ANNUAL REPORT

2014 - 2015

भारतीय प्रौद्योगिकी संस्थान
काशी हिन्दू विश्वविद्यालय

IIT

INDIAN INSTITUTE OF TECHNOLOGY
BANARAS HINDU UNIVERSITY

INDIAN INSTITUTE OF TECHNOLOGY
(BHU), VARANASI

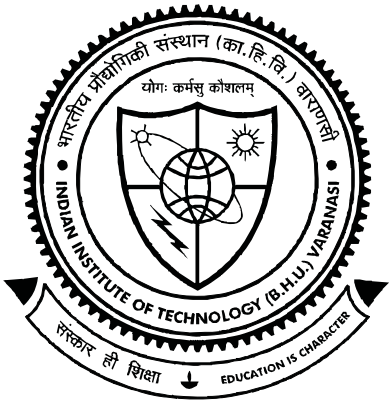
भारतीय
प्रौद्योगिकी
संस्थान
काशी हिन्दू विश्वविद्यालय

IIT

INDIAN
INSTITUTE OF
TECHNOLOGY
BANARAS HINDU UNIVERSITY

ANNUAL REPORT

2014 - 2015



INDIAN INSTITUTE OF TECHNOLOGY (BHU), Varanasi

This Page intentionally left blank

CONTENTS

Apex Committees

1. **IIT Council**
2. **Board of Governors**
3. **The Senate**
4. **Finance Committee**
5. **Building and Works Committee**
6. **Senate Library Committee**

Hon'ble Smt. Smriti Zubin Irani
Minister of Human Resource Development,
Government of India New Delhi -110 001

Members

Shri Deepender Singh Hooda,
Hon'ble Member of Parliament (Lok Sabha),
9, Pandit Pant Marg, New Delhi - 110 011
Ph.: 23737019
Email: deepender@gmail.com office@deepender.in

Smt. Vasanthi Stanley,
Hon'ble Member of Parliament (Rajya Sabha),
C-501, Swaran Jayanthi Sadan,
Dr. Bishamber Dass Marg (Opp. RML Hospital),
New Delhi - 110 001
Ph.: 23794012, 23745003
Email: vasanthi.stanley@sansad.nic.in,
vasanthstanley@gmail.com,
vasanthstanley@yahoo.co.in

Prof. Ashok Misra,
Chairman, BOG, IIT Roorkee &
Chairman, India Intellectual Ventures India Consulting Pvt. Ltd., Bangalore- 560 025
& 69 Adarash Vista, Basavanagar, Bangalore - 560 037
Ph. 01332-272742, 285500
Fax: 01332-273560, 285815

Dr. R.P. Singh
Chairman, BOG, IIT Guwahati
& Former Chairman, Power Grid Corporation, 29-Pashchimi Marg, Vasant Vihar, New Delhi - 110 057
Mob.: 9818804511
Email: rp.sngh5@gmail.com

Prof. M. Anand krishnan
Chairman, BOG, IIT Kanpur, Kanpur,
Fax: 0512-2590260
Email: ananda1928@gmail.com,
chairman@iitk.ac.in

Shri Janardhana Swamy,
Hon'ble Member of Parliament (Lok Sabha),
137, South Avenue,
New Delhi - 110 011
Email: jswamy@jswamy.com

Shri Yogendra Tripathi
Joint Secretary & Financial Advisor,
Ministory of Human Resouce Development,
Department of Higher Education, New Delhi
Email: yogendra.tripathi@nic.in

Dr. Anil Kakodkar
Chairman, BOG, IIT Bombay
Mumbai - 400 036
Email:kakodkaranil@gmail.com, kakodkar@barc.gov.in

Dr. Pawan Goenka,
Chairman, BOG, IIT Madras
Chennai - 600 036,
& Executive Director and President,
Mahindra & Mahindra, Mahindra Towers,
GM Bhosale Marg, Worli, Mumbai
Ph.: 022-24970162 (Worli),
022-28852904 (Kandivli)
Email: goenka.pawan@mahindra.com

Dr. Vijay P. Bhatkar
Chairman, BOG, IIT Delhi, New Delhi - 110 016
& Founder Executive Director, C-DAC
& Currently Chairman, ETH Research Laboratory,
H.No. 34-A, Vrindavan Socity, Panchavati, Pashan Road,
Pune- 411 008
Fax : 02040162203
Email: vijaypbhatkar@gmail.com

Shri Sri Kumar Banerjee
Chairman, BOG, IIT Kharagpur,
& DAE Homi Bhabha Chair Professor,
BARC Central Complex,
Bhabha Atomic Research Centre,
Trombay, Mumbai
Email: sbanerjee1946@gmail.com

Dr. Baldev Raj,
Chairman, BOG, IIT Gandhinagar,
& President Research PSG Institution,
PSG College of Technology Campus,
New Administrative Block, Peelamadu,
Coimbatore- 641 004
Ph. : 0422-4344201
Mob.: 9894070495
Fax: 0422-4344200
Email:baldev.dr@gmail.com
secdmg@igcar.gov.in

Prof. Goverdhan Mehta,
Chairman, BOG, IIT Jodhpur (Raj.)
& National Research Professor and Lilly-Jubliant Chair,
School of Chemistry, Prof. C.R. Rao Road,
P.O. Central University, Hyderabad-500 046
Ph. 040-23134848
Email: gmsc@uohyd.ernet.in
gm@orgchem.iisc.ernet.in

Shri S.K. Roongta,
Chairman, BOG, IIT Bhubaneswar,
Bhubaneswar (Odisha)
& Former Chairman, SAIL, CMD, Vadanta Aluminum,
The Pinnacle, DLF Phase-5,
Gurgaon- 122 009
Mob.: 08130553344
Email: s.k.roongta@gmail.com

Dr. B.V.R. Mohan Reddy
Chairman, BOG, IIT Hyderabad,
& CMD, Infotech Enterprises Ltd.,
Plot No. 11, Software Unit Layout,
Infocity, Madhapur, Hyderabad-500 081,
Ph. : 040-23112871
Mob.: 9849022686
Email: mohan.reddy@infotech-enterprises.com

Shri Ajay Piramal
Chairman, BOG, IIT Indore (M.P.),
& Chairman, Piramal Enterprises Ltd.,
Piramal Tower, 10th Floor, Ganpatrao Kadam Marg,
Lower Parel, Mumbai- 400 013,
Ph. 022-3046 6666
Fax : 022-24936708
Email: corporate.communication@piramal.com

2. Board of Governors

Name & Address

Dr. Lalji Singh
Vice-Chancellor (ex-officio)
Banaras Hindu University
Varanasi 221 005
Period : upto 21.08.2014

Prof. Rajeev Sangal
Director (ex-officio)
IIT (BHU), Varanasi – 221 005
Period : 22.08.2014 – 26.11.2014

Prof. Girish Chandra Tripathi
Vice-Chancellor (ex-officio)
Banaras Hindu University
Varanasi-221 005.
Period : 27.11.2014 – continued

Prof. Narendra Ahuja
Room No.3299, Electronic Niketan
(ITRA, Media Lab Asia),
6-CGO Complex
New Delhi-110003
Period: 1.4.2014 - continued

Shri Ganesh Bagaria
ManviyaShikshaSanskarSansthan
Opp. VanakhandeshwarMandi,
Mandhana Kanpur-209217
Period: 1.4.2014 - continued

Dr. P.M. Bhargava
Member, Executive Council, BHU,
ex-officio Anveshna,
"ManoramaGhar", 2-16-137/1,
Road # 3 Prashanthi Nagar, Uppal,
Hyderabad – 500 039
Period: 1.4.2014 – 28.12.2014

Dr. T.V. Ramakrishnan
Member, Executive Council, BHU, ex-officio
Fellow of Royal Society, London(FRS),
Distinguished Associate,
Centre for Condensed Matter Theory
Dept. of Physics, Indian Institute of Science,
Bangalore – 560 012
Period: 1.4.2014 – 28.12.2014

Professor Onkar Singh
Vice Chancellor
Madan Mohan Malaviya University of Technology
Deoria Road, Gorakhpur – 273 010
Uttar Pradesh.
Period : 1.4.2014 – continued

Prof. K.K. Srivastava
Dept. of Chemical Engg. & Tech.,
IIT (BHU), Varanasi – 221 005
Period : 1.4.2014 – 31.12.2014

Prof. Om Parkash
Dept. of Ceramic Engineering
IIT (BHU), Varanasi – 221 005
Period : 1.4.2014 – 31.12.2014

Prof. Rajiv Prakash
School of Materials Science & Technology
IIT (BHU), Varanasi – 221 005
Period : 1.1.2015 – continued

Prof. Y.C. Sharma
Dept. of Chemistry, IIT (BHU)
IIT (BHU), Varanasi – 221 005
Period : 1.1.2015 – continued

3. THE SENATE

LIST OF SENATE MEMBERS

1. Dr. R.K. Dube, Former Professor, Dept. of Materials Science & Engg., IIT Kanpur
2. Dr. Harish Karnick, Professor, Dept. of Computer Science & Engg., IIT-Kanpur
3. Dr. P.K. Mukhopadhyay, Former Professor, Dept. of Philosophy, Jadavapur
4. Prof. Madhoolika Agrawal, Dept. of Botany, BHU
5. Prof. Anand Kumar, Department of General Surgery, IMS, BHU
6. Prof. Kamal Sheel, Dept. of Foreign Languages, Faculty of Arts, BHU
7. Dr. Brind Kumar, Dept. of Civil Engg., IIT (BHU)
8. Dr. Senthil Raja A., Dept. of Pharmaceutics, IIT (BHU)
9. Dr. Amrendra Kumar, Dept. of Mining Engg., IIT (BHU)
10. Dr. Chandan Upadhyay, School of Materials Science & Tech., IIT (BHU)
11. Dr. Neeraj Sharma, School of Biomedical Engg., IIT (BHU)
12. Dr. Anurag Ohri, Dept. of Civil Engg., IIT (BHU)
13. Dr. Subir Das, Dept. of Mathematical Sciences, IIT (BHU)

DEPARTMENT OF CERAMIC ENGINEERING

14. Prof. Devendra Kumar
15. Prof. Om Parkash
16. Prof. S.P. Singh
17. Prof. Ram Pyare

DEPARTMENT OF CHEMICAL ENGINEERING

18. Prof. K.K. Srivastava
19. Prof. A.K. Verma
20. Prof. A.S.K. Sinha
21. Prof. Ram Prasad
22. Prof. B.N. Rai
23. Prof. Pradeep Kumar Mishra
24. Prof. Pradeep Ahuja

DEPARTMENT OF CIVIL ENGINEERING

25. Prof. Veerendra Kumar
26. Prof. Goutam Banerjee (Lien or EOL for two years w.e.f. 19.08.2013)
27. Prof. Devendra Mohan
28. Prof. Prabhat Kumar Singh
29. Prof. Prabhat Kumar Singh Dixit

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

30. Prof. A.K. Agrawal
31. Prof. A.K. Tripathi
32. Prof. K.K. Shukla
33. Prof. R.B. Mishra

DEPARTMENT OF ELECTRICAL ENGINEERING

34. Prof. Shiva Pujan Singh
35. Prof. S.K. Nagar
36. Prof. Arun Kumar Kapoor
37. Prof. D. N. Vishwakarma
38. Prof. R.K. Pandey
39. Prof. Rakesh Kumar Srivastava
40. Prof. Rakesh Kumar Mishra
41. Prof. Ranjit Mahanty
42. Prof. Devender Singh
43. Prof. R. S. Gorayan

DEPARTMENT OF ELECTRONICS ENGINEERING

44. Prof. S.K. Balasubramaniam
45. Prof. S.P. Singh

46. Prof. P.K. Jain
47. Prof. R.R. Das
48. Prof. V.N. Mishra
49. Prof. Satyabrat Jit

DEPARTMENT OF MECHANICAL ENGINEERING

50. Prof. J.P. Dwivedi
51. Prof. Virendra Pratap Singh
52. Prof. A.K. Agrawal
53. Prof. A.K. Jha
54. Prof. V.K. Srivastava
55. Prof. Santosh Kumar
56. Prof. S.P. Tewari
57. Prof. K.S. Tripathi
58. Prof. A.P. Harsha
59. Prof. Sanjay Kumar Sinha
60. Prof. Sandeep Kumar (Lien for two years w.e.f. 3.2.2014)

DEPARTMENT OF METALLURGICAL ENGINEERING

61. Prof. S. N. Ojha
62. Prof. G. V. S. Sastry
63. Prof. R. K. Mandal
64. Prof. N. K. Mukhopadhyay
65. Prof. Sunil Mohan
66. Prof. (Mrs.) N.C. Shanti Srinivas
67. Prof. B. Nageshwar Sarma

DEPARTMENT OF MINING ENGINEERING

68. Prof. B. K. Shrivastava
69. Prof. Netai Chandra Karmakar
70. Prof. Aarif Jamal
71. Prof. Piyush Rai
72. Prof. Sanjay Kumar Sharma

DEPARTMENT OF PHARMACEUTICS

73. Prof. R.S. Srivastava
74. Prof. B. Mishra
75. Prof. S.K.Singh
76. Prof. Sanjay Singh
77. Prof. S.K. Srivastava

DEPARTMENT OF CHEMISTRY

78. Prof. (Mrs.) R. B. Rastogi
79. Prof. Prem Chandra Pandey
80. Prof. M.A.Quraishi
81. Prof. A.K. Mukherjee
82. Prof. (Mrs.) Ranjana Ghosh
83. Prof. Syed Hadi Hasan
84. Prof. Vandana Srivastava
85. Prof. Yogesh Chandra Sharma
86. Dr. D. Tiwary
87. Dr. Indrajit Sinha

DEPARTMENT OF MATHEMATICAL SCIENCES

88. Prof. O. P. Singh
89. Prof. Tanmoy Som
90. Prof. (Mrs.) Rekha Srivastava
91. Prof. Lal Pratap Singh
92. Prof. Sanjay Kr. Pandey

ENGLISH WRITING SECTION
93. Prof. Prasant Kumar Panda
DEPARTMENT OF PHYSICS
94. Prof. B. N. Dwivedi
95. Prof. Onkar Nath Singh
96. Dr. D. Giri (Head)
SCHOOL OF BIO-CHEMICAL ENGINEERING
97. Prof. Subir Kundu
98. Prof. S. K. Srivastava
99. Prof. (Mrs.) Mira Debnath (Das)
SCHOOL OF BIO-MEDICAL ENGINEERING
100. Prof. A. K. Ray
101. Prof. (Mrs.) Ranjana Patnaik
102. Prof.(Miss) Nira Misra
SCHOOL OF MATERIALS SCIENCE & TECHNOLOGY
103. Prof. Dhananjai Pandey
104. Prof. Rajiv Prakash
105. Prof. Pralay Maiti

4. Finance Committee

1. Dr. Lalji Singh
Vice-Chancellor (ex-officio)
Banaras Hindu University
Varanasi 221 005
Period : upto 21.08.2014

Prof. Rajeev Sangal
Director (ex-officio)
IIT (BHU), Varanasi – 221 005
Period : 22.08.2014 – 26.11.2014

Prof. Girish Chandra Tripathi
Vice-Chancellor (ex-officio)
Banaras Hindu University
Varanasi-221 005.
Period : 27.11.2014 – continued

Additional Secretary to the Govt. of India, Technical Education, Ministry of Human Resource Development, (Department of Higher Education), New Delhi
Joint Secretary & Financial Adviser to the Govt. of India, Integrated Finance Division, Ministry of Human Resource Development, (Department of Higher Education), New Delhi

Dr. T.V. Ramakrishnan
Member, Executive Council, BHU, ex-officio
Fellow of Royal Society, London(FRS),
Distinguished Associate, Centre for Condensed Matter Theory
Dept. of Physics, Indian Institute of Science,Bangalore – 560 012
Period: 1.4.2014 – 28.12.2014

(Board's Nominee)
Prof. Om Parkash
Dept. of Ceramic Engineering
IIT (BHU), Varanasi – 221 005
Period : 1.4.2014 – 31.12.2014

5. Building and Works Committee

MEMBERS OF BUILDING& WORKS DEPARTMENT

1.	Prof. Rajeev Sangal, Director, IIT (BHU)	- Chairman
2.	Prof. A. K. Jain Prof. & Head, Department of Civil Engg. IIT Delhi, New Delhi- 110016	- Member
3.	Prof. Pradeep Bhargawa Department of Civil Engg., IIT Roorkee, Roorkee-247667	- Member
4.	Prof. ManojMathur Head Industrial Design SPA and Architect (Nominee of Director, School of Planning & Architecture) 4 – Block – B, Indraprastha Estate, New Delhi – 110002	- Member
5.	Sri N. Nanjappa (Ex-Senior Superintending Engineer, CCMB, Hyderabad) Flat No. 202, "Grand Residency", No. 4-7-102/18 Lane No. 2, Sai Enclave, Habsiguda, Hyderabad – 500007	- Member
6.	Prof. Veerendra Kumar, Chairman, IWC, IIT (BHU)	- Member
7.	Prof.R.Mahanty, Dept. Electrical Engg., IIT (BHU)	- Member
	Dr. S. P. Mathur, Registrar, IIT (BHU), Varanasi	- Member Secretary

6. Senate Library Committee

1.	Prof. B.N. Sarma, Dept. of Metallurgical, IIT(BHU)	- Chairman
2.	The Conveners from each Department/School	
	Convener	Department/School
I.	Prof. S.K. Srivastava	Bio-Chemical Engineering
ii.	Prof. Ranjana Patnaik	Bio-Medical Engg.
iii.	Prof. S.P. Singh	Ceramic Engineering
iv.	Dr. Vijay Laxmi Yadav	Chemical Engineering
v.	Dr. Jeyakumar Kandasamy	Chemistry
vi.	Dr. K.K. Pandey	Civil Engineering
vii.	Dr. B. Biswas	Computer Engineering
viii.	Prof. A.K. Kapoor	Electrical Engineering
ix.	Prof. P.K. Mukherjee	Electronics Engineering
x.	Dr. B.N. Pal	Materials Science & Technology
xi.	Prof. T. Som	Mathematical Sciences
xii.	Prof. S.P. Tewari	Mechanical Engineering
xiii.	Prof. N.C. Santhi Srinivas	Metallurgical Engineering
xiv.	Prof. R.P. Singh	Mining Engineering
xv.	Dr. K. Sairam	Pharmaceutics
xvi.	Dr. Rajendra Prasad	Physics

3. Members nominated by the Chairman, Senate

(i) Prof. R. Mahanty, Dept. of Electrical Engg., IIT(BHU)
(ii) Prof. B.N. Sarma, Dept. of Metallurgical Engg., IIT(BHU)
(iii) Prof. Devendra Singh, Dept. of Electrical Engg., IIT(BHU)
(iv) Dr. Senthil Raja A., Dept. of Pharmaceutics, IIT(BHU)
(v) Mr. Ashish Modi, B.Tech. III Year, Ceramic Engineering, IIT(BHU)
(vi) Ms. Pooja Mittal, Research Scholar, Pharmaceutics, IIT(BHU)

4. The Librarian/Asstt. Librarian (as the case may be), Main Library, IIT(BHU), Varanasi

1. Director's Report

The Indian Institute of Technology (Banaras Hindu University) owes its existence to Mahamana Pandit Madan Mohan Malaviya - the founder of the first residential university of modern India, the Banaras Hindu University, who could foresee the important role of technical education in strengthening independent India economically.

The three colleges of BHU, namely BENCO, MINMET and TECHNO, were merged to form the Institute of Technology (IT-BHU) in 1968 to provide an integrated educational base. The IT-BHU has been admitting students through the JEE conducted by the IITs since 1972, and has been consistently ranked amongst the top ten engineering institutions of the country inspite of its relatively meagre funding. IT-BHU became IIT(BHU) in June 2012 by an act of Parliament.

After the changeover to IIT, the Institute engaged itself in taking up the mammoth task of putting many of the procedures and practices similar to the IITs. The system of executive Deans to shoulder various academic and administrative responsibilities along with the Director is firmly in place.

The Institute has had and continues to have outstanding faculty members and has turned out luminary engineers and administrators who served the nation with great distinction. The current faculty strength of the Institute is 234 (as against a sanctioned strength of about 500) while the number of technical & non-technical staff is 529. At present, the Institute comprises 14 Departments and 3 interdisciplinary schools. Central facilities in the Institute include a newly established Central Instrumentation Facility, Main Workshop, Institute Library, and Industrial Consultancy & Testing Services.

The new curriculum for undergraduate programmes has entered its 2nd year. It has choice based credit system, is project oriented and learner centric. The exploratory projects are introduced in the third semester for the current students. Next year will see the implementation of UG stream projects & courses as part of UG research & innovation. In the PhD program, mandatory courses on research methodology and human values are being introduced.

Teaching-Learning Cell set up in December 2013 continues to cover all aspects of teaching, pedagogy, course delivery, laboratory projects, assessment, all the way to online courses.

Academic Activities

The academic year 2014-15 has had a successful run. The number of students at the postgraduate and Ph.D. level has seen a significant increase.

During this year, the teachers as well as students have clocked significant academic achievements and published research papers in different journals and books.

For strengthening research, PDF positions are being created.

UG laboratories in all the departments have been modernized where most common facilities are located. Tinkering labs are also being established.

Design and Innovation Hub has been set up through which teachers and students can initiate project to improve their creativity. This program supported around 180 projects during the summer. Around fifty innovation projects of one year duration are underway through this Hub. Many of these projects are aimed at solving social problems and also deal with problems of common man. The Design and Innovation Hub (DIH) also sponsored students to participate in Shell Eco Marathon and SAE-BAJA events.

Our students have been hired by some of the best companies. IIT(BHU) boasts of one of the best placement packages offered among the IIT's.

Research & Development Activities

Highly qualified faculty and talented research scholars are active in frontier areas of research and their efforts are supported by Govt. research sponsoring agencies and many reputed industries such as TISCO, HINDALCO, ONGC, SAIL, BHEL, MECON, UPSEB, FCI, Coal India etc. The total financial supports for the ongoing projects around 40 in the Departments and Schools is nearly Rs. 10.29 crores including FIST/UGC-SAP funding/ Steel Technology Centre. Rs.7.11 crores were sanctioned in the last financial year.

Extension of our expertise and laboratory facilities to the industries of this region is an important service activity of the Institute. All the major departments of the Institute have been actively engaged in providing industrial consultancy and testing services to a large number of industries and entrepreneurs of the region and also to large industrial houses. During this year several consultancy and testing projects valued at over approximately Rs.2.78 crores were completed successfully.

The Departments and Schools of the Institute have also been active in organizing seminars and symposia, summer/winter schools and co-curricular and extra-curricular activities of the students, etc.

Alumni have also come forward to support scholarships for needy students and supporting projects that have social relevance. We record our gratefulness to them.

Infrastructure Development

Infrastructure development is the need of the hour for us. Renovation of hostels was done this past summer. 48 one bedroom apartments for married PhD students and new faculty are expected to be ready by March 2016. Work is also expected to start on a boys hostel and residential accommodation for faculty.

Students' Activities

The Institute nurtures social, cultural and sporting activities pursued by the Students' Gymkhana and other student groups. Besides games and sports, the artistic and creative talents of students are encouraged through various activities like dramatics, debates, music, visual arts etc. and clubs like Radio, Audio, Photography, Automobile, Aero-Modelling, Cine and Computer Club.

Student Gymkhana organized its annual techno-management festival Technex, cultural festival Kashi Yatra & games event Spardha. IIT(BHU) participated in the 50th Inter IIT meet at IIT Bombay in Dec. 2014.

We aim to create future leaders of the profession in our students. The Institute strongly believes that an abiding social and humane engagement is the hallmark of its student body. Students are involved in social work with underprivileged sections of society through Kashi Utkarsh and other informal initiatives.

Human Values course introduced last year for all 1st year undergraduate students are moving from strength to strength. These were also run for Ph.D. students. These courses are conducted thru discussion in groups rather than lectures. 20 students in a group are guided by a Human Values mentor. The results have been quite amazing not only in guidance related to one self and one's role in family & society, but also in building bonds between the students and faculty.

Conclusion

IIT(BHU) is in transition. As the new emerges from the old, building on its strengths, but transforming itself to meet challenges of the future, we look forward to a glorious future of IIT(BHU).

A total of 704 B.Tech./B.Pharm. Degrees, 158 Integrated Dual Degrees & Integrated Masters' Degrees, 254 M.Tech./M.Pharm Degrees and over 52 Ph.D. Degrees are being awarded.

2. Administration

2.1 Faculty Administration
Faculty/Staff members in Position

Faculty Members	232
Visiting Faculty	07

Faculty & Staff Members appointed during 2014-2015

Professors	89
Associate Professors	50
Assistant Professors	93
Visiting Faculty	07

Faculty members appointed	**8**
Faculty members who retired	**8**
Faculty members who expired while in service	**1**
Faculty members on long leave/study leave	**3**
Faculty members on extraordinary leave	**2**
Faculty members on sabbatical leave	**2**

2.2 Non- faculty Administration
Staff members in Position :

Group A Staff	**16**
Scientific Officers	**03**
Technical Staff	**291**
Administrative Staff	**229**

Staff Members appointed during 2014-15

ADMINISTRATIVE STAFF	**10**

Staff members appointed	**10**
Staff members who resigned/were relieved	**1**
Staff members who retired	**20**
Officers/staff members on long leave	**3**
External training given to staff members	**8**
Internal training	**1**

3. ACADEMIC PROGRAMMES AND AWARD OF DEGREES

The Institute offered Ph.D. programmes in all 16 departments, M.Tech. programme in 13 streams/specializations, M.Pharm. programme in one stream/specialization, B.Tech. programmes in 9 engineering departments, B.Pharm. in one department, Dual Degree (B.Tech. and M.Tech.) programmes in 10 engineering departments/schools, Dual Degree (B.Pharm. and M.Pharm.) programme in one department, Integrated Master's (M.Tech.) Degrees in 3 science departments besides a preparatory course for SC/ST students during the year under report.

Admissions 2014–2015

Candidates for admission to the 4-Year B.Tech./B.Pharm., 5-Year Dual Degree and 5-Year Integrated Master's (M.Tech.) degree programmes were selected through JEE(Advanced) and on the basis of the All India Rank. 2-Year M.Tech./M.Pharm. programmes, candidates get admitted on the basis of GATE/GPAT score. Quite a few candidates were also selected for the M.Tech. programme under the Sponsored and Q.I.P. programmes through interviews and/or written tests. Selection for the Ph.D. programmes was done through tests/interviews, they must qualify the GATE or GPAT or UGC/CSIR-NET.

The number of students and scholars admitted to the various programmes in July 2014 and in January 2015 are listed in Table as shown below.

Table Fresh admissions

Sl. No.	Department/School	B.Tech.	B.Pharm.	Dual Degree (B.Tech. & M.Tech.)	Dual Degree (B.Pharm. & M.Pharm.)	Integrated Master's (M.Tech.) Degree	M.Tech.	M.Pharm.	Ph.D.	Total
1.	Biochemical Engineering	---	---	12	---	---	6	---	---	**18**
2.	Biomedical Engineering	---	---	11	---	---	7	---	4	**22**
3.	Ceramic Engineering	35	---	9	---	---	18	---	4	**66**
4.	Chemical Engineering	115	---	---	---	---	44	---	8	**167**
5.	Chemistry	---	---	---	---	14	---	---	9	**23**
6.	Civil Engineering	78	---	19	---	---	33	---	6	**136**
7.	Computer Science and Engineering	59	---	16	---	---	---	---	4	**79**
8.	Electrical Engineering	82	---	20	---	---	41	---	12	**155**
9.	Electronics Engineering	80	---	---	---	---	42	---	10	**132**
10.	Industrial Management	---	---	---	---	---	9	---	2	**11**
11.	Materials Science and Technology	---	---	12	---	---	12	---	11	**35**
12.	Mathematical Sciences	---	---	---	---	19	---	---	---	**19**
13.	Mechanical Engineering	98	---	19	---	---	43	---	3	**163**
14.	Metallurgical Engineering	64	---	19	---	---	12	---	2	**97**
15.	Mining Engineering	79	---	9	---	---	4	---	10	**102**
16.	Pharmaceutics	---	16	---	4	---	---	29	12	**61**
17.	Physics	---	---	---	---	14	---	---	6	**20**
18.	Systems Engineering	---	---	---	---	---	9	---	1	**10**
	Total	**690**	**16**	**146**	**4**	**47**	**280**	**29**	**104**	**1316**

In addition, 6 students (OBC PD – 3; GE PD – 3) joined the preparatory course.

Category/Gender-wise students among fresh admissions

Sl. No.	Programme	General		OBC		SC		ST		PD		Total		
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Total
1.	B.Tech.	303	20	186	9	99	2	49	1	20	1	**657**	**33**	**690**
2.	B.Pharm.	4	1	4	---	5	1	1	---	---	---	**14**	**2**	**16**
3.	Dual Degree (B.Tech. & M.Tech.)	61	3	35	3	21	2	14	1	6	---	**137**	**9**	**146**
4.	Dual Degree (B.Pharm. & M.Pharm.)	---	---	2	---	1	---	1	---	---	---	**4**	**---**	**4**
5.	Integrated Master's (M.Tech.) Degree	21	3	11	---	6	1	5	---	---	---	**43**	**4**	**47**
6.	M.Tech.	124	30	61	7	33	10	11	2	2	---	**231**	**49**	**280**
7.	M.Pharm.	5	10	3	5	3	1	---	1	1	---	**12**	**17**	**29**
8.	Ph.D.	38	22	29	4	10	---	---	---	1	---	**78**	**26**	**104**
	Tota	**556**	**89**	**331**	**28**	**178**	**17**	**81**	**5**	**30**	**1**	**1176**	**140**	**1316**

The students admitted during the year included the following:

Foreign national	Nil.		Q.I.P.	Nil.
OBC	331		Sponsored M.Tech.	5
Scheduled Castes	178		Sponsored Ph.D.	1
Scheduled Tribes	81		Project	---
Physically handicapped	30		External registration Ph.D.	---
Women Students	140			

Enrolment of Students/Scholars

The total numbers of students on roll in various programmes of the Institute in the academic year 2014–2015 are provided in Table.

Table: Students on roll

Sl. No.	Department/School	B.Tech.	B.Pharm.	Dual Degree (B.Tech. & M.Tech.)	Dual Degree (B.Pharm. & M.Pharm.)	Integrated Master's (M.Tech.) Degree	M.Tech.	M.Pharm.	Ph.D.	Total
1.	Biochemical Engineering	---	---	55	---	---	15	---	24	**94**
2.	Biomedical Engineering	---	---	54	---	---	17	---	17	**88**
3.	Ceramic Engineering	173	---	55	---	---	29	---	24	**281**
4.	Chemical Engineering	440	---	---	---	---	84	---	43	**567**
5.	Chemistry	---	---	---	---	51	---	---	51	**102**
6.	Civil Engineering	296	---	99	---	---	59	---	17	**471**
7.	Computer Science and Engineering	261	---	80	---	---	---	---	30	**371**
8.	Electrical Engineering	343	---	106	---	---	71	---	39	**559**
9.	Electronics Engineering	335	---	---	---	---	75	---	48	**458**
10.	Industrial Management	---	---	---	---	---	15	---	6	**21**
11.	Materials Science and Technology	---	---	69	---	---	25	---	39	**133**
12.	Mathematical Sciences	---	---	---	---	94	---	---	42	**136**
13.	Mechanical Engineering	413	---	101	---	---	85	---	36	**635**
14.	Metallurgical Engineering	234	---	79	---	---	18	---	28	**359**
15.	Mining Engineering	334	---	61	---	---	6	---	14	**415**
16.	Pharmaceutics	---	62	---	39	---	---	57	55	**213**
17.	Physics	---	---	---	---	65	---	---	26	**91**
18.	Systems Engineering	---	---	---	---	---	13	---	3	**16**
	Total	**2829**	**62**	**759**	**39**	**210**	**512**	**57**	**542**	**5010**

Category/Gender-wise students on roll

Sl. No.	Programme	General		OBC		SC		ST		PD		Total		
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Total
1.	B.Tech.	1300	104	707	40	387	36	196	12	43	4	**2633**	**196**	**2829**
2.	B.Pharm.	18	7	17	6	10	2	2	---	---	---	**47**	**15**	**62**
3.	Dual Degree (B.Tech. & M.Tech.)	346	41	137	55	89	14	50	10	15	2	**637**	**122**	**759**
4.	Dual Degree (B.Pharm. & M.Pharm.)	15	4	8	---	8	1	2	1	---	---	**33**	**6**	**39**
5.	Integrated Master's (M.Tech.) Degree	99	14	44	7	22	5	15	2	1	1	**181**	**29**	**210**
6.	M.Tech.	225	54	115	14	63	17	19	3	2	---	**424**	**88**	**512**
7.	M.Pharm.	12	18	8	8	6	1	2	1	1	---	**29**	**28**	**57**
8.	Ph.D.	226	75	132	30	59	15	3	1	---	1	**420**	**122**	**542**
	Total	**2241**	**317**	**1168**	**160**	**644**	**91**	**289**	**30**	**62**	**8**	**4404**	**606**	**5010**

The students on roll including the following:

Foreign national		3	Q.I.P.		1
OBC		1168	Sponsored	M.Tech.	8
Scheduled Castes		644		Ph.D.	14
Scheduled Tribes		289	Project		5
Physically handicapped		62	External registration	Ph.D.	8
Women Students		606			

The branch-/discipline-wise and year-wise details of students enrolled in the B.Tech. B.Pharm., Dual Degree B.Tech.-M.Tech./B.Pharm.-M.Pharm., Integrated Mater's (M.Tech.) Degree and M.Tech./M.Pharm. programmes are provided here:

4-Year B.Tech. students on roll

Sl. No.	Branch	2014	2013	2012	2011 and earlier batches	Total
1.	Ceramic Engineering	35	43	51	44	**173**
2.	Chemical Engineering	115	105	111	109	**440**
3.	Civil Engineering	78	72	74	72	**296**
4.	Computer Science and Engineering	59	68	66	68	**261**
5.	Electrical Engineering	82	87	88	86	**343**
6.	Electronics Engineering	80	85	84	86	**335**
7.	Mechanical Engineering	98	109	107	99	**413**
8.	Metallurgical Engineering	64	52	58	60	**234**
9.	Mining Engineering	79	80	96	79	**334**
	Total	**690**	**701**	**735**	**703**	**2829**

4-Year B.Pharm. students on roll

Sl. No.	Branch	2014	2013	2012	2011 and earlier batches	Total
1.	Pharmaceutics	16	13	16	17	**62**
	Total	**16**	**13**	**16**	**17**	**62**

5-Year Dual Degree (B.Tech. and M.Tech.) students on roll

Sl. No.	Branch	2014	2013	2012	2011	2010 and earlier batches	Total
1.	Biochemical Engineering	12	11	11	14	7	**55**
2.	Biomedical Engineering	11	9	11	14	9	**54**
3.	Ceramic Engineering	9	10	11	13	12	**55**
4.	Civil Engineering	19	21	20	20	19	**99**
5.	Computer Science and Engineering	16	15	18	16	15	**80**
6.	Electrical Engineering	20	21	22	23	20	**106**
7.	Materials Science and Technology	12	15	17	13	12	**69**
8.	Mechanical Engineering	19	19	22	21	20	**101**
9.	Metallurgical Engineering	19	16	16	17	11	**79**
10.	Mining Engineering	9	12	18	14	8	**61**
	Total	**146**	**149**	**166**	**165**	**133**	**759**

5-Year Dual Degree (B.Pharm. and M.Pharm.) students on roll

Sl. No.	Branch	2014	2013	2012	2011	2010 and earlier batches	Total
1.	Pharmaceutics	4	7	4	16	8	**39**
	Total	**4**	**7**	**4**	**16**	**8**	**39**

5-Year Dual Degree (B.Pharm. and M.Pharm.) students on roll

Sl. No.	Branch	2014	2013	2012	2011	2010 and earlier batches	Total
1.	Chemistry	14	8	12	10	7	**51**
2.	Mathematical Sciences	19	21	21	15	18	**94**
3.	Physics	14	14	14	13	10	**65**
	Total	**47**	**43**	**47**	**38**	**35**	**210**

2-Years M.Tech. students on roll

Sl. No.	Branch	2014	2013	Extended students	Total
1.	Biochemical Engineering	9	5	---	**15**
2.	Biomedical Engineering	7	10	---	**17**
3.	Ceramic Engineering	15	14	---	**29**
4.	Chemical Engineering	44	39	1	**84**
5.	Civil Engineering	33	26	---	**59**
6.	Electrical Engineering	42	29	---	**71**
7.	Electronics Engineering	46	29	1	**75**
8.	Industrial Management	8	7	---	**15**
9.	Materials Science and Technology	12	13	---	**25**
10.	Mechanical Engineering	45	39	1	**85**
11.	Metallurgical Engineering	12	6	---	**18**
12.	Mining Engineering	4	2	---	**6**
13.	Systems Engineering	8	5	---	**13**
	Total	**285**	**224**	**3**	**512**

2-Years M.Pharm. students on roll

Sl. No.	Branch	2014	2013	Extended students	Total
1.	Pharmaceutics	29	27	1	**57**
	Total	**29**	**27**	**1**	**57**

Ph.D. scholars on roll

Sl. No.	Branch	I Year	II Year	III Year	IV Year	V Year and Others	Total
1.	Biochemical Engineering	---	11	6	4	3	**24**
2.	Biomedical Engineering	4	5	1	3	4	**17**
3.	Ceramic Engineering	4	8	3	5	4	**24**
4.	Chemical Engineering	8	19	12	4	0	**43**
5.	Chemistry	9	18	13	4	7	**51**
6.	Civil Engineering	6	4	2	4	1	**17**
7.	Computer Science and Engineering	4	12	9	4	1	**30**
8.	Electrical Engineering	12	10	4	6	7	**39**
9.	Electronics Engineering	13	11	5	8	11	**48**
10.	Industrial Management	3	3	0	0	0	**6**
11.	Materials Science and Technology	11	11	6	7	4	**39**
12.	Mathematical Sciences	0	19	13	10	0	**42**
13.	Mechanical Engineering	3	21	8	3	1	**36**
14.	Metallurgical Engineering	2	10	9	3	4	**28**
15.	Mining Engineering	10	4	0	0	0	**14**
16.	Pharmaceutics	13	16	7	3	16	**55**
17.	Physics	6	6	6	4	4	**26**
18.	Systems Engineering	1	2	0	0	0	**3**
	Total	**109**	**190**	**104**	**72**	**67**	**542**

Students Intake in different programmes

The Institute offered the following programmes in various departments/school. The Department/School-wise Intake is given below:

Department/Programme-wise Intake capacity

COURSES	Students Intake					
	GE	SC	ST	OBC	PC#	Total
Four-Years B.Tech. Programmes						
1. Ceramic Engineering	30	9	4	16	(2)	59
2. Chemical Engineering	60	18	9	32	(4)	119
3. Civil Engineering	40	12	6	22	(2)	80
4. Computer Science & Engg.	30	9	4	16	(2)	59
5. Electrical Engineering	40	12	6	22	(2)	80
6. Electronics Engineering	40	12	6	22	(2)	80
7. Mechanical Engineering	50	15	8	27	(3)	100
8. Metallurgical Engineering	35	10	5	19	(2)	69
9. Mining Engineering	50	15	8	27	(3)	100
Four-Years B.Pharm. Programme						
10. Pharmaceutics	35	10	5	19	(2)	69
Total in 4 year B.Tech. / B.Pharm	**410**	**122**	**61**	**222**	**(24)**	**815**
Five-Years Integrated M.Tech. Degree Programmes						
11. Engineering Physics	10	3	2	5	(1)	20
12. Industrial Chemistry	10	3	2	5	(1)	20
13. Mathematics & Computing	10	3	2	5	(1)	20
Total in 5 year Integrated M.Tech. Degree	**30**	**09**	**06**	**15**	**(03)**	**60**
Five-Years Integrated M.Tech. Dual Degree Programmes						
14. Biochemical Engineering	10	3	2	5	(1)	20
15. Bioengineering with M.Tech. in Biomedical Technology	10	3	2	5	(1)	20
16. Ceramic Engineering	10	3	2	5	(1)	20
17. Civil Engineering with M.Tech. in Structural Engg.	10	3	2	5	(1)	20
18. Computer Science & Engineering	8	2	1	4	(1)	15
19. Electrical Engineering with M.Tech. in Power Electronics	10	3	2	5	(1)	20
20. Materials Science & Technology	10	3	2	5	(1)	20
21. Mechanical Engineering	10	3	2	5	(1)	20
22. Metallurgical Engineering	10	3	2	5	(1)	20
23. Mining Engineering	10	3	2	5	(1)	20

Five-Year Integrated M.Pharm. Dual Degree Programme						
24. Pharmaceutics	10	3	2	5	(1)	20
Total in 5 year Integrated M.Tech. / M. Pharm. Dual Degree	**108**	**32**	**21**	**54**	**(11)**	**215**
Grand Total of UGD/IDD/IMD Courses	**548**	**163**	**88**	**291**	**(38)**	**1090**
Two-Years M.Tech. Programmes						
25. Ceramic Engineering	10	3	1	5	(1)	19
26. Chemical Engineering	25	7	3	12	(1)	47
27. Civil Engineering	25	7	3	12	(1)	47
28. Electrical Engineering	25	7	3	12	(1)	47
29. Electronics Engineering	25	7	3	12	(1)	47
30. Mechanical Engineering	25	7	3	12	(1)	47
31. Metallurgical Engineering	25	7	3	12	(1)	47
32. Mining Engineering	15	4	2	8	(1)	29
33. Biochemical Engineering	5	1	1	2	(0)	09
34. Biomedical Engineering	5	1	1	2	(0)	09
35. Materials Science & Technology	10	3	1	5	(1)	19
36. Industrial Management	5	1	1	2	(0)	09
37. Systems Engineering	5	1	1	2	(0)	09
Two-Years M.Pharm. Programme						
38. Pharmaceutics	15	4	2	8	(1)	29
Grand Total of 2-Years M.Tech. Courses	**220**	**60**	**28**	**106**	**(10)**	**414**

Student intake numbers for PC category has not been added in calculating total number of seats, as provision for the physically challenged candidate will be made from within the respective category.

Convocation

The 3rd Convocation was held on December 08, 2014. Dr. Subra Suresh delivered the convocation address. A total of 1336 candidates were awarded various degrees, and 751 candidates received degrees in person. The department-wise details of the degrees awarded are provided in Table.

