	28,875.00
R.16.40	S MOHANTY, PDF			83,558.00	83,558.00
R.16.41	S. BHATTACHARYA, PDF			1,10,680.00	1,10,680.00
R.16.42	S. CHATTOPADHYA, PDF			42,034.00	42,034.00
R.16.43	S. CHOUDHARI, PDF (CIL CHAIR)			30,235.00	30,235.00
R.16.44	S. K. GUPTA, PDF			1,750.00	1,750.00
R.16.45	S.K. MAITI, PDF			46,056.00	46,056.00
R.16.46	SANJAY MANDAL, PDF			4,112.00	4,112.00
R.16.47	SANTANU DWARI, PDF			11,915.00	11,915.00
R.16.48	Sauma Singh, PDF			21,026.00	21,026.00
R.16.49	Shatrughan Soren, PDF			2,828.00	2,828.00
R.16.50	SHRAVAN KUMAR, PDF			5,654.00	5,654.00
R.16.51	Subrato Kr. Ghosh, PDF			3,987.00	3,987.00
R.16.52	T K NAIYA, PDF			2,156.00	2,156.00
R.16.53	T.K. CHATTERJEE, PDF			76,177.00	76,177.00
R.16.54	Tanmoy Maiti, PDF			11,370.00	11,370.00
R.16.55	U K. Singh PDF			77,293.00	77,293.00
R.16.56	V K Saxena, PDF			4,489.00	4,489.00
R.16.57	V M S R Murthy, PDF			2,88,396.00	2,88,396.00
R.16.58	V.P. Sharma PDF			93,520.00	93,520.00
R.16.59	VINOD P SINHA, PDF			28,000.00	28,000.00
<b>R.16.60</b>	<b>Total Professional Development Fund</b>	<b>0.00</b>	<b>0.00</b>	<b>42,74,825.00</b>	<b>42,74,825.00</b>
<b>R.17</b>	<b>Additions to Capital/ Other Reserve Funds</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
	<b>TOTAL RECEIPTS (Rs)</b>	<b>24299,45,147.17</b>	<b>27036,12,318.41</b>	<b>8744,56,418.24</b>	<b>60080,13,883.82</b>
<b>Sch No</b>	<b>PAYMENTS</b>	<b>Non Plan 2014-15</b>	<b>Plan 2014-15</b>	<b>Project 2014-15</b>	<b>Total Current Year 2014-15</b>
<b>P.1</b>	Departmental Expenses	194,72,048.00	24,300.00		194,96,348.00
<b>P.2</b>	Educational Expenses	1940,40,889.00	629,68,809.00		2570,09,698.00
<b>P.3</b>	Establishment Expenses	6268,88,093.00			6268,88,093.00
<b>P.4</b>	General Expenses	1094,58,551.00	498,52,635.00		1593,11,186.00
<b>P.5</b>	Miscellaneous/ other Expenses	354,70,327.00	207,23,717.00		561,94,044.00
<b>P.6</b>	Travelling Expenses	68,03,828.00			68,03,828.00
<b>P.7</b>	<b>Investment of Funds</b>				
P.7.1	GIA & School Income Investment	7875,64,195.00			7875,64,195.00
P.7.2	Scholarship	25,00,000.00			25,00,000.00
P.7.3	Investment		8800,00,000.00		8800,00,000.00
P.7.4	Central Bank of India, FD (Bartand)			620,00,000.00	620,00,000.00
P.7.5	FD with Bank of India ISM Br. Project Account			34,52,542.00	34,52,542.00
P.7.6	FD with Bank of India, Cil Chair			131,00,000.00	131,00,000.00
P.7.7	FD with Bank of India, ISM Branch Rajeev Gandhi Cha			120,29,106.00	120,29,106.00
P.7.8	FD With Bank of India, Rajeev Gandhi Chair			115,00,000.00	115,00,000.00
P.7.9	FD with Canara Bank, Seraidhela , SAILNMD C Chair			255,19,169.00	255,19,169.00
P.7.10	Fixed Deposits			2138,95,437.00	2138,95,437.00
P.7.11	Inderjeet Satyawati Buadhar Fund Inv. Canara			2,42,296.00	2,42,296.00