Degrees awarded

Branch	Ph.D.	M.Tech.	M.Pharm.	I.M.D.	Dual Degree				B.Tech.	B.Pharm.	Total
					B.Tech.	M.Tech.	B.Pharm.	M.Pharm.			
Biochemical Engineering	03	06	---	---	12	12	---	---	---	---	33
Biomedical Engineering	03	10	---	---	08	08	---	---	---	---	29
Ceramic Engineering	---	19	---	---	07	07	---	---	35	---	68
Chemical Engineering	---	35	---	---	---	---	---	---	115	---	150
Chemistry	03	---	---	06	---	---	---	---	---	---	09
Civil Engineering	02	28	---	---	13	13	---	---	73	---	129
Computer Science & Engineering	04	---	---	---	14	14	---	---	68	---	100
Electrical Engineering	---	33	---	---	17	17	---	---	87	---	154
Electronics Engineering	04	47	---	---	---	---	---	---	93	---	144
Industrial Management	---	08	---	---	---	---	---	---	---	---	08
Materials Science & Technology	03	15	---	---	08	08	---	---	---	---	34
Mathematical Sciences	07	---	---	13	---	---	---	---	---	---	20
Mechanical Engineering	05	34	---	---	16	16	---	---	105	---	176
Metallurgical Engineering	03	38	---	---	11	11	---	---	60	---	123
Mining Engineering	01	01	---	---	04	04	---	---	62	---	72
Pharmaceutics	06	---	28	---	---	---	08	08	---	17	67
Physics	03	---	---	10	---	---	---	---	---	---	13
Systems Engineering	---	07	---	---	---	---	---	---	---	---	07
TOTAL	**47**	**281**	**28**	**29**	**110**	**110**	**08**	**08**	**698**	**17**	**1336**

With this convocation, the total number of degrees awarded so far by the Institute is **33,605**. Total 4,942 degrees awarded by IIT(BHU) and before conversion of IT-BHU into IIT(BHU), the IT-BHU was awarded total number of degrees is 28,663:

Sl. No.	Programme		No. of degrees awarded		
			After conversion	Before conversion	Total
1.	Ph.D.		227	854	**1,081**
2.	M.Tech.		1,109	3,119	**4,228**
3.	M.Pharm.		132	653	**785**
4.	I.M.D.		116	0	**116**
5.	Dual Degree	B.Tech.	413	0	**413**
		M.Tech.	413	0	**413**
6.	Dual Degree	B.Pharm.	26	0	**26**
		M.Pharm.	26	0	**26**
7.	B.Tech.		2,388	22,947	**25,335**
8.	B.Pharm.		92	1,090	**1,182**
Total			**4,942**	**28,663**	**33,605**

Award of Prizes to Students

Convocation prizes

Prizes awarded to students at the 3rd Convocation:

1. **Shri Burhanuddin**
   He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Ceramic Engineering Examination, 2014.
2. **Ms. Amrita Shahi**
   She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Chemical Engineering Examination, 2014.
3. **Shri Harsh Gupta**
   He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Civil Engineering Examination, 2014.
4. **Ms. Debasmita Das**
   She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Electrical Engineering Examination, 2014.
5. **Ms. Archana Kamal**
   She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Systems Engineering Examination, 2014.
6. **Shri Grandhi Veera Raghava Sai Kiran**
   He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Electronics Engineering Examination, 2014.
7. **Shri Praveen Kumar Singh**
   He is awarded
   a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Mechanical Engineering Examination, 2014.
   b) Prof. (Dr.) Mahendra Kumar Jain Nyayacharya Gold Medal for securing highest CPI at the M.Tech. in Mechanical Engineering Examination, 2014.
8. **Shri Varun Singh**
   He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Industrial Management Examination, 2014.
9. **Shri Yagnesh Shadangi**
   He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Metallurgical Engineering Examination, 2014.
10. **Shri Saurabh D. Puttewar**
    He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Mining Engineering Examination, 2014.
11. **Ms. Neh Nupur**
    She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Biochemical Engineering Examination, 2014.
12. **Ms. Anandita Deo**
    She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Biomedical Engineering Examination, 2014.
13. **Ms. Shruti Pandey**
    She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Tech. in Materials Science and Technology Examination, 2014.
14. **Shri Saket Kumar**
    He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the M.Pharm. Examination, 2014.
15. **Shri Neeraj Kumar Gupta**

He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year Integrated M.Tech. in Industrial Chemistry Examination, 2014.

16. **Ms. Samridhi Khurana**
She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year Integrated M.Tech. in Mathematics and Computing Examination, 2014.

17. **Shri Bujagouni Karthik Goud**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year Integrated M.Tech. in Engineering Physics Examination, 2014.

18. **Shri Harshit Agrawal**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Ceramic Engineering Examination, 2014.

19. **Shri Inturi Ram Charan**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Civil Engineering (Structural Engineering) Examination, 2014.

20. **Shri Naman Goel**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Computer Science & Engineering Examination, 2014.

21. **Shri Ankur Bose**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Electrical Engineering (Power Electronics) Examination, 2014.

22. **Shri Nimish Bajpai**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Mechanical Engineering Examination, 2014.

23. **Ms. Trishita Ray**
She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Metallurgical Engineering Examination, 2014.

24. **Shri Navneet Singh Tomar**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Mining Engineering Examination, 2014.

25. **Ms. Kanupriya Tiwari**
She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Biochemical Engineering (Biochemical Engineering and Biotechnology) Examination, 2014.

26. **Shri Aditha Srihari**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Bioengineering (Biomedical Technology) Examination, 2014.

27. **Shri Pahulpreet Singh**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Materials Science & Technology Examination, 2014.

28. **Shri SK Inayat Hussain**
He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Pharm.-M.Pharm.) Examination, 2014.

29. **Ms. Shradha Agrawal**
She is awarded:-
a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Computer Science & Engineering Examination, 2014.
b) Late Shri Shyam Sunder Lal Razdan Memorial Gold Medal for securing highest percentage of marks in B.Tech. Examination, 2014.
c) Prof. Gopal Tripathi Memorial Gold Medal for securing highest marks at the B.Tech./B.Pharm.

Examination, 2014.

d) Smt. Arati Paul and Prof. Binod Bihari Paul Gold Medal for securing highest marks in IV Year Examination among all the students of B.Tech./B.Pharm. Examination, 2014.

e) C. Raja Gopal Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Computer Science & Engineering Examination, 2014.

f) Shri Raj Kishore Kapoor Silver Medal for securing highest marks at the B.Tech./B.Pharm. Examination, 2014.

g) Dr. Annie Besant Prize (in the forms of books by Dr. Annie Besant including copy of the 'Bhagavadgita') for standing First position among all the branches of B.Tech. Examination, 2014.

30. Ms. Vishakha Piplani

She is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Ceramic Engineering Examination, 2014.

31. Ms. Nikita Singal

She is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Chemical Engineering Examination, 2014.

b) The R.B.G. Modi Medal for standing First at the B.Tech. in Chemical Engineering Examination, 2014.

c) Manishi Sharma Memorial Gold Medal for securing First position at B.Tech. Chemical Engineering Examination, 2014.

d) Mrs. Gargi Devi Trivedi Memorial Gold Medal for securing highest marks in B.Tech. Chemical Engineering Examination, 2014.

e) Dr. R.J. Rathi Financial Award Rs. 1000/= cash for standing First at the B.Tech. in Chemical Engineering Examination, 2014.

f) Manishi Sharma Memorial Cash Prize Rs. 2000/= for securing First position at the B.Tech. in Chemical Engineering Examination, 2014.

32. Shri Manish Kumar

He is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Civil Engineering Examination, 2014.

b) CRS Iyengar Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Civil Engineering Examination, 2014.

c) Rai Bahadur Taracharan Gue Memorial Award Rs. 500/= cash for standing First at the B.Tech. in Civil Engineering Examination, 2014.

d) Late Prof. Manoranjan Sengupta Platinum Jubilee Merit Award Rs. 1000/= cash for securing highest marks in B.Tech. in Civil Engineering Examination, 2014.

e) Meenakshamma Shankaranaramappa Prize Rs. 500/= cash for securing highest marks in Environmental Engineering (Theory) at the B.Tech. Civil Engineering Examination, 2014.

33. Ms. S.M. Archana

She is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Electrical Engineering Examination, 2014.

b) The R.B.G. Modi Medal for standing First at the B.Tech. in Electrical Engineering Examination, 2014.

c) Lala Balak Ramji Kohinoor Memorial Gold Medal for securing highest marks at the B.Tech. Examination, 2014 among the branches of Civil, Mechanical, Electrical and Electronics Engineering.

d) Himmat Narayan Singh Memorial Gold Medal for securing the First position and First Division in B.Tech. Electrical Engineering Examination, 2014.

e) CRS Iyengar Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Electrical Engineering Examination, 2014.

f) N.V.R. Nageshwar Iyer (Prize Rs. 100/= in the form of books) for standing First in B.Tech. in Electrical Engineering Examination, 2014.

g) Prof. V.V. Chalam Prize (The Prize shall be in the form of books by Mr. J. Krishnamurti) for standing Second position among all the branches of B.Tech. Examination, 2014.

h) Late Prof. Manoranjan Sengupta Platinum Jubilee Merit Award Rs. 1000/= cash for securing highest marks in the B.Tech. in Electrical Engineering Examination, 2014.

34. Shri Shubham Sahay

He is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Electronics Engineering Examination, 2014.

b) Late Prof. Nagesh Chandra Vaidya Gold Medal for standing First at the B.Tech. in Electronics Engineering Examination, 2014.

c) Dr. (Late) Nandita Saha Roy Memorial Gold Medal for securing First position in B.Tech. Electronics Engineering Examination, 2014.

d) C. Raja Gopal Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Electronics Engineering Examination, 2014.

e) Dr. Ayyagari Sambasiva Rao Prize Rs. 1000/= cash for standing First at the B.Tech. in Electronics Engineering Examination, 2014.

f) Late Prof. Manoranjan Sengupta Platinum Jubilee Merit Award Rs. 1000/= cash for securing highest marks in B.Tech. in Electronics Engg. Examination, 2014.

35. Shri Polu Giridhar Reddy

He is awarded Prof. A.K. Ghosh Silver Medal for standing Second Position in B.Tech. in Electronics Engineering Examination, 2014.

36. Shri Rahul Ajay Deshpande

He is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Mechanical Engineering Examination, 2014.

b) The Prince of Wales Medal for standing First at the B.Tech. in Mechanical Engineering Examination, 2014.

c) Sudhir Kumar Sharma Memorial Gold Medal for securing highest marks in B.Tech. Mechanical Engineering Examination, 2014.

d) CRS Iyengar Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Mechanical Engineering Examination, 2014.

e) Late Prof. Manoranjan Sengupta Platinum Jubilee Merit Award Rs. 1000/= cash for securing highest marks in B.Tech. in Mechanical Engg. Examination, 2014.

37. Ms. Pranjali Sharma

She is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Metallurgical Engineering Examination, 2014.

b) The Bishan Das Basil Medal for securing Fist position among B.Tech. in Mining and Metallurgical Engineering Examination 2014.

c) Swarnamma Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Metallurgical Engineering Examination, 2014.

38. Shri Tirthankar Kumar

He is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Tech. in Mining Engineering Examination, 2014.

b) Dr. B.S. Verma Memorial Gold Medal for securing highest marks in B.Tech. Mining Engineering Examination, 2014.

39. Ms. Vandana

She is awarded:-

a) I.I.T.(B.H.U.) Varanasi Medal for standing First at the B.Pharm. Examination, 2014.

b) Aruna and Malviya Medal for standing First at the B.Pharm. Examination, 2014.

Late Prof. G.P. Srivastava (Prize Rs. 200/= in the form of books) for standing First at the B.Pharm. Examination, 2014.

Financial Support to Students

Scholarships to B. Tech Students

Sl.No.	Name of Scholarship	02 11-12	2012-13	2013-14	2014-15
1.	Merit-cum-Means	220	228	229	227
2.	Central Sector (SC/ST)	15	15	15	15

Stipend Awarded to IDD/IMD Students

Name of Department	2014-15
Mechnical Engg	18
Chemical Engg.	00
Electronics Engg.	00
SMST	07
Bio-Chemical Engg.	06
Electrical Engg.	17
Metallurgical Engg.	10
Pharmaceutics	04
Civil Engg.	14
Ceramic Engg.	12
Mining Engg.	06
Bio-Medical Engg.	06
Physics	05
Mathematical Sciences	15
Chemistry	04
Computer Sciences & Engg.	12
Total	**136**

Research Scholars Under Sponsored Scholarship

S. No.	Name of Departments/Schools	UGC		CSIR		INSPIRE		ICMR	
		JRF	SRF	JRF	SRF	JRF	SRF	JRF	SRF
1.	Mining Engineering	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-
2.	Ceramic Engineering	-	-	-	-	-	-	-	-
3.	Civil Engineering	-	-	-	-	-	-	-	-
4.	Bio-Chemical Engineering	-	-	1	-	-	-	-	-
5.	Humanistic Studies	-	-	-	-	-	-	-	-
6.	Electronics Engineering	1-Foreign National	1	1*	1*	-	-	-	-
7.	Mechanical Engineering	-	1 (Foreign National)	-	-	-	-	-	-
8.	Physics	-	-	1	2	-	-	-	-
9.	Mathematical Sciences	6+1*	7	3	1	-	-	-	-
10.	Electrical Engineering	-	-	-	-	-	-	-	-
11.	Materials Science & Technology	1	3	1	1	1	-	-	-
		-	-	-	-	-	-	-	-
12.	Chemical Engineering	-	-	-	-	-	-	-	-
13.	Bio-Medical Engineering	-	-	-	-	-	-	-	-
14.	Metallurgical Engineering	-	-	-	-	-	-	-	-
15.	Pharmaceutics	-	1	-	-	2	1	-	2
16.	Chemistry	2	5	-	-	-	-	-	-
		-	-	-	1	-	-	-	-
17.	Computer Science & Technology	-	-	-	-	-	-	-	-
	Total	10	18	7	6	3	1	-	2

Ph.D. Scholars receiving Teaching Assistantship

Sl. No.	Name of Departments/Schools	New Entrants		Renewal	
		JRF	SRF	JRF	SRF
1.	Mining Engineering	10		3	
2.	Ceramic Engineering	4		7	5
3.	Civil Engineering	6		4	4
4.	Bio-Chemical Engineering			9	6
5.	Electronics Engineering	9		9	5
6.	Mechanical Engineering	5		19	8
7.	Physics	6		6	9
8.	Mathematical Sciences			10	9
9.	Electrical Engineering	13		12	6
10.	Materials Science & Technology	7		7	5
11.	Chemical Engineering	8		17	12
12.	Bio-Medical Engineering	4		5	5
13.	Metallurgical Engineering	2		10	5
14.	Pharmaceutics	12		12	10
15.	Chemistry	7		10	10
16.	Computer Science & Technology	2		11	6
	Total	**95**		**151**	**105**

4. Departments

4.1 Department of Ceramic Engineering

4.1.1 Introduction

The founder of Banaras Hindu University, Pandit Mandan Mohan Malviyaji instituted courses in Glass and Ceramic Technology as early as 1924 with the noble objective of advancing glass and ceramic technology in India. Till today, this is the only department in the country offering B.Tech, B.Tech-M.Tech. (Dual Degree Course), M.Tech. and Ph.D. in Ceramic Engineering degrees. M.Tech. & Ph.D. programme is also open to allied branches of engineering and M.Sc., Physics and Chemistry who qualify national test NET, and GATE. The Department is pursuing active research in the emerging areas of glass, glass ceramics, bio-glass and bio-glass ceramics, refractories, ceramic white-wares, pottery & porcelain, cement, electrical and electronic ceramics. Research papers are being published in reputed national and international journals regularly.

The Department regularly works in collaboration with Academic and Research institutions, National Laboratories and various Ceramic industries through regular contacts, visits, seminars, symposia, workshop and conferences. The department has also been rendering technical advice and consultancy to the industries under Industrial Consultancy and Testing Services of the Institute from time to time. The contribution of this very department of Ceramic Engineering during past is unparallel to the entire industrial, research and development and educational areas in the country.

Future expansions of the department

During last fifty years the rapid advancement in technology, materials were required with controlled characteristics such as high purity, chemical homogeneity, particle size, particle size distribution and morphology to get reproducible long life performance of the end product. Interest in these ceramic materials known as advanced ceramics or high-tech ceramics is because of their high strength better chemical resistance to the environment at high temperature as compared to metals and alloys and superior electrical, magnetic, optical and thermal properties. Ceramic products form the back bone of various fields of medicine, civil, chemical, electronic, electrical, mechanical and metallurgical engineering.

The department has made some contributions in the area of electronic ceramics, glass, glass- ceramics, oxide refractories and castables during last decade. Human resource development by the department in undergraduate and graduate teaching has met the demand of some of the R&D organizations and industries in India. Following are the frontier areas in advanced ceramic engineering in which the department of Ceramic Engineering would like to intensity its efforts for education, research and development to cope up the needs of R&D organizations and industries in the next 10 years along with strong infrastructure :

- Electro-ceramics
- Nano-ceramics
- Structural Ceramics
- Bio-Ceramics
- Composites based on ceramics

The department wishes to continue to strengthen the infrastructural facilities in the following traditional areas of ceramic engineering and technology for teaching and technology up-gradation:

- Glass
- Cement
- Pottery and heavy clay ware
- Refractory
- Ceramic coating

4.1.2 Academic Activities

Teaching and Running Course programs

1. 4 Years B.Tech., Ceramic Engg

2. 2 Years M.Tech., Ceramic Engg.
3. 5 Years B.Tech.-M.Tech. Dual Degree, Ceramic Engg.
4. Ph.D., Ceramic Engg.

Workshops/ Symposia conducted:

I. A national student seminar, keynote address with the presence of President of ICS and MD of TRL wasorganized on the occasion of opening 2nd Student Shapter of Indian Ceramic Society (ICS) in the department of ceramic engg. on 10th April 2014 **.**

II. A National Workshop on "Advanced Ceramics in the field of Nanotechnology for Electro-ceramics" and a student events (KERAMOS-2015) during 27-29th March, 2015 under the banner of Students Chapter of Indian Ceramic Society, IIT(BHU).

4.1.3 Faculty and their Activities

Awards/ Honors / Chair Positions

Sl. No	Name	Title of Awards	Place	Year
1	Prof. Ram Pyare	Nominated Chairman, Examination Committee	IIC, Kolkata	2014
2	Prof. Om Parkash	Nominated Member, Examination Committee	IIC, Kolkata	2014
3	Dr. P. K. Roy	Selected for award of "Top 100 Engineers of the World-2014" & "Man of the Year 2014" by	International Biographical Centre (IBC), Cambridge, England	2014
4	Mr. DeepankarGyan Ms. Paromita Das	1st Prize for paper presentation in 78th Annual Session of the ICS	Jamshedpur	2015
5	Mr. Kevin Bhimani Mr. AbhijeetPhatak	2nd Prize for paper presentation in 78th Annual Session of the ICS	Jamshedpur	2015
6	Mr. UditBharakhad Mr. Dhrubajyoti Roy	3rd Prize for paper presentation in 78th Annual Session of the ICS	Jamshedpur	2015

Conferences Attended

Sl. No	Name of Authors	Title of Conferences	Place	Year
1	Vikash Kumar Vyas & Ram Pyare	78th Annual Session of The Indian Ceramic Society	Jamshedpur	2015
2	Sampath Kumar Arepalli, HimanshuTripathi, M. Vyshali Nanda, V.SriSravya, Ram Pyare and S.P.Singh	39th International Conference on Advanced Ceramics and Composites (ICACC) 2015	Hotel Hilton, Daytona Beach, Florida, USA	2015
3	VaibhavChalisgaonkar, Ketki Pandey, A. Sampath Kumar and S.P. Singh	39th International Conference on Advanced Ceramics and Composites (ICACC) 2015	Hotel Hilton, Daytona Beach, Florida, USA	2015

4	Vikash Kumar Vyas, ArepalliSampath Kumar, Sunil Prasad, Md. Erashad, H. Tripathi, S. P. Singh and Ram Pyare	International Conference and 78th Annual Session of the Indian Ceramic Society	Jamshedpur, India	2015
5	Akher Ali, Sampath Kumar A, HimanshuTripathi and S.P. Singh	International Conference and 78th Annual Session of the Indian Ceramic Society	Jamshedpur, India	2015
5	Kevin Bhimani, Ketki Pandey, VaibhavChalisgaonkar, A. Sampath Kumar , Ram Pyare and S.P. Singh	International Conference and 78th Annual Session of the Indian Ceramic Society	Jamshedpur, India	2015
6	Vaibhav Mittal, Kevin Bhimani, Vyshali Nanda, Sampath Kumar A, HimanshuTripathi and S.P. Singh	International Conference and 78th Annual Session of the Indian Ceramic Society	Jamshedpur, India	2015

4.1.4 Design and Development Activities

Sponsored Projects

Sl. No	Name of Authors	Title of Projects	Funding Agency	Amount (Rs.)	Year
1	Prof. Devendra Kumar **(Project Guide)** Mr. Pallav Gupta **(Investigator)**	Characterization of Doped Iron-Alumina Nanostructured Metal Matrix Composites (MMC) Synthesized using Powder Metallurgy (P/M) Technique	The Institution of Engineers (INDIA).	1,50,000.00	2 Years (2012-2014)
2	Mr. Pallav Gupta **(Principal Investigator)**	Effect of Processing Parameter on the Properties of Nanostructured Iron-Alumina (Fe-Al_2O_3) Metal Matrix Composites (MMC) Produced Using Powder Metallurgy (P/M) Technique	Council of Science and Technology, Uttar Pradesh.	11,40,000.00	3Years (2012-2015)
3	Prof. D. Kumar (P. I.) Prof. Om Parkash (Co-P. I.) Prof. M. M. Singh (Co-P. I.) Deptt. of Chemistry,	Exploring the effect of processing parameter on the corrosion behavior of iron – alumina / zirconia metal matrix nanocomposites (MMNC)	CSIR, New Delhi	20,92,000.00	3 year 2013-2016

	IIT(BHU) Prof. M. A. Quraishi (Co-P. I.) Deptt. of Chemistry, IIT(BHU)				
1	Dr. Vinay kumar Singh P.I	To develop technology for low cost manufacturing of a series of veneering porcelain powders and liquid products for metal ceramic frame work, used on mass scale in the dental field of medical, especially for rural area	D.S.T New Delhi	55.00 lakhs	2014-15
2.	Dr. Vinay kumar Singh P.I	To Develop Fabrication & Characterization Techniques for Bio-Ceramics& Polymer Matrix Composites and High Temperature Cement Castable Refractories	IIT(BHU) As Sprouting Grant as a joint project	Rs. 20.00 lakhs	2014-15
	PI : Prof. S.P.singh Joint-PI: Prof Ram Pyare Joint-PI : Dr. Anil Kumar	Studies on preparation and characterization of IR-transmitting glass screens for photo voltaic solar cells	IIT(BHU)	15.0 Lacs	2015

Equipments purchased:

Sr. No.	Equipments	Amount (Rs. In Lakh)
1.	Float Shink Apparatus (02 nos.)	1,59,390-00
2.	Softening Point Measurement (02 nos.)	2,07,480-00
3.	Viscosity Measurement (02 nos.)	
4.	Auto Clave (02 nos.)	2,07,900-00
5.	ISI Apparatus	49,508-00
6.	Dilatometer (01 no.)	8,01,500-00
7.	Diamond Cutter (01 no.)	3,51,500-00
8.	FT-IR	Euro 19571-00 (Rs.17,00,000)
9.	Hot Air Oven (02 nos.)	49,770-00
10.	Platinum Crucible (10 nos.)	10,64,430-00
11.	UTM	9,68,472 + other

		expenses
12.	Diamond Polishing Machine	6,48,540-00
13.	Ultrasonic Thickness Gauge Meter	USD 6698-00 (Rs.4,02,215)
14.	Radiation & Optical Pyrometer (01+01 no.)	1,70,000+80,050
15.	Torsion Viscometer Gallen Kemp Type (03 nos.)	5,05,421-00
16.	Porosity & Bulk Density	4,93,500-00
17.	Thermal Conductivity tester for Refractory bricks	9,99,585-00
18.	Corrosion Apparatus for Refractory bricks	98,543-00
19.	High Temperature Furnace (02 nos.)	11,97,000-00
20.	Gray King Index	1,01,798-00
21.	Bomb Calorimeter	5,95,000-00
22.	Ram Say- carbon Residue Apparatus	87,675-00
23.	Junkar's Gas Calorimeter	1,01,800-00
24.	Water Retention Value (02 nos.)	24,150-00
25.	Sub. Sieve Sizing Unit (1 set + 1 set)	38,272-00
26.	Magneto Resistance Measurement Setup	2,81,250-00
27.	Four Probe Resistivity Measurement Setup	5,35,950-00
28.	(BH Loop Tracer) Ferro Hysteresis Loop	5,22,675-00
29.	D_{33} meter	4,83,203-00
30.	Globar Furnace 1400^0C	2,97,540-00
31.	Muffle Furnace 1400^0C	
32.	Cup Board Fumming	1,36,250-00
33.	Hot Plate with Magnetic Strier (02 nos.)	28,980-00
34.	Centrifuge (02 nos.)	35,753-00
35.	Vickers & Rockwell Hardness Tester	2,87,513-00
36.	Table Top giggers& jolly	1,02,200-00
37.	Keithly High Voltage Source (Scientech)	5,49,841-00
38.	Electronic Balance with density kit	49350-00
39.	Airport handlimg services	42500-00
40.	UTM Plateform	20815-00
41.	UTM Oil	14974-00
42.	Temp Programmer	1,52,775-00
43.	SMF Battery	1,02,484-00
44.	Computer For UTM (02 nos.)	1,16,340-00
45.	06KVA UPS (02 nos.)	1,49,932-00
46.	UTM Loading & Unloading Charges	15000-00
47	Digital Portable Metal Hardness Tester	
48	Furnace Control Box fitted with microprocessor based Programmable PID Temperature Controller cum Indicator with Thyristor (up to 1600^0C)	73,500
49	Grinding and Polishing Machine(Table Top Model)	1,03,530
50	pH meter with microprocessor	22,344
51	Digital Ultrasonic Bath	26,040
52	Objective lens (100 X) for metallurgical microscope with measuring software	44,100
53	Laboratories Gas Plant	73,763
54	Digital Ultrasonic Thickness Gaze	48,140
55	Distillation Unit with deionizer	52,500

4.1.5 Research and Consultancy Activities

Research Papers published in peer-reviewed Journals

1. N Jaiswal, B Gupta, D Kumar, O Parkash, Effect of addition of erbium stabilized bismuth oxide on the conductivity of lanthanum doped ceria solid electrolyte for IT-SOFCs
   Journal of Alloys and Compound **633**, (2015), 174–182doi:10.1016/j.jallcom.2014.12.243
2. Pallav Gupta, Devendra Kumar, M.A. Quraishi, Om Parkash, Effect of Sintering Parameters on the Corrosion Characteristics ofIron-Alumina Metal Matrix Nanocomposites
   J. Mater. Environ. Sci. 6 (1) (2015) 155-167
3. P Tripathi, B Sahu, SP Singh, O Parkash, D Kumar, Preparation and characterization of liquid phase ($55B_2O_3$–$45Bi_2O_3$) sintered cobalt doped magnesium titanate for wideband stacked rectangular dielectric resonator antenna (RDRA)
   Ceramics International **41**, Issue 2, Part B, (2015), 2908–2916. doi:10.1016/j.ceramint.2014.10.116
4. N Jaiswal, S Upadhyay, D Kumar, O Parkash, Ionic conduction in Mg^{2+} and Sr^{2+} co-doped ceria/carbonates nanocompositeelectrolytes, International Journal of Hydrogen Energy. **40**, (2015), 3313–3320doi:10.1016/j.ijhydene.2015.01.002
5. NandiniJaiswal, ShailUpadhyay, Devendra Kumar, Om Parkash, Enhanced ionic conductivity in La^{3+} and Sr^{2+} co-doped ceria: carbonate nanocomposite, Ionics (2015) DOI:10.1007/s11581-015-1386-2
6. NandiniJaiswal, Devendra Kumar, ShailUpadhyay and Om Parkash, Preparation and characterization of $Ce_{0.85}La_{0.15-x}Sr_xO_{\{2-(0.075+x/2)\}}$ solid electrolytes for intermediate temperature solid oxide fuel cells, Ionics **21** (2015), 497–505doi: 10.1007/s11581-014-1190-4
7. N Jaiswal, D Kumar, O Parkash, S Upadhyay, Ceria (La^{3+}, Sr^{2+})/Carbonates Nanocomposite Electrolytes with High Electrical Conductivity for Low temperature SOFCs, International Journal of Applied Ceramic Technology(2014)1–8 doi: 10.1111/ijac.12327
8. A Srivastava, K. K. Jana, P.Maiti, D. Kumar, O.Parkash, Mechanical and Dielectric Behaviour of $CaCu_3Ti_4O_{12}$ and Nb Doped $CaCu_3Ti_4O_{12}$ Poly(vinylidene fluoride) Composites, Journal of Composites Volume 2014, Article ID 769379, 9 pages, doi.org/10.1155/2014/769379
9. Pallav Gupta, Devendra Kumar, Om Parkash, and A. K. Jha, Sintering and Hardness Behavior of Fe-Al_2O_3 Metal MatrixNanocomposites Prepared by Powder Metallurgy, Journal of Composites2014, Article ID 145973, 10 pages, http://dx.doi.org/10.1155/2014/145973
10. Brijesh Gupta, Balwan Singh, NandaniJaishwal, Om Prakash, Devendra Kumar, Effect of microwave sintering on properties ofErbia stabilized bismuth oxide prepared by auto combustionmethod for IT- SOFC electrolytes, International Journal of Chem. Tech. ResearchVol.6, No.6, pp 3300-3302,
11. V. K. Mishra, B. N. Bhattacharjee, O. Parkash, D. Kumar… - , Mg-doped hydroxyapatite nanoplates for biomedical applications: A surfactant assisted microwave synthesis and spectroscopic investigations, Journal of Alloys and Compounds 614, (2014) 283-288 doi:10.1016/j.jallcom.2014.06.082
12. Aditya Maheshwari, ShyamBahadurRai, OmParkash, DevendraKumar, Intense Two Photon Green-Red Upconversion in Er3+/Yb3+/KF/BaO Doped Perovskite SrTiO3 Glass Ceramic Int. J. Innovative Research & Development. Vol. 3, 373 (2014) ISSN 2278 – 0211
13. KalyaniKalkhanday, Vinay Jaiswal, Rashmi B. Rastogi, Devendra Kumar, Tribological investigations of β-lactum cephalosporin antibiotics as efficient ashlessantiwear additives with low SAPS and their theoretical studies, RSC Advances 4 (2014), 30500-30510; · 2.56 Impact Factor
14. KalyaniMohanta, Ajay Kumar, Om Parkash, and Devendra Kumar, Low Cost Porous Alumina with Tailored Microstructure and ThermalConductivity Prepared using Rice Husk and Sucrose, J Am Ceram Soc. (2014) 97 (6), 1708-1719 online DOI: 10.1111/jace.12946
15. KalyaniMohanta, Ajay Kumar, Om Parkash, Devendra Kumar, Processing and properties of low cost macroporous alumina ceramics with tailored porosity and pore size fabricated using rice husk and sucrose, Journal of the European Ceramic Society 34 (10), (2014) 2401-2412

doi.org/10.1016/jeurceramsoc.2014.01.024s
16. Ajay Kumar, KalyaniMohanta, Devendra Kumar, Om Parkash, Green properties of dry-pressed alumina compacts fabricated using sucrose as binder Original Research Article, Ceramics International, 40, (2014), 6271-6277, doi.org/10.1016/j.ceramint.2014.03.085
17. Vijay K Mishra, Shyam B. Rai, Birendra P. Asthana, Om Parkash, Devendra Kumar Effect of Annealing on Nanoparticles of Hydroxyapatite Synthesized via Microwave Irradiation: Structural and Spectroscopic Studies", Ceramics International 40 (2014) 11319–11328 doi.org/10.1016/j.ceramint.2014.03.128
18. Monika Srivastava, Kuldeep Kumar, NandiniJaiswal, Nitish Kumar Singh, DevendraKumarand Om Parkash, Enhanced ionic conductivity of co-dopedceria solid solutions and applications in IT-SOFCs Ceramics International40, (2014) 10901-10906doi.org/10.1016/j.ceramint.2014.03.086
19. Anshuman Srivastava, PralayMaiti, Devendra Kumar, Om Parkash, Mechanical and dielectric properties of CaCu3Ti4O12 and La doped CaCu3Ti4O12 poly(vinylidene fluoride) composites Composites Science and Technology 93 (2014) 83–89. (Impact Factor: 3.33).,
20. Pallav Gupta, Devendra Kumar, Om Parkash and AK Jha Effect of sintering on wear characteristics of Fe-Al2O3 metal matrix composites, Proceedings of the Institution of MechanicalEngineers, Part J: Journal of Engineering, Tribology 228 (2014) 83-89 DOI: 10.1177/1350650113508934
21. Kuldeep Kumar, Monika Srivastava, Nitish K. Singh, NandiniJaiswal, Devendra Kumar and Om Parkash , Structural and electrical properties of La^{3+} and Gd^{3+} co-doped ceria ($Ce_{0\cdot80}Gd_{0\cdot20x}$ La_x $O_{1\cdot90}$ $0 \leqq x \leqq 0\cdot20$) prepared by microwave-assisted synthesis
22. Nanomaterials and Energy, Volume 2, Pages 1-6 (2014);doi.org/10.1680/nme.s13.00028 Ravi Kumar Gangwar, S.P. Singhand D. Kumar, Modified fractal rectangular curve dielectricresonator antenna terminated in a bio-medium, Int. J. Signal and Imaging Systems Engineering, 7, (2014) 43-51,
23. NandiniJaiswal, ShailUpadhyay, Devendra Kumar, Om Parkash "Ceria co-doped with calcium (Ca) and strontium (Sr): A potential candidate as a solid electrolyte for intermediate temperature solid oxide fuel cells" ,Ionics 20 (2014):45–54, DOI 10.1007/s11581-013-0936-8. Impact factor: 1.674
24. NandiniJaiswal, ShailUpadhyay, Devendra Kumar, Om Parkash, Sm^{3+} and Sr^{2+} Co-doped Ceria prepared by citrate-nitrate auto combustion method, Int. J. Hydrogen Energy 39 (2014) 543-551 Impact factor: 3.548
25. PushkarJha, Pallav Gupta, Devendra Kumar and Om Parkash, Synthesis and Characterization of Fe - ZrO_2 Metal Matrix Composites (MMCs), Journal of Composite Materials 48 (2014),2107-2115, doi: 10.1177/0021998313494915, 0.936 impact factor 1.07
26. HimanshuTripathi, Sumit Kumar Hira, ArepalliSampath Kumar, Uttam Gupta, ParthaPratim Manna and S.P. Singh, "Structural characterization and in vitro bioactivity assessment of SiO_2-CaO-P_2O_5-K_2O-Al_2O_3 glass as bioactive ceramic material", Ceramics International, 41, 2015, 11756-11769.
27. Abhinav Srivastava, Vinay Kumar Singh, Vijay Kumar, P. Hemanth Kumar, HimanshuTripathi, Ashish Chaudhary, KritAsiwal, Rahul Pandey, Shyam Kumar Suman, "Some studies on ceria–zirconia reinforced solvothermally synthesized cordierite nano-composites", Journal of Alloys and Compounds, 586[3], 581–587, (2014). DOI: 10.1016/j.jallcom.2013.09.150 impact factor: 2.99
28. PattemHemanth Kumar, Abhinav Srivastava, Vijay Kumar, ManasRanjanMajhi, Vinay Kumar Singh, "Implementation of industrial waste ferrochrome slag in conventional and low cement castables: effect of microsilica addition", Journal of Asian Ceramic Societies, 2(2), 169-175, (2014). DOI: 10.1016/j.jascer.2014.03.004
29. Abhinav Srivastava, Vinay Kumar Singh, Vijay Kumar, P. Hemanth Kumar, "Auto combustion processed high alumina cement and mechanochemically synthesized cordierite based low cement castable: formulation and properties", Ceramics International, 40[9A], 14061-14072, (2014). DOI: 10.1016/j.ceramint.2014.05.134 impact factor: 2.605
30. PattemHemanth Kumar, Abhinav Srivastava, Vijay Kumar, Pradeep Kumar, **V.K. Singh,** "Effect of High-Energy Ball Milling and Silica Fume Addition in BaCO3 -Al2O3. Part I: Formation of Cementing Phases",

Journal of the American Ceramic Society, 97[12], 3755-3763 (2014). DOI: 10.1111/jace.13173 impact factor: 2.61

31. Vijay Kumar, V.K. Singh,Abhinav Srivastava, PattemHemanth Kumar, "Auto-combustion processed High alumina cement and its implementation as bauxite based low cement castables", Ceramics International, 40[10B], 16767-16777 (2014). DOI: 10.1016/j.ceramint.2014.08.046 impact factor: 2.605
32. PattemHemanth Kumar, Abhinav Srivastava, Vijay Kumar, V.K. Singh, "Implementation of industrial waste ferrochrome slag in conventional and low cement castables: effect of calcined alumina addition", Journal of Asian Ceramic Societies, 2[4], 371-379, (2014). DOI: 10.1016/j.jascer.2014.08.001
33. PattemHemanth Kumar, Abhinav Srivastava, Vijay Kumar, NandiniJaiswal, Praeep Kumar, Vinay Kumar Singh, "Role of MgF2 addition on high energy ball milled kalsilite: Implementation as dental porcelain with low temperature frit", Journal of Advanced Ceramics, 3[4], 332-338 (2014). DOI: 10.1007/s40145-014-0125-x
34. P. H. Kumar, A. Srivastava, V. Kumar, H. Singh, S. Sharma, P. Kumar, V. K. Singh, "Role of CaF2 on mechanochemically synthesized leucite as dental veneering glass ceramics", Advances in Applied Ceramics, 114[2], 107-114 (2015). DOI: 10.1179/1743676114Y.0000000208 impact factor: 1.11
35. Sampath Kumar Arepalli□, HimanshuTripathi, Vikash Kumar Vyas, Shubham Jain, Shyam Kumar Suman, Ram Pyare, S.P. Singh."Influence of barium substitution on bioactivity, thermal and physico-mechanical properties of bioactive glass". Materials Science and Engineering C 49 (2015) 549–559
36. Vikash Kumar Vyas*, ArepalliSampath Kumar, Sunil Prasad, S.P. Singh and Ram Pyare "Bioactivity and mechanical behavior of cobalt oxide-doped bioactive glass", Bull. Mater. Sci. c Indian Academy of Sciences 2015[In-Press]
37. Vikash Kumar Vyas*, ArepalliSampath Kumar, Sunil Prasad, Md. Ershad, S.P. Singh and Ram Pyare, "Preparation and Characterization of Cobalt Oxide Doped 45S5 BioactiveGlass-Ceramics" Innovations in Corrosion and Materials Science, 2015, 5[In-Press]
38. Kumar Saurav M. R. Majhi, Vinay Kumar Singh, "Preperation of porous magenesia by decomposing an ex -potato known as starch soluble $(C_6H_{10}O_5)_{N,"}$ American journal of Scientific and Industrial Research, 2013, 5(4) 120-125
39. Kumar Saurav, M. R. Majhi Vinay Kumar Singh" Preparation and Characterization of High Strength High PorosityPorous Spinel by Decomposing an ex - potato known as Starch Soluble using Porous Magnesia" International Journal of Porous Materials 2015; 5(1): 1-7
40. PattemHemanth Kumar, Abhinav Srivastava, M. R. Majhi, Vinay Kumar Singh, "Implementation of industrial waste ferrochrome slag in conventional and low cement castables: Effect of microsilica addition" Journal of Asian Ceramic Societies2014, 2(2), 169–175
41. A.BhargaviRani,AR.Anamalia,M.R.Majhi.A.Haris Kumar, "Synthesis and characterization of forsterite Refractoryby doping with kaolin" International journal of Chem.Tech. Research 6(2)1390-96(2014) I.F: 0.700.
42. V. K. Vyas, A Sampath Kumar, HimanshuTripathi, S. P. Singh and Ram Pyare. " Effect of Cr2O3 addition on the bioactivity and physic-mechanical properties of 45ss bioactive glass and glass-ceramic", International journal of Engg. research and technology, 3, 1479-1493, 2014
43. N Jaiswal, S Upadhyay, D Kumar, O ParkashSm^{3+} and Sr^{2+} co-doped ceria prepared by citrate–nitrate auto-combustion method, International Journal of Hydrogen Energy 39 (1), 543-551 (2014).
44. R. K. Chaturvedi, Ram Pyare, M. R. Majhi" Role of low solubility glasses as a source of plant nutrients- A review paper based on "an effort to protect fertility of land (soil) against chemical fertilizer effects", Caribbean Journal of Science and Technology, Vol. 2, Page: 457-463, 2014.

Research Papers published in conference proceedings

1.	RohitGupta,M.R.Majhi	2015	Reticulated phenol formaldehyde polymer matrix doped with refractory material for aerospace application	Indian Cer. Society, at JamshedPur
2.	P.HemntaKumar,A. Srivastav,V.Kumar,M.R.Majhi, V.K.Singh	2014	Implementation of industrial waste ferrochrome slag in conventional and low cement castable: Effect of micro silica addition	Indian Cer. Society, at JamshedPur

Research papers presented in Conferences :

1. Sampath Kumar Arepalli, HimanshuTripathi, M. Vyshali Nanda, V.SriSravya, Ram Pyare and S.P.Singh, Fabrication and Characterization of NanoBioglass -Ceramic Scaffold For Bone Tissue Engineering" *39th International Conference on Advanced Ceramics and Composites (ICACC) 2015, The American Ceramic Society, held on 25th to 30th January 2015 in Hotel Hilton, Daytona Beach, Florida, USA (2015), 164.*
2. Vikash Kumar Vyas, ArepalliSampath Kumar, Sunil Prasad, Md. Erashad, H. Tripathi, S. P. Singh and Ram Pyare, "Bioactivity and Mechanical behavior of cobalt oxide doped bioactive Glass and glass – ceramics", .*International Conference and 78th Annual Session of the Indian Ceramic Society* held at Jamshedpur, during 2nd -3rd, Feb. 2015, *22*.
3. Akher Ali, Sampath Kumar A, HimanshuTripathi and S.P. Singh, "Synthesis and Characterization of Sol-Gel Derived Silver incorporated Bioglass".*International Conference and 78th Annual Session of the Indian Ceramic Society* held at Jamshedpur, during 2nd -3rd, Feb. 2015, 63.
4. P. Hemanth Kumar, Vinay Kumar Singh, Abhinav Srivastava and Vijay Kumar "Sol-gel synthesis and characterization of nano sized nontoxic red and yellow ceramic pigments for Dental veneers porcelain", International Conference of Materials and Characterization Techniques, held at VIT University, (10-12 March 2014), Vellore.
5. Himangi Singh, Abhinav Srivastava, Vijay Kumar, P. Hemanth Kumar, V. K. Singh "Some studies on Ceria–Zirconia reinforced mechanochemically activated cordierite nano-composites", Behind the Teacher's Desk, (27-28 March 2014), NML Jamshedpur.
6. Shyam Sharma, P. H. Kumar, A. Srivastava, Vijay Kumar, Himangi Singh, Pradeep Kumar, Vinay Kumar Singh, "Role of MgF2 Addition on Sol-Gel Synthesis of Kalsilite: Implementation as Veneering Dental Glass-Ceramics", 78th Annual Session and International Conference of Indian Ceramic Society, (02-03 Feb. 2015), Bistupur, Jamshedpur.
7. Rahul Kumar, PattemHemanth Kumar, Abhinav Srivastava, Vijay Kumar, Suresh Kumar Jhajhra, Pradeep Kumar, Vinay Kumar Singh, "Low Temperature Synthesis of Barium Alumina Cements by Sol-Gel Derived Process and Their Characterizations", 78th Annual Session and International Conference of Indian Ceramic Society, (02-03 Feb. 2015), Bistupur, Jamshedpur.
8. Vinay Kumar Singh, PattemHemanth Kumar, Suresh Kumar Jhajhra, Rahul Kumar, M. R. Majhi, Pradeep Kumar, "Role of Mechanochemical Barium Aluminate Cement Content on the Properties of Low Cement Refractory Castables", 78th Annual Session and International Conference of Indian Ceramic Society, (02-03 Feb. 2015), Bistupur, Jamshedpur.
9. Nayan Kr Debnath, Abhinav Srivastava, Vijay Kumar, P. Hemanth Kumar, Vinay Kumar Singh, "HowMuch in-situ Spinelization is Sufficient for a Better Slag Resistance Behavior of Al2O3-MgO-C?", 78th Annual Session and International Conference of Indian Ceramic Society, (02-03 Feb. 2015), Bistupur,

Jamshedpur.