	Bank				
P.7.12	MOLE Chair Fund Investment with Canara Bank			100,00,000.00	100,00,000.00
P.7.13	Sandvik Chair Fund Inv. with Canara Bank			39,48,121.00	39,48,121.00
<b>P.7.14</b>	<b>Total Investment of Funds</b>	<b>7900,64,195.00</b>	<b>8800,00,000.00</b>	<b>3556,86,671.00</b>	<b>20257,50,866.00</b>
<b>P.8</b>	<b>Advances to Staff/ Suppliers/ Contractors/ Deposits/ EMD/ SD</b>				
P.8.1	CPF Subscription & Loan Recovery	111,63,300.00			111,63,300.00
P.8.2	DCPS SUBSCRIPTION	193,31,525.00			193,31,525.00
P.8.3	GPF Subscription & Loan Recovery	332,24,380.00			332,24,380.00
P.8.4	P.F. Control A/c	100,00,000.00			100,00,000.00
P.8.5	<b>Current Liability to Employee</b>				0.00
P.8.6	CanBank, SDL Br. Loan to Employees	78,42,315.00			78,42,315.00
P.8.7	Children Act. Centre Subscription	1,11,500.00			1,11,500.00
P.8.8	Court Attachment Deduction	52,350.00			52,350.00
P.8.9	GIS Premium	23,71,696.00			23,71,696.00
P.8.10	LIC Premium	56,51,688.00			56,51,688.00
P.8.11	Post Office CTD/RD	3,81,800.00			3,81,800.00
P.8.12	Remuneration of GJLT/Penman	16,700.00			16,700.00
P.8.13	Scolomin Club	2,69,400.00			2,69,400.00
P.8.14	Staff Recreation Club	3,24,600.00			3,24,600.00
P.8.15	<b>Current Liability to Party</b>				0.00
P.8.16	Earnest Money Deposit	105,00,580.00			105,00,580.00
P.8.17	Security Deposit	60,29,334.00			60,29,334.00
P.8.18	<b>Advance to Employee</b>				0.00
P.8.19	HB Advance Non Plan	69,88,500.00			69,88,500.00
P.8.20	Staff Advance	120,32,151.00			120,32,151.00
P.8.21	Imprest Advance	2,97,000.00			2,97,000.00
P.8.22	PC Advance	6,55,000.00			6,55,000.00
P.8.23	Scooter/ Motor Cycle Advance	1,50,000.00			1,50,000.00
P.8.24	Cycle Advance	6,000.00			6,000.00
P.8.25	Festival Advance	11,49,000.00			11,49,000.00
P.8.26	<b>Advance to Supplier/ Contractor</b>	820,24,645.00			820,24,645.00
P.8.27	Earnest / Security Money Deposit		73,04,030.00		73,04,030.00
P.8.28	NON PLAN CONTROL A/C		363,79,020.00		363,79,020.00
P.8.29	Project Control A/c		1933,38,454.00		1933,38,454.00
P.8.30	Advances to Contractors		5235,61,000.00		5235,61,000.00
P.8.31	Advances to Suppliers		56,45,893.00		56,45,893.00
P.8.32	ADVANCE TO STAFF		1,85,550.00		1,85,550.00
P.8.33	<b>Current Assets - Loans &amp; Advances</b>				0.00
P.8.34	Advance to Supplier			5,60,354.00	5,60,354.00
P.8.35	Advance of Employee			31,96,646.00	31,96,646.00
P.8.36	Plan Control Account			992,14,937.19	992,14,937.19
<b>P.8.37</b>	<b>Total Advances to Staff/ Suppliers/ Contractors/ Deposits/ EMD/ SD</b>	<b>2105,73,464.00</b>	<b>7664,13,947.00</b>	<b>1029,71,937.19</b>	<b>10799,59,348.19</b>
<b>P.9</b>	<b>Additions to Fixed Assets</b>				
P.9.1	Building at NBCC Shopping Complex at Kolkata	83,89,939.00			83,89,939.00
P.9.2	Communication Facilities	27,011.00			27,011.00
P.9.3	Computer Hardware	3,30,507.00			3,30,507.00
P.9.4	Computer Software	4,300.00			4,300.00
P.9.5	Library Books & Journals	10,83,009.00			10,83,009.00
P.9.6	Office Equipment	31,090.00			31,090.00
P.9.7	Water Supply Equipment	1,83,934.00			1,83,934.00
P.9.8	Equipment & Lab. Development		2073,53,620.00		2073,53,620.00
P.9.9	Road & Building		4438,97,822.00		4438,97,822.00
P.9.10	Augmentation of Power & Water		143,09,636.00		143,09,636.00
P.9.11	Books & Journals		598,40,828.00		598,40,828.00
P.9.12	Communication System		66,33,416.00		66,33,416.00
P.9.13	Computer Software		43,16,897.00		43,16,897.00
P.9.14	Computers, Peripherals & Internet Equipment		206,56,737.00		206,56,737.00
P.9.15	Furniture & Fixtures		91,47,839.00		91,47,839.00
P.9.16	Student Amenities		26,55,684.00		26,55,684.00
<b>P.9.17</b>	<b>Total Additions to Fixed Assets</b>	<b>100,49,790.00</b>	<b>7688,12,479.00</b>	<b>0.00</b>	<b>7788,62,269.00</b>
<b>P.10</b>	<b>Transfer/ payment from Earmarked Funds</b>				

P.10.1	School Development Fund	4,000.00		4,000.00
P.10.2	Student Innovative Project Fund	1,07,300.00		1,07,300.00
P.10.3	Benevolent Fund	2,98,400.00		2,98,400.00
P.10.4	Budhwanti Mrig	32,000.00		32,000.00
P.10.5	Ishan Rajbanshi	24,000.00		24,000.00
P.10.6	ISM Alumni Association	1,05,500.00		1,05,500.00
P.10.7	ISS Scholarship	6,000.00		6,000.00
P.10.8	Mess Subsidy Fund	1,500.00		1,500.00
P.10.9	Student Medical Fund	90,187.00		90,187.00
P.10.10	CIL Chair for Mining Department		20,49,288.33	20,49,288.33
P.10.11	MoLE Chair Professor Fund		1,09,145.00	1,09,145.00
P.10.12	NMDC Chair for Open Cast Mining		17,49,037.00	17,49,037.00
P.10.13	ONGC Chair		272.00	272.00
P.10.14	Rajeev Gandhi Memorial Chair		15,38,072.00	15,38,072.00
P.10.15	SAIL Chair (Gr.Rs.5000000)		5,50,805.00	5,50,805.00
P.10.16	Sandvik Chair Prof. Fund		15,01,594.00	15,01,594.00
P.10.17	Tata Steel Chair		14,09,892.00	14,09,892.00
P.10.18	URANIUM CHAIR		5,81,089.00	5,81,089.00
P.10.19	ATLAS CAPCO SCH. FUND		12,000.00	12,000.00
P.10.20	Bhaskar Bhattacharya Memorial Fund		54,419.00	54,419.00
P.10.21	Inderjeet & Satyawat Bodhwar Scholarship		4,000.00	4,000.00
P.10.22	L J JHONSON AWARD		16,665.00	16,665.00
P.10.23	Mata Gurdev Kaur Memorial Fund		500.00	500.00
P.10.24	Mitali Sen Gold Medal Memorial End. Fund		25,000.00	25,000.00
P.10.25	Nirja Sahay Memorial Fund		11,450.00	11,450.00
P.10.26	Paritosh & Patikrit End. Fund		10,000.00	10,000.00
P.10.27	Poonam (Khanna) Singh Endowment Mem. Fund		1,00,000.00	1,00,000.00
P.10.28	Prof N L Sharma Mem Fund		25,913.00	25,913.00
P.10.29	Renuka Rajhans Memorial Gold Medal Fund		11,450.00	11,450.00
P.10.30	S.L Sehgal Scholarship		7,000.00	7,000.00
P.10.31	Smt. Sneh Lata Srivastava Memorial Gold Medal		16,665.00	16,665.00
<b>P.10.32</b>	<b>Total Transfer/ Payment from Earmarked Funds</b>	<b>6,68,887.00</b>	<b>-</b>	<b>97,84,256.33</b>
<b>P.11</b>	<b>Statutory &amp; other payments</b>			
P.11.1	Executive MBA	21,45,500.00		21,45,500.00
P.11.2	Outside Scholarships	32,03,178.00		32,03,178.00
P.11.3	ADVANCE FEE	2,17,686.00		2,17,686.00
P.11.4	Advance Fee From IIT-JEE	40,55,902.00		40,55,902.00
P.11.5	Alumni Subscription	1,000.00		1,000.00
P.11.6	Basant Subscription	13,34,900.00		13,34,900.00
P.11.7	CONCETTO	1,00,000.00		1,00,000.00
P.11.8	DST/INSPIRE/SCHOLARSHIP	112,26,824.00		112,26,824.00
P.11.9	PRAKARM 11	1,45,000.00		1,45,000.00
P.11.10	SRIJAN FUND	99,000.00		99,000.00
P.11.11	STUDENT CAUTION MONEY	66,01,000.00		66,01,000.00
P.11.12	Student Insurance Scheme	50,81,784.00		50,81,784.00
P.11.13	Student Uniform Deposit	25,34,950.00		25,34,950.00
P.11.14	Miscellaneous Receipts	1,97,783.00		1,97,783.00
P.11.15	Vidhan Sabha Election	2,94,000.00		2,94,000.00
P.11.16	Income Tax Employees	503,05,997.00		503,05,997.00
P.11.17	Jharkhand State Professional Tax	9,36,134.00		9,36,134.00
P.11.18	Income Tax Contractor	23,35,953.00		23,35,953.00
P.11.19	Labour Welfare	1,89,103.00		1,89,103.00
P.11.20	Sales Tax 4%	7,56,396.00		7,56,396.00
P.11.21	Service Tax	34,37,864.00		34,37,864.00
P.11.22	TEQIP Income Tax	1,310.00		1,310.00
P.11.23	Income - Tax (Guest Faculties/ Adj. Prof.)	2,35,930.00		2,35,930.00
P.11.24	Income Tax {U/S 194 (I)}	7,740.00		7,740.00
P.11.25	Plan Income Tax A/c	19,72,527.00		19,72,527.00
P.11.26	Project Income Tax A/c ( Employees)	164,21,969.00		164,21,969.00
P.11.27	Project Service Tax A/c	123,86,942.00		123,86,942.00
P.11.28	Unpaid	18,500.00		18,500.00
P.11.29	Lok Sabha Election	2,20,400.00		2,20,400.00
P.11.30	Outstanding Expenses	388,25,438.00		388,25,438.00
P.11.31	Plan Control	1,82,360.00		1,82,360.00
P.11.32	Project Control (General)	1002,48,851.00		1002,48,851.00
P.11.33	Fee from Students	106,75,262.00		106,75,262.00