10. Himangi Singh, P. Hemanth Kumar, Abhinav Srivastava, Vijay Kumar, Shyam Sharma, Pradeep Kumar, Vinay Kumar Singh, "Synthesized and Characterization of Bioactive Enamel Coatings for Dental Veneering Porcelain Modified by Bioactive Glass", 78th Annual Session and International Conference of Indian Ceramic Society, (02-03 Feb. 2015), Bistupur, Jamshedpur.

4.2 Department of Chemical Engineering and Technology

Year of Establishment: 1921
Head of the Department: Prof. A.S.K. Sinha

4.2.1 Introduction

Department of Industrial Chemistry was established in 1921 at Banaras Hindu University. Subsequently, it was renamed as the Department of Chemical Engineering and Technology in 1956. The Department has established several benchmarks of achievements in teaching and research. It modernizes its programmes to impart education in upcoming areas of chemical engineering. .

The Department presently offers courses leading to B. Tech., M. Tech. and Ph. D. degrees in Chemical Engineering. The Department also offers courses toIIT(BHU) and Banaras Hindu University.In the new undergraduate curriculum, the department has been entrusted to offer a number of institute level courses either independently or jointly with outer departments. The research facilities of the department are utilized not only by other departments of the institute and BHU but also by other teaching institutions and research laboratories.
The floor area of the department is 4,002 sq. meter. The department 18 laboratories, A Workshop, 7 lecture theatres, a 250 seat auditorium, a library having over 11,000 volumes of text and reference books and a textbook bank and internet facility. The Department also has a seminar room and a few instruction rooms and rooms for its faculty.

The University Grants Commission, New Delhi has granted the Department the Status of Centre of Advanced Study in Chemical Engineering. The Department also enjoys the status of DST – FIST Sponsored Department.

The Department enjoys an excellent rapport and professional interaction with various industrial organisations. Faculty members are engaged in high level consultancy work in industry, where as some others have projects funded by the industry. Besides these, the Department also provides know-how for process improvement/ development, raw materials and products analysis, pollution monitoring facilities, etc to the industries in and around Varanasi.

Unique Achievement Preposition of the Department

1921: Established as Department of Industrial Chemistry
1935: Two year M.Sc. (Tech.) Degree course started.
1949: Four year Bachelor Degree Course in Engineering started
1956: Renamed as the Department of Chemical Engineering and Technology
1963: Two year Master Degree in Chem.Engg. started
1993: Special Assistance under SAP/ COSIST Programmes of UGC
1997: IFFCO Chair was granted by IFFCO Ltd, New Delhi
1999: UGC - Centre of Advanced Study
2004: DST-FIST (Level I)
2005 UGC - Centre of Advanced Study Phase II
2010: UGC – Centre of Advanced Study Phase III
2013: DST – FIST (Level I further for next 5 yrs)

4.2.2 Academic Activity

Academic Programmes offered

B.Tech, M. Tech and PhD

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech		105	107	109	na
2.	Dual Degree	na	na	na	na	na
3.	M. Tech	42	41			
4.	Ph. D	14	8	19	12	03

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
ÌNDIA					
1	Anupama Mishra	12602EN011	HETIS-2014	Sep 2014, Punjab University , Chandigarh	IIT(BHU), Varanasi
2	Anupama Mishra	12602EN011	ICEPS-2015	Feb, 2015 Pondicherry	IIT(BHU), Varanasi
3	Shubham Gupta.	12102EN060	CHEMCON 2014	26/12/2014 Chandigarh	IIT BHU
4	AKANKSHA GUPTA	12102EN029	National Workshop on "Technologies for Sustainable Rural Development-Having Potential for Socio-economic Upliftment"	4-5 july2014 CSIR-AMPRI Bhopal	CSIR - AMPRI Bhopal and M.P. council of Science & Technology
5	VINEETA GAUTAM	12602EN003	International Conference on "Harnessing Engineering, Technology, and Innovation for sustainable Development" Dr. S.S. Bhatnagar University Institute of Chemical Engineering and Technology, Punjab University, Chandigarh, India on	19-20th September 2014. Punjab University, Chandigarh, India	Institute
6	DeepikaKushwaha	13041002	3rd International Conference on Energy Technology, Power Engineering & Environmental Sustainability	18th – 19th October 2014, JawaharLal Nehru University, New delhi	Institute
7	AnkitNamdev	12102EN075	CHEMCON 2014	26/12/2014 Chandigarh	IIT BHU
8	Ankit Namdev, PriyankaDhar, MunindraBisen	12102EN075 13042032 12102EN082	ICETB 2014	Delhi	IIT BHU
9	Munna Kumar	13041503	CHEMCON-2014	28/12/2014 Panjab university Chandigarh	Institute
10	Deepshikha	13042014	ICETB 2014	Delhi	IIT BHU

11	KrishnpriyaYadav	13042022	ICETB 2014	Delhi	IIT BHU
12	Sanjay Singh		ICETB 2014	Delhi	IIT BHU
13	MITHILESH KUMAR RAI	13041006	3 rd International conference on ETPEES -2014 "KrisshiSanskriti"	1 & 2 Nov 2014, JNU DELHI	INSTITUTE(IIT-BHU, Varanasi)
14	Sachin Geed				
15	D.B. PAL	12602EN009	International Conference	JNU, Delhi, India, 6-9	-
				Nov. 2014	
16	D.B. PAL	12602EN009	International Conference	Chandigarh University, Punjab, Dec 27-30, 2014	-
17	D.B. PAL	12602EN009	National Conference	JamiaMillia Islamia New Delhi, April 28-29, 2014	-
18	D.B. PAL	12602EN009	International Conference	HIT Haldia, West Bengal, India, dated on 19-22nd February, 2015	IIT BHU
19	D.B. PAL	12602EN009	International Conference	HIT Haldia, West Bengal, India, dated on 19-22nd February, 2015	do
20	D.B. PAL	12602EN009	International Conference	Mahatma Gandhi University, Kottayam, Kerala 19-21 Dect-2014, India	-
21	D.B. PAL	12602EN009	International Conference	BharatiVidyapeeth Deemed University, Pune 14-15 Oct-2014	IIT BHU
22	D.B. PAL	12602EN009	One day Symposium	IIT (BHU) Varanasi, on March 22, 2015	--
23	D.B. PAL	12602EN009	Workshop	TBI & Department of Civil Engg, IIT (BHU) Varanasi, on 21 May to 5 June, 2015	---
24	D.B. PAL	12602EN009	Workshop	Department of Chemical Engg IIT (BHU)	--

				Varanasi, on June 8 to 20, 2015	
25	V VSantoshManikanta Prasad	12102EN115	CHEMCON-2014	27-30 december 2014 Chandragh	Institute Funded
26	MOHD ADIL.	12102EN080	CHEMCON-2014	27-30 december 2014 Chandragh	Institute Funded
27	Vishnu MC	12102EN062	International Conference on Environment and Energy - 2014	Hyderabad, December 2014	JNTU - Hyderabad
28	RoliSaini	12602EN006	International Conference on Harnessing Engineering, Technology and Innovation for Sustainable Development HETIS-2014	September 19-20, 2014 at Dr. S.S.B. University Institute of Chemical Engineering and Technology, Punjab University, Chandigarh	Institute
29	RoliSaini	12602EN006	International Conference on Energy Technology & Ecological Concerns: A Contemporary Approach	November 1-2, 2014 at Jawaharlal Nehru University, New Delhi	Self
30	RoliSaini	12602EN006	International Conference	January 17-18, 2015 at Jawaharlal Nehru University, New Delhi	Institute
31	RoliSaini	12602EN006	International conference on new frontiers in chemical, energy and environmental engineering	March 20-21, 2015 at Department of Chemical Engineering National Institute of Technology Warangal, Warangal, Telangana	Self

32	RoliSaini	12602EN006	World Congress on Green Nanotechnology and its Role in Sustainable Agriculture	March 26-27, 2015 organized by the Sam Higginbottom Institute of Agriculture, Technology & Sciences (SHIATS) Deemed-to-be-University, Allahabad	Self
33	RoliSaini	12602EN006	International Conference on Harnessing Engineering, Technology and Innovation for Sustainable Development HETIS-2014	September 19-20, 2014 at Dr. S.S.B. University Institute of Chemical Engineering and Technology, Punjab University, Chandigarh	Institute
34	VaibhavChaudhary	12102EN015	UrjaSangam 2015	27th March 2015 VigyanBhavan, New Delhi	ONGC VIDESH
35	Rishabh Jain	12102EN001	UrjaSangam 2015	27th March 2015 VigyanBhavan, New Delhi	ONGC VIDESH
36	Jeeshan Ahmed	Roll no - 12102EN083	CHEMCON 2014	University Institute of chemcal engineering &technology,Panjab university, Chandigarh	Self
37	Chandradhwaj Nayak	12602EN010	Conference	Sep 19-20 2014 PU, Chandigarh	IIT-BHU
38	Manish Kumar	351918	School on Analytical Chemistry	April 14-21, 2014, National	Bhabha Atomic Research

				Metallurgical Laboratory, Jamshedpur India.	Centre
39	Manish Kumar	351918	IASTA Conference-2014	Nov 11-13, 2014, Department of Geophysics, Banaras Hindu University, Varanasi,	Bhabha Atomic Research Centre
40	Manish Kumar	351918	Training Programme on 'C and MATLAB'	Jan 27-Feb 2, 2015, Centre for Interdisciplinary Mathematical Sciences, Banaras Hindu University, Varanasi	Department of Science and Technology
41	Manish Kumar	351918	Workshop on GPS-RO Technique and Applications	March 16-19, 2015, SRM University, Chennai	Department of Science and Technology
42	Harish Kumar	13041004	Second International Conference on Nanostructured Materials and Nanocomposites (ICNM 2014)	19th to 21st December 2014, Kottayam, Kerala, India	DRDO
43	Harish Kumar	13041004	Advances in Materials and Material Processing (AMMP-2015)	27th to 28th March 2015, NIT Srinagar	DRDO
44	Manish Kumar	12602EN014	CHEMCON 2014 (International Conference)	27-30 December 2014; Dr. SSB University institute of Chemical Engineering & Technology, Panjab University, Chandigarh	SELF

45	Manish Kumar	12602EN014	EATHD-2015 (International Conference)	14th and 15th march 2015; Shanti Institute of Technology, Meerut (U.P.) - 250501	SELF
46	Amrita Shahi	014041004	National Symposium on Research Methodology For Future Researchers (RMFR-2015)	22nd March 2015	IIT BHU

Names of students/scholars who got prizes and awards outside the Institute

S. No.	Name of Student	Roll No.	Name of Prize	Date & Venue	Prize awarded by
1	VINEETA GAUTAM	12602EN003	Achieved best Prize in poster presentation	19-20th September 2014, Punjab University, Chandigarh, India	Conference organizer
2	ROHIT ANIL GUPTA	15045081	"Panasonic RattiChhatr"	Date & Venue - 30th Aug ,2015 The Lalit Hotel New Delhi We were total 6 students from IIT-BHU out of total 30 students selected from 19 IITs after 3 step filtering (verification of information submitted , behavioral assessment , aptitude test)	Awarded By - Dr.Harshvardhan (Ministry of Science & Technology , Govt. of India)
3	ShaliniArora	14042032	Gold Medel	19 February 2015, Banasthali university, jaipur	Prof.AdityaShastri, Dean of Banasthali university
4.	Amrita Shahi	014041004	Ambuja's Young Researchers's Award	27th December 2014	Indian Institute of Chemical Engineers
5.	PoornimaPandey		Ambuja's Young Researchers's Award	27th December 2014	Indian Institute of Chemical Engineers

Names of scholars/students who won Convocation/Institute Day prizes

S. No.	Name of Student	Roll No.	Name of Prize	Prize awarded by
1	Anupama Mishra	12602EN011	First Prize in Poster Presentation in Institute day	Department of Chemical Engineering & Technology, IIT(BHU)
2	DAN BAHADUR PAL	12602EN009	First Prize in Poster Presentation in Institute day	Department of Chemical Engineering & Technology, IIT(BHU)
3	Vishnu M.C	12102EN062	Third Prize in institute day-2015	Department of chemical Engineering IIT(BHU)
4	AshwinSwaminathan	12102EN020	Special Mention award for Organizational Excellence, 2015	IIT(BHU) Gymkhana
5	AshwinSwaminathan	12102EN020	Certification of Distinction for the Six Sigma Green Belt, March 2015.	KPMG in association with Henry Harvard India

4.2.3 Faculty & their Activity

Faculty and their areas of specialization

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	K.K. Srivastava 13736	Process Engg., Transfer Processes, Fluidization Engg., Process & Product Design, Environmental Engg.
2	A.K. Verma 13744	Modeling& Simulation, Multiphase Reactor Design & Artificial Intelligence
3	A.S.K. Sinha 13741	Reaction Engg, Heterogeneous Catalysis, Photocatalysis., Electrocatalysts, Process Development, Hydrogen Energy, Nanotechnology
4	Ram Prasad 13737	Chemical reaction Engg. & Catalysis, Process Design & Development, renewable Energy
5	B.N. Rai 13746	Bio-remediation, Water Pollution control, Air Pollution control and Environmental Biotechnology
6	P.K. Mishra 13747	Separation Processes (Extraction & Membrane Separation), Wastewater Treatment, Polymeric & Ceramic Nanofibers
7	PradeepAhuja 13748	Modeling& Simulation Kinetics & Thermodynamics, Energy & Polymer Technology
8	M.K. Mondal 13749	Industrial Pollution Control, Transfer Process, Chemical Reaction Engg., Modeling& Simulation Process Optimization
9	R.S. Singh	Environmental Biotechnology, Process Control,

	16729	Bioremediation of Waste
ASSOCIATE PROFESSORS		
1	V.L. Yadav 13745	Polymer Technology, Transfer Processes, Chem. Reaction Engg, Chemical Technology
2	S.V. Singh 18210	Fruit and vegetable storage and processing, Adsorption
3	H. Pramanik 17500	Fuel cell, Renewable energy resources, Reaction Engineering
ASSISTANT PROFESSORS		
1	A.C. Mohan 13742	Process Control, Polymer Technology
2	BhawanaVerma 18152	Heat Transfer, Liquid membrane separation, Biodiesel, Pyrolysis, Liquid- Liquid Extraction
3	Durga Prasad A. 18151	Process modeling and simulation, Optimization techniques, Process dynamics and control, Process Equipment design.
4	Pradeep Kumar 18479	Chemical Technology, Industrial Pollution Abatement.
5	Sweta	EnvironmentalCatalysis, Reaction Kinetics, Polymer Blends, Diesel Exhaust Treatment
6	Jyoti P. Chakrawarti	Reaction Engineering, Pyrolysis, Renewable Energy, Modeling& Simulation
7.	AnkurVerma	Thin Film
8.	Manoj Kumar	Nano-Technology
9.	Ravi Jaiswal	Microfluidic devices
Visiting Professor/Institute Professor/ Fellows		
1.	Prof. S.N. Upadhyay, Raj Ramanna Fellow	
2.	Prof.Surendra Kumar, Institute Professor	
3.	Dr.SandeepPandey, Visiting Professor	

Short-term courses/workshops/seminars/symposia/conferences organised by faculty members

S. No.	Cordinator	Title	Period
1	Dr. R.S. Singh & Dr.Pradeep Kumar	3rd Malaviya Lecture Series on Advances in Chemical Engineering	23- 24, March 2015
2	Prof. A.S.K. Sinha, Dr.Jyoti P. Chakrawarti, Dr.Sweta	Advances in Preparation and Characterization of Heterogeneous Catalyst	8-20 June, 2015

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
1.	Dr.SandeepPandey	'Development' to I year B.Tech. students	23 July, 2014, Lecture on at IIT, Jodhpur
2.	Dr.SandeepPandey	'Development' to I year B.Tech. students	29 July, 2014 at IIT, Gandhinagar
3.	Dr.SandeepPandey	'Development Studies,' open to all undergraduate and post graduate students	1-2 November, 2014, IIT Gandhinagar

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	Prof. S.N. Upadhyay	Lifetime Achievement Award- 2014. IIT(BHU) Global Alumni Association, USA
2	Prof. S.N. Upadhyay	Runners up Award for Research in the Field of Polymer Science & Technology, 5th National Awards for Technology Innovation in Petrochemical & Downstream Plastic Processing Industry- 2014-2015, Dept of Petrochemicals & CIPET, Bangaluru, Ministry of Chemicals and Fertilizers, GoI, Feb 21, 2015

4.2.4 Design and Development Activities

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	*Gas Chromatograph*	

Patents filed

S. No.	Name of Faculty Member	Title of Patent
1	S.N. Upadhyay	Poly (lactic acid) and a process for preparation (patent filed in India, Ref No. 236/Jan 28, 2014)
2	**Pradeep Kumar Mishra**, DeepikaKushwaha	A novel setup for reaction cum separation process during fermentative production of Alcohols **Ref. No.: IIT(BHU)/PC/2015-16/06**
3	Pradeep Srivastava, **Pradeep Kumar Mishra**, M Sahu	A wound healing dermal membrane for human & animals and a method of prepration there of

4.2.5 Research and Consultancy
Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co- ordinator
1	NOx Removal from Diesel Exhaust by Combined NOx Storage Reduction and NH_3 SCR System	August 2015-July 2018	DST project under Fast Track Young Scientist Engg. Scheme	30	Dr.Sweta
2	Development of Air Breathing Microfluidic Fuel Cell for the Direct use of Ethanol as Fuel for Power Generation	2013-2016	DST, New Delhi (UNDER SERC FAST TRACK PROPOSAL FOR YOUNG SCIENTISTS)	**24.69**	Dr. H.L. Pramanik

3	Joint Obama-Singh 21st Century Knowledge Initiatives Project on "Energy	Ongoing	UGC, New Delhi		Dr. H.L. Pramanik (Co-PI)
4	Centre for Energy and Resources Development	2014-16	MHRD, Govt. of India	**244**	Dr. H.L. Pramanik (Co-PI)
5	Development and evaluation of poly herbal bi-layer wound dressing materials	2014-2017	DRDO	35.00	
6	Production of Biological Hydrogen using Agriculture Waste	2014-17	DST (woman scientist-B)		
7	Aerosol and Black Carbon Monitoring in Indo-Gangatic Plane	2007-2017	ISSRO	42.00	Dr. R.S. Singh

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed International Journals	81

Refereed International Journal

1. Srikar, S. K., Giri, D. D., Upadhyay, C., Mishra, P. K., and Upadhyay, S. N., Green Synthesis of Silver Nanoparticles using Prunusamygdalus Extract and their Anti-Microbial Activity, Advanced Materials Research, 1119, 165-169(2015).
2. Gusain, D., Upadhyay, S. N., and Sharma, Y. C., Adsorption of Orange G Dye on Nano-zirconia: Error Analysis for Achieving the best Equilibrium and Kinetic Modeling, RCS Advances, 4, 18755-18762 (2014).
3. Shukla, A. K., Upadhyay, S. N., and Dube, S. K., Current trends in Trichloroethylene Biodegradation: A Review, Critical Reviews in Biotechnology, 34(2), 101-114 (2014).
4. Singla, P., Mehta, R., and Upadhyay, S.N., Ring Opening Polymerization of Lactide in a Monomode Microwave using Stannous Octoate and DibutyltinDimethoxide Catalysts, Journal of Macromolecular Science-PAC, 51(4), 350-361(2014).
5. Singla, P., Mehta, R., and Upadhyay, S.N., Microwave Assisted In Situ Ring Opening Polymerization of Poly(lactide)/Clay Nano-composites: Effect of Clay Loading, Applied Clay Science, DOI: 10.1016j.clay.2014.03.012 95,67-73 (2014).
6. DB Pal, Harish Kumar, DD Giri, Pardeep Singh, PK Mishra, Enhanced H_2 and reduced CO level by use of electrospunCuO/CuO_2 catalyst in water gas shift reactionAdvScilett Accepted: 2015-05-29
7. NehaSrivastava et al., Application of cellulase in biofuels industries: an overview, Journal of Biofuels, Springer (Acepted)
8. S M Geelani et al., Utilization of QuercusRoburl L, (Fruit Cups) and Salixalba L. (Wood Extract) as Dyeing Agent for Silk and Cotton Fabrics, Jr of Industrial Pollution Control 31(2) (2015) pp 227-234
9. S.M. Geelani et al., Eco-friendly dyeing of wool and pashmina fabric using Quercusrobur L. (fruit cups) dye and Salix alba L. (wood extract) mordant, Journal of Applied and Natural Science 7(1) 138-143 (2015)
10. NehaSrivastava et al., Improved production of reducing sugars from rice straw using crude cellulose activated with Fe_3O_4/Alginate nanocomposite, Bioresource Technology, February, 2015

11. Abhilasha Dixit, P K Mishra and M S Alam, Kinetics, thermodynamics and mass transfer studies on application of TitaniaNanofibers for heavy metal adsorption, IJRASET, vol 3, issue III, March, 2015
12. LataKumari, DhaneshTiwary&P K Mishra, Biodegradation of CI Acid Red1 by indigenous bacteria Stenotrophomonas sp. BHUSSp X2 isolated from dye contaminated soil, Environmental Science and Pollution Research (ESPR-D-14-04152R1)
13. LataKumari et al., Biodegradation of Navy N5RL1 carpet dye by Staphylococcus saprophyticus strain BHUSS X3, 3Biotech (DOI 1.1007/s13205-015-0276-7)
14. Pardeep Singh, et al., "Assessment of ground and surface water quality along the river Varuna, Varanasi, India" Environ Monit Assess (2015) 187:170
15. Dean DayalGiri, et al., Temperature Dependent Decline in Soil Methane Oxidizing Bacterial Population in Tropical Dry Deciduous Forest Ecosystems, International Journal of Scientific and Technology Research, Volume 3, Issue 9, September (2014).
16. D.B. Pal et al., "Synthesis and Characterization of Cu/CeO_2 Composite Nanofibers by Electrospinning Method". Adv. Sci. Lett. 20, 1582-1584 (2014)
17. Pardeep Singh et al., An Assessment of Surface Water Quality of Varuna River in Varanasi: Using multivariate Statistical Technique; Envirogeochemica ACTA Vol.1 Issue 1 ISSN 2348-7259, (2014)
18. S. B. Mishra, SadhnaSachan, P K Mishra, Ramesh M R, Preparation and characterization of PPEES-TiO_2 composite micro porous UF membrane for oily water treatment; Procedia Materials Science 5 (2014) 123-129.
19. Sushil Kumar Shukla, AshutoshTripathi& P K Mishra, Fungal Decolourization of Anaerobically digested Distillery Effluent (ABDE) following Coagulant Pretreatment, IJSER, 3(2), 2014, 723-734
20. Ashish K Pandey, P. K. Mishra, K KSrivastava, experimental investigation of pressure drop inside a vertical helically coiled tube of curvature ratio= 0.012, IJESR/ 2014/ Vol-4/Issue-7/398-401.
21. Ashish K Pandey, P. K. Mishra, K KSrivastava, A critical review on fluid flow and heat transfer in circular helically coiled tube heat exchanger for laminar flow, IJESR, 2014/ Vol-4/Issue-7/436-445.
22. Vishnu murari, Manish Kumar, Nanditasingh, R S Singh and Tirthankar Banerjee, Particulate morphology and elemental characteristics: Variability at middle Indo-Gangetic Plain, JOURNAL OF ATMOSPHERIC CHEMISTRY · SEPTEMBER 2015 (Impact Factor – 1.95), 2015
23. Manoj K Srivastava , Suresh Tiwari, BhanuPratap Singh, AtulSrivastava, R S Singh, B. N. Rai, abhaysingh, Deewan Singh Bisht, Umesh Chandra, "Seasonal inhomogeneity of soot particle over central Indo-Gangetic Plains, India : Influence of meteorology" Journal of Meteorological Research (JMR) (Accepted) (Impact Factor 1.116)
24. N Srivastva, AK Shukla, RS Singh, SN Upadhyay, SK Dubey, Characterization of bacterial isolates from rubber dump site and their use in biodegradation of isoprene in batch and continuous bioreactors, Bioresource Technology, 188, 84-91, 2015.(Impact Factor 5.33)
25. TirthankarBanarjee, RS Singh, M Kumar, Associating airborne particulates and human health: Exploring possibilities, Environment International, Volume 84, 201–202, 2015 (Impact Factor 5.66)
26. R S Singh, Manish Kumar, TirthankarBanarjee, Mineral Dust: The Underestimated Component of Earth system, Pure and Applied Geophysics, (Impact Factor 1.85), 2015
27. Deepshikha Singh, KrishnapriyaYadav, Deepshikha, R.S.Singh, Bio-fixation of carbon dioxide using mixed culture of microalgae, Indian Journal of Biotechnology, 14, 216-220, 2015. (Impact Factor 0.51)
28. Sanjay Singh, J Verma, B.N. Rai and R.S. Singh, Biodegradation of vapour phase benzene toluene and xylene (BTX) using compost based modified biofilter, Indian Journal of Biotechnology, 14, 228-232, 2015. (Impact Factor 0.51)
29. Sanjay Singh, B.N. Rai and R.S. Singh, Biofiltration of styrene using composite beads of compost as modified biofilter media, Research Journal of Chemistry, 19(9), 1-6, 2015 (Impact Factor 0.30)
30. Sanjay Singh, B.N. Rai and R.S. Singh, Biofiltration of styrene using composite beads of wood charcoal

and compost as biofilter media, Research Journal of Biotechnology (Accepted) (Impact Factor 0.30)

31. Geed S.R., Kureel M.K., Singh R.S., Rai B.N., Study of bioremediation of Hazardous Pollutants - Malathion Pesticide in Contaminated Soil by Bacterial pseudomonas sp., Energy Technology & Ecological Concerns: A Contemporary Approach, 98-102, ISBN: 978-81-93024-71-3, 2015.
32. SudeepYadav, Amitabh Srivastava, R.S. Singh, Selection and Ranking of Multi faceted Criteria for the Prioritization of most Appropriate Biomass Energy Sources foe the Production of Renewal Energy in Indian Perspective USING Analytic Hierarchy Process, International Journal of Engineering Technology Science and Research, Volume 2, 89-98, 2015.
33. SudeepYadav, Amitabh Srivastava, R.S. Singh, Selection and Ranking of Multi faceted Criteria for the Prioritization of most Appropriate Conversion Technology for Biomass to Biofuel in Indian Perspective Using Analytic Hierarchy Process, 3(1), 869-881, 2015 (ISSN 2348-7550)..
34. SudeepYadav, Amitabh Srivastava, R.S. Singh, "Prioritization of Multifaceted Criteria for the Different CO_2 Removal Technologies from Biogas Using Analytic Hierarchy Process" in "International Journal of Advance Research in Science & Engineering (ISSN 2319-8354)",Volume 04,Issue SI(01) ,April 2015 ,I.F. (1.142) Page No. 310-320
35. SudeepYadav, Amitabh Srivastava, R.S. Singh, "Ranking of Multifaceted Criteria for the Different H_2S Removal Technologies from Biogas Using Analytic Hierarchy Process" in "International Journal of Advance Technology in Engineering and Science (ISSN 2348-7550)", Volume 03,Issue SI(01), May 2015 ,I.F. (1.142) (60-70).
36. PankajRai, Neeraj Kumar and R.S. Singh, Role of Media in the Pharmaceutical Processing of AbhrakaBhasma – X-Ray Fluorence and Energy Dispertive X Ray Analysis Study, 4(3), 326-330, 2014.
37. Ak. Tiwari, S.R. Geed, R.S. Singh, B.N. Rai, Extraction of Essential Oil from GomphrenaCelosiodes by Green Separation Technology, International Journal of Basic and Applied Biology, 2(20, 18-22, 2014.
38. R.S.Singh, B.N. Rai, M.K. Srivastava, AwadheshShukla, S.K. Dubey, Bacterial Contamination in Air Borne Particulates ($PM_{2.5}$ and $PM_{10)}$,, Proceedings of IASTA – 2014, BHU, Varanasi.
39. M Yadav, N Srivastva, AK Shukla, RS Singh, SN Upadhyay, SK Dubey, Efficacy of Aspergillus sp. for Degradation of Chlorpyrifos in Batch and Continuous Aerated Packed Bed Bioreactors, Applied Biochemistry and Biotechnology, 1-9, (2014).(Impact Factor; 1.735)
40. PP Said, OP Arya, RC Pradhan, RS Singh, BN Rai, Separation of Oleoresin from Ginger Rhizome Powder Using Green Processing Technologies, Journal of Food Process Engineering, 2014. (Impact Factor;0.83)
41. M Yadav, N Srivastva, RS Singh, SN Upadhyay, SK Dubey, Biodegradation of chlorpyrifos by, Pseudomonassp. in a continuous packed bed bioreactor,Bioresource technology 165, (2014), 265-269. (Impact Factor 5.33)
42. Pramanik, H.,Rathoure, A.K., Jain, V., Srikanth, P.V.K., "Electrooxidation Study of Methanol in a Laminar Flow Membraneless Microfluidic Fuel Cell-A Review", IEEE ;2014, p-220-223, DOI:10.1109/ICONCE.2014.6808723.
43. Pramanik, H.,Rathoure, A.K., "Electrooxidation Study of Ethanol in Air Breathing Microfluidic Fuel Cell at Low Loading of Electrode-catalyst" International Journal of Chemical and Environmental Engineering, 6(2) (2015) 90-94.
44. Suroshe, P.,Pramanik, H., "Recovery of Valuable Bio-oil and Char via Pyrolysis of Sugarcane Bagasse" International Journal of Chemical and Environmental Engineering, 6(3) (2015) 137-141.
45. MK Mondal, G Mishra, P Kumar, Adsorption of Cadmium (II) and Chromium (VI) from Aqueous Solution by Waste Marigold Flowers, Journal of Sustainable Development of Energy, Water and Environment Systems, 2015
46. MK Mondal, A Banerjee, Parametric Evaluation of Digestability of Organic Fraction of Municipal Solid Waste for Biogas Production, Journal of Sustainable Development of Energy, Water and Environment System, 2015

47. R Narayan, RP Meena, AK Patel, AK Prajapati, S Srivastava, MK Mondal, Characterization and application of biomass gasifier waste material for adsorptive removal of Cr (VI) from aqueous solution
48. SA Ilame, S V. Singh, Application of Membrane Separation in Fruit and Vegetable Juice Processing: A Review, Environmental Progress & Sustainable Energy, Critical reviews in food science and nutrition 55 (7), 964-987 1, 2015
49. M Kapur, MK Mondal, Magnetized sawdust for removal of Cu (II) and Ni (II) from aqueous solutions Desalination and Water Treatment, 1-12, 2015
50. M Kapur, MK Mondal, Design and model parameters estimation for fixed–bed column adsorption of Cu (II) and Ni (II) ions using magnetized saw dust, Desalination and Water Treatment, 1-12, 2015
51. S Sood, A Umar, SK Mehta, ASK Sinha, SK Kansal, Efficient photocatalytic degradation of brilliant green using Sr-doped TiO 2 nanoparticles, Ceramics International 41 (3), 3533-3540, 2015
52. A Verma, SV Singh, Spray drying of fruit and vegetable juices—a review, Critical reviews in food science and nutrition 55 (5), 701-719, 2015
53. D Yadav, M Kapur, P Kumar, MK Mondal, Adsorptive removal of phosphate from aqueous solution using rice husk and fruit juice residue, Process Safety and Environmental Protection 94, 402-409, 2015
54. M Yadav, AK Shukla, N Srivastva, SN Upadhyay, SK Dubey, Utilization of microbial community potential for removal of chlorpyrifos: a review, Critical Reviews in Biotechnology, 1-16, 2015
55. R Saini, MK Mondal, P Kumar, Kinetic study on biodegradation of kitchen waste using anaerobic digestion, International Journal of Chemical and Environmental Engineering 6 (2), 69-72, 2015
56. S Srivastava, SB Agrawal, MK Mondal, A review on progress of heavy metal removal using adsorbents of microbial and plant origin, Environmental Science and Pollution Research, 1-30, 2015
57. CS Sharma, ASK Sinha, RN Singh, Use of graphene-supported manganite nano-composites for methanol electrooxidation International Journal of Hydrogen Energy 39 (35), 20151-20158, 2014
58. R Prasad, A Kumar, A Mishra, Isothermal Kinetics of Diesel Soot Oxidation over La0. 7K0. 3ZnOy Catalysts, Bulletin of Chemical Reaction Engineering & Catalysis 9 (3), 192-200, 2014
59. PK Dubey, P Tripathi, RS Tiwari, ASK Sinha, ON Srivastava, Synthesis of reduced graphene oxide–TiO 2 nanoparticle composite systems and its application in hydrogen production, International Journal of Hydrogen Energy 39 (29), 16282-16292, 2014
60. P Kumar, H Singh, M Kapur, MK Mondal, Comparative study of malathion removal from aqueous solution by agricultural and commercial adsorbents, Journal of Water Process Engineering 3, 67-73, 2014
61. AK Gautam, B Verma, ASK Sinha, A Singh, Pyrolysis of Lignocellulosic Biomass to Reduce Char Yield, 2014
62. G Rattan, R Prasad, Study the Effect on Activity of Alumina Supported CuO-CeO2-ZrO2 Catalysts Prepared by Four Methods for CO Oxidation, ASEAN Journal of Chemical Engineering 2, 39-49 2014
63. AK Yadav, SV Singh, Osmotic dehydration of fruits and vegetables: a review, Journal of food science and technology 51 (9), 1654-1673, 2014
64. RK Singh, ASK Sinha, P Singh, Investigations on structural and electrical properties of calcium substituted LSGM electrolyte materials for IT-SOFC, Ceramics International 40 (7), 10711-10718, 2014
65. KK Gupta, N Pal, PK Mishra, P Srivastava, S Mohanty, P Maiti, 5-Florouracil-loaded poly (lactic acid)-poly (caprolactone) hybrid scaffold: Potential chemotherapeutic implant, Journal of Biomedical Materials Research Part A 102 (8), 2600-2612, 2014
66. CS Sharma, R Awasthi, RN Singh, ASK Sinha, Graphene-Manganite-Pd Hybrids as Highly Active and Stable Electrocatalysts for Methanol Oxidation and Oxygen Reduction, ElectrochimicaActa 136, 166-175, 2014
67. M Kapur, MK Mondal, Competitive sorption of Cu (II) and Ni (II) ions from aqueous solutions: Kinetics,

thermodynamics and desorption studies, Journal of the Taiwan Institute of Chemical Engineers 45 (4), 1803-1813, 2014

68. P Singla, R Mehta, SN Upadhyay, Microwave assisted in situ ring-opening polymerization of polylactide/clay nanocomposites: Effect of clay loading, Applied Clay Science 95, 67-73, 2014
69. AK Shukla, SN Upadhyay, SK Dubey, Current trends in trichloroethylene biodegradation: a review, Critical reviews in biotechnology 34 (2), 101-114, 2014
70. P Mohanty, D Kabiraj, RK Mandal, PK Kulriya, ASK Sinha, C Rath, Evidence of room temperature ferromagnetism in argon/oxygen annealed TiO 2 thin films deposited by electron beam evaporation technique, Journal of Magnetism and Magnetic Materials 355, 240-245, 2014
71. MK Mondal, J Singh, D Khatri, Equilibrium CO2 Capture in Aqueous Blend of Trisodium Phosphate and Piperazine, Journal of Chemical & Engineering Data 59 (4), 1175-1180, 2014
72. J Phillips, MK Mondal, Determining the sustainability of options for municipal solid waste disposal in varanasi, india, Sustainable Cities and Society 10, 11-21, 2014
73. PP Said, RC Pradhan, BN Rai, A green separation of Lagenariasiceraria seed oil, Industrial Crops and Products 52, 796-800, 2014
74. A Mishra, R Prasad, Preparation and Application of Perovskite Catalysts for Diesel Soot Emissions Control: An Overview, Catalysis Reviews 56 (1), 57-81, 2014
75. A Mishra, R Prasad, Catalytic Combustion of Diesel Soot over K/Ag Substituted LaCoO3 Perovskite Catalysts, International Journal of Applied Engineering Research 9 (1), 9-16, 2014
76. VR Chelluboyana, MK Mondal, Removal of SO2 and NO by Complex Absorbent Using Wet Scrubbing, International Journal of Applied Engineering Research 9 (3), 345-350, 2014
77. A Masih, JK Lal, A Mishra, R Prasad, BB Mukharjee, SV Barai, C Nayak, Concentrations and Carcinogenic Profiles of Polycyclic Aromatic Hydrocarbons (PAHs) in Groundwater of an Urban Site at a Terai Belt of North India, International Journal of Applied Engineering Research 9 (1), 1-8, 2014
78. P Pandey, MK Mondal, SO2 Absorption in Aqueous Sodium Perborate, International Journal of Applied Engineering Research 9 (3), 285-290, 2014
79. M Kapur, MK Mondal, Adsorption Kinetics and Isotherms for Cu (II) and Ni (II) Ions Removal from Electroplating Industrial Wastewater, International Journal of Applied Engineering Research 9 (1), 47-52, 2014
80. P Singh, R Prasad, Catalytic abatement of cold-start vehicular CO emissions, Catalysis in Industry 2 (6), 122-127, 2014
81. VKVP Srirapu, CS Sharma, R Awasthi, RN Singh, ASK Sinha, Copper–iron–molybdenum mixed oxides as efficient oxygen evolution electrocatalysts, Physical Chemistry Chemical Physics 16 (16), 7385-7393, 2014

Proceedings of National/International Conferences

1. Srikar, S. K., Giri, D. D., Pal, D. B., Upadhyay, S. N., Silver Nanoparticle Synthesis using Prunusamygdalus Extract: Synthesis, Characterization and Growth Analysis, International Conference on Key Engineering Materials (ICKEM), Singapore, March 21-23, (2015).
2. Dhar, P., Namdev, A., Bisen, M., and Upadhyay, S. N. Liquid Fuels from Plastic Wastes, Poster Session-Energy and Environment , EE-F-193, International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Convention of BRSI, Jawaharlal Nehru University , New Delhi, Nov. 6-9 (2014)..
3. Dhar, P., Namdev, A., Ahmad, J. and Upadhyay, S. N., Value Added Fuels from Plastic Wastes Paper Presented at the Indian Chemical Engineering Congress (CHEMCON-2014) held at Punjab University, Chandigarh, Dec. 23 to 28 (2014)
4. Srikar, S. K., Giri, D. D., Upadhyay, C., Mishra, P. K., Upadhyay,S. N., Green Synthesis of Silver Nanoparticles using Prunusamygdalus Extract and its Anti-microbial Activity (Poster Presentation), International Conference on Emerging Trends in Biotechnology (ICETB-2014), XI Convention of BRSI,

Jawaharlal Nehru University, New Delhi, Nov. 6-9 (2014).

5. Srivastva, N., Shukla, A. K., Upadhyay, S. N., Singh, R. S., Dube, S. K., Biodegradation of Isoprene using Bacterial Isolates (EE-F-21), International Conference on Emerging Trends in Biotechnology (ICETB-2014), XI Convention of BRSI, Jawaharlal Nehru University, New Delhi, Nov. 6-9 (2014).
6. Garg, A., Shukla, A. K., Mishra, P. K., and Upadhyay, S. N., Bioremediation of Methylene BlueDye Bearing Wsatewater Using Sequential Batch Reactor (EE-F-235), International Conference on Emerging Trends in Biotechnology (ICETB-2014), XI Convention of BRSI, Jawaharlal Nehru University, New Delhi, Nov. 6-9 (2014).
7. Sanjay Singh, J Verma, B.N. Rai and R.S. Singh, Biodegradation of vapour phase benzene toluene and xylene (BTX) using compost based modified biofilter ICEBT 2014, Jawarlal Nehru University, New Delhi.
8. KrishnapriyaYadav, Deepshikha Singh and R.S. Singh, A review on production of biobutanol using ignocellulic biomass as feedstock, ICEBT 2014, Jawarlal Nehru University, New Delhi.
9. Deepshikha Singh, KrishnapriyaYadav, Deepshikha and R.S. Singh, Bio-fixation of CO_2 using mixed culture of microalgae, ICEBT 2014, Jawarlal Nehru University, New Delhi.

Book Chapters

1. Singla, P. and Mehta, R. and S.N. Upadhyay, A Chapter on Polylactic Acid (PLA): Microwave-Assisted Sysnthesis, in Encyclopedia of Biomedical Polymers and Polymeric Biomaterials, Taylor & Francis (2014)
2. Singla, P. and Mehta, R. and S.N. Upadhyay, A Chapter on Synthesis of Polylactic Acid: A Review, in Encyclopedia of Biomedical Polymers and Polymeric Biomaterials, Taylor & Francis (2014)
3. Biofilteration, Kiran Singh, RS Singh, BN Rai and SN KAUL, Waster Treatment Processes in Environmental Engineering, Vol. 1, pp 28-51, Astral International (P) Ltd, New Delhi, ISBN 978-93-5124-317-5(Set).
4. Membrane Bioreactor, RS Singh, BN Rai and SN Kaul, Waster Treatment Processes in Environmental Engineering, Vol. 1, pp 190-229,, Astral International (P) Ltd, New Delhi, ISBN 978-93-5124-317-5(Set).
5. Kiran Singh, R S Singh, B N Rai and S N Kaul, Biofilteration, Pollution Abatement and Control, Daya Publishing House (A Division of Astral International Private Limited), 58-80, New Delhi, 2014, ISBN 978-93-5124-284-0.
6. Kiran Singh, R S Singh, B N Rai, S N Upadhyay and S N Kaul, Biofilteration of Xylene Using Wood Charcoal as Biofiler Media, Pollution Abatement and Control, Daya Publishing House (A Division of Astral International Private Limited), 81-94, New Delhi, 2014, ISBN 978-93-5124-284-0.

Book

1. B.N. Rai, S.N. Kaul, D.R. Saini and PrateekKaul,Waste Treatment Processes in Environmental Engineering, Astral International (P) Ltd., New Delhi, 2014, ISBN 978-93-5124-317-5(Set).