P.11.34	Recovery form Employees	45,430.00		45,430.00
P.11.35	GJLT/ Penman	25,800.00		25,800.00
P.11.36	Income BRS	1,24,958.00		1,24,958.00
P.11.37	Miscellaneous Income	2,54,943.00		2,54,943.00
P.11.38	SAH Room Rent	400.00		400.00
P.11.39	Interest Income	4,770.00		4,770.00
P.11.40	Income Tax		21,92,182.00	21,92,182.00
P.11.41	Income Tax (94 J )		27,689.00	27,689.00
P.11.42	Labour Welfare		5,26,096.00	5,26,096.00
P.11.43	SALES TAX @ 4%		21,04,369.00	21,04,369.00
P.11.44	Service Tax		5,767.00	5,767.00
P.11.45	Interest Received		20,19,694.00	20,19,694.00
P.11.46	Adv. DSA Certificate Course CSE2013		1,00,647.00	1,00,647.00
P.11.47	ANREMT 2015		91,422.00	91,422.00
P.11.48	B E Course for Afghan Students 2014		281,16,801.00	281,16,801.00
P.11.49	Best Research Award Fund		1,65,720.00	1,65,720.00
P.11.50	BSWG2014		1,46,950.00	1,46,950.00
P.11.51	Course Fee for Foreign Language (French)		96,492.00	96,492.00
P.11.52	Course Fee for Foreign Language (German)		34,350.00	34,350.00
P.11.53	DSA Certificate Course CSE2014		67,000.00	67,000.00
P.11.54	DST/459/inspire Fellowship		1,56,000.00	1,56,000.00
P.11.55	DST InspireSHE/ISMU/2009		85,07,787.00	85,07,787.00
P.11.56	HSS Foreign Language Course, Monsoon, 201314		5,39,028.00	5,39,028.00
P.11.57	ICMAP2013		50,000.00	50,000.00
P.11.58	IMS2014		8,85,000.00	8,85,000.00
P.11.59	Income Tax From Uranium Chair (Cont./supp)		501.00	501.00
P.11.60	ISM Geological Society		1,98,501.00	1,98,501.00
P.11.61	IWCMVA		75,000.00	75,000.00
P.11.62	Lab View Software Course of Mech. Engineering		94,500.00	94,500.00
P.11.63	LAMP CERTIFICATE COURSE 2013/CC		18,995.00	18,995.00
P.11.64	MATLAB CERTIFICATE COURSE EE 2012		10,691.00	10,691.00
P.11.65	Matlab Certificate Course of Computer Centre		35,693.00	35,693.00
P.11.66	Methodology Certificate Course2014 MS		79,700.00	79,700.00
P.11.67	MSSEM		88,200.00	88,200.00
P.11.68	Parakram		49,000.00	49,000.00
P.11.69	SAGES		8,000.00	8,000.00
P.11.70	SBI Cash Award for NonTeaching Emp.		25,000.00	25,000.00
P.11.71	Short Term Courses		54,758.00	54,758.00
P.11.72	SPPS2013		1,09,000.00	1,09,000.00
P.11.73	Travel Grant		3,07,186.00	3,07,186.00
P.11.74	Workshop on CFDA2014		1,52,440.00	1,52,440.00
P.11.75	Workshop on Pandit M M Malya		1,07,188.00	1,07,188.00
P.11.76	WSME		25,950.00	25,950.00
P.11.77	Income Tax (Const) From Sail Chair		3,867.00	3,867.00
P.11.78	Income Tax Employess, Cil Chair		2,95,411.00	2,95,411.00
P.11.79	Income Tax From Contractors		2,11,992.00	2,11,992.00
P.11.80	Income Tax From Employees		164,60,539.00	164,60,539.00
P.11.81	Income Tax From Employees, Rajeev Gandhi Chair		4,49,268.00	4,49,268.00
P.11.82	Income Tax From NMDC Chair (Employees)		5,08,212.00	5,08,212.00
P.11.83	Income Tax From Sandvik Chair (Contractors)		7,101.00	7,101.00
P.11.84	Income Tax From Sandvik Chair (Employees)		3,15,184.00	3,15,184.00
P.11.85	INCOME TAX FROM TEQIPII (Contractors)		37,402.00	37,402.00
P.11.86	Income Tax From TeqipII (Employees)		59,486.00	59,486.00
P.11.87	Income Tax SAIL NMDC CHAIR (EMPLOYEES)		86,639.00	86,639.00
P.11.88	Labour Cess Tax From Teqip II		1,299.00	1,299.00
P.11.89	SALES TAX FROM TEQIP II		5,197.00	5,197.00
P.11.90	Service Tax		124,46,041.00	124,46,041.00
P.11.91	CPF Cont		1,50,277.00	1,50,277.00
P.11.92	EDC Room Rent From TEQIP II		1,600.00	1,600.00
P.11.93	Electric Charges for CIL Chair		13,094.00	13,094.00
P.11.94	Electric Charges for Rajiv Gandhi Chair		6,598.00	6,598.00


P.11.95	Electric Charges From NMDC CHAIR			17,738.00	17,738.00
P.11.96	Electric Charges From Sandvik Chair			3,290.00	3,290.00
P.11.97	Medical Charges for CIL Chair			6,000.00	6,000.00
P.11.98	N.Plan End. Fund (Surplus Payable)			409,12,346.00	409,12,346.00
P.11.99	Non Plan Control A/c			165,88,881.00	165,88,881.00
P.11.100	SAH (ROOM RENT) TEQUIII			1,200.00	1,200.00
P.11.101	Scolomin Club for Cil Chair			1,375.00	1,375.00
P.11.102	Scolomin Club for Rajeev Ghandhi Chair			500.00	500.00
P.11.103	Vehicle Charge From TequipII			1,322.00	1,322.00
P.11.104	Vehicle Charges for CIL Chair			590.00	590.00
P.11.105	Vehicle Charges of Sandvik Chair			455.00	455.00
P.11.106	Vehicle Charges of NMDC CHAIR			99.00	99.00
P.11.107	Interest on Investment			25,08,323.00	25,08,323.00
P.11.108	Bank Charges			30,905.60	30,905.60
P.11.109	<b>Total Statutory &amp; other payments</b>	<b>2768,53,484.00</b>	<b>68,75,797.00</b>	<b>1315,29,731.60</b>	<b>4152,59,012.60</b>
P.12	<b>Transfers to Capital Fund/ Rserve</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
P.13	<b>Research and Development Projects</b>				
P.13.1	ISM R&D PROJECTS			82,69,708.00	82,69,708.00
P.13.2	R & D Projects			834,40,510.30	834,40,510.30
P.13.3	UGC Sponsored Projects			161,25,740.00	161,25,740.00
P.13.4	<b>Total Research and Development Projects</b>	<b>-</b>	<b>-</b>	<b>1078,35,958.30</b>	<b>1078,35,958.30</b>
P.14	<b>Consultancy and Testing</b>				
P.14.1	Consultancy Services Liability			1123,77,804.12	1123,77,804.12
P.14.2	<b>Total Consultancy and Testing</b>	<b>-</b>	<b>-</b>	<b>1123,77,804.12</b>	<b>1123,77,804.12</b>
P.15	<b>Departmental Development Fund</b>				
P.15.1	AGL Department DDF			11,400.00	11,400.00
P.15.2	APPLIED MATHEMATICS			9,970.00	9,970.00
P.15.3	Central Administrative Charges			16,77,313.00	16,77,313.00
P.15.4	Chemistry Department			56,317.00	56,317.00
P.15.5	CME Department			2,03,794.00	2,03,794.00
P.15.6	EDC Development Fund			12,900.00	12,900.00
P.15.7	EDC Support Services			2,66,172.00	2,66,172.00
P.15.8	EDC Xeroxing (4000) Fund			11,970.00	11,970.00
P.15.9	FME Department			57,280.00	57,280.00
P.15.10	Library Card			200.00	200.00
P.15.11	Library Development Fund			76,865.00	76,865.00
P.15.12	M S DEPARTMENT			51,465.00	51,465.00
P.15.13	Mining Engineering Department			48,870.00	48,870.00
P.15.14	Mining Machinery Engineering Dept.			27,906.00	27,906.00
P.15.15	MINING MACHINERY ENGINEERING DEPARTMENT			500.00	500.00
P.15.16	<b>Total Department Development Fund</b>	<b>-</b>	<b>-</b>	<b>25,12,922.00</b>	<b>25,12,922.00</b>
P.16	<b>Fellowship and Associate ship</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
P.17	<b>Professional Development Fund</b>				
P.17.1	A. K. PAL, PDF			3,800.00	3,800.00
P.17.2	ALOK SINHA, PDF			10,045.00	10,045.00
P.17.3	B K Mishra, PDF			36,290.00	36,290.00
P.17.4	B. C. SARKAR, PDF			4,950.00	4,950.00
P.17.5	BISWAJIT CHOWDHURY, PDF			4,207.00	4,207.00
P.17.6	DHEERAJ KUMAR PDF			1,20,238.00	1,20,238.00
P.17.7	H P NAYAK, PDF			9,000.00	9,000.00
P.17.8	M Jawed, PDF			49,698.00	49,698.00
P.17.9	N Suresh, Assoc. PDF			1,908.00	1,908.00
P.17.10	P K KHAN, PDF			13,999.00	13,999.00
P.17.11	P K SINGH, PDF (ESE)			2,460.00	2,460.00
P.17.12	P N S SINGHA ROY, PDF			4,115.00	4,115.00
P.17.13	P. SEN, PDF			69,400.00	69,400.00
P.17.14	S. BHATTACHARYA, PDF			34,670.00	34,670.00
P.17.15	S. CHOUDHARI, PDF (CIL CHAIR)			5,563.00	5,563.00
P.17.16	SAGAR PAL, PDF			45,311.00	45,311.00