4.3 Department of Civil Engineering

A brief Report on the working of the Department
Faculty Strength and Degree Awarded

1. 1 Degree Awarded to Students
1.2 Faculty Strength

Lab Equipments, Testing & Consultancy

2.1 Consultancy and Testing Services
2.2 Details of major equipment procured
2.2 Laboratory Development

Academic Contribution of Faculty Members

3.1 Summary of Research Papers by Faculty Members
3.2 International/National Journals
3.3 National/International Conferences
3.4 Seminar/ Conferences/Symposia/Workshop/ Organized
3.5 Books published
3.6 Proceedings Published
3.7 National International Conferences/Seminars/Short term courses/Refresher courses organized

Appendix

4.1 Academic Contributions of Faculty
4.2 Research Project Funded by Various Agencies
4.3 Seminars/Symposia/Conferences/Workshops/Other Academic Meets
4.4 Faculty Deputed to Participate in the Various Academic Meets
4.5 Honours/ Fellowships/ Awards/ Distinctions/ Other Remarkable Achievements of the Faculty
4.6 Guest Lecture/ Invited lecture/ Session Chair
4.7 Appointment of Teaching Staff

A brief Report on the working of the Department

Department works through various sections based on the specializations. Each section is headed by the senior most professor of the section, who continuously keeps interacting with new as well as experienced faculty members for the purpose of revision the course curriculum, course contents, etc. under the guidance of the Head of the Department. The emerging research areas are thoroughly discussed to assign problems to the M. Tech. and Ph.D. students. Regular meetings of Faculty members of a particular section motivate new faculty members to take up the challenging research problems, and also enable them to work on these. Faculty members of Civil Engineering Department have contributed towards administrative responsibilities like Wardenship, IIT (BHU) Gymkhana. They also conduct classes for inculcating the moral and ethical values in the students.

The Department of Civil Engineering is continuously engaged in developing international standard in teaching and research programs. The Department directs concerted efforts to achieve an international level and also, to become a Mark of Prestige to the Nation.

4.3.1: Faculty Strength and Degrees Awarded

1. 1 Degree Awarded to Students:

a. M.Tech in Civil Engg. Degree	: 28
b. IDD (B.Tech) and M. Tech. Degrees	: 18
c. B.Tech. in Civil Engg. Degree	: 64
d. Ph.D. in Civil Engg. Degree	: 01

1.2 Faculty Strength

Teaching Staff:	Sanctioned Strength	- 54	Present Strength	- 19
Non-Teaching Staff:	Sanctioned Strength	- 38	Present Strength	- 18

4.3.2: Lab Equipments, Testing & Consultancy

2.1 Consultancy and Testing Services

The Department has generated an amount of Rs. 3,48,59,667.00 during the financial year 2014-15 by providing consultancy and testing services in different fields of Civil Engineering to various government and private undertakings / agencies.

2.2 Details of major equipment procured

S. No.		Name of Items	Amount (in Rs.)
1.	**Office of the Civil Engineering Department**	Stationary & Office Equipments	71,600.00
2.		Electrical and office equipments	4,836.00
3.		Server Level Computers	1,61,600.00
4.		HP Intel Core i7 Computer	78,740.00
5.		Apple iPad with Cover for faculty-members	10,45,800.00
	Hydraulic & Water Resources Engineering	Point Gauge, Electronics Point, Pitot Static Tube etc.	1,74,300.00
6.		Plaxis 2D AE Suite	9,25,970.00
7.	**Geotechnical Engineering**	Rings, Air Compressor, Sieves, Swelling Pressure, constant "Volume Mould, Vacuum Pump etc.	7,45,763.00
8.		Laboratory Electric Oven , Triaxial Cell, pH meter digital, Dial Gauge 50mm x 0.01 mm With Magnetic Base, Dial Gauge 25mm x 0.01 mm With Magnetic Base, Slake Durability Apparatus	3,91,134.00
9.		Automatic Volume Change Gauge	1,18,125.00
10.		Glycol Freezer	31,500.00
11.	**Structural Engineering**	Conversion Kit	2,40,000.00
12.	**EnvironmentalEngineering**	Ion Selective Electrode, Standard accessories etc.	1,38,233.00
13.		Ultrasonicator, Ultranonic Power, Processor Controller etc.	2,44,912.00
14.		Split Tube Furnace	99,907.00
15.		Portable NDRI	1,77,056.00
16.		Data Logger	1,20,000.00
17.	**TransportationEngineering**	False ceiling and other works	2,17,318.70
18.		Fabrication of Steel Channel and Pinion	1,34,400.00
19.	**Surveying Laboratory**	Ranging Rod Tripod Stand	54,750.00
20.		Metallic Ranging Rod, Arrow etc.	55,650.00
21.		Theodolite, Prismatic Compas etc.	2,23,230.00
22.	**Applied Geology Laboratory**	Rock Works	91,835.00
23.		Water Level Indicator and Eco Sounder	1,84,800.00
24.	**Computer Laboratory**	Upgrading of Existing :Ansys Academic Teaching Introductory 5 user - 32000 nodes to Ansys Academic Teaching to ANSYS Mechanical & CFG Version 15 of 50 user Network License.	5,95,000.00
		Installation of 16.5 T Ductable Air-conditioning	10.82,451.00
25.	**Advanced Computational Laboratory**	Rewiring Work and Electric work	1,95,183.00
		Installation of 11.0 T Ductable Air-conditioning	5.47,338.00
26.	**Seminar Hall and New Drawing Hall**	Providing and fixing of sal wooded Dais with Dais Table and both side Podium etc.	4,33,073.00
		TOTAL	**87,11,504.70**

2.3 Laboratory Development

1. Procured ANSYS 15.0 of 50 Network License (Academic Teaching) Users in "Computer Laboratory" of the Department
2. New laboratory "Advanced Computational Laboratory" is established for PGstudents, and Faculty-members of the Department.
3. Packaged Air Conditioning of 16.5 T was successfully installed in Computer Laboratory and Packaged Air Conditioning 11 T was successfully procured for installation "Advanced Computational Laboratory".
4. Procured teaching related laboratory equipments in the Geotechnical Engineering Laboratory

a. TriaxialLoad Frame including Triaxial Cell
b. Slake Durability Apparatus
c. Air Compressor
d. Swell Pressure Test Apparatus
e. Procurement of Volume gauge instrument for Digital Triaxial testing Equipment
f. Hydraulic Extruder and other miscellaneous items

4.3.3: Academic Contribution of Faculty Members

3.1 Summary of Research Papers by Faculty Members

Name of the Teacher	Paper published in journals			Number of books	Number of Monograph	Number of Manuals	Others
	Number of research papers		Number of Articles				
	International/ National Journals	International/ National Conferences					
Prof. Veerendra Kumar	NA	NA					
Prof. Goutam Banerjee	NA	NA					
Prof. Devendra Mohan	04	01					
Prof. Prabhat Kumar Singh	01	NA					
Prof. Prabhat Kumar Singh Dikshit	03	NA					
Dr. S. Mandal	02	02					
Dr. Rajesh Kumar	02	02					
Dr. Arun Prasad	NA	NA					
Mr. K.K. Pandey	-	01					
Dr. S.B Dwivedi	04	NA					
Dr. Kesheo Prasad	NA	NA					
Dr. Brind Kumar	NA	NA					
Dr. P. R. Maiti	05	03					
Dr. MedhaJha	NA	NA					
Dr. S.K. Gupta	NA	NA					
Dr. AnuragOhri	NA	NA					
Dr. BalaRamudu, P.	01	04	- -	- -	-	-	-
Dr. Ankit Gupta	06	03					
Total	**28+16=44**						

Note: N.A. Not Available

3.2 International/National Journals: 21

1. SudhakarSaroj, SatyaVir Singh and Devendra Mohan, Removal of Colour (Direct Blue 199) from Carpet Industry Wastewater Using Different Biosorbents (Maize Cob, Citrus Peel and Rice Husk), Arabian Journal for Science and Engineering, DOI 10.1007/s13369-015-1630-0.
2. MarkandeyTiwari, S.P. Shukla, Devendra Mohan, D. S. Bhargava and G.C. Kisku, Modified Cenospheres as an Adsorbent for the Removal of Disperse Dyes, Advances in Environmental Chemistry, Volume 2015, Article ID 349254 available at http://dx.doi.org/10.1155/2015/349254.
3. Pankaj Kumar, AbaidyaNath Singh, ReshuShrivastava and Devendra Mohan, Assessment of Seasonal Variation in Water Quality Dynamics in River Varuna – A Maojor Tributary of River Ganga, International Journal of Advanced Research (2015), Volume 3, Issue 3, 1176-1193.
4. Manvendra Singh Chauhan,M.S,. Dikshit,P.K.S. and Dwivedi,S.B. (2015) Modeling of Discharge Distribution in Bend of Ganga River at Varanasi. Computational Water, Energy, and Environmental Engineering, 2015, 4, 25-37.
5. DK Gupta, P Kumar, VN Mishra, R Prasad, PKS Dikshit, Dwivedi,S.B (2015) Bistatic measurements for the estimation of rice crop variables using artificial neural network . Advances in Space Research. Vol.55, No.6 pp1613-1623.
6. Singh S.P. and Dwivedi,S.B.(2015) High grade Metamorphism in the Bundelkhand massif and Its implication in Mesoarchean Crustal Evolution in Central India. Journal of Earth System Science. Vol.124 No.1,PP. 197-211
7. Chauhan,M.S.,Kumar,V., Dikshit P.K.S. and Dwivedi,S.B.(2014) Comparisonof Discharge Data Using ADCP and Current Meter. International Journal of Advances in Earth Sciences, Vol.2, Issue2 pp 81-86.
8. Bala Ramudu Paramkusam, Rakesh Kumar Srivastava and Devendra Mohan (2015), Electrokinetic removal of mixed heavy metals from a contaminated low permeable soil by surfactant and chelants, Environmental Earth Science, Springer. DOI 10.1007/s12665-014-3474-4, Vol. 73 (3), 1191-1204.
9. Kumar, D. and Mandal, S. (2014) Uncertainty in improving durability aspects and mechanical properties of bamboo-reinforced concrete. Int. J. of Advanced Research and Ideas and Innovations in Technology, Vol. 1, Issue 1, pp. 1-5.
10. Kumar, N. and Mandal, S. (2015). The effect of varying span on design of short span reinforced concrete T-beam bridge deck. Int. J. of Engineering Research & Technology (IJERT), Vol. 4(2), 282-284.
11. Ishan Sharma, P Deepak Kumar and P R Maiti(2015). The effect of fiber orientation and Laminate layup in fiber reinforced polymer composite, The IUP Journal of Structural Engineering, Vol-VIII, No-1, pp 49-69
12. Harshad S Birjdar, P R Maiti and P K Singh (2014) "Failure of Chauras Bridge" Engineering Failure Analysis, Vol-45, pp-339-346.
13. P Deepak Kumar, Ishan Sharma and P R Maiti (2014). Parametric study of a simply suppoted composite plate using finite element method. I'manager Journal of Civil Engineering , 4(4) pp-26-33.
14. Singh, S. M., Ghosh, U. and P. R Maiti (2014). "Bed shear stress around a slender obstruction in different channel section", Journal of River Engineering, Vol.2, No. 4, pp. 1-14.
15. ShreyaThusoo, AyushRai&P R Maiti (2014) Foam Concrete-A better replacement to the traditional heavy concrete, i mangers Journal of Civil Engineering (JCE), Vol-4 No-1 Dec-Feb 2014.
16. Mohanty, M. and Gupta, A. (2015). Investigation of Adolescent Accident Predictive Variables in Hilly Regions, International Journal of Injury Control and Safety Promotion, (PublishedOnline,http://www.tandfonline.com/doi/full/10.1080/17457300.2015.1047858.
17. Gupta, A. and Pundir, N. (2015). Pedestrian Flow Characteristics Studies: A Review, Transport Reviews, (Published Online: http://www.tandfonline.com/doi/full/10.1080/01441647.2015.1017866)
18. Singh, B. and Gupta, A. (2015). Recent Trends in Intelligent Transportation Systems: A Review, Journal of Transport Literature, Brazil, Vol. 9, No. 2, pp 30-34.
19. Mohanty, M. and Gupta, A. (2015). Factors Affecting Road Crash Modeling, Journal of Transport Literature, Brazil, Vol. 9, No. 2, pp. 15-19.

20. Gupta, A., Kumar, P. and Rastogi, R. (2015). Critical Pavement Response Analysis of Low Volume Pavements Considering Non Linear Behavior of Materials, Transportation Research Record (TRR), Journal of the Transportation Research Board (TRB), Vol. 2474, pp. 3-11.
21. Gupta, A., Kumar, P. and Rastogi, R. (2015). Mechanistic-Empirical Approach for Design of Low Volume Pavements", International Journal of Pavement Engineering. (Published Online: http://www.tandfonline.com/doi/full/10.1080/10298436.2014.960999)

3.3 National/International Conferences: 14

1. R. Prasad, Shephali Singh and Devendra Mohan, 'Simultaneous Catalytic Control of Diesel Soot and NO_x over Nano-Size Perovskite Catalyst', Proceedings of 2nd International Conference on Nanotechnology (ICNT-2015), organized by HRC – Indian Institution of Chemical Engineers, Haldia Institute of Technology, Haldia, India, February 19-22, 2015.
2. Gupta, A. and Mandal, S. (2014). Comparative Study of Chord forces in Flat Slabs due to seismic loads in buildings of different plan aspect ratio National Conference on Innovative Design and Construction of Structures, April, NIT Durgapur, India
3. Patidar, B., Patil, A. R., Thiele, K., and Mandal, S. 2014 Across wind load on structures: an overview. National Conf on Wind Engineering, Thapar University, Patiala
4. S. Kumar and Shahu, J.T.(2014), "Performance of stone column reinforced soft clay under cyclic and static loading" in the 9th International Symposium on Lowland Technology, September29 - October1, 2014, Saga in Japan
5. SabitaMadhvi Singh and P R Maiti (2014) Flow field and scouring around cylindrical structure in channel bed" Second International Conference on Advances in Civil, structural and Environmental Engineering –ACSEE 2014, 25-26 October, Zurich , Switzerland
6. P. R. Maiti and S K Bhattacharyya (2015) Sloshing Response of liquid in prismatic container under oscillation, International conference on Structural Engineering ICSE 2015, 29-30 March 2015, Singapore
7. P Deepak Kumar, AisaryyaAlok, and P R Maiti (2015) Comparative study on dynamic effect on analysis approach of circular tanks using codal provision, International conference on Structural Engineering ICSE 2015, 29-30 March 2015, Singapore
8. Narendra Kumar Shukla, BalaRamuduParamkusam, AkshayPratap Singh, AmaliGitanjali R (2015), Effect of Hydrocarbon Contamination on Geotechnical Properties of Local Soil and ItsEnhanced Removal Using Surfactants, Sixth International Geotechnical Symposium on Disaster Mitigation in Special Geoenvironmental Conditions, January 21-23, 2015, IIT Madras, Chennai, India. pp. 288-290
9. BalaRamuduParamkusam, Arun Prasad, Neeraj Kumar and AkshayPratap Singh (2014), Study of geotechnical properties of red mud blended separately with lime and fly ash, Proc. of Indian Geotechnical Conference (IGC-2014) on Geotechnics for Inclusive Development of India (GEOIND), December 18-20, 2014, JNTU Kakinada, India, Winger Publications, ISBN No. 978-81-921580-0-6.
10. BalaRamuduParamkusam, Pradeep Kumar Yadav and AmaliGitanjali R (2014), Remediation of diesel contaminated soil by the surfactant- A geotechnical study, Proc. of Indian Geotechnical Conference (IGC-2014) on Geotechnics for Inclusive Development of India (GEOIND), December 18-20, 2014, JNTU Kakinada, India, Winger Publications, ISBN No. 978-81-921580-0-6.
11. V P Singh. P BalaRamudu and R. K. Srivastava (2014), Remediation of cadmium contaminated expansive soil by electrokinetic method and associated health risk assessment, Proc. of Indian Geotechnical Conference (IGC-2014) on Geotechnics for Inclusive Development of India (GEOIND), December 18-20, 2014, JNTU Kakinada, India, Winger Publications, ISBN No. 978-81-921580-0-6
12. Meena, U., Chandra, S. and Gupta, A. (2014). Laboratory Evaluation of Sulphur Extended Asphalt Modifier, Proc., of 12th International Society for Asphalt Pavements Conference, ISAP-2014, Raleigh, North Carolina, USA, Vol. 2, pp 1725-1734.
13. Mohanty, M. and Gupta, A. (2014), "Adolescent Accidents Prediction Modelling in the City of Palampur: A

Case Study", Proc. of 11th International Conference on Transportation Planning and Implementation Methodologies for Developing Countries, 10-12 December, Bombay, India. (Paper Id - 54)

14. Singh, B., Gupta, A. and Suman, S. (2014). Framework for Development of Advanced Traveler Information System: A Case Study for Chandigarh City, Proc. of 11th International Conference on Transportation Planning and Implementation Methodologies for Developing Countries, 10-12 December, Bombay, India. (Paper Id - 51)

3.4 National International Conferences/Seminars/Short term courses/Refresher courses/ Invited Lecture organized: 01

Mr Ashok Kumar, Deputy General Manager, Engineers India Limited delivered lecture on following topics i) Project Management ii) Construction Technology and iii) Computer Application on 23 March, 2015

4.3.4: Appendix

4.1 Academic Contributions of Faculty

Name of the Department	Total Number of Research Papers	Total Number of Articles	Total Number of Books	Total Number of Monograph	Total Number of others
Department of Civil Engineering.	35	-----	-----	-----	-----

4.2 Faculty Deputed to Participate in the Various Academic Meets

Sl. No.	Name of the Department	Name of the Teacher	In India / Abroad	Purpose of Visit and Period
1	Civil Engineering	Prof. Devendra Mohan	India	Please see clause 4.6 serial number 1 to 8.
2.	--do--	Dr. S. Mandal	Germany	Lecture delivered as a part of collaborative research initiative between IIT (BHU) and Technical University Braunschweig,*Braunschweig, Germany*
3.	--do--	Dr Rajesh Kumar	Switzerland	To attend Second International Conference on Advances in Civil, structural and Environmental Engineering –ACSEE 2014, 25-26 October, Zurich , Switzerland
4.	--do--	Mr. K.K. Pandey	Switzerland	To attend Second International Conference on Advances in Civil, structural and Environmental Engineering –ACSEE 2014, 25-26 October, Zurich , Switzerland
5.	--do--	Dr P R Maiti	Switzerland Singapore	To attend Second International Conference on Advances in Civil, structural and Environmental Engineering –ACSEE 2014, 25-26 October, Zurich , Switzerland To attend the International conference on Structural Engineering ICSE 2015, 29-30 March 2015, Singapore

4.3 Honors/ Fellowships/ Awards/ Distinctions/ Other Remarkable Achievements of the Faculty

Sl. No.	Name of the Recipient along with Designation & Department	Nature of Awards, etc.	Name of the Awarding Agency
1	Dr. S. Mandal	certificate of appreciation for sincere guidance to M. Tech. student in the field of wind Engineering	7th National Conference on Wind Engineering by Indian Society of Wind Engineering, Roorkee in 2014
2	Mr. Suresh Kumar	Best Presentation	9th International Symposium on Lowland Technology, September 29 - October1, 2014, Saga in Japan

4.4 Guest Lecture/ Invited lecture/ Session Chair

1. Prof. Devendra Mohan delivered an Invited Lecture on 'MAHAMANA KEE PARYAVARAN DRISHTI' (in Hindi) in One Day National Seminar on 'ParyavaranSanrakshan Mein Jana-JagrukataEvam Jana-SahabhagitaTathaMahamanaKeeDrishti', organized by Hindi Publication Committee (Physics Cell), Banaras Hindu University, Varanasi, Feb. 27, 2015.
2. Prof. Devendra Mohandelivered a Key-Note Address on 'Agriculture in Indian Context : Emerging Environmental Challenges' at National Conference organized by S.B.F.R.S. Mahavidyalay, Chakiya-Chandauli, February 14, 2015.
3. Prof. Devendra Mohandelivered a Key-Note Address on 'Environmental Challenges to Development of Varanasi', in the International Seminar on 'Vision for Varanasi - A Creative Approach to City Management', organized by Nagar Nigam, Varanasi and Washington State University, February 7-8, 2015 in collaboration with R.S.M.T., U.P. College, Varanasi.
4. Prof. Devendra Mohan delivered an Invited Special Lecture on 'Rural Sanitation Technology and Wastewater Management : Challenges and Remedies', in the Training Programme on 'Rural Sanitation Technology and Wastewater Management', organized by the Department of Civil Engineering, Motilal Nehru National Institute of Technology, Allahabad, February 28, 2015.
5. Prof. Devendra Mohan delivered a Key-Note Address on 'Population, Health and Environment : Emerging Challenges', in the National Seminar, organized by the Department of Geography, Sri Baldeo P. G. College, Baragaon, Varanasi, March 28, 2015.
6. Prof. Devendra Mohan delivered a Key-Note Address on 'Impact of Industries (in and around Varanasi) on Self-Purification Capacity of River Ganga : Major Issues', in National Seminar on 'Impact of Industrial Effluents on the Self-Purification Capacity of the River Ganga' organized by ShriHarishchandra P.G. College, Varanasi, March 29-30, 2015.
7. Prof delivered a Theme Lecture on 'Education, Environment and Health : Some Linkages' in the 'International Symposium on Innovations in Educational, Environmental and Health Research (ISIEEHR-2015)', organized by the Society for Educational Development and Environmental Research, Varanasi, February 23-24, 2015.
8. Prof. delivered an Invited Lecture on 'Vision of Bharat RatnaMahamanaMadan Mohan MalaviyaJi for Nation Building', VasantKanyaMahavidyalaya, Kamachchha, Varanasi, March 27, 2015.

9. S Mandal presented a key-note lecture for IDCIS (Innovative Design and Construction of Structures) 2014 at NIT, Durgapur, West Bengal, India.
10. S Mandal Chaired a session in IDCIS (Innovative Design and Construction of Structures) 2014 at NIT, Durgapur, West Bengal, India
11. Dr. Ankit Gupta delivered Keynote Address in International Conference on Advance Trends in Engineering Technology and Research (ICATETR-2014) at Bal Krishna Institute of Technology Kota (Raj.) India, 22-24 Dec. 2014.

4.4 Department of Computer Science and Engineering

Year of Establishment : 1983
Head of the Department : Prof. K.K. Shukla

4.4.1 Introduction

The Department of Computer Engineering was established in July 1983. The department offers a 4 year course, B.Tech. in Computer Sc. & Engineering, 5 year Integrated Dual Degree (B.Tech. and M.Tech.) in Computer Sc. & Engineering from 2005-2006, and Ph.D. degree in various specializations of Computer Sc. and Engineering. Computer Sc. & Engineering is the most sought-after branch for the JEE selected students that come to the Institute. Our graduates have distinguished themselves in higher studies at the top Universities. They also occupy positions of eminence in the computer industry. Our Alumni remain in constant touch with us and are contributing in the development of the department. Placements for our graduates are the best in the Institute. The department has on its roll faculty members with international experience and training. The departmental research is focused in the areas of Artificial Intelligence, Neuro Computing, Parallel Processing,Software Engineering, Image Processing and Computer Vision, Medical Image Processing, Pattern Recognition, Datamining and Webmining, Biometrics and semantic web. Besides plan funding, the Department attracts financial inputs through externally funded projects and alumni donations. The department was selected by the Ministry of Communications and Information Technology as a node in the National endeavor on Technology Development for Indian Languages.

Unique Achievement Preposition of the Department

4.4.2 Academic Activity

Academic programmes offered
B.Tech, IDD, M. Tech and PhD

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	MC.CSE201.15	Data Structure	
2	MC.CSE202.15	Computer System Organization	
3	DC.CSE203.15	Information Technology Workshop-II (ITW-II)	
4	**IE.CSO.101**	**Computer Programming**	

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	59	64	65	65	--
2.	Dual Degree	16	15	18	16	14
3.	M. Tech	--	--	--	--	--
4.	Ph. D	03	14	09	04	01

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
ÌNDIA					
1	MridulaVerma	13071002	(ERCICA-14)	August 01-02, 2014, Bangalore,India	Research Support Grant, IIT BHU
2	Ramesh Chand Pandey	12600EN006	1.(ICCCT-14) 2.(FICTA-14)	September 26-28,2014,Allahabad,India November14-15,2014, Bhubaneswar, India	Research Support Grant, IIT BHU
3	JayadeepPati	12600EN002	1. (ACET-14) 2. .(ICCCT-14)	August 26-27,2014 , City University of Hong Kong September 26-28,2014,Allahabad,India	Research Support Grant, IIT BHU
4	Santosh Kumar	12600EN004	1. (INDIACOM-15) 2. (PDGC-14)	March 11-13,2015 Delhi, India Dec 11-13, Delhi, India	Research Support Grant, IIT BHU
5	MadhushiVerma	11600EN004	1. (CEET-14 2. (ERCICA-14) 3. (ICCCT-14)	Malysia,2014 Bangalore,2014,India September 26-28,2014,Allahabad,India	Research Support Grant, IIT BHU
ABROAD					
1	Mohit Mishra	11100EN060	International Conference "SCSE-2015"	Berkeley, USA	IIT(BHU)

Names of scholars/students who won Convocation/Institute Day prizes

S. No.	Name of Student	Roll No.	Name of Prize	Prize awarded by
1	Ms.ShradhaAgrawal	10100EN069	a)I.I.T.(B.H.U.) Varanasi Medal for standing First atthe B.Tech. in Computer Science & Engineering Examination, 2014. b)Late ShriShyam Sunder LalRazdan Memorial Gold Medal for securing highest percentage of marks in B.Tech. Examination, 2014. c)Prof. GopalTripathi Memorial Gold Medal for securing highest marks at the B.Tech./B.Pharm. Examination, 2014. d)Smt. Arati Paul and Prof. BinodBihari Paul Gold Medal for securing highest marks in IV Year Examination among all the students of B.Tech./B.Pharm. Examination, 2014. e)C. Raja Gopal Memorial Gold Medal for securing highest marks in B.Tech. 4-Year Computer Science & Engineering Examination, 2014. f)Shri Raj Kishore Kapoor Silver Medal for securing highest marks at the B.Tech./B.Pharm. Examination, 2014. g)Dr. Annie Besant Prize (in the forms of books by Dr. Annie Besant including copy of the 'Bhagavadgita') for standing First position among all the branches of B.Tech. Examination, 2014.	IIT(BHU)
2	ShriNamanGoel	09400EN013	He is awarded I.I.T.(B.H.U.) Varanasi Medal for standing First at the 5-Year I.D.D. (B.Tech.-M.Tech.) in Computer Science & Engineering Examination, 2014.	IIT(BHU)

4.4.3 Faculty & their Activity

Faculty and their areas of specialization

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	Prof. A.K. Agrawal	Database Systems
2	Prof. A.K. Tripathi	Parellel/Distributed Computing , Software Engineering
3	Prof. K.K. Shukla	Artificial Intelligence, Neural Networks, Data Mining
4	Prof. R.B. Mishra	Artificial Intelligence, Multiagent Systems, Semantic Web
ASSOCIATE PROFESSORS		
1	Dr. S.K. Singh	Biometrics,Pattern Classification, Image Processing, Video Processing
2	Dr. R. Srivastava	Image Processing, Computer Vision, and Pattern Classification
ASSISTANT PROFESSORS		
1	Dr. V. Srivastava	Software Engineering,SoftwareRengineering
2	Dr. B. Biswas	Data Mining, Web Mining and Social Networks
3	Dr. R.S. Singh	Data Structures,Algorithms and High Performance Computing
4	Dr. R.N. Chowdary C	Information Extraction, Text Summarization, Web Mining

Short-term courses/workshops/seminars/symposia/conferences organised by faculty members

S. No.	Coordinator	Title	Period
1	Dr. A.K. Singh	Regional Symposium on Natural Language	March 21-22, 2015

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
5	Dr. S.K. Singh	IRISS 2015	5th Feb, 2015 at Goa
6	Dr. B. Biswas	International Conference on "Data Mining"	14-15 Feb, 2015, Bangalore
7	Dr.R.N.Cowdary C.	20th International Conference on Management of DATA	17-19 Dec. 2014, IIIT Hyderabad

Special lectures delivered by faculty members in other institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Prof. K.K. Shukla	Information Security Protocol	South Asian University, New Delhi	03.03.2015
2.	Prof. K.K. Shukla	Computational Geometry	LNMIIT, Jaipur	19.02.2015
3.	Prof. K.K. Shukla	Information Security	South Asian University, New Delhi	29.10.2014

Visits abroad by faculty members

S. No.	Name of Faculty Member	Country Visited	Date of Leaving India	Date of Returning India	Purpose of Visit	Funding from
1	Prof. R.B. Mishra	Fiji	01.02.2014	31.01.2015	Visiting Professor	Fiji National University
2.	Prof. A.K. Tripathi	UK	17.01.2015	26.01.2015	International Conference (ICCSSE-2015), at London, 19-20 Jan-2015	IIT(BHU)

4.4.4 Design and Development Activities

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	Del Power EdgeR 420 Rack Server	9.00 (approx.)

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	
2	Total Number of Papers Published in Refereed International Journals	18
3	Total Number of Papers Presented in National Conferences	03
4	Total Number of Papers Presented in International Conferences	25

4.4.5 Research and Consultancy Activities

Refereed International Journal

1. Alok K. Singh Kushwaha, Rajeev Srivastava, "A Framework of Moving Object Segmentation in Maritime Surveillance inside a Dynamic Background", Transactions on Computational Science, XXV Springer, LNCS 9030, pp. 35–54, 2015.
2. Arvind Kumar Tiwari and Rajeev Srivastava, "A Survey of Computational Intelligence Techniques in Protein Function Prediction," International Journal of Proteomics, Vol. 2014, Article ID 845479, 22 pages, 2014. doi:10.1155/2014/845479.
3. Arvind Kumar Tiwari, Rajeev Srivastava, SubodhSrivastava, ShailendraTiwari, "An efficient approach for the prediction of G-protein coupled receptors and their sub-families", Egyptian Informatics Journal, Elsevier,(Accepted) (Scopus) SCI 0.252.
4. BhavnaSrivastava, Rajeev Srivastava, and Mahesh Jangid, "A hybrid model for optimum gene selection and classification", International Journal of Medical Engineering and Informatics (IJMEI), Inderscience, UK. (In Scopus and DBLP) (Accepted, September' 2014, In press).
5. HarshitSharan, AbhinayAgrawal, Rajeev Srivastava, "A Context Based Cross Domain Collaborative Filtering Approach in Folksonomies", International Journal of Engineering Research & Technology (IJERT), ISSN: 2278-0181, IJERTV3IS041728, Vol. 3 Issue 4, April – 2014, pp. 1519-1524.
6. Himanshu Gupta, Rajeev Srivastava, "k-means based document clustering with automatic "k" selection and cluster refinement", International Journal of Computer Science and Mobile Applications, Vol.2 Issue. 5, May- 2014, pp. 7-13. ISSN (online): 2321-8363.
7. JayadeepPati, K. K. Shukla (2014). A nonlinear ARIMA technique for Debian bug number prediction, International Journal Artificial Intelligence and Neural Networks, Volume4 issue4 of IRED, USA.
8. JayadeepPati, K. K. Shukla (2015). A Hybrid ARIMA Technique for Software Reliability Prediction, ISEC 2015, IACM, iSOFT, the India chapter of ACM SIGSOFT (http://isoft.acm.org).

9. M. Verma, K. K. Shukla.Fuzzy Metric Space Induced by Intuitionistic Fuzzy Points and Its Application to the Orienteering Problem. IEEE Transactions on Fuzzy Systems (Accepted).
10. M. Verma, K.K. Shukla. Application of Fuzzy Optimization to the Orienteering Problem. Advances in Fuzzy Systems, Vol. 2015, pp. 1-12, 2015.
11. Rajesh Kumar, Rajeev Srivastava, "Cancer detection from Microscopic Biopsy Images using Image Processing and Pattern Recognition Tools: A Review", Journal of Medical Imaging and Health Informatics, USA, 5, 877-892 (2015) (SCI Impact Factor: 0.642).
12. Ramesh Chand Pandey, Sanjay Kumar Singh and K.K.Shukla (2015).Passive Copy- Move Forgery Detection Using Speed-Up Robust Features, Histogram Oriented Gradients &Scale Invariant Feature Transform,International Journal of System Dynamics Applications, Volume 4(3),pp.(81-100), DOI: 10.4018/IJSDA.2015070104
13. Santosh Kumar and S.K. Singh (2014). Biometric Recognition for Pet Animal, Journal of Software Engineering and Applications, 7, pp. 470-482, 2014.
14. Santosh Kumar and S.K. Singh(2015). Face recognition of Cattle: Can it be done?, Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, Springer (Accepted).
15. ShailendraTiwari, Rajeev Srivastava, "A Probabilistic Patch based hybrid framework for CT/PET Image Reconstruction", Egyptian Informatics Journal, Elsevier, (Scopus), 2015. SCI 0.252
16. Shailendra Tiwari, Rajeev Srivastava, "An OSEM based hybrid-cascaded framework for PET/SPECT Image Reconstruction", International Journal of Biomedical and Engineering and Technology (IJBET), InderScience Publications, UK, (In Scopus)(Accepted, Under Publication, February'2015).
17. Subodh Srivastava, N. Sharma, S.K. Singh, and Rajeev Srivastava, "Quantitative analysis of a general framework of a CAD tool for breast cancer detection from mammograms", Journal of Medical Imaging and Health Informatics, USA, Vol. 4, 1–21, 2014. (SCI Impact Factor: 0.642).
18. Subodh Srivastava, N. Sharma, S.K. Singh, and Rajeev Srivastava, "A combined approach for the enhancement and segmentation of mammograms using modified fuzzy C-means method in wavelet domain", Journal of Medical Physics (In PubMed), Vol. 39, No. 3, 169-83, 2014.

Proceedings of National Conferences

1. Kriti Singh, Rajeev Srivastava, VibhavPrakash Singh "An Introductory survey on Content Based Image Retrieval", National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare technologies (FTBH 2014), Oct. 17-18, 2014, School of Biomedical Engineering, IIT (BHU), Varanasi, U.P.
2. Rajesh Kumar, Rajeev Srivastava, "Segmentation and detection of abnormal cells from microscopic biopsy images using Shape based features", In proc: National Conference on Present scenario and future trends in biomedical engineering and health care technologies, (FTBH 2014), School of Biomedical engineering, IIT(BHU), Varanasi, pp. 14-20, October 17-18, 2014.
3. ShailendraTiwari, Rajeev Srivastava, "Review and Comparative Analysis of Medical Image Reconstruction Algorithms", National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH 2014), Oct. 17-18, 2014, School of Biomedical Engineering, IIT (BHU), Varanasi, U.P.

Proceedings of International Conferences

1. Alok K. Singh Kushwaha, Rajeev Srivastava, "A Framework for Moving Object Segmentation under Rapidly Changing Illumination Conditions in Complex Wavelet Domain," Futuristic Trends in Computational analysis and Knowledge management (Accepted), Feb 25-27, 2015 at Amity University, Greater Noida, India.
2. Alok K. Singh Kushwaha, Rajeev Srivastava, "Human Activity Recognition Using Object Silhouettes for Automatic Video Surveillance System," In Proc: International Conference on Recent cognizance in wireless communication & image processing-ICRCWIP-2014.
3. Alok K. Singh Kushwaha, Rajeev Srivastava, "Performance Evaluation of Various Moving Object Segmentation Techniques for Intelligent Video Surveillance System," In Proc: IEEE International Conference on Signal Processing & Integrated Networks (SPIN 2014), 20-21 Feb'2014, Noida, India, pp.

196-201. (DOI: 10.1109/SPIN.2014.6776947)
4. Alok K. Singh Kushwaha, Rajeev Srivastava, "Complex Wavelet Based Moving Object Segmentation using Approximate Median Filter Based Method for Video Surveillance," In Proc: 4th IEEE International Advanced Computing Conference, Gurgaon, India, 21-22 Feb' 2014, pp. 973-978. (DOI: 10.1109/ IAdCC. 2014. 6779455).0
5. Anil Kumar Singh and C. RavindranathChowdary, Centrality based Document Ranking. Proceedings of The Twenty-Third Text REtrieval Conference (TREC), Gaithersburg, Maryland, USA, November 19-21, 2014
6. Arvind Kumar Tiwari, Rajeev Srivastava "Feature based classification of nuclear receptors and their subfamilies using fuzzy k-nearest neighbor".In The international conference on advances in computer engineering and applications(ICACEA-2015), IEEE Explore.
7. Arvind Kumar Tiwari, Rajeev Srivastava, ShailendraTiwari "Machine learning based approach for the prediction of voltage gated ion channels and their subfamilies". In the International Conference on Emerging Trends in Information Technology (ICETIT-2015).
8. BhavnaSrivastava, Rajeev Srivastava, and Mahesh Jangid, "Filter vs. Wrapper approach for optimum gene selection of high dimensional gene expression dataset: An analysis with cancer datasets", In Proc: 2014 International Conference on High Performance Computing and Applications (ICHPCA-2014), CV Raman College of Engineering, Bhuvaneshwar, 22-24 Dec'2014. IEEE Explore.
9. BhavnaSrivastava, Rajeev Srivastava, Mahesh Jangid, "Comparative analysis of Filter vs. Wrapper approach for optimum gene selection of high dimensional gene expression data set: An analysis with cancer datasets", 5th International Conference on Stem Cells and Cancer (ICSCC-2014): Proliferation, Differentiation & Apoptosis, 8 - 10 November, 2014, New Delhi.
10. C. RavindranathChowdary and P. Sreenivasa Kumar. S-SUM: A system for summarizing the summaries. In Proceedings of the 20th International Conference on Management of Data (COMAD '14). pp. 50-56, Hyderabad India, December 17-19, CSI
11. M. Verma, B. Pal, M. Gupta, K. K. Shukla .A Stochastic Greedy Heuristic Algorithm for the Orienteering Problem. In Proc. of 5th IEEE International Conference on Computer and Communication Technology (ICCCT-2014), pp. 59-65, Allahabad, U.P., 2014.
12. M. Verma, K. K. Shukla. A New Algorithm for solving Fuzzy Constrained Shortest Path Problem using Intuitionistic Fuzzy Numbers. In Proc. of 2nd International Conference On Advances in Computing, Electronics and Electrical Technology (CEET-2014), pp. 1-5, Kuala Lumpur, Malaysia, 2014.[Also published in International Journal of Artificial Intelligence and Neural Networks, Vol. 5(1), pp. 38-42, 2015].
13. M. Verma, K. K. Shukla .Evaluation of Ranking Methods for the Constrained Fuzzy Shortest Path Problem. In Proc. of 2nd International Conference on Emerging Research in Computing, Information, Communication and Applications (ERCICA-2014), pp. 812-822, Bangalore, Karnataka, 2014.
14. NagendraPratap Singh, Rajesh Kumar, Rajeev Srivastava, "Fast Retinal blood vessels Extractions by modifying Gaussian Shaped Matched Filter" In Proc: IEEE International conference on computing ,communication and automation(ICCCA 2015) 15-16 May,2015 , Galgotia university ,Uttar Pradeh ,India
15. Rajesh Kumar, Rajeev Srivastava "Some observations on the performance of segmentation Algorithms for microscopic biopsy images" In proc: International conference on modeling and simulation of diffusive processes and applications, (ICMSDPA-2014), Department of Mathematics, Banaras Hindu University,Varanasi, pp. 16-22, October, 29-31, 2014.
16. Ramesh Chand Pandey, Sanjay Kumar Singh and K. K. Shukla (2014). Passive Copy Move Forgery Detection in Video, Proceeding of the 5thInternational Conference on Computer and Communication Technology, ISBN: 978-1-4799-6757-5, pp-(301-306),Digital Object Identifier:10.1109/ICCCT.2014.7001509.Shailendra Tiwari, Rajeev Srivastava, "An Efficient and Modified Median Root Prior based Framework for PET/SPECT reconstruction Algorithm", Eighth International Conference on Contemporary Computing (IC3), IC3 2015 (communicated) JIIT, Noida. (Indexed in Scopus (Elsevier)IEEE Explore Computer Society.
17. Santosh Kumar, ShrikantTiwari, Sanjay Kumar Sigh and G.R. Sinha (2015). Ear Recognitions of

Newborns ,Proceedings of the 9th INDIACom-2015 2nd IEEE International Conference on Computing for Sustainable Global Development.

18. Santosh Kumar, ShrikantTiwari, Sanjay Kumar Singh R.S. Singh and G.R. Sinha (2015). Comparison of Adult and Infant Ear Images for Biometric Recognition, 3rd International Conference on Parallel, Distributed and Grid Computing.
19. ShailendraTiwari, Rajeev Srivastava, "A Hybrid-Cascaded Framework for MLEM based Image Reconstruction", International Conference on Signal Processing and Communication, (ICSC 2015), Mar. 16-18, 2015 JIIT, Noida, IEEE Explore Signal Processing and Communication Society, pp. 285 – 290, DOI 10.1109/ICSPCom.2015.7150663. ISBN 978-1-4799-6760-5.
20. ShailendraTiwari, Rajeev Srivastava, "A PDE based Expectation Maximization algorithm adapted to Poisson noise for Medical Image Reconstruction", IEEE International Symposium on Signal Processing and Information Technology (ISSPIT-2014), Dec. 15-17, 2014 JIIT, Noida. IEEE Explore, Signal Processing Society
21. ShailendraTiwari, Rajeev Srivastava, "A PDE based Expectation Maximization algorithm adapted to Poisson noise for Medical Image Reconstruction", IEEE International Symposium on Signal Processing and Information Technology (ISSPIT-2014), Dec. 15-17, 2014 JIIT, Noida. IEEE Explore, Signal Processing Society.
22. ShailendraTiwari, Rajeev Srivastava, "An Efficient Hybrid- Cascaded Framework for Emission Computed Tomography using OSEM Image Reconstruction Algorithm", International Conference on Recent cognizance in wireless communication & image processing, (ICRCWIP 2014), POORNIMA UNIVERSITY- Jaipur, India. Springer Publication LNCS.
23. ShailendraTiwari, Rajeev Srivastava, "On the evaluation and selection of Priors for MLEM based CT and PET image reconstruction", International Conference on Emerging Trends in Information Technology (ICETIT-2015), February 21-22, 2015 BabasahebBhimraoAmbedkarUnivesrity (BBAU), Central University, Lucknow.
24. VibhavPrakash Singh, Rajeev Srivastava "Design & Performance Analysis of Content Based Image Retrieval System Based on Image Classification Using Various Feature Sets", International Conference on Futuristic Trends in Computational analysis and Knowledge management" (A-BLAZE 2015) to be held during Feb 25-27, 2015 at Amity University, Greater Noida, IEEE Xplore.
25. VibhavPrakash Singh, Rajeev Srivastava, Neeraj Kumar "Multistage Ensemble Classification for Gene Expression Data of Cancer Using Correlated Informative Features", International Conference on Communications, (ICRCWIP 2014), POORNIMA UNIVERSITY- Jaipur, India. Springer Publication LNCS.

Brief Details of 5 Articles from the Department with maximum no. of Citations in last 5 years

1. Rajeev Srivastava, J.R.P. Gupta and Harish Parthasarathy, "Comparison of PDE based and other techniques for speckle reduction from digitally reconstructed holographic images", Optics and Lasers in Engineering (An International Journal), Elsevier Science (Science Direct), Vol. 48, pp. 626-635, 2010. (Impact factor: 1.838).
2. Rajeev Srivastava, Harish Parthasarthy, J.R.P. Gupta and D. Roy Choudhary, "Image Restoration from motion blurred image using PDEs formalism", In Proc: IEEE International Conference on Advanced Computing (IACC'09), 06-07 March'2009, Patiala, India, pp. 61-64, ISBN: 978-981-08-2465-5, DOI: 0.1109/IADCC.2009.4808981.