P.17.17	SOMNATH YADAV, PDF			22,118.00	22,118.00
P.17.18	T H Syed, PDF			7,682.00	7,682.00
P.17.19	U K. Singh PDF			59,965.00	59,965.00
P.17.20	V K Srivastava, PDF			4,136.00	4,136.00
P.17.21	V M S R Murthy, PDF			1,12,683.00	1,12,683.00
<b>P.17.22</b>	<b>Total Professional Development Fund</b>	<b>0.00</b>	<b>0.00</b>	<b>6,22,238.00</b>	<b>6,22,238.00</b>
	<b>TOTAL PAYMENT (Rs)</b>	<b>22803,43,556.00</b>	<b>25556,71,684.00</b>	<b>8233,21,518.54</b>	<b>56593,36,758.54</b>
	<b>Closing Balances:</b>				-
<b>P.18</b>	(a) Cash in Hand	1,40,634.70	0.00	27,686.00	1,68,320.70
<b>P.19</b>	(b) Cash at Bank/ Post Office	1494,60,956.47	1479,40,634.41	511,07,213.70	3485,08,804.58
	<b>TOTAL PAYMENT (Rs)</b>	<b>24299,45,147.17</b>	<b>27036,12,318.41</b>	<b>8744,56,418.24</b>	<b>60080,13,883.82</b>

## BALANCE SHEET OF G.P.F., C.P.F. AND D.C.P.S. ACCOUNT AS AT 31st MARCH 2015

(Amount in Rs)

Sl. No.	LIABILITIES	Current Year 2014-15	Previous Year 2013-15
<b>1</b>	<b>GPF MEMBERS' FUNDS:</b>		
1.4.1	Balance at the beginning of the year	2348,71,574.00	2076,73,504.00
1.4.2	Add: Subscriptions/Loan Recovery during the year	399,73,640.00	389,73,596.00
1.4.3	Add: Interest credited to members	206,83,826.00	183,15,141.00
1.4.4	Add: Transfer from CPF Member's fund a/c	0.00	0.00
1.4.5	<b>Sub-total</b>	<b>2955,29,040.00</b>	<b>2649,62,241.00</b>
1.4.6	Less: Advances, withdrawals & final payments	453,18,710.00	300,90,667.00
1.4.7	Balance at the end of the year	<b>2502,10,330.00</b>	<b>2348,71,574.00</b>
<b>2</b>	<b>CPF MEMBERS' FUNDS:</b>		
2.4.1	Balance at the beginning of the year	1668,44,039.00	1506,12,958.00
2.4.2	Add: Subscriptions & Loan recovery during the year	140,70,012.00	127,59,125.00
2.4.3	Add: Interest credited to members	142,02,497.00	133,15,752.00
2.4.4	Add: Matching contribution to the members	28,01,911.00	28,72,278.00
2.4.5	<b>Sub-total</b>	<b>1979,18,459.00</b>	<b>1795,60,113.00</b>
2.4.6	Less: Advances, withdrawals & final payments	210,86,355.00	127,16,074.00
2.4.7	Less: Adjustment for transfer to GPF Members's Fund/ General Reserve	0.00	0.00
<b>2.4.8</b>	Balance as at the end of the year	<b>1768,32,104.00</b>	<b>1668,44,039.00</b>
<b>3</b>	<b>DCPS MEMBERS' FUNDS:</b>		
3.4.1	Balance at the beginning of the year	4,04,103.00	4,04,103.00
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
3.4.5	Less: Amount transferred to NSDL Account	0.00	-
3.4.6	Balance as at the end of the year	<b>4,04,103.00</b>	<b>4,04,103.00</b>
<b>4</b>	<b>GENERAL RESERVE:</b>		
4.4.1	Balance at the beginning of the year	663,42,600.55	576,31,310.55
4.4.2	Add: Excess of income over exp. for the year and others	85,58,355.93	87,11,290.00
	Less : Prior Period Interest Payment	1,47,307.00	
4.4.5	Balance as at the end of the year	<b>747,53,649.48</b>	<b>663,42,600.55</b>
<b>5</b>	<b>TOTAL LIABILITIES</b>	<b>5022,00,186.48</b>	<b>4684,62,316.55</b>
	<b>A S S E T S</b>	<b>Current Year 2014-15</b>	<b>Previous Year 2014-15</b>
<b>6</b>	<b>CURRENT ASSETS:</b>		
<b>6.4.1</b>	<b>Investments:</b>		
6.4.2	Balance at the beginning of the year	4120,44,115.00	3539,38,460.00
6.4.3	Add: Investments made during the year	1061,18,461.93	2243,98,434.00
6.4.4	Less: Investments encashed during the year	842,73,642.00	1662,92,779.00
6.4.5	Balance as at the end of the year	<b>4338,88,934.93</b>	<b>4120,44,115.00</b>
<b>6.4.6</b>	<b>Accrued Interest on Investment:</b>		
6.4.7	Opening Balance	488,70,253.00	453,43,866.00
6.4.8	Additions during the year	173,44,337.00	35,26,387.00
6.4.9	Balance as at the end of the year	662,14,590.00	488,70,253.00
<b>6.4.10</b>	<b>Total Investment incld. Accrued Interest</b>	<b>5001,03,524.93</b>	<b>4609,14,368.00</b>
<b>6.4.11</b>	<b>CASH &amp; BANK BALANCES:</b>		
6.4.12	Cash at Bank with SBI, ISM Br., Dhanbad	32,22,401.55	75,47,948.55
<b>6.4.13</b>	<b>Sundry Debtors: Project Control A/c</b>	0.00	0.00
6.4.14	Non Plan Control Account (payable)	11,25,740.00	0.00
<b>6.4.15</b>	<b>T O T A L</b>	<b>5022,00,186.48</b>	<b>4684,62,316.55</b>

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

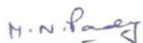
  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIGRAHI)  
DIRECTOR

**INCOME AND EXPENDITURE ACCOUNT OF G.P.F., C.P.F. AND D.C.P.S. ACCOUNT FOR THE  
YEAR ENDED 31st MARCH 2015**

Sl. No.	I N C O M E	Amount in (Rs.)	
		Current Year 2014-15	Previous Year 2014-15
1	Interest / Income from Investments	115,87,845.00	370,77,732.00
2	Interest Accrued on investment	317,06,556.93	35,43,837.00
<b>3</b>	<b>TOTAL ( A )</b>	<b>432,94,401.93</b>	<b>406,21,569.00</b>
	<b>E X P E N D I T U R E</b>		
4	Interest credited to members accounts	348,86,323.00	319,10,279.00
5	Bank charges	0.00	0.00
<b>6</b>	<b>TOTAL ( B )</b>	<b>348,86,323.00</b>	<b>319,10,279.00</b>
7	Balance being excess of Income over Expenditure ( A - B )	84,08,078.93	87,11,290.00
8	BALANCE BEING SURPLUS CARRIED TO GENERAL RESERVE	84,08,078.93	87,11,290.00

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIGRAHI)  
DIRECTOR



**RECEIPTS AND PAYMENTS ACCOUNT OF G.P.F., C.P.F. AND D.C.P.S. ACCOUNT FOR THE  
YEAR ENDED 31st MARCH 2015**

Sl. No.	RECEIPTS	(Amount in (Rs.))	
		Current Year 2014-15	Previous Year 2014-15
1	O.B: Cash at Bank with SBI,ISM Br, Dhanbad	75,47,948.55	168,85,272.55
2	Interest / Income from Investments	128,27,417.77	258,87,719.00
3	Subscription & loan rec. from GPF members	333,89,380.00	389,73,596.00
4	Subscription & loan rec. from CPF members	145,81,923.00	127,59,125.00
5	Subscription from DCPS members	0.00	0.00
6	Matching contribution to CPF members		28,82,261.00
7	Matching contribution to DCPS members	0.00	0.00
8	Investments encashed	227,63,094.00	1131,43,517.00
9	Receipt from Plan / Non-Plan A/c	100,00,000.00	50,00,000.00
10	Receipt from Project Control A/c(General Res)	1,50,277.00	1,70,277.00
<b>11</b>	<b>TOTAL</b>	<b>1012,60,040.32</b>	<b>2157,01,767.55</b>
	<b>PAYMENTS</b>		
12	Advances / withdrawals / final payments to GPF members	453,18,710.00	300,90,667.00
13	Advances / withdrawals / final payments to CPF members	210,86,355.00	127,26,057.00
14	Refund/ Transfer from DCPS to NSDL A/c		0.00
15	Investments made during the year	314,85,266.77	1600,41,709.00
16	Refund of dues to Plan / Project A/c		50,16,000.00
17	Interest Paid	1,47,307.00	2,79,386.00
18	Bank Charges		0.00
19	CB: Cash at Bank with SBI,ISM Br., Dhanbad	32,22,401.55	75,47,948.55
<b>20</b>	<b>TOTAL</b>	<b>1012,60,040.32</b>	<b>2157,01,767.55</b>

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIGRAHI)  
DIRECTOR

## **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:

S No	Asset's Name for op. balance as on 1.4.1997	Ad-hoc rate of Depreciation yearly basis	Depreciation rate on
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 dev.	80%	60%
11	Plant & Machinery/Lab Equipment	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) Last quarter Grants-in-aid has been accounted as per the sanctioned letter of the MHRD dated 26.3.2015 & 27.3.2015.

#### 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 31.3.2015. 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 2015 has been made in the books of accounts as on 31.3.2015. 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. Up to 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** Expenditure exceeding availability of fund in a project, if any, was met out of interest from project investments.
- 15.7** 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, except an amount of Rs 946.00 which needs to be located, took place under Non Plan.
- 15.8** 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.
- 15.9** The surplus funds under Project Accounts were invested in a consolidated manner, and interest income was credited to Non Plan Endowment Fund of the School.
- 15.10** The Bank FDR's are considered as investment, hence shown as 'Investment of Funds' under Balance Sheet.
- 15.11** Schedule 1 to 15 are annexed to and form an integral part of the Balance Sheet and the Income & Expenditure Account for the year ended on that date.
- 15.12** Receipt & Payment has been made with the help of computerised schedules from the current year we also introduced schedule of Receipt & Payment Account. From the next year there will be a comparative Schedule.

  
(M N PANDEY)  
ASST REGISTRAR (L&B)

  
(M S CHAMPIA)  
ASST REGISTRAR (GA)

  
(COL M K SINGH)  
REGISTRAR

  
(PROF D C PANIGRAHI)  
DIRECTOR

**Audit Report  
Annexure - II**





No. PDAC/LKO/SAR-ISM/2014-15/211

Dated: October 07, 2015

13

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 2014-15**

Sir,

I am to enclose a copy of Audit Report and Audit Certificate along with audited Annual Accounts of Indian School of Mines, Dhanbad for the year 2014-15 for information and necessary action.

2. A copy of these 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 of the Indian School of Mines, 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 & Auditor General of India on the accounts of Indian School of Mines, Dhanbad for the year ended 31 March 2015**

We have audited the attached Balance Sheet of Indian School of Mines (ISM), Dhanbad as on 31 March 2015, 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 (C&AG) 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/ C&AG'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. Our audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the financial statements. Our audit includes examining, on a test basis, evidences supporting the amount and disclosure financial statement. Our audit includes assessing the accounting principles used and significant estimates made by the managements as well as evaluating the overall presentation in 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, Income and Expenditure Account and Receipts and Payment 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 (ISM), 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 Capital Fund (Schedule-1) ₹ 629.51 crore**

The School received grant of ₹ 110 crore under the Plan head during the year 2014-15. Out of this, ₹ 93.50 crore was earmarked for creation of Capital Assets, Whereas ₹ 16.50 crore was provided for meeting the revenue expenditure. The school exhibited ₹ 19.49 crore instead of ₹ 16.50 crore in Income and Expenditure Account resulting in overstatement of income as well as understatement of 'Capital fund' by ₹ 2.99 crore.

#### **A.1.2. Earmarked/endowment funds (Schedule-3)- ₹82.65 crore**

**A.1.2.1** The Government of India introduced (July 2005) a scheme of Block Grant (Non-plan) for five years (2005-06 to 2009-10).