Faculty visits

S. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	Dr. Rajeev Srivastava	Paper Setting, UGC-NET, Computer Sc. and Applications	November'2014, CBSE, New Delhi
2	Dr. Rajeev Srivastava	UGC-NET, Computer Sc. and Applications paper key discussions meeting	January' 2015, CBSE, New Delhi

4.5 Department of Electrical Engineering

Year of Establishment: 1919

Head of the Department: Prof. R. Mahanty

4.5.1 Introduction

Mahamana Pt. Madan Mohan Malviyafounded BHU in the year 1916, with benevolent and magnanimous contributions of the then maharajas and other persons of eminence. The University was nurtured by Sir Sunderlal, as the 1st V.C. of the university, followed by the great visionaries, such as Pt. Madan Mohan Malviya, Acharya Narendradev, Sir S. Radhakrishnan and many other eminent personalities.

The Benaras Engineering College (BENCO) was started in the year 1919, with its strong foundation laid by revered Prof. Charles A. King, Prof. H. P. Philpot and Prof. M. Sengupta. With the passage of time, College of Mining and Metallurgy (MINMET) and College of Technology (TECHNO) were included, expanding its horizon. These three colleges were merged and named as Institute of Technology in the year 1968 with a view to give more autonomy for its better perspective in terms of academic as well as administrative decisions. Its undergraduate students are admitted through Joint Entrance Examination (JEE) being conducted for all IITs.

Since the inception of BENCO in 1919, combined Bachelor's degree in Mechanical and Electrical Engineering was awarded till 1952. Department of Mechanical Engineering and Department of Electrical Engineering were separated in 1953 and conferred separate degrees in respective disciplines.

Presently, Department of Electrical Engineering runs five post graduate (M. Tech.) programmes in Electrical Machines and Drives (started in 1956), Power Systems (started in 1964), Control Systems (started in 1964), Power Electronics (started in 1982) and Interdisciplinary Systems Engineering (started in, 1982) and Ph. D. programme in all disciplines of Electrical Engineering. The department has also a five year Integrated Dual Degree Program (started in 2006) leading to Masters degree with specialization in Power Electronics.

The department has been sanctioned Special Assistance Programme (SAP) of UGC since 1988 and COSIST program of UGC from 1995 to 2000. Apart from these, the department has been conducting research projects funded by DST, AICTE, CPRI and other R&D organizations of Govt. of India.

Department has very good placement records over the years. The students of this department are joining core companies such as PGCIL, IOCL, HPCL, Trident, Reliance, Maruti, etc. Electronics companies such as Broadcom, Sony, etc are also regularly recruiting students of this department. Our students are also regularly joining software companies such as Morgan Stanley, Goldman Sachs, Citrix, Oracle, SISO, etc. The vast number of job offers is mainly due to the versatility of the branch which ensures that students are allowed to sit for interviews in software, core electrical, electronic as well as non technical companies.

Some of the department's famous alumni includes, Mr.Nikesh Arora: Senior Vice President and Chief Business Officer at Google, Mr. Rajiv Dogra: Indian diplomat, Ex- Consul General to Karachi, Pakistan, Mr. Gyanesh Pandey: Co-founder, CEO and CTO of Husk Power Systems and Mr. Narla Tata Rao: Winner of Padma Shree, a doyen of power sector in India.

The department is pursuing academic activities with the following goals and objectives:

- Further up-gradation and technological modernization of infrastructural facilities.
- Encouraging teaching innovations through audio visual and multimedia aids.
- Channelizing expertise of faculty in the frontier areas of electrical engineering.
- Research, testing and consultancy.
- Training the undergraduate and post graduate students towards entrepreneurship in consonance with liberalization and privatization policies of the Government.
- Development of energy efficient, environment-friendly electrical technologies as per the norms set by various planning, regulatory and other statutory bodies

Unique Achievement Preposition of the Department

In the last five years, the department has produced 500 graduates and 200 post-graduates. Apart from this, the department has to its credit 9 Ph.D.s awarded during the last five years.

4.5.2 Academic Activities

Academic Programmes offered

B.Tech, IDD, M.Tech and PhD

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	DC.EE 103.14	Network Analysis & Synthesis	11
2	--	Power System Deregulation	11

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	NA	89	83	87	NA
2.	Dual Degree	NA	22	23	21	21
3.	M. Tech	33	44	NA	NA	NA
4.	Ph. D	Total 45				

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
ÌNDIA					
1	**Mr Sanket Parashar**	**11104EN021**	IEEE sponsored International Conference on Energy Economics & Environment ICEEE-2015	March 2015, Noida	IIT (BHU)
2	Ms Ankita Dwivedi	Research Scholar	IEEE International Conference on Power Electronics and Drives Conference (PEDES)	IIT, Mumbai, 16^{th}-18^{th} December, 2014	IIT (BHU)
3	Ramakrishna Reddy	--	18^{th} National Power System Conference 2014,	18-20 Dec 2014. IIT, Guwahati	IIT (BHU)

4.5.3 Faculty & their Activities

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1.	Prof.S.N. Singh (Emeritus)	Power electronics and Drives
2.	Prof. S.C. Gupta (Institute)	Digital Instrumentation, Computer Networks, Fault Tolerance & Reliability
3	Prof.S.N. Mahendra	Electrical Machines, Linear Induction Machines, Electric Traction, Electromagnetic Fields, Development of low cost LIM propelled metro system
4	Prof. S. P. Singh	Power System, Electricity Markets and Deregulation, Operation and Dynamics, Distribution System Automation.
5	Prof. S. K. Nagar	Control Systems, AI Applications
6	Prof. A. K. Kapoor	Power Electronics, Microcomputer Applications, Control systems
7	Prof. D. N. Vishwakarma	Power Systems, Digital Protection, Microprocessor, Microcontroller AI Applications
8	Prof. R. K. Pandey	EHV AC & DC Transmission, FACTS Controllers Design & Analysis, Integrated Large Power System Operation & Control, Intelligent Grid Control, High Voltage DC Transmission Technology, Electricity Policy and Planning, Distribution System Planning & Automation, Distributed Energy Resources & Management
9	Prof. R. K. Srivastava	Linear Induction Motor & E.M. Fields
10	Prof. R. K. Mishra	Power Systems Operations & Control AI Applications, Digital Signal Processing
11	Prof. R. Mahanty	Power Electronics
12	Prof. D. Singh	Power Systems, AI Applications
ASSOCIATE PROFESSORS		
1	Mr. Gopal Sharma	Systems Engineering
2	Dr. R. K. Saket	Reliability Engg., Power System Reliability Engg., Elec. Machines/Electric Drives, Reliability Evaluation of SEIG / DFIG, ReliabilityImprovement of Induction Machines, Micro Hydro Power GenerationSystems, Renewable Energy Applications, Reliability Issues inAd-hoc Networks, Control System Engineering.
3	Dr. M. K. Verma	Voltage stability Studies, Power System Dynamics Security Enhancement of Power Systems Application of FACTS controllers Power System Operation and Control

ASSISTANT PROFESSORS		
1	Dr. (Mrs.) KalpanaChaudhary	Power Electronics Electrical Machines & Drives
2	Dr. Manish Kumar	Renewable Energy Technologies Plasma Physics Coherent Radiation Generation, Terahertz Radiation Generation
3	Dr. S. K. Singh	Power Electronics, Silicon carbide converters, Electrical Drives, Hybrid electric vehicles, Renewable energy integration and applications
4	Dr. R. K. Singh	Energy Storage System and Optimal Bidirectional Battery Chargers, Modeling , simulation, and control of Power Electronics System, Power Electronics for the Hybrid Renewable AC/DC micro-grid, Modeling and control for Point-of-load's, EV/PHEV interface with renewable energy and grid.
5	Dr. V. N. Lal	Grid Connected Solar PV system, ANN application in Power Forecasting, Electrical Power Distribution System
6	Mr. J. C. Pandey	Electromagnetics, Finite Element Finite Element Analysis of Electrical machines and Devices High Voltage Engineering.
7	Ms. Sobhita Meher	Computer Science

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	**Name of Faculty Member**	**Title**	**Period and Venue**
1	Prof. D. N. Vishwakarma	**1.**International Conference on Recent Developments in Control, Automation and Power Engineering (RDCAPE)	March 12-13, Amity University, Noida,
		2.IEEE International Conference on Computer Engineering and systems (ICCES 2014).	Cairo, Egypt (Dec 22-24, 2014)

		3.3rd International Conference on Information and Education technology (ICIET 2015)	Bali, Indonesia (Jan 5-6, 2015)
2	Dr. R. K. Singh	**1.**IEEE International Conference on Power Electronics Drives and Energy Systems (IEEE PEDES 2014)	16-19 Dec. 2014, Mumbai, India.
		2.IEEE International Conference on Industrial Technology (ICIT 2015)	Seville, Spain, March 17-19
3	Dr. S. K. Singh	**1.**IEEE International Conference on Power Electronics and Drives Conference (PEDES)	IIT, Mumbai, 16th-18th December, 2014
		2.IEEE International Conference on Industrial Technology (ICIT 2015)	Seville, Spain, March 17-19
4	Prof.R. K. Srivastava	**1.**UPCON-IEEE sponsored International Conference on Energy Economics & Environment ICEEE-2015, ICEEE2015	Noida (India), March 2015
		2.Applied Electromagnetics International conference (APPEIC' 2014)	Bandung, Indonesia, Dec 16-18, 2014
5	Dr. V. N Lal	Eighteenth National Power System Conference (NPSC)	December 18-20, 2014, Guwahati, India.

Special lectures delivered by faculty members in other institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Dr. R. K. Singh	Advances in converter and control for power electronic interface	KNIT Sultanpur	8 Oct, 2014,
2	Prof.R. Mahanty	Power Quality Improvement	KNIT Sultanpur	8 Oct, 2014
3	Prof.R. Mahanty	Reactive Power Compensation and Harmonic Filtering	MNNIT Allahabad	29 Jan., 2015
4	Dr. S. K. Singh	DC-DC converter for HEVs	SVNIT, Surat	26th to 30th May 2014

Visits abroad by faculty members

S. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	Prof.D. N. Vishwakarma	IEEE International Conference on Computer Engineering and systems (ICCES 2014).	Cairo, Egypt (Dec 22-24, 2014)
2	Prof.D. N. Vishwakarma	3rd International Conference on Information and Education technology (ICIET 2015)	Bali, Indonesia (Jan 5-6, 2015)
3	Prof.R. K. Srivastava	APPEIC Conference 2014	16-18 Dec. 2014, Bandung (Indonesia)
4	Dr. R. K. Singh	To present research	8-10 April,
		paper IEEE PEMD-Conference	2014Manchester, UK
5	Dr. R. K. Singh	IEEE ICIT Conference	17-19 March, Seville, Spain
6	Dr. S. K. Singh	IEEE ICIT Conference	17-19 March, Seville, Spain

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	Dr. V. N. Lal	Dr P. S. Nigam Power Sector Award -2014 (Institution of Engineer)

Books, monographs authored/co-authored

S. No.	Name of Co- Author	Title	Publisher
1	Prof. R. K. Srivastava	Analysis of Permanent Magnet Brushless AC Motor Using Two Dimensional Fourier Transform-Parseval's Theorem	Springer (LNEE Series)
2	Dr. R. K. Saket	Power Electronics and Renewable Energy Systems	Springer(LNEE Series)

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Dr. R. K. Saket	Editorial board member	**1.**International Journal of Electrical, Robotics, Electronics and Communications Engineering **2.**International Journal Of Research And Reviews In Applied Sciences (IJRRAS), **3.** Engineering, Technology And Applied Science Research (ETASR) **4.** International Journal Of Management, Modern Sciences And Technologies, UAE

4.5.4 Design and Development Activities

New facilities added

Rapid prototype controller based on FPGA, DSP and dSpace for Power electronic and Electric drive applications.

1. Linear Induction Motor based traction drives.
2. High voltage testing facilities.
3. Advanced computing facilities using software such as (i) EMTP (ii) PSCAD (iii) ETAP (iv) DIGSILENT (v) NEPLAN (vi) ANYS (vii) MATLAB (viii) LABVIEW (ix) CASPOC (x) OrCadPspice.
4. PV Simulator, Solar Emulator.

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co-ordinator
1	Design and Development of a Smart Energy Grid Architecture with Energy Storage	2014-17	Ministry of Science and Technology, DST	200	Prof. R. K. Pandey
2	Improved operation of distribution networks incorporating load models	2012-14	CPRI, Bangalore	30.60	Prof. S. P. Singh, Co-P.I.: Prof. D. Singh, Prof. R. K. Mishra and Prof. R. Mahanty,
3	Renewable Energy Research	2013---	IIT (BHU) Varanasi	20	Dr.R.K. Singh(PI), Prof. D. Singh,Prof. R.K.Mishra and Dr. S.K. Singh
4	A Versatile Optimal Bidirectional Battery Charger	2013--	Department of Science and Technology (DST), Govt. of India	20.54	Dr.R.K. Singh(PI), Prof. D. Singh and Prof. R.K.Mishra
5	Design, development and performance analysis of silicon carbide converter for aerospace application	2013--	DST	23.92	Dr. S.K. Singh
6	Design analysis and Development of Permanent Magnet Synchronous Generator	2015	DIH, IIT (BHU) Varanasi	0.91	Dr. S.K. Singh

4.5.5 Research and consultancy Activities

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	4
2	Total Number of Papers Published in Refereed International Journals	18
3	Total Number of Papers Presented in National Conferences	16
4	Total Number of Papers Presented in International Conferences	21

Refereed National Journals

1. Sachin Kumar Gupta, Manoj Yadav and Dr. R. K. Saket (2015), "Mathematical Analysis for Stability Based Routing in Ad-hoc Networks", Special issue on science and Technology, Prajna research journal, BHU Varanasi, India. Volume: 60, Part-2,2015, pp: 187-196. http://www.bhu.ac.in
2. R. K. Saket (2015), "Development of Municipal Waste Water Based Micro-hydro Power Plant in BHU Varanasi", Special issue on science and Technology, Prajna research journal, BHU Varanasi, India. Volume: 60, Part-2, pp: 202-207. http://www.bhu.ac.in
3. Ankita Dwivedi, S. K. Singh, R. K. Srivastava: "Equivalence between Squirrel Cage and Sheet Rotor Induction Motor " Institution of Engineers (India), Journal of Electrical Engg, Springer.com March 2015
4. PS Chauhan, SP Singh, "Optimal PMU Placement in Power System Considering the Measurement Redundancy", Advance in Electronic and Electric Engineering 4 (6), 593-598,2014

Refereed International Journal

1. B. Singh, R. Mahanty and S. P. Singh, "Centralized and Decentralized Optimal Decision Support for Congestion Management", (In Press) International Journal of Electrical Power and Energy Systems, 2014.
2. Santosh Kumar V, S. K. Nagar, "Expert Image Retrieval system using Directional Local Motif XOR Patterns", Expert Systems with Applications, Elsevier (in press), 2014.
3. Santosh Kumar V, S. K. Nagar, "Directional Local Ternary Patterns for Multimedia Image Indexing and Retrieval", International Journal of Signal and Imaging Systems Engineering (IJSISE) (Accepted).
4. Santosh Kumar. V, S. K. Nagar "Colored Directional Local Quinary Patterns for Multimedia Image Indexing and Retrieval", International Journal of Human-centric Computing and Information Sciences (HCIS), Springer (Accepted)
5. Santosh Kumar. V, S. K. Nagar "Multi-joint histogram based modelling for image indexing and retrieval", Computers & Electrical Engineering, Elsevier, (in press), 2014.
6. R. Mahanty, "Indirect current controlled shunt active power filter for power quality improvement," International Journal of Electrical Power and Energy Systems, vol. 62, pp. 441- 449, 2014.
7. Ashutosh Srivastava, Deepak Kumar,"Mobile Ad-hoc Networks (MANET) Performance in a Disaster Management Scenario", IEEE Afr J Comp & ICTs ,Vol 7, No 1 March, 2014.
8. Sachin Kumar Gupta, Rohit Sharma and R. K. Saket , "Effect of Variation in Active Route Timeout and Delete Period Constant on the Performance of AODV Protocol", International Journal of Mobile Communications, Inderscience Publishers (UK), ISSN online:1741-5217, ISSN print:1470-949X, Vol: 12, no: 2, pp: 177-191,2014.
9. V. N. Lal, S. N. Singh, "Control and Performance Analysis of a Single-Stage Utility-Scale Grid Connected PV System", IEEE Systems Journal, Early Access, 2015,Issue: 99.
10. B. B. Sagar, R. K. Saket and Gurmit Singh (2015), "Exponentiated Weibull distribution approach based inflection s-shaped software reliability growth model", Ain Shams Engineering Journal, Elsevier (Science Direct), volume: 6, issue: 4, pp: 01-19. Web-site: http://www.sciencedirect.com/asej
11. Rishikesh Choudhary and R. K. Saket (2015), "A Critical Review on the Self-Excitation Process and Steady

State Analysis of an SEIG Driven by Wind Turbine", Renewable and Sustainable Energy Reviews, Impact Factor: 5.901, Science Direct (SCI Journal), Volume: 47, pp: 344-353. Web-site: http://www.sciencedirect.com/rser

12. Lokesh Varshney and R. K. Saket (2014), "Reliability Evaluation of SEIG rotor core magnetization with minimum capacitive excitation for unregulated renewable energy applications in remote areas", Ain Shams Engineering Journal, Science Direct, September 2014; volume: 5, issue: 3, pp: 751-757. Web-site: http://www.sciencedirect.com/asej.
13. Sachin Kumar Gupta and R. K. Saket (2014), "Impact of ART and DPC in AODV Routing of MANET Environment", PENSEE Journal (International Science Index), Espaces Marx, Paris, France, volume: 76, issue: 9, pp: 408-423. Web-site: http://www.scimagojr.com/pensee.
14. Sachin Kumar Gupta, Rohit Sharma and R. K. Saket (2014), "Effect of Variation in Active Route Timeout and Delete Period Constant on the Performance of AODV Protocol", International Journal of Mobile Communications, Inderscience Publishers (UK), SSCI Journal; Volume: 12, no: 02, pp: 117-191. Web Site: http://www.indercsience.com/ijmc.
15. V. K. Gupta and R. Mahanty, "Optimized switching scheme of cascaded H-bridge multilevel inverter using PSO," International Journal of Electrical Power and Energy Systems, Vol. 64, pp. 699-707, 2015
16. Harish Balaga, Neha Gupta and D. N. Vishwakarma, "GA trained parallel hidden layered ANN based differential protection of three phase power transformer", International Journal of Electrical Power and Energy Systems (Elsevier), 67 (2015) pp.286-297
17. Harish Balaga, Neha Gupta and D. N. Vishwakarma, "GA trained parallel hidden layered ANN based differential protection of three phase power transformer", International Journal of Electrical Power and Energy Systems (Elsevier), 67 (2015) pp.286-297
18. PS Chauhan, SP Singh, "Optimal PMU Placement in Power System Networks Using Integer Linear Programming", Int. J. of Innovative Research in Science, Engineering and Technology 3,2014

Proceedings of National Conferences

1. V. N. Lal, S. N. Singh, "Single-Stage Utility-Scale PV System with PSO Based MPPT Controller", Eighteenth National Power System Conference (NPSC), December 18-20, 2014, Guwahati, India.
2. Pransu Agarwal, Anish Ahmad, and Rajeev Kumar Singh," A Modular High Step Up Quadratic Boost Topology With Minimum Phase Behaviour for Microsource Applications," accepted for presentation in IEEE International Conference on Power Electronics Drives and Energy Systems (IEEE PEDES 2014), 16-19 Dec. 2014, Mumbai, India.
3. Sanket Parashar, R K Srivastava: "Effect of Load Inductance on Inter turn Fault in Single Phase PMSG using Winding Function Theory", 1st UPCON-IEEE sponsored International Conference on Energy Economics & Environment ICEEE-2015, ICEEE2015, Noida (India), March 2015, published in IEEE Xplore
4. Dwivedi A., Singh S.K., Srivastava R.K., "Performance Comparison of Different Topologies of PMBLAC Motor using FEM", IEEE International Conference on Power Electronics and Drives Conference (PEDES), held in IIT, Mumbai, 16th-18th December, 2014, published in IEEE Xplore
5. Divya Kushwaha, Ankita Dwivedi, Ramakrishna Reddy, R K Srivastava:" Study of 8/12 Flux Reversal Machine as an Alternator, 18th National Power System Conference 2014, 18-20 Dec 2014. IIT, Guwahati, published in IEEE Xplore
6. Sunil singh and D.N.Vishwakarma," Impact of Series FACTS Controllers on Distance Protection-A Review", 2015 International Conference on Recent Developments in Control, Automation and Power Engineering (RDCAPE), Amity University, Noida, March 12-13, 2015, pp.129-134.
7. Sunil singh and D.N.Vishwakarma," Intelligent Techniques for Fault Diagnosis in Transmission lines -An Overview", 2015 International Conference on Recent Developments in Control, Automation and Power Engineering (RDCAPE), Amity University, Noida, March 12-13, 2015, pp.280-285.
8. PS Chauhan, SP Singh, "A Method for Determination of Tariff for Minimal Energy Consumption", National Conference on 'Emerging Trends in Electrical Systems (ETES-14)

9. S Srivastava, SP Singh, "A review of fault detection using phasor measurement unit", National Conference on 'Emerging Trends in Electrical Systems (ETES-14)
10. Alok Pratap Singh and R. K. Pandey, "Multi-Machine Power System Stability Enhancement with UPFC", RAPS14-PEC-EE30, PEC University, Chandigarh, Jun 28, 2014
11. R. K. Pandey and Akanksha Srivastava, "Methodology of Harmonics Reduction", RAPS14-PEC-EE17, PEC University, Chandigarh, Jun 28, 2014.
12. Jaina Ram and R. K. Pandey, "Integration of Multi-Wind Energy Conversion system with Grid using Fault Ride Through Strategy", RAPS14-PEC-EE12, PEC University, Chandigarh, Jun 28, 2014.
13. Amit Singh, R. K. Pandey and M. K. Verma, "Design and Analysis of Smart Distribution System-Conceptual Development", RAPS14-PEC-EE06, PEC University, Chandigarh, Jun 28, 2014
14. DeepakKumar Gupta and R. K. Pandey, "Grid Stabilization with PMU Signals-A Survey", National Power Systems Conference 2014, IIT- Guahati, Dec. 2014.
15. R. K. Pandey, "FACTS Controller Integration in AC/DC Network for StabilityImprovement", 3rd International Conference on Power, Control and Embedded Systems, Allahabad, Dec. 26-28, 2014.
16. Sandeep Pandey, Nitesh Kumar Soni and R. K. Pandey, "Fractional Order Integral and Derivative (FOID) Controller with Anti Windup for Temperature Profile Control", 2nd International Conference on Computing for Sustainable Development, New Delhi, March 2015, Proceedings of 9th INDIA Com-2015.

Proceedings of International Conferences

1. Mukul Garg and Rajeev Kumar Singh," Coupled Inductor Boost Converter with Enhanced ESR Filter Capacitor for DC Microgrid Applications," accepted for presentation in IEEE International Conference on Industrial Technology (IEEE ICIT 2015),17-19 March2015, Seville, Spain.
2. Rajeev Kumar Singh and Rishav Goel," A Novel Lossless Digital Inductor Current Sensing Technique based Control Implementation for Switching DC/DC Converter," accepted for presentation in IEEE International Conference on Industrial Technology (IEEE ICIT 2015),17-19 March2015, Seville, Spain.
3. Akash Agarwal and Rajeev Kumar Singh, "Implementation and Control of a Magnetically Coupled Cuk Converter with Damping Network for Optimal Battery Charging," IET Power Electronics, Machines and Drives Conference (PEMD 2012), pp. 1-5, April2014, Manchester, U.K.
4. Pransu Agarwal and Rajeev Kumar Singh, "A Modular Magnetically Coupled Quadratic Boost Converter for Microsource Applications," IET Power Electronics, Machines and Drives Conference (PEMD 2012), pp. 1-5, April2014, Manchester, U.K.
5. Lokesh Varshney and Dr. R. K. Saket (2014), "Reliability Indices Evaluation of SEIG Rotor Core Magnetization with Minimum Capacitive Excitation for WECs", International Conference on Electrical Machines and Power Electronics, WASET: International Science Index, Paris, France, volume: 08, issue: 09, pp: 1107-1112, Date: September 22, 2014. http://www.waset.org
6. Dr. R. K. Saket (2014), "Design Components and Reliability Aspects of Municipal Waste Water and SEIG Based Micro Hydro Power Plant", International Conference on Electrical Power Engineering, WASET: International Science Index, London (UK), volume: 08, issue: 09, pp: 1472-1482, Date: September 26, 2014. http://www.waset.org/icepe
7. A. Y. Abdelaziz, M. Ezzat, W. Sameh, R. K. Saket and Anand Kumar K. S. (2014), "An Integrated Passive Islanding Detection Method for grid Connected PV Distributed Generators" International Conference on Power Electronics and Renewable Energy Systems, Proceeding published byLNEE series of SPRINGER, Organized at Rajalakshmi Engineering College, Chennai, India during 24-26 April, 2014, pp: 01-08. Web-Site: http://www.spinger.com
8. Ahmed M. Atallah, Almoataz Y. Abdelaziz, Mohamed Ali, R. K. Saket and Anand Kumar K. S. (2014), "Cable Laying Precautions in Offshore Wind Farms with Reactive Power Compensation", International Conference on Power Electronics and Renewable Energy Systems, Proceeding published by LNEE series of SPRINGER, Organized at Rajalakshmi Engineering College, Chennai, India. April 24-26, 2014, pp: 01-08. Site: http://www.spinger.com

9. Luckey Chaukse, P. Akash Pattanaik andR. K. Saket (2014), "Maximum Power Point Tracking of Photovoltaic System Using Two Input and Two Output Fuzzy System", International Conference on Power Electronics and Renewable Energy Systems, Proceeding published by LNEE series of SPRINGER, Organized at Rajalakshmi Engineering College, Chennai, India during 24-26 April, 2014, pp: 01-08. Web-Site: http://www.spinger.com
10. Luckey Chaukse, P. A. Pattanaik andR. K. Saket (2014), "Maximum Power Point Tracking of Photovoltaic System Using Feedback Fuzzy System", IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE-2014), Date of Conference: May 9-11, 2014, DOI: 10.1109/ICRAIE.2014.6909290, Print ISBN: 978-1-4799-4041-7, pp: 01 - 06. Web-Site: http://www.ieeexplore.ieee.org
11. Harish Balaga, D. N. Vishwakarma and H. Nath, "Applications of Genetic Algorithm Trained Master-slave Neural Network for Differential Protection of Power Transformer", Proc. 9th IEEE International Conference on Computer Engineering and systems (ICCES 2014), Cairo, Egypt, Dec 22-14, 2014, pp.164-169.
12. Harish Balaga, D. N. Vishwakarma and H. Nath,"Artificial Neural Network based Backup Differential Protection of Generator-Transformer Unit" Proc. 3rd International Conference on Information and Education technology (ICIET 2015)
13. S K Singh, Naresh K Pilli, Florent Guedon, Richard McMahon, "PMSM drive using Silicon carbide Inverter: Design, Development and Testing at Elevated temperature", IEEE International Conference on Industrial Technology (ICIT 2015) to be held in Seville, Spain, March 17-19, 2015
14. Raja Ram Kumar, S K Singh, R K Srivastava, "Effect of Magnetic Trajectories in a Magnetically Coupled Dual Stator Five Phase PMSG", IEEE International Conference on Industrial Technology (ICIT 2015) to be held in Seville, Spain, March 17-19, 2015
15. Raja Ram Kumar, Santosh Kumar Singh and R. K. Srivastava, "Design Analysis of Radial Flux Dual Stator Five Phase Permanent Magnet Synchronous Generator", IEEE PEDES 2014, Dec 16-19, 2014
16. Monika Singhal, Pilli Naresh Kumar and S K Singh, "Modeling and analysis of Split-Pi converter using State space averaging technique", IEEE PEDES 2014, Dec 16-19, 2014
17. Ankita Dwivedi, Santosh Kumar Singh and Rakesh Kumar Srivastava, "Performance Comparison of Different Topologies of PMBLAC motor Using FEM", IEEE PEDES 2014, Dec 16-19, 2014.
18. Ankita Dwivedi, S. K. Singh and R. K. Srivastava, "Analysis of Permanent Magnet Brushless AC motor using Two Dimensional Approach-Parseval's Theorem", Applied Electromagnetics International conference (APPEIC' 2014) at Bandung, Indonesia, Dec 16-18, 2014 Also accepted for Proceedings published by LNEE series of Springer.
19. R.K. Soni, Avneet K. Chauhan, Raja Ram Kumar, and S.K. Singh, "Comparative Study of SVM and Hysteresis Control Strategies for Grid Side Converter of PMSG", The 11th IEEE India conference INDICON 2014, Dec 11-13, 2014
20. Deepak Kumar, P. Akash Pattanaik and S.K. Singh, "Comparative assessment of Leakage current in a Photovoltaic Grid connected single phase Transformerless Inverter system", IEEE International conference on Recent advances and Innovations in Engineering (ICRAIE-2014), May 9-11, 2014.
21. R. K. Pandey, S. M. Archana, Krati Nayyar, P.Pentayya and Chandan Kumar, "PMU Signal Prioritization for Effective Control Coordination of Load Despatch Centres", 14 PESGM0667, Proceedings of IEEE PES General Meeting, July 27-31, 2014, Washington, USA

5 Articles from the Department with maximum no. of Citations in last 5 years

1. S. Dutta and SP Singh, "Optimal rescheduling of generators for congestion management based on particle swarm optimization", IEEE Transactions onPower Systems, Vol. 23, No. 4, pp. 1560-1569.
2. T. N.Shukla, SP Singh, V Srinivasarao, KB Naik, "Optimal sizing of distributed generation placed on radial distribution systems," Electric power components and systems, Vol. 38, No.3, pp. 260-274
3. Deependra Singh, D. Singh, and K.S. Verma, "Multi-objective Optimization for DG Planningwith load Models", IEEE Trans. On power systems, Vol. 24, No.1, Feb.2009, pp. 427-436

4. Devender Singh, R.K. Misra and Deependra Singh, "Effect of load models in distributed generation planning", IEEE Trans. On power systems, Vol. 22, No. 4, Nov. 2007, pp. 2204-2212.
5. A. S. Pandey, D. Singh, and S.K. Sinha, "Intelligent Hybrid Wavelet Models for Short-Term Load Forecasting", IEEE Trans. On power systems, Vol. 25, No.3, Aug. 2010, pp. 1266 –1273.

Distinguished Visitors

S. No.	Name of the visitor & Designation	Date of Visit	Purpose of Visit
1	Prof. S. C. Srivastava	February, 2015	Technical talk

4.5.6 Other Activities

Faculty visits

S. No.	Name of faculty Member	Purpose of Visit	Date and Venue
1	Dr. R. K. Singh	Expert lecture	KNIT Sultanpur, 8 Oct, 2014,
2	Prof. R. Mahanty	Expert lecture	KNIT Sultanpur, 8 Oct, 2014
3	Prof. R. Mahanty	Expert lecture	MNNIT Allahabad, 29 Jan., 2015
4	Dr. S. K. Singh	Expert lecture	SVNIT, Surat, 26th to 30th May 2014

Foreign Faculty Visits

S. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	Prof. D. N. Vishwakarma	IEEE International Conference on Computer Engineering and systems (ICCES 2014).	Cairo, Egypt (Dec 22-24, 2014)
2	Prof. D. N. Vishwakarma	3rd International Conference on Information and Education technology (ICIET 2015)	Bali, Indonesia (Jan 5-6, 2015)
3	Prof. R. K. Srivastava	APPEIC Conference 2014	16-18 Dec. 2014, Bandung (Indonesia)
4	Dr. R. K. Singh	To present research paper IEEE PEMD-Conference	8-10 April, Manchester, UK
5	Dr. R. K. Singh	IEEE ICIT Conference	17-19 March, Seville, Spain
6	Dr. S. K. Singh	IEEE ICIT Conference	17-19 March, Seville, Spain

4.6 Department of Electronics Engineering

Year of Establishment: 1971

Head of the Department: Prof. P K Jain

4.6.1 Introduction

Department of Electronics Engineering came into existence as an offshoot of Electrical Engineering Department in the year 1971 (when Banaras Engineering College, College of Mining and Metallurgy and College of Technology had been amalgamated to form the Institute of Technology (IT) as the Faculty of Engineering of the Banaras Hindu University (BHU)). Our Institute (i.e. IT-BHU) was converted to the Indian Institute of Technology (BHU), Varanasi on June 29, 2012. The intake every year of the Department is 79 in the B.Tech. and 47 (without sponsored category) in the M.Tech. programs. Besides the regular teaching to the students of our own discipline (i.e. Department of Electronics Engineering), we also offer the basic courses in Electronics Engineering to almost all the Departments at the first/second year level and some advanced-level courses to the students of Electrical Engineering and Computer Engineering Departments at the third/final year level. Most of our students are professionally placed in various jobs through the Training and Placement Cell of our Institute.

Our current priority areas of specialization are: (i) Communication Systems Engineering (ii) Digital Techniques & Instrumentation (iii) Microwave Engineering and (iv)Microelectronics Engineering. Under the doctoral programme of the department, about 8-10 research scholars obtain their Ph.D. degree every year in above mentioned thrust areas. Presently, we have 18 teachers: Professors – 8 (2 Professors on deputation), Associate Professor - 3 and Assistant Professor – 7. One Professor and oneAssociate Professor have been reemployed as Institute Professor after their superannuation. Besides, we have one person as Sr. Scientific Officer and two persons as Scientific Officers for supporting/enhancing the research activities of the department.

Unique Achievement Preposition of the Department

In the last five years, the department has produced 374 graduates and 211 post-graduates including 27 Ph.Ds.

4.6.2 Academic Activities

Academic Programmes offered

B. Tech, M. Tech and PhD

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	80	87	84	84	NA
2.	M. Tech	46	29	NA	NA	NA
3.	Ph. D	13	11	5	NA	NA

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

Sl. No.	Name of Student	Roll No.	Conference/Seminar/Symposia /Workshop	Date & Venue	Financial Assistance From
ÌNDIA					
1.	Mr. Madan Chauhan, Ph.D.	09605EN001	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
2.	Mr. Madan Chauhan, Ph.D.	09605EN001	IEEE MTT-S International Microwave and RF Conference	Dec. 15-17, 2015	IIT (BHU)
3.	Mr. Pradutt Kumar Bharti, Ph.D.	09605EN006	Indian Antenna Week (IAW-2014)	May 26-30, 2014, Chandigarh	IIT (BHU)
4.	Ms. Divya Somvanshi, Ph.D.	10605EN002	2nd International Conference on Emerging Electronics	Dec. 3-6, 2014, IISc., Bangalore	CSIR, New Delhi

5.	Mr. Mrigendra Kumar, Ph.D.	10605EN051	2nd International Conference on Current Developments in Atomic Molecular, Optical & Nano Physics with Applications	March 11-14, 2015, University of Delhi	IIT (BHU)
6.	Mr. Gaurav Kumar Pandey, Ph.D.	11605EN002	Antenna Test and Measurement Society (ATMS 2015)	February 3-4, 2015, Bengaluru	IIT (BHU)
7.	Mr. Gaurav Kumar Pandey, Ph.D.	11605EN002	Indian Antenna Week (IAW-2014)	May 26-30, 2014,Chandigarh	IIT (BHU)
8.	Mr. Hari Shanker Singh, Ph.D.	11605EN004	Antenna Test and Measurement Society (ATMS 2015)	February 3-4, 2015, Bengaluru	IIT (BHU)
9.	Mr. Hari Shanker Singh, Ph.D.	11605EN004	Indian Antenna Week (IAW-2014)	May 26-30, 2014, Chandigarh	IIT (BHU)
10.	Ms. Gargi Dixit, Ph.D.	11605EN007	VEDA	March 20-21, 2015, DAVV Indore	IIT (BHU)
11.	Ms. Gargi Dixit, Ph.D.	11605EN007	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
12.	Ms. Gargi Dixit, Ph.D.	11605EN007	Workshop on High Power Microwave Devices	Dec. 8-18, 2014, IIT Kharagpur	IIT (BHU)
13.	Mr. Amit Arora	12605EN004	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
14.	Mr. Balraj Singh, Ph.D.	13091001	2nd International Conference on Current Developments in Atomic Molecular, Optical & Nano Physics with Applications	March 11-14, 2015, University of Delhi	IIT (BHU)
15.	Ms. Ekta Goel, Ph.D.	13091003	2nd International Conference on Current Developments in Atomic Molecular, Optical & Nano Physics with Applications	March 11-14, 2015, University of Delhi	IIT (BHU)
16.	Mr. Gopal Rawat, Ph.D.	13091004	INUP Familiarization Workshop On Nanofabrication Technologies	May 26-28, 2014, IIT Bombay	IIT (BHU)
17.	Mr. Hemant Kumar, Ph.D.	13091005	INUP Familiarization Workshop On Nanofabrication Technologies	May 26-28, 2014, IIT Bombay	IIT (BHU)
18.	Mr. Hemant Kumar, Ph.D.	13091005	2nd International Conference on Current Developments in Atomic Molecular, Optical & Nano Physics with Applications	March 11-14, 2015, University of Delhi	IIT (BHU)
19.	Mr. Manpuran Mahto, Ph.D.	13091006	VEDA	March 20-21, 2015, DAVV, Indore	IIT (BHU)
20.	Mr. Manpuran Mahto, Ph.D.	13091006	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
21.	Mr. Manpuran Mahto, Ph.D.	13091006	Workshop on High Power Microwave Devices	Dec. 8-18, 2014, IIT Kharagpur	IIT (BHU)
22.	Ms. M. V. Swati, Ph.D.	13091007	VEDA	March 20-21, 2015, DAVV, Indore	IIT (BHU)
23.	Ms. M. V. Swati, Ph.D.	13091007	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
24.	Ms. M. V. Swati, Ph.D.	13091007	IEEE MTT-S International Microwave and RF Conference	Dec. 15-17, 2015	IIT (BHU)
25.	Mr. Sanjay Kumar, Ph.D.	13091008	2nd International Conference on Emerging Electronics	Dec. 3-6, 2014, IISc., Bangalore	IIT (BHU)
26.	Mr. Sanjay Kumar, Ph.D.	13091008	2nd International Conference on Current Developments in Atomic Molecular, Optical & Nano Physics with Applications	March 11-14, 2015, University of Delhi	IIT (BHU)

27.	Mr. Siva Venkateswara Rao V., Ph.D.	13091010	VEDA	March 20-21, 2015, DAVV, Indore	IIT (BHU)
28.	Mr. Siva Venkateswara Rao V., Ph.D.	13091010	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
29.	Mr. Yogesh Kumar, Ph.D.	13091012	INUP Familiarization Workshop On Nanofabrication Technologies	May 26-28, 2014, IIT Bombay	IIT (BHU)
30.	Mr. Yogesh Kumar, Ph.D.	13091012	2nd International Conference on Current Developments in Atomic Molecular, Optical & Nano Physics with Applications	March 11-14, 2015, University of Delhi	IIT (BHU)
31.	Mr. Akhilendra Pratap Singh	14091002	National Conference on Recent Advances in Electronics & Computer Engineering	Feb. 13-15, 2015, IIT Roorkee	IIT (BHU)
32.	Mr. Chandan Kumar, Ph.D.	14091005	INUP Familiarization Workshop On Nanofabrication Technologies	May 26-28, 2014, IIT Bombay	IIT (BHU)
33.	Mr. Praveen Kumar Sahu, Ph.D.	14091007	Indian Nano-electronics User Program	Jan. 28-30, 2015, IISc. Bangalore	IIT (BHU)
34.	Mr. Lalit Chandra, Ph.D.	14091008	Indian Nano-electronics User Program	Nov. 28-30, 2014, IIT Mumbai	IIT (BHU)
35.	Mr. Rajan Agrahari, Ph.D.	14091010	National Conference on Recent Advance in Electronics and Computer Engineering (RAECE)	Feb. 11-16, 2015, IIT Roorkee	IIT (BHU)
36.	Mr. Rajan Agrahari, Ph.D.	14091010	Workshop on High Power Microwave Devices	Dec. 8-18, 2014, IIT Kharagpur	IIT (BHU)
37.	Mr. Anshu Sharan Singh	14091012	National Conference on Recent Advance in Electronics and Computer Engineering (RAECE)	Feb. 11-16, 2015, IIT Roorkee	IIT (BHU)
38.	Mr. Vikram Kumar, Ph.D.	14091013	National Conference on Recent Advance in Electronics and Computer Engineering (RAECE)	Feb. 11-16, 2015, IIT Roorkee	IIT (BHU)
39.	Mr. Vikram Kumar, Ph.D.	14091013	Workshop on High Power Microwave Devices	Dec. 8-18, 2014, IIT Kharagpur	IIT (BHU)
40.	Ms. Neetu Singh, M.Tech.	12305EN049	2nd International Conference on Nanotechnology (ICNT-2015)	Feb. 19-22, 2015, HIT, West Bengal	IIT(BHU)
41.	Mr. Abhinav Pratap Singh, M.Tech.	13092041	2nd International Conference on Nanotechnology (ICNT-2015)	Feb. 19-22, 2015, HIT, West Bengal	IIT(BHU)
42.	Mr. Piyush Kumar Pushkar, M.Tech.	13092046	2nd International Conference on Nanotechnology (ICNT-2015)	Feb. 19-22, 2015, HIT, West Bengal	IIT(BHU)
43.	Mr. Ashutosh Kumar Dixit, M.Tech.	13092063	2nd International Conference on Nanotechnology (ICNT-2015)	Feb. 19-22, 2015, HIT, West Bengal	IIT(BHU)
ABROAD					
1	Ms. Divya Somvanshi, Ph.D.	0605EN002	IEEE Nanotechnology Materials and Devices Conference	October 12-15, 2014, Italy	CSIR, New Delhi
2	Gaurav Kumar Pandey, Ph.D.	1605EN002	International Conferences on Electronics and Electrical Engineering (ICAEEE-2014)	November 08-09, 2014, Pattaya, Thiland.	IIT (BHU)
3	Mr. Hari Shanker Singh, Ph.D.	1605EN004	International Conferences on Electronics and Electrical Engineering (ICAEEE-2014)	November 08-09, 2014, Pattaya, Thiland.	IIT (BHU)

Names of students/scholars who got prizes and awardsoutsidethe Institute

S. No.	Name of Student	Roll No.	Prizes / Awards	Date & Venue
1	Ms. Divya Somvanshi, Ph.D.	10605EN002	Best Poster Award in 9th IEEE (NMDC) -2014,	October 12-15, 2014, Aci-Castello, Italy
2	Mr. Gaurav Kumar Pandey, Ph.D.	11605EN002	Best Research Paper Award in ICAEEE-2014	Nov. 8-9, 2014, Pattaya, Thailand
3	Mr. Gaurav Kumar Pandey, Ph.D.	11605EN002	Best Research Paper Award in ATMS-2015	Feb. 3-4, 2014, Bangalore
4	Mr. Mayank Agarwal, Ph.D.	14091011	Gandhian Young Technological Innovation (GYTI) Award	March 8, 2015, Rastrapati Bhavan, New Delhi