Although the scheme ended in 2009-10, the school irregularly transferred interest of ₹ 3.33 crore earned from investment from Project funds to Endowment fund (Block Grant) instead of crediting interest proportionately in the respective Project funds. Interest earned from investment of research Project fund is not a source of internal

revenue receipts as such it was not to be credited to Block Grant Scheme. This resulted in overstatement of Endowment fund and understatement of Project fund by ₹ 3.33 crore.

**A.1.2.2** The School purchased built up area in NBCC shopping centre in Kolkata for ₹ 9.01 crore and advanced ₹ 1.31 crore for refurbishment . The expenditure of ₹ 10.32 crore was not charged on endowment fund. This resulted in overstatement of endowment fund and under statement of capital fund by ₹ 10.32 crore.

### **A.1.3 Current Liabilities and Provisions (Schedule-4) - ₹ 57.82 crore**

**A.1.3.1** The school issued (June 2013) the purchase order for supply and installation of EPMA and as per terms and conditions of the purchase order, 90 *percent* of purchase price was to be released after submission of documents through LC and the remaining 10 *percent* after supply and installation of the equipment. Although the equipment was installed, the school did not release the 10 *percent* amount of Euro 90,507.50 till 31.03.2015 and did not show the liability in annual accounts. This resulted in understatement of outstanding liability and assets by ₹ 0.61 crore.

**A.1.3.2** The school placed a purchase order for Scanning Probe Microscope system (SPM) for \$ 3,18,788 in March 2014. As per terms & conditions of the purchase order, 90 percent of purchase price was to be paid through LC and the balance 10 percent was to be paid after supply and installation of the equipment.

Though the equipment was installed, the school did not exhibit the outstanding liability of \$ 31878 on 31.03.2015. This resulted in understatement of liability and asset by \$ 0.20 crore (\$ 31878x ₹ 62.3144).

**A.1.3.3** As per agreement, the Elsevier Bv is providing the service of Online Science Direct (Complete Freedom Collection) for \$ 2,14,739.44 for 200 users for the period

1.1.2015 to 31.12.2015. Though the service was continuously provided by the service provider, the school did not make any provision in the accounts for payments of above liabilities as on 31.3.2015. This resulted in understatement of liability and understatement of expenses by ₹ 0.33 crore (\$ 53684.86 x ₹ 62.273) as on 31 March.

## **A.2. Assets**

### **A.2.1 Fixed Assets (Schedule-V) - ₹ 252.74 crore**

**A.2.1.1** Although three construction works valued at ₹ 88.64 crore allotted to CPWD were completed and handed over to the school, these work were not shown under Fixed Assets.

This resulted in understatement of Fixed Assets under the head 'Buildings' and overstatement of 'CPWD Deposit advance' by ₹ 88.64 crore.

**A.2.1.2** The School deposited (July 2012) estimated service charge of ₹ 4.98 crore with Damodar Valley Corporation (DVC) for construction of transmission line for supply of power in its campus. As per terms and condition of the work, the settlement of all disputes relating to 'Right of Way (ROW)'/issues with Public/Local authorities/state authorities would be solved by the school at their cost.

Although DVC did not commence the work as the ROW had not yet been settled by the school, and statutory clearances related to forest, wireless, river, highway crossing and CEA had not yet been received , the school irregularly capitalized the above deposit under the head 'Augmentation of Power & Water' during 2012-13 and charged depreciation from 2012-13 onwards. This resulted in overstatement of fixed Assets and understatement of current assets under the head deposit by ₹ 4.98 crore and understatement of excess of income over expenditure of ₹ 1.35 crore due to irregular charging of depreciation from 2012-13.

**A.2.1.3** During 2012-13, CPWD refunded ₹ 0.79 crore (extension of PE Building ₹ 0.76 crore and new workshop building ₹ 0.03 crore) against completed works, but the school did not adjust this amount against works. This resulted in overstatement of Buildings and liabilities by ₹ 0.79 crore and the consequent overcharging of depreciation by ₹ 0.21 crore from 2012-13 to 2014-15 as detailed below :

Year	Depreciation (₹ in crore)
2012-13	0.08
2013-14	0.07
2014-15	0.06
<b>Total</b>	<b>0.21</b>

Although this irregularity was brought to the notice of the management during 2013-14, no corrective action has been taken by the management as of date.

**A.2.1.4** The school issued a work order for construction of the electric sub-station, valued at ₹ 2.09 crore on 16.03.2012 to C & S Electric Ltd with the scheduled date of completion five months from the date of issue of letter of intent (31.01.2012).

Although the work had not been completed and handed over, the School irregularly exhibited the payments of ₹ 1.99 crore to the contractor under the head 'Fixed Assets' and charged depreciation amounting to ₹ 0.46 crore. This resulted in overstatement of fixed assets and understatement of work in progress by ₹ 1.99 crore and understatement of excess of income over expenditure by ₹ 0.46 crore.

**A.2.1.5** The School made advances of ₹ 1.75 crore for supply of scientific journals during 2014-15, but the journals amounting to ₹ 0.32 crore only were received till March 2015. As such ₹ 1.43 crore was to be booked as advance till receipts of journals, instead it was booked under fixed assets under the head 'Library books & Journals'. This resulted in overstatement of fixed assets and understatement advance by ₹ 1.43 crore and overstatement of depreciation by ₹ 0.86 crore (₹ 1.43 crore x 60 percent).

## **A.2.2 Current Assets, Loans and Advances (Schedule-VII)- ₹ 477.81 crore.**

**A.2.2.1** The school received refund of ₹ 0.05 crore (06.08.2014) and ₹ 0.04 crore (05.08.2014) against the following completed works, the outstanding advances of ₹ 0.67 crore had not adjusted.

(₹ in crore)				
Sl. No.	Particulars	Opening Balance	Refund	Outstanding Advance
1.	Const. of Boundary cum retaining wall for 150 qtrs.	0.28	0.05	0.23
2.	Const. of pump tank for type V 48 qtrs.	0.47	0.03	0.44
	<b>Total</b>			0.67

Thus, the current assets was overstated and fixed assets was understated by ₹ 0.67 crore.

**A.2.2.2** The school exhibited ₹ 0.64 crore as advances to CPWD in annual accounts. CPWD, however, did not acknowledge these advances in its monthly returns, as these works had been completed long back. This needs to be reviewed and necessary adjustments would be made in accounts.

## **B. Income and Expenditure Account**

**B.1.** The Islamic Republic of Afghanistan paid ₹ 2.49 crore as fees (Tuition fee ₹ 1.96 crore and other fee ₹ 0.53 crore) for the year 2014-15 on 01.10.2014. The school did not transfer the income of ₹ 2.49 crore and expenditure of ₹ 0.15 crore made therefrom in the Income and Expenditure Account. This resulted in understatement of Income and overstatement of liability by ₹ 2.34 crore.

**B.2** As per Uniform format of Accounts, gross consultancy fees received during the year were to be accounted for as income under Non-plan Income and Expenditure account, and expenditure, if any, was to be shown under proper head of expenditure under 'Other Administrative Expenditures'. The school, however, treated it as liability in contravention of UFA and income was understated by ₹ 21.84 crore.

Besides, consultancy being a source of internal resource generation was to be accounted for under Non-plan head. The school, however, exhibited it under Project head.

**B.3** The school received ₹ 62.49 crore under the head 'Non Plan' for expenditure on salary and non-salary components, but the school irregularly transferred ₹ 0.17 crore to Capital Fund for making payments of capital nature. This resulted in understatement of income by ₹ 0.17 crore.

### **C. Receipt & Payment Account**

The School issued cheques amounting to ₹ 0.18 crore during January 2013 to June 2014, but these cheques were not encashed and became time-barred. Consequently, the liability to the extent of ₹ 0.18 crore remained undisposed resulting in understatement of cash and bank balance as well as liability to that extent.

### **D. Accounting Policies and Notes to Accounts**

As per UFA, un-discharged liabilities towards Letters of Credit were to be disclosed in Notes to Accounts.

The School did not disclose and un-discharged liability amounting to ₹ 4.81 crore in Notes to Accounts. Beside, foreign currency transactions were also not disclosed in Notes to Accounts.

### **E. General**

**E.1** The school invested ₹ 43.39 crore pertaining to GPF/CPF in Term Deposit Receipts (TDR) in the bank till 31.03.2015 in contravention of the norms prescribed by the Ministry of Finance vide notification dated 14.08.2008.

**E.2** The school did not make provisions for the retirement benefits (viz. gratuity, leave salary, pension, liability etc.) on actuarial basis.

**E.3** the School exhibited ₹ 1.46 crore under the head 'Other Project'. However, details of other projects were not provided to audit and hence its veracity could not be ascertained.

**E.4** As per Uniform Format of accounts, advances which are outstanding more than six months should be shown in annual accounts separately.

Although advances of ₹ 1.13 crore provided to various suppliers had been lying outstanding more than six months, these advances were not shown separately in annual accounts.

#### **F. Grants-in-Aid**

The ISM received ₹ 172.49 ( ₹ 62.49 crore under Non Plan and ₹ 110.00 crore under Plan) and unspent balance of previous year was ₹ 69.49 crore under the head Plan. Further, the ISM earned ₹ 0.73 crore as interest on investment under the head Plan and the school generated income from internal resources amounting to ₹ 36.08 crore (₹ 0.11 crore under the head Plan and ₹ 35.97 crore under the head Non Plan). Thus, the total fund of 278.79 crore (₹ 180.33 crore under the head Plan and ₹ 98.46 crore under the head Non Plan) was available to ISM for utilization, out of which the school could utilize ₹ 155.05 crore (₹ 56.90 crore under the head Plan and ₹ 98.15 crore in Non Plan) and leaving the balance of ₹ 123.74 crore (₹ 123.43 crore under the head Plan and ₹ 0.31 crore under the head Non Plan) as on 31.03.2015.

#### **G. Management letter**

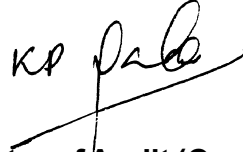
Deficiencies which have not been included in the Audit Report have been brought to the notice of the institute through a management letter issued separately for remedial/corrective action.

- (v) Subject to our observations in the preceding paragraphs, we report that the Balance Sheet, Income & Expenditure Account and Receipts & Payments 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 31st March 2015, and
- (b) In so far as it relates to Income and Expenditure Account of the surplus for the year ended on that date.

**For and on behalf of the  
Comptroller and Auditor General of India.**



**Place : Lucknow  
Date : 08.10.2015**

**Principal Director of Audit (Central), Lucknow**



## **Annexure**

### **1. Adequacy of Internal Audit System :**

The Internal Audit (IA) wing of the School comprising one Assistant Registrar and one UDC is inadequate keeping in view the size of the autonomous body. The function of the IA is limited to pre-check of purchase vouchers and pay fixation only. The wing did not conduct audit of annual accounts and other basic records such as cash books, bank book, ledgers, investment register and other records maintained in sections, Besides, no Internal Audit Manual has been prepared by the School.

### **2. Adequacy of Internal control system :**

The internal control system in the School reflects the following deficiencies:

- (i) The cash book was not closed daily.
- (ii) Physical verification of cash balances was not carried out at the end of every month and no certificate of physical verification was available on record.
- (iii) Ledger Folio numbers were not mentioned in the cash book.
- (iv) Register of valuables was not maintained.
- (v) Investment Register was not maintained properly, as the date of maturity and date of accountal in cash/bank book was not mentioned and it was not signed by competent authority.
- (vi) Cheque issue register was not maintained.
- (vii) Interest bearing advance (PC, Scooter etc) to staff for the year 2014-15 revealed that the school did not commence the recovery of advances of ₹ 0.12 crore from the employees with the first issue of pay and/or leave salary or subsistence allowance after drawal of advance in contravention of Rule 24 of GFR.
- (viii) There was non-compliance of out standing audit observations, reflecting poor follow up procedure.

- (ix) The school had not maintained fixed Assets Register in the prescribed form till date of audit (July 2015). In absence of this register, actual position of fixed assets could not be verified.

**3. Physical verification of Assets and Inventories**

Although the School conducted physical verification of assets and inventories, the value of unserviceable items were not exhibited and deducted from the fixed assets. As such, the fixed assets were overstated to that extent.

**4. Regularities in payment of statutory dues**

All statutory dues were paid within the stipulated time schedule by ISM.