4.6.3 Faculty & their Activities

Faculty and their areas of specialisation

Sl. No.	Name of the Faculty	Designation	Specialization
1.	Dr. P. Chakrabarti	Professor (On Deputation)	Microelectronics
2.	Dr. Anand Mohan	Professor (On Deputation)	Digital Techniques & Instrumentation
3.	Dr. S. P. Singh	Professor	Microwave Engineering
4.	Dr. S. K. Balasubramanian	Professor	Microelectronics
5.	Dr. P. K. Jain	Professor	Microwave Engineering
6.	Dr. R. R. Das	Professor	Digital Techniques & Instrumentation
7.	Dr. V. N. Mishra	Professor	Microelectronics
8.	Dr. Satyabrata Jit	Professor	Microelectronics, Communication
9.	Dr. R. Dwivedi	Associate Professor	Microelectronics
10.	Mr. P. K. Mukherjee	Associate Professor	Digital Techniques & Instrumentation
11.	Dr. M. K. Meshram	Associate Professor	Microwave Engineering
12.	Dr. N. S. Rajput	Assistant Professor	Digital Techniques & Instrumentation
13.	Mr. M. K. Singh	Assistant Professor	Communication System Engineering
14.	Dr. Amit Kumar Singh	Assistant Professor	Microwave Engineering
15.	Mr. Amritanshu Pandey	Assistant Professor	Communication System Engineering, Microelectronics
16.	Dr. M. Thottappan	Assistant Professor	Microwave Engineering
17.	Dr. K.V. Srinivas	Assistant Professor	Communication System Engineering
18.	Dr. Kishor P. Sarwadekar	Assistant Professor (Contractual)	Digital Techniques & Instrumentation

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences/Workshops			
1.	Dr. N. S. Rajput	National Workshop on Recent Advances in Electronics and Computer Engineering (RAECE-2015), IIT, Roorkee	Feb. 13-15, 2015
2	Dr. N. S. Rajput	International Geoscience and Remote Sensing Symposium (IGARSS'14), Quebec City, Canada	July 13-18, 2014
3.	Dr. M. Thottappan	National Workshop on Faculty Development Programme	March 29-31, 2015, IIT(BHU)

Special lectures delivered by faculty members in other institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Prof. P. K. Jain	Research Methodology in Engineering and Sciences	Madan Mohan Malaviya Technical University, Gorakhpur	Dec. 25, 2014
2	Prof. S. Jit	Introduction to Terahertz Technology	Advanced VLSI,Signal processing & Communication network (AVSC-2014), MNNIT, Allahabad	May 19-24, 2014
3	Prof. S. Jit	CMOS Scaling: Issues and Challenges for VLSI/ULSI Applications	Advanced VLSI, Signal processing and Communication network (AVSC-2014), MNNIT, Allahabad	May 19-24, 2014
4	Prof. S. Jit	Terahertz Technology: Principles & Applications	Industrial Symposium, Visvesvaraya National Institute of Technology (VNIT), Nagpur	April 5, 2014
5	Prof. S. Jit	Fundamentals of Information and Coding Theory	Workshop on Communication System Design (WCSD-2014), Sambhunath Institute ofEngineering and Technology, Allahabad	April 3, 2014
6	Dr. N. S. Rajput	Computational Scalability with Apache Hadoop	Indian Institute of Remote Sensing (IIRS), Dehradun	Feb. 16, 2015
7	Dr. N. S. Rajput	Big Data Acquisition and Processing using Apache Hadoop Framework	National workshop on Recent Trends in Optical and Wireless Networks," at Sam Higginbottam Institute of Agriculture, Technology & Sciences (SHIATS), Naini, Dist. Allahabad	Nov. 3-7, 2014

Visits abroad by faculty members

S. No	Name of Faculty Member	Country Visited	Date of Leaving India	Date of Returning India	Purpose of Visit	Funding from
1	Dr. M. K. Meshram	Malaysia	13.04.2014	18.04.2014	Conference Participation	IIT(BHU)
2	Dr. M. K. Meshram	Bangkok	08.10.2014	14.10.2014	Conference Participation	IIT(BHU)
3	Dr. N. S. Rajput	Canada	10.07.2014	19.07.2014	Conference Participation	IIT(BHU)
4	Dr. M. Thottappan	Malaysia	13.04.2014	18.04.2014	Conference Participation	IIT(BHU)
5	Dr. M. Thottappan	Germany	13.03.2015	20.03.2015	Conference Participation	IIT(BHU)
6	Mr. Amritanshu Pandey	Bangkok	08.10.2014	14.10.2014	Conference Participation	IIT(BHU)

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	Dr. M. K. Meshram	Gandhian Young Technological Innovation (GYTI) Award 2015
2	Dr. M. K. Meshram	**Transfer of Technology** to Defence Avionics Research Establishment (**DARE**), **DRDO**, Bengaluru.
3	Dr. M. K. Meshram	Senior Member, IEEE
4	Dr. N. S. Rajput	"Letter of Appreciation"from IITBHU Global Alumni Association (IGBAA) for key contribution in International Alumni Meet

Books, monographs authored/co-authored

S. No.	Name of Co- Author	Title	Publisher
1	Jacob Millman, Christos C. Halkias, and Satyabrata Jit	Millmans Electronic Devices and Circuits, 4e	Tata McGraw-Hill Publishing Company Limited, NewDelhi, 2015

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Prof. S. Jit	Editor-in-Chief	Trends in Opto-Electro & Optical Communications
	Prof. S. Jit	Guest Editor	The Scientific World Journal
2	Dr. M. Thottappan	Editorial board member	Journal of Vacuum, Elsevier
3	Prof. S. Jit	Editorial board member	Journal of Advance Research in Microelectronics and VLSI
4	Prof. S. Jit	Editorial board member	Journal of Advance Research in Electrical Engineering and Technology
5	Prof. S. Jit	Editorial board member	Journal of VLSI Design Tools & Technology
6	Prof. S. Jit	Editorial board member	Journal of Electronic and Electrical Engineering

4.6.4 Design and Development Activities

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	Workstations	11.74
2	Xilinx Vivado Design Suit, Kintex FPGA Board & JTAG Debugger Software	8.81
3	Atlas Software	11.73
4	Ansys Software	6.33

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Coordinator
1	Special Manpower Development Project for System to Chip Design (SMDP-C2SD) (National Level Project)	On going	DeitY, Govt. of India	Yet to be finalized. However, 1.5 lacs is Initially released towards travel expenditures, contingencies etc.	Prof. S. Jit
2	Analysis, Design and Simulation of an S-band MILO	2013-16	DRDO	45.85 Lakhs	Prof. P. K. Jain- PI & Dr. M. Thottappan-Co-PI
3	Design and Development of Wideband Vivaldi Antenna Array for Airborne Applications	2013 to till date	DARE, DRDO, Bengaluru	7.09 Lakhs	Dr. M. K. Meshram

4.6.5 Research and Consultancy Activities

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	Nil
2	Total Number of Papers Published in Refereed International Journals	68
3	Total Number of Papers Presented in National Conferences	2
4	Total Number of Papers Presented in International Conferences	12

Refereed International Journal

1. Gaurav Kumar Pandey, Hari Shankar Singh, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Design and Analysis of Ψ-Shaped UWB Antenna with Dual Band Notched Characteristics," Wireless Personal Communication,(Accepted).
2. S. H. Alsamhi, N. S. Rajput "Design Call Admission Control Technique in HAP for Enhancing QoS in Wireless Network Deployment"Accepted in Telecommunication Systems. [SCI, IF=0.705] (Springer).
3. S. H. Alsamhi, N. S. Rajput, "An Intelligent Hand-off Algorithm to Enhance Quality of Services in High Altitude Platforms Using Neural Network", Wireless Personal Communications, Vol. 82, Issue 4, pp. 2059-2073, January 2015.[SCI, IF=0.979] (Springer).
4. Ashutosh Singh and P. K. Jain, "Effects of Electron Beam Parameters and Velocity Spread on RF Output of a PBG Cavity Gyrotron Oscillator," Physics of Plasmas (AIP), vol. 22, 093102, 1-5, 2015.
5. M. S. Chauhan, M. V. Swati, and P. K. Jain, "Design and Simulation of a Gyroklystron Amplifier," Physics ofPlasmas, (AIP), vol. 22, pp. 033111-1-10, 2015.
6. Sunny, Vinod Kumar, V. N. Mishra, R. Dwivedi and R. R. Das, "Classification and Quantification of Binary Mixtures of Gases/Odors Using Thick Film Gas Sensor Array Responses", IEEE Sensors Journal, Vol. 15, No. 2, pp.1252-1260, February 2015.
7. M. Thottappan, S. Yuvaraj, and P.K. Jain, " 3-D PIC Simulation of a Gyro-Twystron Amplifier using "MAGIC," IEEE Transactions on Plasma Science, vol. 43, no. 1, pp. 398-404, Jan 2015.
8. Mirgender Kumar, and S. Jit, " A Novel Four-Terminal (4T) Ferroelectric Tunnel FET(Fe-TFET) for Quasi-Ideal Switch," IEEE Trans. Nanotechnology (under Letters category), Vol. 14, No. 4, pp.600-602, 2015
9. Mirgender Kumar, and S. Jit, "Effects of Electrostatically Doped Source/Drain and Ferroelectric Gate Oxide on Subthreshold Swing and Impact Ionization Rate of Strained-Si-on-Insulator Tunnel Field Effect Transistors," IEEE Trans. Nanotechnology (underLetters category), Vol. 14, No. 4, pp. 597-599, 2015.
10. A. B. Yadav, A. Pandey, D. Somvanshi and S. Jit, "Sol-Gel Based High Sensitive Pd/n-ZnO Thin Film /n-Si Schottky Ultraviolet Photodetectors," IEEE Trans. Electron Devices, Vol. 62, No. 6, pp. 1879-1884, 2015
11. Hari Shankar Singh, Gaurav Kumar Pandey, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Design and Performance Investigation of a Low Profile MIMO/Diversity Antenna for WLAN/ WiMAX/ HIPERLAN Applications with High Isolation," International Journal of RF and Microwave Computer-Aided Engineering, Vol. 25, No. 6, pp. 510-521, 2015.
12. Pouria Kamalvand, Gaurav Kumar Pandey, Manoj Kumar Meshram, and Alireza Mallahzadeh, "A Single Sided Dual-Antenna Structure for UHF RFID Tag Applications," International Journal of RF and Microwave Computer-Aided Engineering, pp. 619-628, Vol. 25, No. 7, Sept. 2015.
13. Gaurav Kumar Pandey and Manoj Kumar Meshram, "A Printed High Gain UWB Antenna Design Using Tapered Corrugation and Grating Elements," International Journal of RF and Microwave Computer-Aided Engineering, pp. 610-618, Vol. 25, No. 7, Sept. 2015.
14. Pradutt Kumar Bharti, Hari Shankar Singh, Gaurav Kumar Pandey, and Manoj Kumar Meshram, "Thin Profile Wideband Printed Monopole Antenna for Slim Mobile Handsets Applications," Progress In Electromagnetics Research C, Vol. 56, pp. 83-91, 2015.
15. Hari Shankar Singh, Gaurav Kumar Pandey, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Compact Printed Diversity Antenna for LTE700/ GSM1700/ 1800/ UMTS/ Wi-Fi/ Bluetooth/ LTE2300/ 2500 Applications for Slim Mobile Handsets," Progress In Electromagnetics Research C, Vol. 56, pp. 83-91, 2015.
16. Pradutt Kumar Bharti, Gaurav Kumar Pandey, Hari Shankar Singh, and Manoj Kumar Meshram, "Multiband Shorted Monopole Antenna for Handset Applications," Microwave Optical Technology Letters, Vol. 57, No. 6, pp. 1459-1466, 2015.
17. Gaurav K. Pandey, Himanshu, and Manoj. K. Meshram, "Compact Antipodal Vivaldi Antenna for UWB Applications," Electronics Letters, Vol. 51, Iss. 4, pp. 308-310, 2015.
18. G. K. Pandey, H. S. Singh, P. K. Bharti, A. Pandey, and M. K. Meshram, " High Gain Vivaldi Antenna for

Radar and Microwave Imaging Applications," InternationalJournal of Signal Processing Systems, Vol. 3, No. 1, pp. 35-39, 2015.
19. Hari S. Singh, Gaurav K. Pandey, Pradutt K. Bharti, and Manoj K. Meshram, "A Compact Dual-Band Diversity Antenna for WLAN Applications with High Isolation," Microwave Optical Technology Letters, Vol. 57, No. 4, pp. 906-912, 2015.
20. Hari S. Singh, Gaurav K. Pandey, Pradutt K. Bharti, and Manoj K. Meshram, "A Low Profile Tri-Band Diversity Antenna For WLAN/Wi-MAX/HIPERLAN Applications With High Isolation," Microwave Optical Technology Letters, Vol. 57, No. 2, pp. 452-457, 2015.
21. M. Thottappan and P. K. Jain, "Nonlinear Investigation and 3-D Particle Simulation of Second Harmonic Gyro-TWT with a Mode Selective RF Circuit", IEEE Transaction on Electron Devices, Vol. 62, no. 5, pp. 1641-1647, January 2015.
22. S. Singhal and A. K. Singh, "Crescent Shaped Dipole Antenna For Ultra Wideband Applications," Microwave and Optical Technology Letters, (Accepted) (SCI Indexed IF=0.623) 2015
23. S. Singhal, T. Goel and A. K. Singh, "Inner Tapered Tree Shaped Fractal Antenna For UWB Applications," Microwave and Optical Technology Letters, Vol. 57, No. 3, pp. 559-567, March 2015 (SCI Indexed IF=0.623)
24. S. Singhal and A. K. Singh, "Beveled Monopole Antenna With Slot Loaded Semi-Circular Like Ground Plane For UWB Applications," Microwave and Optical Technology Letters, (Accepted) (SCI Indexed IF=0.623) 2015
25. S. Singhal and A. K. Singh, "Modified Theta Shaped Monopole Antenna With Defected Ground Structure For UWB Applications," Microwave and Optical Technology Letters, (Accepted) (SCI Indexed IF=0.623) 2015
26. A. Pandey, D. Somvanshi and S. Jit, "Electrical and Ultraviolet Detection Properties of n-ZnO Thin film/p-Si Heterojunction Diodes Using a ZnO Buffer Layer," Journal of Nanoelectronics and Optoelectronics,Vol.10, pp. 219-225, April 2015
27. Amritanshu Pandey*, Snehlata Chanchal and S Jit, "WO3 Nanowire based Diode for Ultraviolet Light Sensing Applications," Journal of Electron Devices, Vol. 21, pp. 1830-1833, 2015
28. Purnima Hazra, S. K. Singh and S. Jit, "Impact of Surface Morphology of Si Substrate on Performance of Si/ZnO Heterojunction Devices Grown by ALD Technique," J. Vac. Sc. Technol., Vol. A 33(1), pp. 01A114:1-5, 2015
29. S. H. Alsamhi, N.S. Rajput, "Neural Network in Intelligent Handoff for QoS in HAP and Terrestrial Systems", Int.Jr. Materials Science and Engineering Vol. 2, No. 2, pp.141 – 146, December 2014
30. Ashutosh Singh and P. K. Jain, "Beam-Wave Interaction Behavior of a 35 GHz Metal PBG Cavity Gyrotron," Physics of Plasmas (AIP), vol. 21, 093101-7, 2014.
31. Ashutosh Singh and P. K. Jain, "Multimode Analysis and PIC Simulation of a Metal PBG Cavity Gyrotron Oscillator," Progress in Electromagnetic Research (PIER) M, vol. 39, pp. 11-18, Sept 2014.
32. Smrity Dwivedi, and P. K. Jain, "Performance Improvement Study of Tapered Magnetically Insulated Line Oscillator through Impedance Matching," IEEE Transaction on Plasma Science, vol. 42, no.9, pp. 2186-2592,Sept. 2014.
33. S. K Sharma, Sudha Gupta, Udaybir Singh, Naveen Sahu, Narendra Shekhawat, Deepak Srivastava, HasinaKhatun, M K Alaria, P. K. Jain, and A K Sinha, " Design and Development of Test Collector Used in a Gun-Collector module for MIG testing of 42 GHz, 200 kW Gyrotron," Int. J Engg. Sc. & Inno. Tech., pp. 355-362, vol. 3, Sept 2014.
34. S. K. Sharma, Narendra Kumar Singh, Udaybir Singh, Hasina Khatun, Nitin Kumar, M. K. Alaria, R. S. Raju, P. K. Jain and A. K. Sinha, "Evaluation of Cathode Heater Assembly for 42 GHz, 200 kW Gyrotron," Frequenz (AOP), 2014.
35. Soni Singh and S. P. Singh, "Water-loaded metal diagonal horn applicator for hyperthermia", IET

Microwave Antenna and Propagation, 9(8), pp. 814-821, 2014.
36. P. Tripathi, Bhagirath Sahu, S. P. Singh, O. Prakash and D. Kumar, "Preparation and characterization of liquid phase (55B2O3-45Bi2O3) sintered cobalt doped magnesium titanate for wideband stacked rectangular dielectric resonator antenna (RDRA)", Ceramic International, Vol. 41, pp. 2908-2916, 2014.
37. S. Shahin, V. Mishra, S. P. Singh and C.M. Chaturvedi, "2.45 GHz microwave irradiation adversely affects reproductive function in male mouse, Mus musculus by inducing oxidative and nitrosative stress, Free Radical Research, 48(5): 511-525, 2014.
38. Sunny, Vinod Kumar, V. N. Mishra, R. Dwivedi and R. R. Das, "Role of Exposure and Recovery Transients in Classification of Gases/Odors with Thick Film Sensor Array", IEEE Transaction on Nanotechnology, Vol. 13, Iss. 6, pp 1266-1272 Nov. 2014.
39. Sunny, V. N. Mishra, R. Dwivedi and R. R. Das, "Quantification of Individual Gases/Odors Using Dynamic Response of Gas Sensor Array with ASM Feature Technique", IEEE Sensors Journal, Vol. 14, No.4, pp. 1006-1011, April 2014.
40. Sunny, R. Kumar,V. N. Mishra, R. Dwivedi and R. R. Das,"A Dynamic Response, Transformed cluster Analysis and Radial Basis Function Neural Network Based Gases/Odors Identification Approach Using a Thick Film Gas Sensor Array", Journal of Computational and Theoretical Nanoscience, Vol. 11, No. 4, pp. 1199-1204, 2014.
41. Vinod Kumar, Sunny, Ishpal Rawal, V.N. Mishra, R. Dwivedi, R.R. Das, "Fabrication and Characterization of Gridded Pt/SiO2/Si MOS Structure for Hydrogen and Hydrogen Sulphide Sensing", Journal of Materials Chemistry and Physics, Vol. 146, Iss. 3, pp.-418-424, 2014.
42. Vinod Kumar, Sunny, V.N. Mishra, R. Dwivedi, R.R. Das, "Influence of gridded gate structure on gas sensing behavior of hydrogen", Journal of Applied Physics, Vol. 115, 204514-1-5, 2014.
43. Sunny, V. N. Mishra, R. Dwivedi and R. R. Das, "Performance Comparison of Linear Discriminant Analysis and Principal Component Analysis for Classification of Gases/Odors with Neural Classifier", Advanced Science, Engineering and Medicine, Vol. 5, pp.1051-1057, 2014.
44. Sunny, Vinod Kumar, V. N. Mishra, R. Dwivedi and R. R. Das, "Fabrication and Characterization of Integrated Thick Film Gas Sensor Array for Detection of LPG, Nitrous Oxide, Acetone and 2-Propanol", Advanced Science, Engineering and Medicine, Vol. 6, pp. 1210-1217, 2014.
45. Divya Somvanshi and S. Jit, "Effect of ZnO Seed Layer on the Electrical Characteristics of Pd/ZnO Thin Film based Schottky Contacts Grown on n-Si Substrates," IEEE Trans. Nanotechnology, Vol.13(6),pp.1138-1144, 2014
46. Divya Somvanshi and S. Jit, "Analysis of Temperature Dependent Electrical Characteristics of n-ZnO Nanowires(NWs)/p-Si Heterojunction Diodes," IEEE Trans. Nanotechnology, Vol.13, pp.62-69, 2014.
47. Divya Somvanshi and S. Jit, "Effects of Sn and Zn Seed Layers on the Electrical Characteristics of Pd/ZnO Thin Film Schottky Diodes Grown on n-Si Substrates,"IEEE Electron Device Letters, Vol.35(9), pp.945-947, 2014
48. Divya Somvanshi and S. Jit, "Pd/ZnO Nanoparticles Based Schottky Ultraviolet Photodiodes Grown on Sn Coated n-Si Substrates by Thermal Evaporation Method," IEEE J. Selected Topics in Quantum Electronics, Vol. 20 (6), pp. 3803106:1-6, 2014
49. Aniruddh Bahadur Yadav, Amritanshu Pandey and S. Jit, "Pd Schottky Contacts on Sol-Gel Derived ZnO Thin Films with Nearly Ideal Richardson Constant," IEEE Electron Device Letters, Vol. 35, pp. 729-730, July 2014
50. Gaurav Kumar Pandey, Hari Shankar Singh, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Design and Analysis of Multi-Band Notched Pitcher-Shaped UWB Antenna," International Journal of RF and Microwave Computer-Aided Engineering, DOI:10.1002/mmce.20918.
51. Hari Shankar Singh, Shalini, and Manoj Kumar Meshram, "Printed Monopole Diversity Antenna for USB Dongle Applications," Wireless Personal Communication, DOI:10.1002/mmce.20886.
52. Gaurav Kumar Pandey, Hari Shankar Singh, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Design of

Polarization Insensitive Triple Band Artificial Magnetic Conductor," International Journal of Advances in Science and Technology, pp. 230-234, 2014.
53. Hari Shankar Singh, Gaurav Kumar Pandey, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Design of Polarization Insensitive Triple Band Artificial Magnetic Conductor," International Journal of Advances in Science and Technology, pp. 224-229, 2014.
54. Pradutt K. Bharti, H. S. Singh, G. K. Pandey, and M. K. Meshram, "Coupled fed shorted uniplanar monopole antenna for slim mobile handsets," International Journal of Microwaves and Optical Technology, Vol. 9, No.5, 346-352, Sep 2014.
55. Pradutt Kumar Bharti, Gaurav Kumar Pandey, Hari Shankar Singh, and Manoj Kumar Meshram, "A Compact Multiband Planar Monopole Antenna for Slim Mobile Handset Applications," Progress In Electromagnetics Research B, Vol. 61, pp. 31-42, 2014.
56. G. K. Pandey, H. S. Singh, P. K. Bharti, and M. K. Meshram, "Metamaterial Based UWB antenna," Electronics Letters, Vol. 50, pp. 1266-1268, 2014.
57. Rajesh Singh, Gaurav Kumar Pandey, Mayank Agarwal, Hari Shankar Singh, Pradutt Kumar Bharti, and Manoj Kumar Meshram, "Compact Planar Monopole Antenna with Dual Band Notched Characteristics Using T-Shaped Stub and Rectangular Mushroom Type Electromagnetic Band Gap Structure for UWB and Bluetooth Applications," Wireless Personal Communications, Vol. 78, pp. 215-230, Sep 2014.
58. Hari Shankar Singh, Mayank Agarwal, Gaurav Kumar Pandey, and Manoj Kumar Meshram, "A Quad-Band Compact Diversity Antenna for GPS L1/Wi-Fi/LTE2500/WiMAX/HIPERLAN1 Applications," IEEE Antenna and Wireless Propagation Letters, Vol. 13, pp. 249-252, 2014.
59. Visweswara Rao Samoju, S. Jit, and Pramod Kumar Tiwari, "A Quasi-3D Threshold Voltage Model for Dual-Metal Quadruple-Gate MOSFETs," Chin. Phys. Lett. Vol. 31(12), pp.128502:1-3, 2014
60. Gopal Rawat, Mirgender Kumar and S. Jit, "Analytical Modeling of Threshold Voltage of Ion-Implanted Strained-Si-on-Insulator (SSOI) MOSFETs," Journal of Nanoelectronics and Optoelectronics, Vol. 9(3), pp. 442-448, June 2014.
61. Gopal Rawat, Mirgender Kumar and S. Jit, "Analytical Modeling of Subthreshold Current and Subthreshold Swing of Gaussian-Doped (GD) Strained-Si-on-Insulator (SSOI) MOSFETs," Journal of Semiconductors, Vol. 35(8), pp. 084001:1-8, 2014.
62. Divya Somvanshi and S. Jit, "Analysis of I-V Characteristics of Pd/ZnO thinfilm/n-Si Schottky Diodes with Series Resistance," Journal of Nanoelectronics and Optoelectronics, Vol.9(1), pp.21-26, 2014.
63. Aniruddh Bahadur Yadav, Amritanshu Pandey and S. Jit, "Effects of Annealing Temperature on the Structural, Optical and Electrical Properties of ZnO Thin Films Grown on n-Si<100> Substrates by the Sol-Gel Spin Coating Method," Acta Metallurgica Sinica (English Letters): Volume 27, pp. 682-688, 2014
64. Purnima Hazra, S. K. Singh and S. Jit "Ultraviolet photodetection properties of ZnO/Si heterojunction diode fabricated by ALD technique without using a buffer layer", Journal of Semiconductor Technology and Science, Vol. 14, No. 1, pp. 117-123, 2014.
65. Purnima Hazra and S. Jit, "p-Silicon nanowire/n-ZnO thin film heterojunction diode prepared by thermal evaporation technique", Journal of Semiconductors, Vol. 35, No. 1, 014001, 2014.
66. Abirmoya Santra, Mirgender Kumar, Sarvesh Dubey, S. Jit and Pramod Kumar Tiwari, "Analytical modeling of threshold voltage of stacked Triple-Material-Gate (TMG) Strained-Si (s-Si) on Silicon-Germanium-on-Insulator (SGOI) MOSFETs," Journal of Active and Passive Electronic Devices, Vol. 9, no 2-3,pp.235-257, 2014.
67. Gopi Krishna S., Abirmoya Santra, Mirgender Kumar, Sarvesh Dubey, S. Jit, Pramod Kumar Tiwari, "Analytical subthreshold current and subthreshold swing models for a short-channel dual-metal-gate (DMG) fully depleted recessed-source/drain (Re-S/D)SOI MOSFET," Journal of Computational Electronics, Vol. 13, pp.467-476, 2014.
68. Aniruddh Bahadur Yadav, Amritanshu Pandey and S. Jit, "Annealing-Temperature Effects on the Properties of ZnO Thin Films and Pd/ZnO Schottky Contacts Grown on n-Si (100) Substrates by Vacuum Deposition

Method," Superlattices and Microstructures, Vol. 71, pp. 250-260, 2014.

Proceedings of National Conferences

1. M. V. Swati, M. S. Chauhan and P. K. Jain, "Beam-Wave Interaction Study of a Second Harmonic Gyroklystron Amplifier,"National Conference on Recent Advances in Electronics & Computer Engineering (RAECE-2015), Roorkee, India, 13-15 February 2015.
2. P.B. Makeshwar, A. Kalra, N.S. Rajput, K.P. Singh, "Computational Scalability with Apache Flume and Mahout for Large Scale Round the Clock Analysis of Sensor Network Data",National Workshop on Recent Advances in Electronics and Computer Engineering (RAECE-2015), IIT, Roorkee, India, Feb.13-15, 2015.

Proceedings of International Conferences

1. M. Thottappan and P. K. Jain, "Particle-In-Cell Simulation of gyro-TWT suing a Metal PBG Circuit", German Microwave Conference (GeMiC)-2015, Nuremberg, Germany, March 2015.

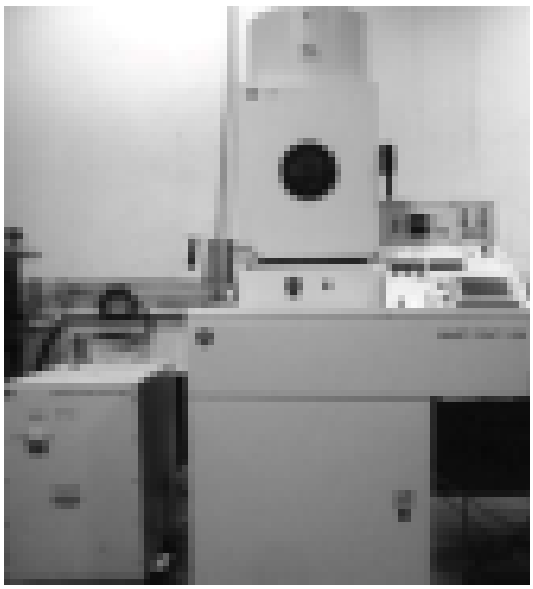
a. Goel, S. Kumar, G. Rawat, Mirgender Kumar, S. Dubey, S. Jit, Two Dimensional Model for Threshold Voltage Roll-Off of Short Channel High-k Gate-Stack Double-Gate (DG) MOSFETs, 17th International Workshop on the Physics of Semiconductor Devices (IWPSD), @Amity university, Noida, Springer conference proceeding, pp. 193-196, 2014.

2. S. Kumar, E. Goel, G. Rawat, Mirgender Kumar, S. Dubey, S. Jit, Threshold Voltage Modeling of Short-Channel DG MOSFETs with Non-Uniform Doping in the Vertical Direction, 17th International Workshop on the Physics of Semiconductor Devices (IWPSD), @Amity university, Noida, Springer conference proceeding, pp. 263-266, 2014.
3. M. V. Swati, M. S. Chauhan, and P. K. Jain, "Multimode Analysis of a W-Band Gyroklystron Amplifier," IEEE MTT-S International Microwave and RF Conference (IMaRC-2014), Bangalore, India, 15-17 December 2014.
4. M.Thottappan, and P.K.Jain," Cold Measurement of a Ka-Band Metal PBG Waveguide," IEEE MTT-S International Microwave and RF Conference, 2014, Bangalore, India, Dec. 2014.
5. S. S. H. Alsamhi, N.S. Rajput, "HAP Antenna Radiation Pattern for Providing Coverage and Service Characteristics", IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI-2014), GCET, Greater Noida, India, Sep.24 – 27, 2014
6. K.P. Singh, D.N. Piyush, A.K. Varma and N.S. Rajput, "Radiative Transfer Based Cross-Calibration of Passive Microwave Measurements obtained from Satellites, Proceedings of the International Geoscience and Remote Sensing Symposium (IGARSS'14), 4 pages, Quebec City, Canada, July 13 - 18, 2014.
7. Pooja Mishra, Keshava P Singh, Dharmendra Singh and N.S. Rajput, "Critical analysis of deorientation effect on various land covers: an application of Polsar Data, Proceedings of the International Geoscience and Remote Sensing Symposium (IGARSS'14), 4 pages, Quebec City, Canada, July 13 - 18, 2014.

a. Rawat, Mirgender Kumar, S. Dubey, S. Jit, An Analytical Study of Ion Implanted Strained-Si on SOI MOSFETs for Optimizing Switching Characteristics, 17th International Workshop on the Physics of Semiconductor Devices (IWPSD), @Amity university, Noida, Springer conference proceeding, pp. 203-206, 2014.

8. Soni Singh, Situ Rani Patre and S. P. Singh, "TiO2 Loaded Metal-Dielectric Diagonal Horn Antenna for Hyhperthermia Application", 5th Edition of the IEEE India Antenna Week (IAW-2014), May 26-30, 2014, Chandigarh.
9. Soni Singh, Situ Rani Patre and S. P. Singh, "Trapezoidal Toothed Log-Periodic Antenna with Microstrip-to-Coplanar Stripline Transition", 5th Edition of the IEEE India Antenna Week (IAW-2014), May 26-30, 2014, Chandigarh.
10. M. Thottappan and P. K. Jain, "Design and Simulation of Metal PBG Waveguide Mode Launcher", IEEE Region 10 Technical Symposium (TENSYM-2014), Kula Lumpur, Malaysia, April 2014.

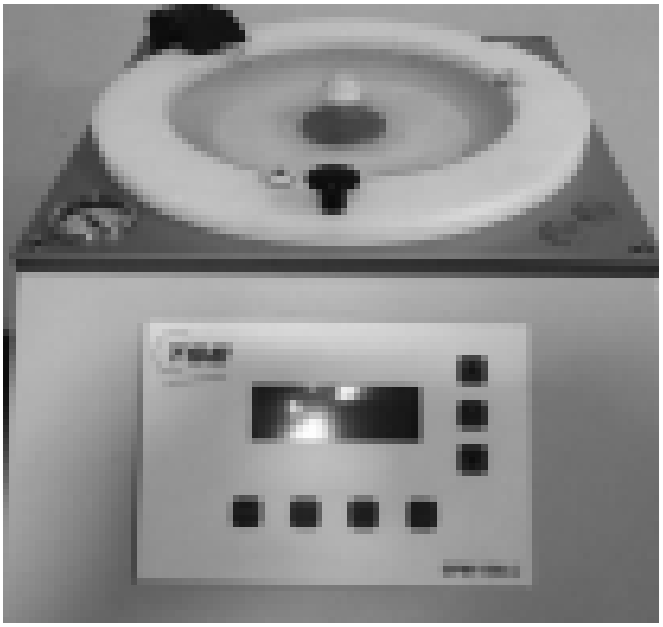
ELECTRON BEAN EVAPORATOR



LOW TEMPERATURE ARC VAPOUR DEPOSITION

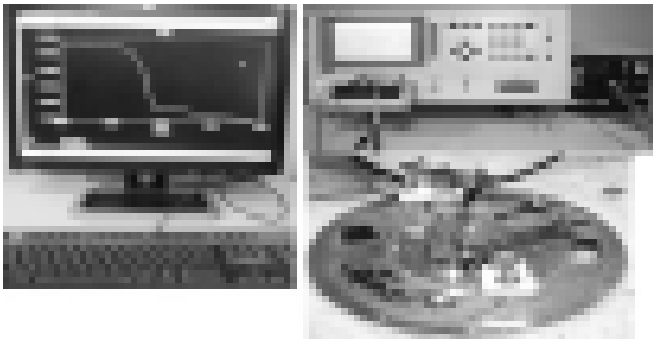
THERMAL DEPOSITION UNIT

SPIN COATING UNIT



PLASMA DEPOSITION

C-V ANALYSER



4.7 Department of Mechanical Engineering

Year of Establishment: 1919

Head of the Department: Prof. A.K. Agrawal

4.7.1 Introduction

The Department of Mechanical Engineering came into existence in 1919 under the leadership of Professor Charles A. King, the first Head of the Department and Principal of the erstwhile Banaras Engineering College. Over the last ninety six years, the department has grown four folds to become the largest department in IIT(BHU), Varanasi. The post-graduate and doctoral program in the department is well-established and infrastructural facilities exist for studies and research for a range of specialisations such as Machine Design, Thermal and Fluid Engineering, Production Engineering and Industrial Management.

Unique Achievement Preposition of the Department

In the last five years, the department has produced 300 graduates and 125 post-graduates. Apart from this, the department has to its credit 7 Ph.D.s awarded during the last five years.

4.7.2 Academic Activities

Programmes offered

B. Tech, IDD, M.Tech and PhD

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	ME5137	Alternative Fuels for transportation	11
2	ME5138	Solar Energy Engineering	11

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	110	110	107	107	
2.	Dual Degree	21	21	19	21	21
3.	M. Tech	56	56			
4.	Ph. D	10	10	5		

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
ÌNDIA					
1	B. P. Keshri	13132013	5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics"	23rd and 24th August, 2014 at Jawaharlal Nehru University, New Delhi	IIT (BHU)
2	O. P. Sahni	13132026	5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics"	23rd and 24th August, 2014 at Jawaharlal Nehru University, New Delhi	IIT (BHU)

3	Rajneesh Kumar	13132031	5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics"	23rd and 24th August, 2014 at Jawaharlal Nehru University, New Delhi	IIT (BHU)
4	Mr. Amarmani Tripathi (M.Tech.)	13132004	BRIDGES – 2015" an International Workshop on "Bridging Development Divide for Inclusive Growth through Science, Technology and Innovation" being organised by DST-Centre for Policy Research, BBA Central University, Lucknow, India on January 16 – 17, 2015.	January 16 – 17, 2015	CERD, IIT(BHU)
5	Sunil Kumar (Phd)	13131012	IEEE –ICIC2015, International Conference on Industrial Instrumentation and Control,	May 28-30, 2015 at COE Pune	CERD, IIT(BHU)
6	Joshi Dnyanesh Malhar	13132022	*4thInternational Conference on Emerging Trends in Engineering and Technology*	24-25 April 2015, TMU, UP	Self
7	Jay Prakash Deo	13132022	*4thInternational Conference on Emerging Trends in Engineering and Technology*	24-25 April 2015, TMU, UP	Self
8	Sunil Kumar Jakhar	13132022	*4thInternational Conference on Emerging Trends in Engineering and Technology*	24-25 April 2015, TMU, UP	Self
9	Manish Kumar	13101002	International conference on Recent trends in Engineering Sciences & Management	15-3-15, JNU, Delhi	IIT (BHU)
10	Anand Jaiswal	13101001	International Conference on	3-12-14	IIT (BHU)
			Information and Communication Technologies (ICICT 2014)	CUSAT, Cochin	
11	Bharat Patel	12606EN 005	Workshop on Industrial Engg. For National Development	5-4-14, IIT BBS	IIT (BHU)
12	Bharat Patel	12606EN 005	One week Short term training on Advanced Engg Optimization through intelligent techniques	22-9-14, NIT, Surat	IIT (BHU)
ABROAD					
1	Arun Kumar(Phd)	13131502	International Conference on Technologies and Materials for Renewable Energy, Environment and Sustainability, TMREES15	April 17-20, 2015, Beirut, Lebanon	CERD and IIT(BHU)
2					
n					

4.7.3 Faculty & their Activity

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	Prof. S.K. Sharma, Ph.D.	Industrial & Manufacturing Engg., Engg. Management, Simulation, System Dynamics, Supply Chain Management, OR, PPC
2	Prof. J.P. Dwivedi, Ph.D.	Solid Mechanics, Process Plasticity and Vibrations
3	Prof. V.P. Singh, Ph.D.	Solid Mechanics and Vibrations
4	Prof. A.K. Agrawal, Ph.D.	Quality Control, Six Sigma, Optimization, Industrial Engineering, Operation Management, Supply Chain Management
5	Prof. A.K. Jha, Ph.D.	Manufacturing Process and Manufacturing System
6	Prof. V.K. Srivastava, Ph.D.	Polymer Composites, Ceramic Composites, Nanocomposites
7	Prof. Santosh Kumar, Ph.D.	Metal Forming, CAD-CAM-RP & Manufacturing Automation, Machine Tools & Unconventional Manufacturing
8	Prof. S.P. Tewari, Ph.D.	Production Engineering and Welding
9	Prof. K.S. Tripathi, Ph.D.	Mechanisms, Vibration
10	Prof. A.P. Harsha, Ph.D.	Tribology, Machine Design
11	Prof. S.K. Sinha, Ph.D.	Production and Industrial Management
ASSOCIATE PROFESSORS		
1	Dr. Rajesh Kumar, Ph.D.	Engine Tribology, Optimization, MEMS Reliability
2	Dr. Sandeep Kumar, Ph.D.	Computational Mechanics (Wavelets, FEM, Meshless)
3	Dr. S.K. Panda, Ph.D.	Failure Analysis and Reliability Design, Finite Element Analysis, Impact Dynamics and Ballistics, Advanced Composite Structures, Rolling Element Bearings
4	Dr. Prashant Shukla, Ph.D.	Thermal and Fluid Sciences
5	Dr. Pradyumna Ghosh, Ph.D.	Heat Transfer, CFD, Nanofluids, porous media flow, microgravity fluid physics
6	Dr. S.K. Shukla, Ph.D.	Thermal Engineering, Energy and Resources Development
7	Dr. Rajnesh Tyagi, Ph.D.	Materials development, Surface Engineering, Tribology
8	Dr. Prabhas Bhardwaj, Ph.D.	Design of Production Systems, Operations Management, Supply Chain Management
9	Mr. S.K. Shah, M.Tech.	Production Engineering
ASSISTANT PROFESSORS		
1	Dr. Mohd Zaheer Khan Yusufzai, Ph.D.	Welding, Materials Engineering
2	Dr. Cherian Samuel, Ph.D.	Supply Chain Management, System Dynamics
3	Dr. Jeewan Vachan Tirkey, Ph.D.	IC Engine
4	Dr. Meghanshu Vashista, Ph.D.	Grinding, Material characterization
5	Dr. Nilanjan Mallik, Ph.D.	Dynamics & Control, FEM, Composites
6	Dr. Swasti Sunder Mondal, Ph.D.	Thermal Engineering
7	Dr. Jahar Sarkar, Ph.D.	Heat Transfer, RAC, Advanced Heat Conversion Cycles
8	Dr. Amit Tyagi, Ph.D.	Machine Design
9	Dr. Arnab Sarkar, Ph.D.	Wind Engineering and Building Aerodynamics
10	Dr. Uppu Srinivas Rao, Ph.D.	Modelling and Simulation, Micro-machining, Machining
11	Ms. Rashmi Rekha Sahoo, M.Tech.	IC Engine, Automobile Engg. Combustion Technology, Design of thermal systems
12	Dr. Debashish Khan, Ph.D.	Solid Mechanics
13	Mr. Prakash Chandra Mani, M.Tech.	Tribology and Maintenance Engineering
14	Dr. Rakesh Kumar Gautam, Ph.D.	Tribology, Composite Materials, Nano-Composite materials

Short-term courses/workshops/seminars/symposia/conferences organised by faculty members

S. No.	Cordinator	Title	Period
1	Dr. R.K. Gautam	Faculty Development Programm (FDP-2015)	March 29-31, 2015 at IIT (BHU), Varanasi-221005.
2	Dr.Cherian Samuel	Seminar on Role of simulation in the genesis of a radical chemistry engine	21st March 2015
3	Dr. A. Sakar and Dr. J.V. Tirkey (Under aegis of Centre for Energy and Resources Development)	International Workshop on Energy and Resources Development (IWERD 2015)	May 16-17, 2015
4	Dr.S.K.Shukla and Dr.J.V.Tirkey (Under aegis of Centre for Energy and Resources Development)	Brainstorming workshop on Renewable Energy (RE): Carbon capture and storage (CCS	November 18-19, 2014
5	Dr. Pradyumna Ghosh	Faculty Development Program	29th March-31st March, 2015
6	Dr. Santosh Kumar	National Workshop on, Mathematical Modeling and Computer Simulation (NWMMCS – 2015),	March 20-21, 2015
7	Dr. Santosh Kumar	National symposium on 'Research Methodology for Future Researchers (RMFR – 2015)	March 22, 2015
8	Dr. Santosh Kumar	National Workshop on 'Faculty Development Program (FDP-2015)	March 29-31, 2015

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Facult yMember	Title	Period and Venue
Seminars/Symposia/Conferences			
1.	Mohd Zaheer Khan Yusufzai	Ancient science and Technology	10th-14th November, 2014 IIT-Kanpur
2.	Dr. R.K. Gautam	Sintering temperature effect on dry sliding wear behaviour of aluminium based composite	National Tribology Conference -2014 (NTC-2014), Dec.15th -18th, 2014, PES University, Bangalore, INDIA
3.	Dr. Jahar Sarkar	Harmony Workshop	20-23 May 2015, IIT (BHU)
4.	Dr. Arnab Sarkar	Harmony Workshop	March 29-April 4, 2015, IIT (BHU)

5.	Rashmi Rekha Sahoo	*INTERNATIONAL CONFERENCE On "Mechanical, Material, Industrial, Automotive, Aeronautical and Nano-Technology" (MIANT-2015)*	28th February and 1st March, 2015 Venue: Jawaharlal Nehru University, New Delhi-110067
6	**Dr. Santosh K**umar	Short term course on 'Micro Manufacturing: materials, process & systems (MMPS-2014)'	June 17-21, 2014 at MNNIT, Allahabad
7	**Dr. Santosh K**umar	Workshop on 'Modular object oriented dynamic learning environment (MOODLE- 2014)'	Sep, 6, 2014 at IIT (BHU)
8	**Dr. Santosh K**umar	Two week ISTE Workshop on' Pedagogy for effective use of ICT in Engineering education' under NMEICT (MHRD) by IIT Mumbai (as workshop coordinator from IIT(BHU)	June 12 to Aug 2, 2014 at IIT(BHU)
9	**Dr. Santosh K**umar	Short term Continuum education program on ' Expo CD 2014'	August 21-23, 2014) at IIT Mumbai

Special lectures delivered by faculty members in other institutions

S. No.	Name of facult Member	Topic of Lecture	Institution	Date
1	Dr. Mohd Zaheer Khan Yusufzai	Friction Stir Welding of Steel	O.P.Jindal Institute of Technology, Raigarh	16th January, 2015
2	Dr. Mohd Zaheer Khan Yusufzai	Metallurgy of Welding	MNNIT, Allahabad	2nd Feb, 2015
3	Dr. Arnab Sarkar	Assessment of Vulnerability of Existing Slender Structures in Nuclear Power Plants in Regard to Wind Loads	Indian Institute of Science, Bangalore	17th November, 2014
4	Dr. Pradyumna Ghosh	On Some Transport Phenomena Problems in porous media	Hydrology-2014	

5	Dr. A.P.HARSHA	Wear behaviour of polymers in the artificial joints	Federal Institute of Materials Research and Testing (BAM), Berlin, Germany	01st July 2014
6	Prof. V.K. Srivastava	Innovative Manufacturing Technology	International Conference on Innovative Manufacturing Technology (IMT-2014), Zakopane, Poland	3-5th December, 2014
7	Prof. V.K. Srivastava	NANOSMAT	NANOSMAT-USA Conference, Rice University, Houston, USA	19-22nd May 2014
8	Prof. V.K. Srivastava	Higher Education Establishing Research Ecosystem in Universities-Breaking New Grounds	Association of Indian Universities & ASSOCHAM, Hotel Hyatt Regency, New Delhi	9th January 2015
9	Rajnesh Tyagi	Status of Tribology in India	State Key Laboratory of Tribology, Tsinghua University, Beijing China	June 6, 2014
10	Rajnesh Tyagi	Friction and Wear behaviour of DP steels and Ni based solid lubricating composites under dry contact	Department of Materials Sc. And Engg., Nanjing University of Sc. and Technology, Nanjing China	June 21, 2014
11	Rajnesh Tyagi	Tribology Research at IIT BHU & Tribological behaviour of Dual Phase steels	Department of Mechanical Engineering, University of Malaysia, Sabah	Dec 15, 2014
12	Rashmi Rekha Sahoo	Performance in louvered fin tube Automotive Radiator	Jawaharlal Nehru University, New Delhi	28.2.2015

Visits abroad by faculty members

S. No.	Name of Faculty Member	Country Visited	Date of Leaving india	Date of Returning India	Purpose of Visit	Funding from
1	A.P.HARSHA	Germany	14.05.2014	31.07.2014	Research visit	Federal Institute of Materials Research and Testing (BAM), Berlin, Germany
2	Prof. V.K. Srivastava	Australia	04.06.2014	05.07.2014	AISRF project	Project
3	Prof. V.K. Srivastava	Australia	05.07.2014	19.07.2014	Research visit	Deakin University
4	Prof. V.K. Srivastava	Poland	02.12.2014	06.12.2014	Research visit	Institute of Advanced Manufacturing Technology, Sintercer, Karkow
5	Prof. V.K. Srivastava	Australia	11.02.2014	14.02.2014	Research visit	Indo-Australia Joint S & T committee
6	Arnab Sarkar	Brazil	21.6.2015	27.6.2015	Attend 14th International Conference on Wind Engineering	IIT(BHU)
7	Rajnesh Tyagi	China	May 22, 2014	July 18, 2014	Collaborative Research	Professional Development Allowance, IIT BHU
8	Rajnesh Tyagi	Malaysia	Dec 8, 2014	Dec 18, 2014	Discussion on Collaborative research	Professional Development Allowance, IIT BHU
9	Dr.S.K.Shukla	GIFU University Japan	February 18, 2015	March 19, 2015	JSPS Fellow award	Japanese Government

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	Dr.S.K.Shukla	Excellence in Education Award 29th November 2014
2	Dr.S.K.Shukla	Certificate of Reviewing from Elsevier, February 2015

Books, monographs authored/co-authored

S. No.	Name of Co- Author	Title	Publisher
1	Sunil Mohan, Rakesh Kr. Gautam, Anita Mohan	Tribology and Aluminium Matrix Composites DOI: 10.4018/978-1-4666-7530-8.ch005	IGI Global, USA
2	A. Sethuramiah, and **Rajesh Kumar**	Modelling of Chemical Wear – Its Relevance to Practice	Elsevier (**In Press)**
3	S. K. Sinha	Program Entry and Editing on Fanuc Machines	CreateSpace, Charleston SC
4	S. K. Sinha	Understanding G73 on a Fanuc Lathe	Kindle Edition, Amazon.com
5	S. K. Sinha	Live Tool Drilling Cycles on a Fanuc Lathe	Kindle Edition, Amazon.com
6	S. K. Sinha	Understanding Offsets on Fanuc Machines	Kindle Edition, Amazon.com
7	Kumar Y. and Kumar S.	Book chapter on 'Incremental Sheet Forming (in book titled "Advances in Material Forming and Joining)	Springer, ISBN 978-81-322-2355-9, pages: 29-46. (2015).

Fellowships of academic and professional societies

S. No.	Name of Faculty Member	Name of Award
1	**Dr.S.K.Shukla**	**JSPS Fellow Award**
2	Dr. Santosh Kumar	Life Member of Additive Manufacturing Society of India (AMSI), Bangalore.

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Dr. Mohd Zaheer Khan Yusufzai	Editorial board member	1. International Journal of Metallurgy 2. Journal of Material Sciences and Applications 3. International Journal of Production Engineering
2	Dr. Pradyumna Ghosh	Editorial Board Memeber	Recent Trends in Fluid Mechanics
3	Dr. Pradyumna Ghosh	Editorial Board Memeber	American journal of Nano Research and Applications
4	Dr. Pradyumna Ghosh	Editor	IJRI
5	Dr. Jahar Sarkar	Member	International Journal of Advances in Engineering Research

6	Dr. Jahar Sarkar	Member	International Journal of Research in Science & Technology
7	Dr. Jahar Sarkar	Member	Journal of Refrigeration, Airconditioning, Heating and Ventilation
8	Dr. Jahar Sarkar	Member	International Journal of Thermal Energy and Applications
9	Dr. Jahar Sarkar	Member	International Journal of Research in Engineering and Technology
10	Meghanshu Vashista	Editorial board member	1. International Journal of Metallurgy 2. Journal of Material Sciences and Applications 3. International Journal of Production Engineering
11	Prof. V.K. Srivastava	Editorial board member	CERAMIC INTERNATIONAL Journal
12	Prof. V.K. Srivastava	Editorial board member	Journal of Ceramic Science and Technology
13	Prof. V.K. Srivastava	Editorial board member	American Journal of Materials Science, Scientific & Academic Publishing
14	Prof. V.K. Srivastava	Editorial board member	**Advances in Materials**
15	Prof. V.K. Srivastava	Editorial board member	**Trends in Materials** Sciences
16	Prof. V.K. Srivastava	Editorial board member	Journal of Materials Science Research
17	Dr.S.K.Shukla	Guest Editor	International Journal of Energy Engineering, SAP, USA
18	Dr.S.K.Shukla	Editor	Journal of Thermal Engineering and Applications (JoTEA)
19	Dr. Santosh Kumar	Editorial board member	Int. J. of Man. Tech. & Management
20	Dr. Santosh Kumar	Editorial board member	Journal of DRDO (India)

4.7.4 Design and Development Activities

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	TRIBOMETER in Central Instrument Facility Centre (CIFC)	90
2	Flow boiling Setup for Nanofluids	10
3	Four Ball Tester	18
4	Critical Speed Investigation apparatus	12
5	Balancing of reciprocating masses	12
6	Hourly Wind Speed and Rainfall Data Acquisition for 88 Indian Locations	12
7	Solar Thermal Test Rig	19.47
8	Wind Tunnel and Training Emulator	21.71
9	Exhaust Gas Analyzer	17.94
10	Multi satge wire Drawing machine	4.75

Patents filed

S. No.	Name of Faculty Member	Title of Patent
1	Kumar S. and Kumar Y.	Incremental Sheet Hydro forming Machine" at Indian patent office New Delhi (Application no. : 3312/DEL/2014) , 2014.

4.7.5 Research and Consultancy

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co- ordinator
1	Assessment of residual stress upon friction stir welding of steel	2014-16	SERB (DST)	45	Dr. Mohd Zaheer Khan Yusufzai & Dr. M. Vashista
2	Study on Wind Climatology on Slender Structures using Weibull and Generalized Extreme Value Distributions	2014-2016	BRNS, DAE, GoI	25	Dr. Arnab Sarkar & Dr. S.K. Panda
3	Design of high temperature facility for graphite dust formation and transport	10 June 2014 onwards for 2 years	BRNS, DAE, GoI	54	Dr. P. Shukla & Dr.R.S.Singh
4	Study of Weibull Statistical Design Criterion for Nuclear Graphite Components	2012 - 2015	BRNS, DAE, GoI	68	Dr. S.K. Panda, Dr. D. Khan & Dr. K. Chattopadhyay
5	Quenching behaviour of dry heated rod in Nanofluids	April-2014-March 2016	BRNS, DAE, GoI	33.68	Dr. P.Ghosh
6	Development of tribological test method to measure galling resistance for various metal pairs under dry, lubricated and water lubricated environment	2012-2015	BRNS, DAE, GoI	23	Prof A.P.Harsha and Dr R.Tyagi
7	Development and Dissemination of Low Carbon Technologies in Rural and Urban Areas	2013-2015	Council of Science and Technology, CST, UP	6.8	Dr.S.K.Shukla
8	Development of micro-Sheet hydro forming process for Missile Components	2013-15	DRDL, Hyderabad, (INDIA)	9.80	Dr. Santosh Kumar
9	Technology Development and fabrication of Tabletop CNC Machine for Micro-tube hydro forming with process optimization	2013-15	BRNS, Mumbai	49.0	Dr. Santosh Kumar
10	Design Development and Fabrication of an Incremental Sheet- hydro-forming Machine Setup	2015-17	SERB (DST, New delhi)	48.0 Lacs	Dr. Santosh Kumar

Faculty members' participation with other universities under MoUs

(I) Prof. V.K. Srivastava, ADJUNCT PROFESSOR, Faculty of Engineering & Industrial Science, Swinburne University of Technology, Hawthorn, Melbourne, VIC3122, Australia

(ii) Dr.S.K.Shukla, School of Architectural Engineering of politecnico di Milano, ITALY

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	5
2	Total Number of Papers Published in Refereed International Journals	31
3	Total Number of Papers Presented in National Conferences	9
4	Total Number of Papers Presented in International Conferences	27

Refereed National Journals

1. O. P. Sahani, R. Kumar, M. Vashista (2014), Effect of Electro Discharge Machining process parameters on material removal rate, Journal of Basic and Applied Engineering Research, ISSN:2350-0255, 1(2): 17-20
2. R. Kumar, O. P. Sahani, M. Vashista (2014), Effect of Electro Discharge Machining process parameters on tool wear, Journal of Basic and Applied Engineering Research, ISSN:2350-0255, 1(2): 53-56
3. B. P. Keshri, M. Vashista (2014), Application of skewness and kurtosis for analysis of Barkhausen noise signal, Journal of Basic and Applied Engineering Research, ISSN:2350-0255, 1(2): pp. 25-29
4. Sahoo RR, Ghosh P, Sarkar J. Coolant performance in louvered fin tube automotive radiator, Journal of Material Science & Mechanical Engineering, 2015; 2(2): 143-148.
5. Sahoo RR, Ghosh P, Sarkar J. Heat transfer enhancement of louvered fin tube automotive radiator using alternative coolants, Journal of Enhanced Heat Transfer, submitted.

Refereed International Journal

1. Narendra Kumar, Rakesh Kumar Gautam, Sunil Mohan (2015) In-situ development of ZrB_2 particles and their effect on microstructure and mechanical properties of AA5052 Metal-Matrix Composites. Materials and Design, Vol.80 pp.129-136
2. N.Kumar, RK Gautam, Sunil Mohan, (2015) Wear and Friction Behaviour of in-situ AA5052/ZrB_2 Composites under Dry Sliding Conditions. Tribology in Industry, Vol. 37, No. 2 pp. 244-256
3. Atul Kumar Tiwari Anunay Tiwari Cherian Samuel , (2015),"Supply chain flexibility: a comprehensive review", Management Research Review, Vol. 38 Iss 7 pp. 767 – 792
4. A.Jaiswal, C Samuel, B.S.Patel & M.Kumar, (2015), "Go Green with WEEE: Eco-friendly approach for handling e- waste", Elsevier Procedia Computer Science 46 (2015), 1317 – 1324.
5. Arnab Sarkar, Navneet Kumar and Debojyoti Mitra (2014), "Extreme Wind Climate Modeling of Some Locations in India for the Specification of the Design Wind Speed of Structures", KSCE Journal of Civil Engineering, Springer, Vol. 18, No. 5, pp. 1496-1504
6. A Sarkar, S Katiyar, S Dixit, N Verma, D Mitra and G Gugliani (2015), "Mixed Wind Climate Analysis of Some Locations in India for the Specification of the Design Wind Speed of Structures", KSCE Journal of Civil Engineering, Springer (Submitted)
7. Arun Kumar Tiwari, Pradyumna Ghosh, Jahar Sarkar, Jigar Parekh, Harshit Dahiya, "Numerical investigation of heat transfer and fluid flow in plate heat exchanger using nanofluids", 85 (2014) 93-103, International Journal of Thermal Sciences, Impact Factor 2.724
8. Jahar Sarkar, Pradyumna Ghosh, Arjuman Adil; A review on hybrid nanofluids: Recent research, development and applications; Renewable and Sustainable Energy Reviews 43, 164-177, 2014, Impact Factor 6.796
9. Arun Kumar Tiwari, Pradyumna Ghosh, Jahar Sarkar , "Particle concentration levels of various nanofluids in plate heat exchanger for best performance" International Journal Heat and Mass Transfer; Volume 89, October 2015, Pages 1110–1118 Impact Factor 2.809

10. Vinay Jaiswal, Rashmi Rastogi, Shraddha Gupta, Rajesh Kumar, Vinod Prasad Singh, "Evaluation of tribological activity of substituted benzoylhydrazones and their copper (II) complexes in paraffin oil as efficient low SAPS antiwear additives and their interactions with metal surface using density functional theory", Journal of Material Chemistry A, Royal Society of Chemistry, 3 (2015) 5092-5109 (Impact Factor 7.44)
11. Vinay Jaiswal, Kalyani, Rashmi B. Rastogi and Rajesh Kumar, "Tribological studies of some SAPS-free Schiff bases derived from 4-aminoantipyrine and aromatic aldehydes and their synergistic interaction with borate ester", Journal of Material Chemistry A, Royal Society of Chemistry, 2 (2014) 10424-10434 (Impact Factor 7.44)
12. A.P.Harsha, R.Wäsche, and M.Hartelt. "Tribological studies on polyetherketone composite under reciprocating sliding condition against steel cylinder." Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology (2015): 1350650115570403.
13. A.P.Harsha, R.Wäsche, and M.Hartelt. "Friction and wear studies of polyetherimide composites under oscillating sliding condition against steel cylinder." Polymer Composites (2015) (In press).
14. Tiwari AK, Ghosh P, Sarkar J, Dahiya H, Parekh J. Numerical investigation of heat transfer and fluid flow in plate heat exchanger using nanofluids, International Journal Thermal Sciences, 2014; 85: 93-103.
15. Sarkar J. On suitability of supercritical carbon dioxide as heat transfer fluid in flat plate solar collector, Journal of Thermal Engineering & Applications, 2014; 1(3): 1-9.
16. Tiwari AK, Ghosh P, Sarkar J. Combined energy and exergy analysis of a corrugated plate heat exchanger and experimental investigation, International Journal of Exergy, 2014; 15(4): 395-411.
17. Sarkar J, Ghosh P, Adil A. A Review on hybrid nanofluids: Recent research, development and applications, Renewable & Sustainable Energy Reviews, 2015; 43: 164-177.
18. Sarkar J. Performance improvement of double-tube gas cooler in CO_2 refrigeration system using nanofluids. Thermal Science, 2015; 19(1): 109-118.
17. Upadhyay S, Sarkar J, Sahoo RR. Combined energy, exergy and optical analyses of flat plate solar thermal collector using nanofluids, Journal of Material Science & Mechanical Engineering, 2015; 2(2): 134-139.
19. Sahoo RR, Ghosh P, Sarkar J. Coolant performance in louvered fin tube automotive radiator, Journal of Material Science & Mechanical Engineering, 2015; 2(2): 143-148.
20. Sarkar J. Analyses and optimization of a supercritical N_2O Rankine cycle for low-grade heat conversion, Energy 2015; 81: 344-351.
21. Sarkar J. Review and future trends of supercritical CO_2 Rankine cycle for low-grade heat conversion, Renewable & Sustainable Energy Reviews, 2015; 48: 434-451.
22. Tiwari AK, Ghosh P, Sarkar J. Particle concentration levels of various nanofluids in plate heat exchanger for best performance, International Journal of Heat and Mass Transfer, 2015; 89: 1110-1118.
23. A. Mohanty, V.K. Srivastava and P.U. Sastry, Investigation of Mechanical Properties of Alumina Nano-particle Loaded Hybrid Glass/Carbon Fibre Reinforced Epoxy Composites, J. OF APPLIED POLYMER SCIENCE, (Springer Verl) Vol. 131, 1, 1-7 (Jan 2014). [I.F.= 1.289].
24. J. Azadmanjiri, C. C. Berndt, J. Wang, A. Kapoor, V. K. Srivastava and C. Wen, A Review on Hybrid Nanolaminate Materials Synthesized by Deposition Techniques for Energy Storage applications, JOURNAL OF MATERIALS CHEMISTRY-A, (The Royal Society of Chemistry) 2, 3695-3708 (2014). [I.F.= 6.101]
25. V. K. Srivastava, and A. Pizzi, Characterization and Preparation of Wood-furanic Foams, J. OF RENEWABLE MATERIALS, Scrivener Publishing, Vol. 2, No.3, 201-206 (2014). [I.F.= 0.4]
26. S. Singh, V.K. Srivastava and R. Prakash, Influences of carbon nanofillers on mechanical performance of epoxy resin polymer, APPLIED NANOSCIENCE, Springer Press, Vol. 5, 305-313 (2015). [I.F.= 0.52]
27. A. Mohanty and V.K. Srivastava, Effect of Alumina Nanoparticles on the Enhancement of Impact and Flexural Properties of the Short Glass/Carbon Fibre Reinforced Epoxy Based Composites, FIBRES AND POLYMERS, Springer Press Vol.16, 1, 188-195 (2015). [I.F.= 1.113]

28. Dangsheng Xiong, Yongkun Qin, Jianliang Li, Yi Wan, Rajneesh Tyagi (2015) " Tribological Properties of PTFE / laser surface textured stainless steel under starved oil lubrication", Tribology International, Volume 82, Part B, pp. 305-310.
29. Yongkun Qin, Dangsheng Xiong, Jianliang Li, Rajneesh Tyagi (2015) Corrosion and bio-tribological properties of $Ti(CN)_x$ hard coating on Titanium alloy by pulsed plasma electrolytic carbonitriding process, Tribology International Volume 82, Part B, pp.543-550.
30. Y. K. Qin, D. S. Xiong, J. Li, R. Tyagi (2014) "Compositions and tribological properties of PEO coatings on Ti6Al4V alloy" Surface Engineering. doi:10.1179/1743294414Y.0000000412.
31. S. Wang, F. Wang, Z. Liao, Q. Wang. R. Tyagi and W. Liu, (2015) "Tribological behaviour of titanium alloy modified by carbon–DLC composite film" Surface Engineering. doi:10.1179/1743294414Y.0000000452.

Proceedings of National Conferences

1. Narendra Kumar, Rakesh Kumar Gautam and Sunil Mohan (2014) Effect of in-situ developed ZrB_2 particles on microstructural and mechanical properties of AA5052 metal – matrix composites.52nd National Metallurgists' Day, 68th Annual Technical Meeting of The Indian Institute of Metals 12-15 November, 2014, College of Engineering, Pune ,India.
2. Mulk Raj Anand, R.K.Gautam, Manvandra Kumar Singh, Pushkar Jha (2015) Paper proceeding in a National conference on "Innovations in Materials Design & Manufacturing" organized by department of mechanical engineering at HBTI, Kanpur.
3. R.B. Rastogi, Vinay Jaiswal, Kalyani and Rajesh Kumar , "Theoretical and Experimental Studies on the Tribological Behavior of SAPS-free Salicylaldehydepropanoylhydrazone Schiff base and its Cu (ll) Complex in Paraffin Oil for Steel-Steel Contact", National Tribology Conference-2014, PES University, Bangalore
4. Rajeev Nayan Gupta, A.P. Harsha, Experimental study on role of Zinc Dialkyldithiophosphate in castor oil, National Tribology Conference (NTC 2014), 15-17th December 2014, PES University, Bangalore
5. Ali.A.F.Alhamadani and S.K.Shukla, (2014) Experimental Investigation and Thermodynamic Performance Analysis of a Solar Distillation System with PCM Storage: Energy and Exergy Analysis, Distributed Generation and Alternative Energy,29(4): 07-24
6. AK Srivastava, SK Shukla, S Mishra (2014) Evaluation of Solar Dryer/Air Heater Performance and the Accuracy of the Result Energy Procedia,57: 2360–2369
7. A.K.Srivastava, S.K.Shukla and U.K.Singh,(2015) Modeling and Evaluation of Thermal Diffusivity and Activation Energy of Potato slices in Forced Convection Multi Tray Solar Dryer, American Journal of Food Science and Technology,3(2):27-32
8. A.K. Srivastava and S.K.Shukla, (2015) Thermal Modeling of Indirect Solar Drying System: An Experimental Validation, accepted for publication in DGAE, Taylor and Francis Publications
9. Arun Kumar and S.K.Shukla, (2015) A Review on Thermal Energy Storage Unit for Solar Thermal Power Plant Application, accepted for publication in Energy Procedia, Elsevier Publications

Proceedings of International Conferences

1. Narendra Kumar, Rakesh Kumar Gautam and Sunil Mohan (2014) Microstructure and tensile behavior of AA5052/ZrB_2 in-situ composites, Proceedings of the International Conference on Multifunctional Materials, Structures and Applications (ICMMSA-2014), In Collaboration with University of Missouri (MU), Columbia, MO 65211,USA, Organized by Centre for Interdisciplinary Research (CIR), Motilal Nehru National Institute of Technology Allahabad, Allahabad-211004, India.December 22-24, ISBN(13):978-93-392-2019-8, pp 21-25
2. Narendra Kumar, Gaurav Gautam, Rakesh Kumar Gautam (2015) Sunil Mohan. Effect of Temperature on Tensile Properties of AA5052-6Vol% ZrB_2 in-situ Composite.Proceedings International Conference on Advances in Materials, Manufacturing and Applications (AmmA-2015). Organised by Department of Metallurgical and Materials Engineering, NIT, Tiruchirappalli., ISBN 978-93-84743-68-0 pp. 1046-1051

3. Manvandra Kumar Singh, R. K. Gautam, Pushkar Jha (2015) "Dry sliding wear behaviour of cold forged copper based nano tungsten carbide composite" Paper proceeding in International conference on "advances in materials, manufacturing and applications" organized by the Department of Metallurgical and Materials Engineering, NIT, Trichy.
4. Pushkar Jha, Manvandra Kumar Singh, R. K. Gautam, R.Tyagi, Devendra Kumar (2015) Effect of annealing on the microstructure, crystal structure and microhardness of Cu-5 wt% CrPaper proceeding in International conference on "advances in materials, manufacturing and applications" organized by the Department of Metallurgical and Materials Engineering, NIT, Trichy (9-11 April-2015)
5. Arnab Sarkar, Gaurav Gugliani, Varun Agrawal and Debojyoti Mitra, Wind Climate Modeling of India for Specification of Design Wind and Fatigue Load, 14th International Conference on Wind Engineering, June 21-26, 2015, Porto Alegre, Brazil
6. Bhushan, Awani, Khan, Debashis and Panda, S. K. (2014) On the shifting of neutral Axis for Nuclear Grade Graphite Specimens, Proceedings of the International Conference on Mutlifunctional Materials, Structures and Applications (ICMMSA – 2014), December 22-24, 2014, MNNIT, Allahabad, India.
7. Singh, Shushant, Khan, Debashis and Panda, S. K. (2014) Crack Tip Fields for Crack Growth in Compressible Hardening Solids, Proceedings of the International Conference on Mutlifunctional Materials, Structures and Applications (ICMMSA – 2014), December 22-24, 2014, MNNIT, Allahabad, India.
8. Bhushan, Awani, Khan, Debashis and Panda, S. K. (2014) On the Analysis of J-integral for Nuclear Grade Graphite Specimen, Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics, December 29-31, 2014, IIT Kharagpur, India.
9. Singh, Shushant, Khan, Debashis and Panda, S. K. (2014) Crack Tip Blunting in Plastically Compressible Hardening-Softening-Hardening Solids, Proceedings of the International Conference on Theoretical, Applied, Computational and Experimental Mechanics, December 29-31, 2014, IIT Kharagpur, India.
10. Joshi D, Sarkar J. Prototype development and testing of air source heat pump water heater for indian climate (ME116), 4th Int conf on Emerging trends in Engineering and Technology, April 24-25, 2015, College of Engg, TMU, Muradabad, India.
11. Deo JP, Sarkar J. Heat transfer and entropy generation through internally finned tube (ME123), 4th Int conf on Emerging trends in Engineering and Technology, April 24-25, 2015, College of Engg, TMU, Muradabad, India.
12. Jakhar SK, Sarkar J. Simulation of plate heat exchanger using nanofluids for refrigeration applications (ME124), 4th Int conf on Emerging trends in Engineering and Technology, April 24-25, 2015, College of Engg, TMU, Muradabad, India.
13. M. Vashista, S. Paul (2014) Effect of process parameters on convective heat transfer coefficient of fluid and heat partitioning in high efficiency deep grinding with water based coolant, 5th International and 26th National conference on All India Manufacturing Technology, Design and Research Conference, (12-14 Dec. 2014), organised by IIT Guwahati.
14. O. P. Sahani, R. Kumar, M. Vashista (2014), Effect of Electro Discharge Machining process parameters on material removal rate, 5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics" at Jawaharlal Nehru University, New Delhi (23-24 Aug. 2014) organized by "Krishi Sanskriti"
15. R. Kumar, O. P. Sahani, M. Vashista (2014), Effect of Electro Discharge Machining process parameters on tool wear, 5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics" at Jawaharlal Nehru University, New Delhi (23-24 Aug. 2014) organized by "Krishi Sanskriti"
16. B. P. Keshri, M. Vashista (2014), Application of skewness and kurtosis for analysis of Barkhausen Noise Signal, 5th International Conference on "Innovative Trends in Mechanical, Material, Manufacturing, Automobile, Aeronautical Engineering and Applied Physics" at Jawaharlal Nehru University, New Delhi (23-24 Aug. 2014) organized by "Krishi Sanskriti"

17. S. Ghosh, S. K. Ghosh and M. Vashista (2015),A Study on Material Removal Rate and Spark Energy of Die-steel Using Die-sink EDM, 2nd International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI-2015) organized by College of Engineering and Management, Kolaghat (W.B.)
18. Sahoo RR , Ghosh P, Sarkar J . Heat transfer enhancement of wavy fin tube automotive radiator using alternative coolants, ISME conference, IIT Delhi, Oct 2015.(paper accepted)
19. Sahoo RR , Ghosh P, Sarkar J. "Optimization of Ethylene Glycol and Propylene Glycol brine as coolants for automotive radiator". Ist ISHMT-ASTFE Heat and mass transfer Conference 2015. (Paper accepted)
20. Sahoo RR, Srivastav U,"Performance analysis of Graphite foam heat exchanger using Nanofluids as coolant in automotive radiators" 4thInternational Conference on Emerging Trends in Engineering and Technology,2015
21. Sahoo RR, Singh V , "Theoretical Analysis Of Offset Crankshaft Engine ' 4thInternational Conference on Emerging Trends in Engineering and Technology,2015
22. Arun Kumar and S.K.Shukla, A Review on Thermal Energy Storage Unit for Solar Thermal Power Plant Application, Proceedings, International Conference on Technologies and Materials for Renewable Energy, Environment and Sustainability, April 17-20, 2015,TMREES15, Beirut, Lebanon
23. Sunil Kumar and S.K.Shukla, Installation and Experiments on 14 kW Gasifier System, IEEE Explore,15:1-5, IEEE –ICIC2015, International Conference on Industrial Instrumentation and Control, held on May 28-30, 2015 at COE Pune
24. Arun Kumar and S.K.Shukla, High Temperature Thermal Energy Storage Unit Using Phase Change Material for the Thermal Protection of a Helical Coil Solar Cavity Receiver of a Parabolic Trough Concentrator, BRIDGES – 2015" an International Workshop on "Bridging Development Divide for Inclusive Growth through Science, Technology and Innovation" being organised by DST-Centre for Policy Research, BBA Central University, Lucknow, India on January 16 – 17, 2015.
25. Kumar Y. and Kumar S. (2014),Design and Development of Single Point Incremental Sheet Forming Machine, 5th International and 26th National conference on All India Manufacturing Technology Design and Research (AIMTDR), IIT Guwahati, id 94 pp. 1-4.
26. Kumar A., Kumar S., & Yadav D.R. (2014), Review of Rubber based Sheet Hydro-Forming Processes, 5th International and 26th National conference on All India Manufacturing Technology Design and Research (AIMTDR), IIT Guwahati, id 101 pp. 1-5.
27. Sinha D.K. & Kumar S. (2014),Studies on effect of feedstock temperature in Continuous Extrusion, 5thInternational and 26th National conference on All India Manufacturing Technology Design and Research (AIMTDR), IIT Guwahati, id194, pp. 1-6.

Brief Details of 5 Articles from the Department with maximum no. of Citations in last 5 years

1. J. Sarkar, A critical review on convective heat transfer correlations of nanofluids, Renewable & Sustainable Energy Reviews, 2011; 15(6): 3271-3277, Citations-92
2. S. Singh and V. K. Srivastava, Electrical Properties of C/C and C/C-SiC Ceramic Fibre Composites, CERAMIC INTERNATIONAL, Elsevier Publisher, UK, 37, 93-98 (2011), Citations-20
3. V. K. Srivastava, Effect of Carbon Nanotubes on the Strength of Adhesive Lap Joints of C/C and C/C-SiC Ceramic Fibre Composites, INT. J. OF ADHESION AND ADHESIVES, Elsevier Pub. UK, Vol. 31, 486-489 (2011), Citations-25
4. V. K. Srivastava, Modeling and Mechanical Performance of Carbon Nanotube / Epoxy Resin Composites, MATERIALS & DESIGN, Elsevier Pub. UK, 39, 432-435 (2012), Citations-18
5. A. Sarkar, S. Singh and D. Mitra, Wind climate modelling using Weibull and extreme value distribution, International Journal of Engineering, Science and Technology, 2011; 3(5): 100-106, Citations-12

4.7.6 Other activities

International collaboration/achievements by the department

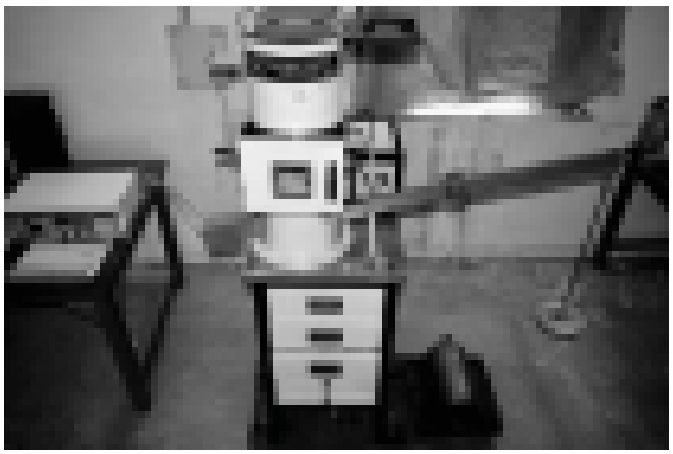
Dr.S.K.Shukla has visited GIFU University Japan under JSPS Fellow award during Feb-March 2015. Also Exchange visits of students and CERD members are expected in future with GIFU and Osaka University.

Faculty visits

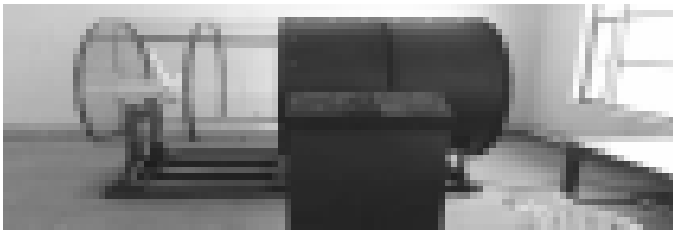
S. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	P.Shukla	Sabbatical Leave	01.06.14 to 01.06.2015, IIT Kanpur
2	Dr. David A. Blank (HCRI Technologies International)	Technical talk	21-3- 2015, G-7, Mechanical Engg.Dept.

Rubber wheel abrasive wear test rig

Four Ball Tester



Wind Energy Training System



Bio Diesel

Gasifier Unit

Galling Tester

4.8 Department of Metallurgical Engineering

Year of Establishment: 1923

Head of the Department: Professor Rajiv Kumar Mandal

4.8.1 Introduction

The Department of Metallurgical Engineering at BHU, established in the year 1923 which is now a part of IIT (BHU), has pioneered metallurgical education and research in this country owing to the noble thoughts and dreams of Mahamana Pandit Madan Mohan Malaviyaji. The UG programme began soon after the year 1923 and the first ever undergraduate and doctoral degrees in metallurgy in the country were awarded by this Department in the years 1927 and 1955 respectively. This is one of the first two Departments in the country to confer a postgraduate degree in metallurgy in the year 1959. The foundations of this educational edifice were laid by Professor N.P. Gandhi and nurtured by Professors Daya Swarup and T.R. Anantharaman who were the first three Heads of this Department. Subsequently, thirteen illustrious successive Heads of the Department have continued to do their utmost to enhance the levels of excellence that the Department is known for. The Department celebrated its Golden Jubilee in the year 1973, Diamond Jubilee in 1983 and Platinum Jubilee in the year 1998 in a befitting manner.

The current faculty strength consists of 7 Professors, 3 Associate Professors and 7 Assistant Professors. In addition, we have Prof. S. Lele as Distinguished Professor, and Prof. Vakil Singh, Prof. A.K. Ghose and Prof. T. R. Mankhand Institute Professor. Dr. Bratindranath Mukherjee is continuing in the Department as DST Inspire Faculty. This year Shri Gangeshwar Singh superannuated from Steel Authority of India Limited (SAIL) has joined us as a visiting Faculty. The faculty members have been actively engaged in research and have undertaken many research/consultancy projects. The current research activities span over wide - ranging fields of synthesis and characterization of nanomaterials, quasicrystals, spray forming, powder metallurgy, modeling of phase diagrams by cluster variation method, ultra fine grained materials, phase transformations in steels and nonferrous alloys and structure property correlations, creep and fatigue behaviour of materials, thermodynamics of semiconducting intermetallics and ternary alloys, pyrometallurgy of sulphide minerals, hydrometallurgy, bioleaching, preparation of molycarbide, processing of ferrous and non-ferrous alloys, foundry and welding, wear studies of composites, waste utilization and energy management.

The Departmental Library is enriched with over 13,000 technical books, 76 non-technical books and 3886 periodicals. Online access to several journals and periodicals is also available through our IIT Main Library and Central Library of BHU. The arrangement of innumerable activities and functions in the Department has become possible due to the active support of the NPGMM Trust, Metallurgy Society IIM Varanasi Chapter and student Affiliate Chapter of IIM.

Unique Achievement Preposition of the Department

The Department of Metallurgical Engineering has so far produced 2523 graduates, 479 postgraduates (including M.Tech dual degree) and 172 Ph.D. degree holders. The first one is a record for any Metallurgy Department in the country. The outstanding research contributions of the Department have resulted in its recognition as a Centre of Advanced Study (CAS) in Metallurgy by the UGC in 1980, the first-ever Engineering Department to be so recognized in the country and the first one in our University. The Department has a unique distinction of receiving special assistance under CAS for four consecutive phases, the fourth phase starting from the year 2005. The Department successfully completed the FIST level II.The Department is also recognized as a Centre for Quality Improvement Programme of MHRD/AICTE from the year 1981. The Department has received special assistance under the COSIST programmes of UGC and also as a National Electron Microscopy Facility (NELMIF) from DST in 1982. Govt. of India approved setting up Advanced Research Centre for Iron and Steel, in the Institute which will be located in the Department.

Members of the staff, research scholars and students have won a very large number of awards and distinctions in recognition of their outstanding contributions. These include Medals, Prizes, Awards and Fellowships from

many prestigious national and international professional societies and other organizations. Some of the above recognitions pertain to John Taylor Gold Medal, Henry C. Sorby Award, Howe Medal, Alexander von Humboldt Fellowships, Al Kharazmi Award, S.S. Bhatnagar prizes of CSIR, S.S. Bhatnagar Medal of INSA, Platinum Medal, Tata Gold Medal and Prizes, G.D. Birla Award, National Metallurgists' Day Awards, MRSI Medals, Young Metallurgists' Awards, INSA Medals for Young Scientists, ISCA Young Scientist Awards, Dr. R.H. Kulkarni Memorial Fellowships, Prof C.N.R. Rao Award besides several best paper Awards. The faculty members have distinctions of receiving Fellowships (FNA, FASc, FNASc, FNAE, FAPM, FIIM, FIE, EMSI) of various professional societies such as INSA, IASc, NASc, INAE, APAM, IIM, IE (I) and EMSI.

4.8.2 Academic Activities

Academic Programmes offered

B.Tech, IDD, M.Tech and PhD

1.2.1 New Courses Introduced

S. No.	Course Code	Course name	ourse credit
		UG/IDD Level	
1	MT-102	Introduction to Metallurgical and Materials Engineering	9
2	MT-101	Metallurgical Thermodynamics and Kinetics	11
3	MT-201	Structure of Materials	11
4	MT-202	Principles of Extractive Metallurgy	12
5	MT-203	Metallurgical Practices-I	3
6	MT-101	Deformation & Testing of Materials	12
		Ph.D. Level	
7	MT-7101 / MT-7201	High Resolution Electron Microscopy	11
8	MT-7102 / MT-7202	Texture Analysis	11
9	MT-7103 / MT-7203	Solidification Processing	11
10	MT-7104 / MT-7204	Advances in Steels	11
11	MT-7105 / MT-7205	Analysis of Diffraction Patterns	11
12	MT-7106 / MT-7206	Computational Thermodynamics of Materials	11
13	MT-7107 / MT-7207	Biomaterials: Design and Applications	11
14	MT-7108 / MT-7208	Advanced Composites	11
15	MT-7131/ MT-7231	Integrity and Life Assessment of Structural Components	11
16	MT-7132 / MT-7232	Processing Methods of Heavy Engineering component	11
17	MT-7133 / MT-7233	Wear and Friction	11
18	MT-7134 / MT-7234	Design and Evaluation of Materials for Tribological applications	11
19	MT-7161/ MT-7261	Advanced Thermodynamics of Materials	11
20	MT-7162/ MT-7262	Aluminium Technology	11
21	MT-7163/ MT-7263	Technology of Ferroalloys	11
22	MT-7164/ MT-7264	Modelling in Process Metallurgy	11
23	MT-7165/ MT-7265	Rate Phenomena in Metallurgical Systems	11

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	63	52	60	58	N/A
2.	Dual Degree	19	15	17	16	12
3.	M. Tech	15	11	N/A	N/A	N/A
4.	Ph. D	02 (Admitted in 2014-15) + 26 (Continuing)				

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
			INDIA		
1	Sanjeev Kumar	341273	Conference	22-24December 2014&MNNIT Allahabad	IIT (BHU)
2	PreetiVerma	12607EN001	Conference	22-24December 2014&MNNIT Allahabad	IIT (BHU)
3	Sanjeev Kumar		Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
4	PreetiVerma	12607EN001	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
5	VaibhavPandey	13141006	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
6	DhanajayPradhan	13141009	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
7	Ruendra Singh Rajpurohit	13141004	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
8.	Santosh Kumar Alla	12607EN009	Conference	13-15 May, 2015 & Kerala	IIT (BHU)
9.	Mukesh Raushan Kumar	13141003	Conference	09-11 April, 2015	IIT (BHU)
10.	Vikas Shivam	13141007	Workshop	26-31March, 2015 & IIT-Madras	IIT (BHU)
11.	Nandini Singh		Workshop	26-31March, 2015 & IIT-Madras	IIT (BHU)
12.	Narendra Kumar	12607EN010	Conference	22-24 December, 2014 & MNNIT, Allahabad	IIT (BHU)
13.	Subhash Chandra	13141005	Conference	22-24 December, 2014 & MNNIT, Allahabad	IIT (BHU)

14.	Subhash Chandra	13141005	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
15.	Mukesh Raushan Kumar	13141003	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
16.	Narendra Kumar	12607EN010	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
17.	A.K. Mondal	12607EN002	Conference	12-15 November, 2014& COEP Pune	IIT (BHU)
			ABROAD: NIL		
1					

4.8.3 Faculty & their Activity

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
	PROFESSORS	
1	Dr. S.N. Ojha, B.Sc.(Met), M.Tech.(Met.), Ph.D	Rapid Solidification Processing, Undercooling of Metallic Melts, Atomisation and Spray Deposition Processing, Directional Solidification of Binary Alloys, Physical Metallurgy of Alloy Steels
2	Dr. G.V.S. Sastry, B.Tech.(Met.), M.Tech.(Met.), Ph D (Met)	Physical Metallurgy, Rapid Solidification, Electron Microscopy, Ni-Base Superalloys, Quasi Crystals, Nanomaterials
3	Dr. R.K. Mandal, BSc(Phys., Hons), M.Sc.(Phys.) M.Tech, Ph.D.	Quasicrystals, Nanostructured Materials, Phase Transformations, Microstructural Evoluation
4	Dr. N.K. Mukhopadhyay, B.E.(Met.), M.E., Ph.D.	Physical Metallurgy, Mechanical Alloying, Nanoindentation
5	Dr. Sunil Mohan, B.E.(Met.), M.E., Ph.D.	Alloy Development, Tribology
6	Dr. (Smt) N.C. Santhi Srinivas, B.E.(Met.), M.Tech.(Met), Ph.D.	Physical/Mechanical Metallurgy-Phase Transformations, Deformation and Fracture, Failure Analysis and Low Cycle Fatigue
7	Dr. B.N. Sarma, B.E. (Met.), M.Tech.(Met.), Ph.D.	Phase Equilibria, Phase Transformations, Computational Thermodynamics
	ASSOCIATE PROFESSORS	
1	Dr. K. K. Singh, B.Sc. Engg(Met.Engg), M.Sc. Engg(Process Met), Ph. D(Met Engg.). PGDBA (BHU)	Extractive Metallurgy, Electronic waste treatment
2	Dr. O. P. Sinha, B.Sc.Engg.(Met.Engg.),M.Tech(Iron& Steel),Ph.D.(Met.Engg.)	Ferrous Process Metallurgy, N_2 bearing Special Steels, Industrial wastes utilization, Plasma Technology
3	Dr. I. Chakrabarty, B.E., M.E., Ph.D	Foundry Metallurgy, Phase Transformations, Wear of metals, Failure Analysis

	ASSISTANT PROFESSORS	
1	Dr. C. K. Behera, B. E , ME , PhD	Extractive Metallurgy, Experimental Thermo-lead free solder, nitrogen steel
2	Dr. Rampada Manna, B. E , M.E , Ph. D	Heat Treatments of Metals, Ultra Fine Grained Metals, Severe Plastic Deformation, Phase Transformation
3	Shri J. K. Singh,	Foundry Metallurgy, Transport Phenomena
4	Dr. N. K. Prasad, B.Sc. (Met.), M. Tech, Ph.D	Physical Metallurgy, Magnetic Materials, Nanomaterials and Biomaterials
5	Dr. Vikas Jindal, B. Tech, M.Sc.(Engg.), Ph.D.	Computational Thermodynamics, Advanced Materials
6	Dr. Kuashik Chattopadhyay, B.E., M. Tech., Ph.D.	Mechanical Metallurgy, Structure-Property Relationship of Materials, Oxidation of Metals and Alloys,Powder Metallurgy, Fatigue & Fracture
7	Dr. G.S. Mahobia, B.E.(Met.Engg),M.Tech.(Met.Engg.), Ph.D.	Welding Engineering, Heat-Treatment, Ferrous Metallurgy, Fatigue & Fracture, Hot Corrosion
	INSTITUTE PROFESSORS	
1	Dr. Vakil Singh, B.Sc.(Met), Ph.D.	Mechanical Behaviour of Metals and Alloys Fatigue, Fracture, and Environmental Effects Bio-implant Materials
2	Dr. A.K. Ghose, B.Sc.(Met), M.Sc.(Met), Ph.D.	Foundry Technology & Welding Technology
3	Dr. T. R. Mankhand, B.Sc.(Met.), M.Sc.(Met.), Ph.D.	Extractive Metallurgy, Sulphide & Oxide Reduction, Utilization of Metallurgical Waste, Bioleaching
	VISITING FACULTY	
1	Shri Gangeshwar Singh B.Tech (Met.), M.Tech (Met.)	Ferrous Metallurgy, Alloy Steel Technology, Hot Rolling & Heat Treatment of special steels
	DST-INSPIRE FACULTY	
1	Dr. Bratindranath Mukherjee B.Sc., Ph.D	Nanomaterials for Energy Applications

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
1	Vakil Singh	ICMMSA-2014	MNNIT Allahabad, during 22nd to 24th. Dec., 2014
2	S.N. Ojha	NMD-ATM 2014	12-15 November, 2014, Pune
3	R.K. Mandal	Conducted a workshop on "Indexing of Quasicrystalline Electron Diffraction Patterns" at Annual Conference of EMSI	July 2014, Delhi

4	N.K. Mukhopadhyay	NMD-ATM 2014	12-15 November, 2014, Pune
5	N.K. Mukhopadhyay	International Conference on Emerging Materials and Processes, (ICEMP 2014),	February 26-28, 2014 IIMT, Bhubaneswar,
6	N.K. Mukhopadhyay	symposium on 'Severe Plastic Deformation & Bulk nanostructured Materials,	May 12-14, 2014 IISc, Bangalore
7	N.K. Mukhopadhyay	International Conference on Advanced Materials and Energy Technology	17-19 December 2014 IIEST, Shibpur, West Bengal, India.
8	T.R. Mankhand	National Workshop on Non-Ferrous Extractive Metallurgy	February 25-26, 2015, NIT Karnataka, Surathkal
9	Indrajit Chakrabarty	National Metallurgy Day-Annual Technical Meeting, 2014	Pune during Nov. 12th. To 15th. , 2014
10	Indrajit Chakrabarty	International Conference on Multifunctional Materials, Structures and Applications (ICMMSA-2014)	MNNIT Allahabad, during 22nd to 24th. Dec., 2014.
11.	Indrajit Chakrabarty	Indian Foundry Congress,2015	Greater Noida, Feb. 27th To March 1st, 2015
12.	Nand Kishore Prasad	International symposium on nanoscience and nanotechnology (ISNACT15),	February 19-21, 2015 IIT Bombay, Mumbai
13.	K.K. Singh	National Workshop on Ancient Science and Technology	November 10-14, 2014, IIT-Kanpur
14.	G.S. Mahobia	NMD-ATM 2014	12-15 November, 2014, Pune
15.	O.P. Sinha	NMD-ATM 2014	12-15 November, 2014 Pune
16.	R. Manna	Symposium and Discussion Meeting on Severe Plastic Deformation and Bulk Nano-Structural Materials	12-14th May 2014 IISc Bangalore

Special lectures delivered by faculty members in other institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Vakil Singh	Metallurgical Engineering Education and Academia-Industry Interaction: The present scenario	COEP Pune	14th November 2015
2	S.N. Ojha	Specialty Steels for the Strategic Sectors	Hyderabad	5-6 December 2014
3	R.K. Mandal	Role of Ga Substitution on Al Site in glass formation	NIST, Gaithersberg, USA	December 09, 2014
4	N.K. Mukhopadhyay	Prof. A.K. Seal Memorial Lectures of Institution of Engineers (India)	Kolkata	September 1, 2014
5	N.C. Santhi Srinivas	Low Cycle Fatigue Behaviour of Advanced Structural Materials	MNNIT, Allahabad	17th December, 2014

Visits abroad by faculty members

S. No.	Name of Faculty Member	Country Visited	Date of Leaving India	Date of Returning India	Purpose of Visit	Funding from
1	G.V.S. Sastry	Metz, France	June 29, 2014	July 05, 2014	Presented a paper in The 6th International Conference on Nanomaterials by Severe Plastic Deformation, June 30 – July 4, 2014	IIT (BHU)
2	R.K. Mandal	Gaithersberg, USA	November 28, 2014	December 09, 2014	To Deliver a Lecture	IIT (BHU)
3	N.K. Mukhopadhyay	Germany	May 20, 2014	July 21, 2014	Alexander Van Humboldt Fellowship (May 21-July 20, 2014)	AvH Foundation Germany
4	K.K. Singh	Philadelphia USA	March 15, 2015	March 18, 2015	Presented a Paper in ICSW 2015	IIT (BHU)

5	Kaushik Chattopadhyay	Metz, France	June 29, 2014	July 05, 2014	Presented a paper in The 6th International Conference on Nanomaterials by Severe Plastic Deformation, June 30 – July 4, 2014	IIT (BHU)
6	R. Manna	Metz, France	June 29, 2014	July 05, 2014	Presented a paper in The 6th International Conference on Nanomaterials by Severe Plastic Deformation, June 30 – July 4, 2014	IIT (BHU)

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	N.K. Mukhopadhyay	ASM-IIM North America Visiting Lectureship Award 2014-15.
2	T.R. Mankhand	Distinguished Engineer's Award by IE(I), Varanasi Local Centre
3	T.R. Mankhand	Felicitation by BHU on Teacher's Day
4	K.K. Singh	The Institution of Engineer's, V S Chauhan Award for best paper in Environmental Science and Engineering 2014

Books, monographs authored/co-authored

S. No.	Name of Co- Author	Title	Publisher
1	T.R. Mankhand	Chapter 21on " Refining of Low Grade Molybdenite Concentrate"in **Book**entitled"Molybdenum and its Compounds- Applications, Electrochemical Properties and Geological Implications"	Nova Science Publishers, New York (2014)
2	I. Chakrabarty	Submitted a book chapter on "Heat Treatment of Cast Irons" (invited contribution) in the book "Comprehensive Materials Finishing".*Under review.*	Elsevier

Fellowships of academic and professional societies

S. No.	Name of Faculty Member	Name of Award
1	R.K. Mandal	Elected as Fellow of Electron Microscope Society of India (2014)

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Prof. N.K. Mukhopadhyay	Key Reader	Metallurgical & Materials Transaction A, USA
2	Prof. N.K. Mukhopadhyay	Editor	Journal of Institution of Engineers, Metallurgical & Materials: Series D (Springer)
3	Prof. R.K. Mandal	Member	Editorial Board, CMC-Transtech.

4.8.4 Design and Development Activities
New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	Disc Punch 3.0mm (Model No. 659)	2.45
2	High Temperature Tube Furnace (Model No. RHTH 120/300/18"	19.05
3	Vicker Hardness Tester (LM-248)	18.00
4	Lectropol-5 automatic Microprocessor Polishing & Etching Machine	15.75
5	Leica DM 1750 RL upright trinocular microscope	11.27
6	Ecomet 250/Automate 250 W/Membrane and Accessories	11.60
7	Hammer Mill	1.50
8	Pin-on-disc Tribotester	6.00
9	Microwave furnace for heat treatment	8.00

4.8.5 Research and Consultancy
Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co- ordinator
1	Strain induced melt – assisted semi-solid processing of Al-alloys.	2014-15	Sprouting Grant Fund, IIT(BHU), Varanasi	15 lakhs	Dr. I.Chakrabarty (PI), Prof. S.N. Ojha, Shri J.K. Singh
2	Hot deformation behaviour of Indigenously produced nitrogen steels for critical applications	2014-15	Sprouting Grant Fund, IIT(BHU), Varanasi	20 lakhs	Prof.(Smt.) N.C. Santhi Srinivas (PI), Dr. G.S. Mahobia, Dr. O.P. Sinha, Dr. K. Chattopadhyay
3	Mechanical milling of metallic alloy powder and subsequent consolidation through hot pressing	2014-15	Sprouting Grant Fund, IIT(BHU), Varanasi	15 lakhs	Prof. N.K. Mukhopadhyay (PI), Prof. R.K. Mandal, Dr. N.K. Prasad

4	Development of Tc tunnel magnetic nanoparticle for bioapplications	2011-15	DST	41.2 lakhs	Dr. N.K. Prasad (PI) & Prof. R.K. Mandal
5	Effect of Mean Stress on High Cycle Fatigue Properties of GTM-SU-T18 alloy	2014-15	GTRE-Bangalore	9.06 lakh	Dr. G.S. Mahobia (PI)& Prof. Vakil Singh
6	Development of Electropulsing facility for synthesis of bulk nanostructural materials	2015-2017	BRNS	26.484 lakh	Dr. R. Manna (PI), Prof. R.K. Pandey (Co-PI), Prof. S.N. Ojha (Co-PI), Prof. G.V.S. Sastry (Co-PI)
7	Microstructural Modifications of high strength metals and alloys for ductilisation by electropulsing	2014-15	Sprouting Grant Fund, IIT(BHU), Varanasi	17.57 lakh	Dr. R. Manna (PI), Prof. R.K. Pandey (Co-PI), Prof. G.V.S. Sastry (Co-PI)

Industrial consultancy projects

S. No.	Name of Faculty Member	Title	Industry	Amount (in lakhs of Rs.)
1	Prof. G.V.S. Sastry	TEM	Shri Padma Kumar VSSC, Thiruvananthpuram	5.21
2	Prof. N.C. Santhi Srinivas	Mechanical Testing	M/s Power Grid Corp. of India Ltd.	0.26
3	Dr. C.K. Behera	Chemical Testing	M/s Power Grid Corp. of India Ltd.	0.24
4	Dr. C.K. Behera	Chemical Testing	M/s Jagdamba Steels S-8, 110/B, Varanasi	0.14
5	Dr. C.K. Behera	Chemical Testing	M/s. MultiEngg & Scientific Corp., Gaya	0.09
6	Prof. N.C. Santhi Srinivas	Mechanical Testing	M/s. MultiEngg & Scientific Corp., Gaya	0.11
7	Prof. N.C. Santhi Srinivas	Mechanical Testing	Office of Asst. Executive Engineer Const., Lucknow, N. Railway	0.28
8	Dr. C.K. Behera	Chemical Testing	M/s. MultiEngg & Scientific Corp., Gaya	0.21
9	Dr. C.K. Behera	Chemical Testing	M/s Larsen & Toubro Ltd New Delhi	0.29
10	Prof. N.C. Santhi Srinivas	Mechanical Testing	M/s Power Grid Corp Ltd. Nalanda, Bihar	0.17
11	Dr. C.K. Behera	Chemical Testing	M/s Era Infra Engg. Ltd., Varanasi	0.17
12	Dr. C.K. Behera	Chemical Testing	Mr. Sandip Upadhyay Delhi Cluster Office Larsen & Toubro	0.29
13	Dr. C.K. Behera	Chemical Testing	M/s Dev and Associates Orderly Bazar, Varanasi	0.08

14	Dr. C.K. Behera	Chemical Testing	M/s Rail Vikas Nigam Ltd DLW, Varanasi	0.20
15	Dr. C.K. Behera	Chemical Testing	Shri S.K. Srivastava RGGVY, Jaunpur	0.16
16	Prof. N.C. Santhi Srinivas	Mechanic-al Testing	Shri S.K. Srivastava RGGVY, Jaunpur	0.28
17	Dr. C.K. Behera	Chemical Testing	M/s Rail Vikas Nigam Ltd DLW, Varanasi	0.04
18	Dr. C.K. Behera	Chemical Testing	M/s Gaurav Construction	0.04
			Total:	**8.26 lakhs**

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	**9**
2	Total Number of Papers Published in Refereed International Journals	**39**
3	Total Number of Papers Presented in National Conferences	**7**
4	Total Number of Papers Presented in International Conferences	**3**

Refereed National Journals

1. DM Goudar, VC Srivastava, GB Rudrakshi, K Raju, SN Ojha (2015), Effect of Tin on the Wear Properties of Spray Formed Al–17Si Alloy. Transactions of the Indian Institute of Metals68 (1): 3-7.
2. KK Mehta, P Mukhopadhyay, RK Mandal, AK Singh (2014), Mechanical Properties Anisotropy of Cold-Rolled and Solution-Annealed Ni-Based Hastelloy C-276 Alloy. Metallurgical and Materials Transactions A 45 (8): 3493-3504.
3. MK Singh, M Singh, JL Verma, N Kumar, RK Mandal (2015). Stabilization of Nanocrystalline Silver by Sella and Mansoori Rice Starch. Transactions of the Indian Institute of Metals 68 (2): 239-245.
4. KK Mehta, P Mukhopadhyay, RK Mandal, AK Singh (2015), Microstructure, Texture, and Orientation-Dependent Flow Behavior of Binary Ni-16Cr and Ni-16Mo Solid Solution Alloys. Metallurgical and Materials Transactions A 46 (8): 3656-3669.
5. A.K. Chaubey, S. Scudino, M. Samadi Khoshkhoo, K.G. Prashanth, N.K. Mukhopadhyay, B.K. Mishra and J. Eckert (2014),Synthesis of Fe-Si-B-Mn-based nanocrystalline magnetic alloys with large coercivity by high energy ball milling. Bulletin of Materials Science 37 (4) : 815-821.
6. M.Raviathul Basariya; V. C.Srivastava; N. K. Mukhopadhyay, (2015), Effect of Milling Time on Structural Evolution and Mechanical Properties of Garnet Reinforced EN AW6082 Composites. Metallurgical and Materials Transactions A-Physical Metallurgy and Materials Science46A (3): 1360-1373.
7. M. Raviathul Basariyaa, Rajat K. Roy, A.K. Pramanick, V.C. Srivastava, N.K. Mukhopadhyay (2015) Structural transition and softening in Al–Fe intermetallic compounds induced by high energy ball milling. Materials Science and Engineering: A638 (25): 282–288.
8. T.P Yadav, N.K. Mukhopadhyay and O.N. Srivastava (2014) Synthesis of quasicrystalline materials by mechanical alloying: bulk to nano. The Banaras Metallurgist 19: 53-64.
9. R.C. Gupta & O.P. Sinha (2014) Challenges to the growth of Indian Steel Industries in View of Land, Water and Human Resource Limitations in Addition to Energy and Environment Journal of Sustainable Planet4 (4): 14-37.

Refereed International Journal

1. K Raju, SN Ojha (2014), Effect of Spray Forming on the Microstructure and Wear Properties of Al–Si

Alloys. Procedia Materials Science 5:345-354.
2. F Forouhandeh, S Kumar, SN Ojha(2015), Recent Development of Hydroforming-A. Advances in Mechanical Engineering 5:65-75.
3. Niraj Nayan, S.V.S. Narayana Murty, Abhay K. Jha, Bhanu Pant, S.C. Sharma, Koshy M. George, G.V.S. Sastry (2014), Mechanical properties of aluminium-copper-lithium alloy AA2195 at cryogenic temperatures. Materials & Design 58 : 445-450.
4. D Singh, D Singh, RK Mandal, ON Srivastava, RS Tiwari (2014),Glass forming ability, thermal stability and indentation characteristics of Ce 75 Al 25− xGax metallic glasses. Journal of Alloys and Compounds 590:15-20.
5. P Mohanty, D Kabiraj, RK Mandal, PK Kulriya, ASK Sinha, C Rath (2014), Evidence of room temperature ferromagnetism in argon/oxygen annealed TiO 2 thin films deposited by electron beam evaporation technique. Journal of Magnetism and Magnetic Materials 355: 240-245.
6. KK Mehta, P Mukhopadhyay, RK Mandal, AK Singh (2014), Mechanical properties anisotropy of cold rolled and solution annealed Ni–20Cr–8Fe alloy. Materials Science and Engineering: A 613: 71-81.
7. RK Mandal, RS Tiwari, D Singh, D Singh (2015), Influence of Ga Substitution on the Nature of Glasses in Zr 69.5 Al 7.5-x Ga x Cu 12 Ni 11 and Ce 75 Al 25-x Ga x Metallic Glass Compositions. MRS Proceedings 1757: mrsf14-1757-uu03-06.
8. D Singh, RK Mandal, RS Tiwari, ON Srivastava (2015), Effect of cooling rate on the crystallization and mechanical behaviour of Zr-Ga-Cu-Ni metallic glass composition. Journal of Alloys and Compounds 648:456-462.
9. V.C.Srivastava, E. Huttunen-Saarivirta, C. Cui, V. Uhlenwinkel, A.Schulz, N.K. Mukhopadhyay (2014) Bulk synthesis by spray forming of Al-Cu-Fe and Al-Cu-Fe-Sn alloys containing a quasicrystalline phase. Journal of Alloys and Compounds597: 258-268.
10. N.K. Mukhopadhyay, F. Ali, S. Scudino, M. Samadi Khoshkhoo, M. Stoica, V.C. Srivastava, V. Uhlenwinkel, G. Vaughan, C. Suryanarayana, J. Eckert (2014) Inverse Hall-Petch like mechanical behaviour in nanophase Al-Cu-Fe quasicrystals: A new phenomenon. Acta Physica Polonica A 126: 543-548.
11. T.P. Yadav, S.S. Mishra, Devinder Singh, M. Lowe, R. Tamura, N.K.Mukhopadhyay, O.N.Srivastava R. McGrath, and H.R. Sharma (2014) Leaching of Al-based polygrain quasicrystalline and related crystalline surfaces. Acta Physica Polonica A 126: 629-632.
12. T.P. Yadav, N.K. Mukhopadhay and O.N.Srivastava (2014) Synthesis of Nano-decagonal quasicrystalline material by Mechanical Alloying. Journal of Computational and Theoretical Nanoscience (01/2014; 20. DOI: 10.1166/asl.2014.5494.
13. A.K. Chaubey, S. Scudino, M. Samadi Khoshkhoo, K.G. Prashanth, N.K. Mukhopadhyay, B.K. Mishra and J. Eckert (2014) High-strength ultrafine grain Mg-7.4%Al alloy synthesized by consolidation of mechanically alloyed powders. Journal of Alloys and Compounds 610: 456-461.
14. M. Raviathul Basariya, V.C. Srivastava and N.K. Mukhopadhyay (2014) Microstructural characteristics and mechanical properties of carbon nanotube reinforced Aluminium alloy composites produced by ball milling. Materials & Design 64: 542-549.
15. P. D. Reddi, N. K. Mukhopadhyay, B. Majumdar, A. K. Singh, S. S. Meena and N. K. Prasad (2014) Mechanical alloying of Fe-Si-B-Mn based magnetic alloys by high energy ball milling. Bulletin of Materials Science 37 (4): 815-821.
16. M. Raviathul Basariya, V.C. Srivastava and N.K. Mukhopadhyay (2015) Effect of milling time on structural evolution and mechanical properties of garnet reinforced EN AW6082 nanocomposites. Metallurgical and Materials Transaction A 46: 1360-1373.
17. N.K. Mukhopahyay, V. Uhlenwinkel and V.C.Srivastava (2015) Synthesis and characterization of bulk Al-Cu-Fe based quasicrystals and composites by spray forming. Journal of Materials Engineering and Performance24: 2172-2178.

18. M.R. Basariya, RK Roy, AK Pramanick, VC Srivastava, NK Mukhopadhyay (2015) Structural transition and softening in Al–Fe intermetallic compounds induced by high energy ball milling. Materials Science & Engineering A 638: 282-288.
19. Rahul Agarwal, Anita Mohan, SunilMohan, et al. (2014), Synthesis and Characterization of Al/Al3Fe Nanocomposite for Tribological Applications. Journal of Tribology-Transactions of The Asme136 (1): 012001.
20. Narendra Kumar,Rakesh Kumar Gautam,Sunil Mohan (2015) In-situ development of ZrB2 particles and their effect on microstructure and mechanical properties of AA5052 metal-matrix composites. Materials & Design80: 129-136.
21. PratimaMeshram, B.D.Pandey and T.R.Mankhand (2014) Extraction of Lithium from Primary and Secondary Sources by Pre-treatment, Leaching and Separation- A Comprehensive Review. Hydrometallurgy 150: 192-208.
22. PreetiVerma, G.SudhakarRao, P. Chellapandi, G.S. Mahobia, KausikChattopadhyay, N.C. SanthiSrinivas, Vakil Singh,(2015)Dynamic Strain Ageing, Deformation, and Fracture Behavior of Modified 9Cr-1Mo Steel, Materials Science and Engineering A 621: 39–51.
23. G.R. Sudhakar , Preeti Verma, Jayanta K Chakravartty, SaibabaNudurupati, Girija S Mahobia, N.C. S.Santhi, Vakil Singh,(2015)Inverse strain rate effect on cyclic stress response in annealed Zircaloy-2, Journal of Nuclear Materials 457: 330–342.
25. G. SudhakarRao, J.K. Chakravartty, N. Saibaba, G.S. Mahobia, KausikChattopadhyay, N.C. SanthiSrinivas, Vakil Singh, (2014) Disappearance and reappearance of serrated plastic flow under cyclic loading: A study of dislocation substructures, Materials Science and Engineering: A 603: 114–120.
26. Sanjeev Kumar, G. SudhakarRao, K. Chattopadhyay , G.S. Mahobia, N.C. SanthiSrinivas, Vakil Singh, (2014). Effect of Surface Nanostructure on Tensile Behavior of Superalloy IN718. Journal of Materials & Design 62:76–82.
27. P. K.Rai, V.Pandey, K.Chattopadhyay, L. K.Singhal, &V. Singh (2014). Effect of Ultrasonic Shot Peening on Microstructure and Mechanical Properties of High-Nitrogen Austenitic Stainless Steel. Journal of Materials Engineering and Performance 23(11): 4055-4064.
28. K.Chattopadhyay, V.Pandey, N. C. S.Srinivas, &V. Singh (2014)Effect of surface nanostructure on tensile and low cycle fatigue behavior of Al 2014 alloy. In IOP Conference Series: Materials Science and Engineering 63 (1): 012017.
29. Prabhat Kumar, Kausik Chattopadhyay and Indrajit Chakrabarty (2014) Effect of Sub-critical Tempering and Deep Cryogenic Treatment on Slurry Erosion of Cr–Mn–Cu White Cast Irons; V ISIJ International, Japan 54 (10): 2294-2301.
30. P. D. Reddi, N. K. Mukhopadhyay, B. Majumdar, A. K. Singh, S. S. Meena, S. M. Yusuf and N. K. Prasad (2014)Synthesis of Fe-Si-B-Mn based nanocrystalline magnetic alloys with large coercivity by high energy ball milling, Bull. Mater. Sci. 37: 815–821.
31. Mareddy Jayanth Reddy, Chandra Bhan Verma, E E Ebenso, K K Singh, M A Quaraishi (2014) Electrochemical and Thermodynamic Investigation of Nitrofurantoin as Effective Corrosion Inhibitor for Mild Steel in 1M Hydrochloric Acid Solution. International Journal of Electrochemical Sciences 9: 4884-4899.
32. Vikas Jindal, P. K. P.Rupa, , G. K.Mandal, V. C . Srivastava(2014) Effect of High-Temperature Severe Plastic Deformation on Microstructure and Mechanical Properties of IF Steel. Journal of Materials Engineering and Performance 23:1954-1958.
33. Vikas Jindal, B Nageswara Sarma, S Lele (2014), An improved CVM entropy functional for binary fcc alloys. Computational Materials Science 84: 129-133.
34. Mohd.Talha, C.K.Behra ,Sudarshan Kumar, Om Pal, Gurmeet Singh & OP Sinha (2014), Long term and Electrochemical Corrosion Investigation of cold worked AISI- 316L and 316LVM in Simulated Body Fluid. RSC Adv. 4 (26):13340 – 13349.

35. Mohd. Talha, Sanjay Kumar, C.K. Behera & O.P. Sinha (2014) Effect of Cold working on Biocompatibility of N-free high nitrogen austenitic stainless steels using Dalton's Lymphoma cell line Materials Science and Engineering C 35: 77-84.
36. A.K. Mandal & O.P. Sinha (2014) Review on current research status on Bottom Ash-an Indian Prospective Journal of Institute of Engineers, India Scr.A 95(4): 277-297.
37. Mohd. Talha, C.K. Behera, O.P. Sinha (2015) Effect of Nitrogen and Cold Working on Structural and Mechanical Behaviour of Ni-free Nitrogen Containing Austenitic Stainless Steels for Biomedical applications Materials Science and Engineering C 47: 196-2013.
38. G.S. Mahobia, Neeta Pualose, S.L. Mannan, Vakil Singh (2015) Effect of Saline Environment on Low Cycle Fatigue Behaviour of Superalloy IN718 at 550°C, Journal of Materials Engineering and Performance 24 (1): 338-344.
39. G.S. Mahobia, Neeta Pualose, S.L. Mannan, Kaushik Chattopadhyay, N.C. Santhi Srinivas and Vakil Singh (2014) Effect of Hot Corrosion on Low Cycle Fatigue Behaviour of Superalloy IN718, International Journal of Fatigue 59: 272-281.

Proceedings of National Conferences

1. Himanshu R. Verma, S.K.Sahu, PratimaMeshram, B.D.Pandey and T.R.Mankhand (2014) Recovery of Light Rare Earth Metals from Waste Fluorescent Powder (11-12 July 2014) Nagpur pp Tech 25/1-24/10.
2. P.K.Katiyar, N.S.Randhawa, J. Hait, R.K.Jana, K.K.Singh and T.R.Mankhand (2014) An Overview of Different Processes for Recovery of Valuable Metals from Tungsten ScrapPowder (11-12 July 2014) Nagpur pp Tech 22/1-22/11.
3. Gajendra Singh, Manish K. Sinha, S.K.Sahu, Pratima Meshram, B.D.Pandey and T.R.Mankhand (2014) Solvent Extraction of Europium and Yttrium from Leach Liquor of Spent Fluorescent Lamps (11-12 July 2014) Nagpur pp Tech 23/1-23/6.
4. K.K.Singh, VinayK.Singh, T.R.Mankhand and A.K.Mandal (2014) Utilization of Indian Red Mud and Fly Ash with Combustible Additives to make Foam Bricks (10-12 December 2014) Cochin pp 551-556.
5. Kamlesh Singh, VinayK.Singh and T.R.Mankhand (2015) Utilization of Fly Ash and Red Mud to make Foam Bricks by Addition of Polystyrene (15-18 March 2015) Philadelphia, USA.
6. PratimaMeshram, I.Hwan Park, M.K.Jha, B.D.Pandey and T.R.Mankhand (2014) Recovery of Metal Values from Spent Ni-Metal Hydride Batteries (11-12 July 2014) Nagpur pp Tech 17/1-17/8.
7. Sanjeev Kumar, KausikChattopadhyay and Vakil Singh, Tensile Behavior of Ti-6Al-4V alloy at Elevated Temperature, Proceeding of the International conference on Multifunctional Materials, Structures and Application, MMMPA1021, McGraw Hill Education, ISBN (13) 978-93-392-2019-8 December 22-24, 2014, MNIT Allahabad.

Proceedings of International Conferences

1. Danam Sai Anuhya, Ashutosh Gupta, Niraj Nayan, SVS Narayana Murhty, R. Manna and G.V.S. Sastry, et al (2014) Development of ultrafine-grained microstructure in Al-Cu-Mg alloy through equal channel angular pressing 6th International Conference on Nanomaterials by Severe Plastic Deformation (Nano SPD6) (30 June-04 July 2014) Metz, France, Published by Inst of Physics, Materials Science and Engineering 63 (2014) 1-10 012082.
2. Pratima Meshram, B.D. Pandey and T.R. Mankhand (2014), Reductive Hydrometallurgical Processing of Spent Lithium Ion Batteries (LIBs) to synthesize Li/Co based value added products., Proceedings International Conference on Hydrometallurgy (ICHM-2014), (October 2014), Beijing, China.
3. Deepa Verma, G.V.S. Sastry and R. Manna (2014) Microstructural Refinement of Interstitial free steel at Large Plastic Strain by Equal Channel Angular Pressing 6th International Conference on Nanomaterials by Severe Plastic Deformation (Nano SPD6) (30 June-04 July 2014) Metz, France.

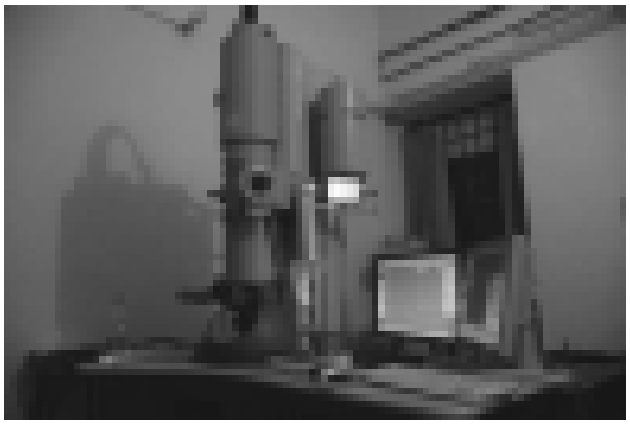
Distinguished Visitors

S. No.	Name of the visitor & Designation	Date of Visit	Purpose of Visit
1	Prof. Srinivasan G. Srivilliputhur Department of Materials Science and Engineering University of North Texas Denton, TX 76203-5017 USA	25 June, 2014	To deliver a lecture
2	Dr. K. Muraleedharan, Director Materials, DRDO	23 August, 2014	To attend the Inaugura Function of METSOC
3	Prof. S. Lele Distinguished Professor Department of Metallurgical Engineering, IIT (BHU	25-27 November, 2014	To deliver a lecture
4	Shri Deep M. Jariwala Department of Materials Science and Engineering, Northwestern University, Evanston, IL-60208, USA	09 December, 2014	To deliver a lecture
5	Mr. Sanjay Sondhi, Senior Scientist, GE Global Research	28 January, 2015	To deliver a lecture

4.8.6 Other activities

Instruments

1. Transmission Electron MicroscopeTecnai G^2 20 S-Twin.



2. Scanning Electron Microscope: Quanta 200F

3. X-Ray Diffractometer-Rigaku D-Max III.

4.9 Department of Mining Engineering

4.9.1 Introductuon

The Department of Mining Engineering, a well conceived dream of PANDIT MADAN MOHAN MALVIYAJI the founder of this university is the oldest degree awarding Mining Engineering Department in the country. This came into existence as early as in 1923, as a part of Department of Geology, Mining and Metallurgy. Later, in the year 1944, separate departments of Mining and Metallurgy were constituted under the College of Mining and Metallurgy. The department of Mining Engineering, Indian Institute of Technology (BHU) was constituted in June 2012.

The first Ph.D. degree in Mining Engineering in the country was awarded from this department in the year 1964. This lead was further strengthened by introducing the First Post- Graduate course in 1966 leading to M.Sc. degree in Mining Engineering n Metal Mining and Coal Mining, and later the M.Sc. degree in Mine Planning was introduced in 1972. Since, 1995-96 the department offers M.Tech. degree in Mine Environment, Mine Planning and Rock Mechanics.

The Department of Mining Engineering, BHU was one of the first in the country to receive UGC Assistance under COSIST and SAP Programme in 1984. Subsequently, the Department was upgraded as a Centre of Advanced Study in the area of Rock Mechanics and Ground Control in 1984.

The Department of Mining Engineering, IIT (BHU) occupies a pioneering position in the field of mining education and research. It has many firsts to its credit. The first Bachelor, Postgraduate and Doctoral degrees in mining engineering in India have been awarded by this department. Today's Mineral Industry is being run by many of its illustrious alumni who are holding key positions within the country and abroad. Senior faculty members have been recognized by the mining and allied industries as experts in the respective fields and are members of the important decision making bodies associated with CIMFR, NIRM, UGC, ISMU, NCL, CCL, SCCL, CIL, HZL, UCIL etc. The Department received generous grants to accelerate its research and developmental activities.

The Department is divided into six divisions with laboratories that are well equipped with the conventional and modern facilities. Facilities have also been developed for research in collaboration with mining industry to deal with their practical problems, these laboratories are also equipped to undertake fundamental research in the field of mining.

The above divisions consist of 19 laboratories. The Department is also provided with an Underground Experimental Model Mine well equipped for demonstration, experimental and research purposes particularly in the field of underground mechanised transport systems, mine ventilation and mine surveying experiments.

4.9.2 Academic Activities

Academic Courses Offered:

B. Tech, IDD, M.Tech and PhD
PhD: Awarded-Nil, Submitted-3
M.Tech/IDD- M.Tech. 02 awarded, ongoing 28

Workshops/ Symposia conducted:

1. Mine Ventilation with Special Reference to Pressure Quantity
   4^{th} to 8^{th} May 2015
2. Application of Numerical Modeling in Strata Control
   12^{th} to 16^{th} May 2015

4.9.3 Faculty and their Activities

Awards/ Honors / Chair Positions

1. Prof. Piyush Rai Chaired a Technical Session on “Drilling &Blasting”and delivered a “Keynote Address” entitled “Application of Computers in Surface Mine Rock blasting- Current & Future Perspectives”, 37^{th}.

International Symposium on Application of Computers and Operations Research in Mineral Industry, Org. by Society of Mining, Metallurgy and Exploration Engineers (SME) Inc., May 23-27, 2015, Fairbanks, Alaska, USA.

Invited Talks/ Lectures delivered

Key Note addresses

1. Prof. Piyush Rai delivered a "Keynote Address" entitled "Mass Blasting in Surface Mines" in 7th. Hanhwa Symposium on Blasting Technology, Org. by Korean Society of Blasting Technology on Oct. 24, 2014 in Seoul, South Korea.

Invited talks

1. Prof. Piyush Rai delivered an invited lecture entitled "A Case Study on Blasting For Controlled Casting of High Over-Burden Bench", Org. by consortium universities; Chonbuk National University, Chosun University & Chonnam National University in the Dept. of Energy & Mineral Resources Engg., on Oct. 22, 2014,Gwangju, South Korea.
2. Prof. Piyush Rai delivered an invited lecture on "Specialized Blasting Techniques in the Dept. of Energy & Resources Engg., Dong-A University, Busan on Oct. 21, 2014, Busan, South Korea.
   Prof. Piyush Rai delivered 4- resource lectures and field based training in the area of "Blasting Designs for Improved Rock Fragmentation", on 16 -19 Nov., 2014, to the senior executives and Managers, Tata Steel Ltd., West Bokaro Division, Ghatotand, Ramgarh, Hazaribagh, Jharkhand.

4.9.4 Research and Consultancy Activities

Research Papers published in peer-reviewed Journals [Authors, Title, Journal, Vol. (year), page]

1. Singh, GSP (2014), "Conventional approaches for assessment of caving behaviour and support requirement with regard to strata control experiences in longwall workings", Journal of Rock Mechanics and Geotechnical Engineering
2. Akhilesh Kumar Yadav, and Aarif Jamal, 2016 (expected). A Review on Present Scenario of Air Quality in Indian Mines. Accepted in Environmental Quality Management (For Spring Meddle of March, 2016).
3. Rajesh Rai and B.K.Shrivastva (2014), "Numerical simulation of vegetated mine dump slope with reference to small plants", International Journal of Mining Science and Technology 24 (2014) 111–115.
4. T Gupta, R Rai, A Jaiswal, BK Shrivastva (2014), "Sensitivity Analysis of Coal Rib Stability for Internal Mine Dump in Opencast Mine by Finite Element Modelling". Geotechnical and Geological Engineering 32 (3), 705-712
5. Rai, Piyush and Yang, Hyung-Sik, 2014 Assessment of Firing Patterns on Moderately Strong and Weak Cover Rocks in a Surface Mine, Int. Jl. Powder Technology (Elsevier), 263, 2014, pp: 66-73.
6. Kumar V and Singh, GSP (2014), "State-of-Art of Testing and Performance Evaluation of Rock Bolt Supports in Underground Mining Structures", Mines, Metals and Fuels, 2014
7. Singh, GSP and Jha, SK (2014), "Numerical Modeling Study of the Effect of Soft Cover and Goaf Line Orientation on Stress Redistribution and Caving Behaviour of Strata in a Bord and Pillar Depillaring Working", Minetech 2014
8. Kumar, D, Singh UK and Singh, GSP(2015), "Laboratory Characterization of Cemented Rock Fill for Underhand Cut and Fill Method of Mining", Journal of The Institution of Engineers (India), Accepted, July 2015.
9. Gayn Prakash Kumar, Adarsha Das, Rajesh Rai, Ashok Jaiswal, (2015), "Slope stability analysis using radial slices - A mathematical model". Journal of the Institute of Engineering (India) Series D. DOI: 10.1007/s40033-015-0065-9
10. Garg, P, Pandit, B and Singh, GSP (2015), "Development of a 3D Elasto-plastic Model for Simulation of Progressive Roof Caving in Underground Coal Mines", Journal of the International Society of Rock Mechanics (India), July 2015-08-07.
11. Mohammadi, Mousa, Rai, Piyush and Oraee, S. Kazem, 2015. A Critical Investigation of Digging Time

Segment of Draglines in a Large Surface Mine, Geotech. & Geol. Engg. Journal (Springer), V. 33, Issue 4 (2015), pp: 763-771(DOI: 10.1007/s10706-015-9857-9).
12. Rai, Piyush, HakanSchunesson, Per-Arne Lindqvist, and Kumar, Uday, 2015. Measurement-While-Drilling Technique and its Scope in Design and Prediction of Rock Blasting, Int. Journal of Mining Science and Technology (Elsevier), In-Press.
13. Sharma, Suresh Kumar and Rai, Piyush, 2015, "Evaluation of Use of Crushed Aggregate as Stemming Material in Bench Blasting – A Case Study", Geotech. & Geol. Engg. Journal (Springer), (DOI:10.1007/s10706-015-9911-7).
14. Sharma, Suresh Kumar and Rai, Piyush, 2015. "Assessment of Blasting Performance Using Electronic Vis-à-vis Shock Tube Detonators in Strong Garnet Biotite Sillimanite Gneiss Formations, The Journal of Institution of Engineers (India): Series D, (Springer) (DOI: 10.1007/s40033-015-0078-4).
15. Rai, Piyush, 2015. " A Case Study on Blasting For Controlled Casting of High Over-Burden Bench", Journal of Mines, Metals and Fuels, V.63, No. 7, pp: 162-166.
16. Rai, Piyush.,Schunnesson, Håkan., Lindqvist, Per-Arne. and Kumar, Uday, 2015. "An Overview of Measurement-While Drilling and its Scope in Excavation Industry", The Journal of Inst. of Engineers (India):Series-D, (Springer) DOI 10.1007/s40033-014-0054-4.

Research Papers published in conference proceedings [Authors, Title, Proceeding /conference info, (year), page] :

1. Singh, UK, Singh, GSPS and Kumar, D(2014), "Engineering Design of Cemented Rock Fills for Cut and Fill Mine Workings – Some Considerations", IndoRock 2014:Fifth Indian Rock Conference on Underground Construction for Hydropower, Mining and Infrastructure, 12-14 November, CCMRS New Delhi
2. Singh, GSP (2014), "Numerical modelling of strata behaviour at goaf edge in coal pillar depillaring workings", National Workshop on Self Advancing Goaf Edge Support (SAGES), 25 April 2014, Department of Mining Engineering, Indian School of Mines, Dhanbad, 25 April 2014.
3. Ashok Jaiswal, Rajesh Rai and B K Shrivastva (2014), "Social cost benefit analysis for the mining project". National Seminar on "Problems of Mining Industry and Technological Advancements" on March 7-8, 2014, Udaipur
4. Adarsha Das, Gyan Prakash Kumar, Rajesh Rai, Ashok Jaiswal (2014), "Assessment of the Safe Distance from the Slope Toe after Slope Failure- A Mathematical Model". 6th National Seminar on Surface Mining (NSSM) on January 10-11, 2014

4.9.5 Equipments purchased

Sl. No	Name of Equipments	Department	Amount
1	Single Rover GPS	Mining	7 Lakh
2	Arch GIS Mapping (ten users)	Mining	10.0
3	Flame Safety Lamp gas testing set up	Mining	4.0
4	Petrological microscope with image analysis	Mining	5.0

4.9.6 Industry Collaborations

2014-15	Name of Company/ Beneficiaries	Amount in Rs
19.4.2014	Rungta Sons pvt. Ltd., Ranchi	449440
19.4.2014	Bhushan Power Steel Ltd., New Delhi	1123600
23.4.2014	Indigo Infra Project, New Delhi	56180
5.6.2014	Cairn India Ltd., Gurgaon	3617600
22.7.2014	Indigo Infra Project, New Delhi	123596

22.7.2014	SCCL, Singraini, Andhra Pradesh	561800
30.7.2014	Sasan Power Ltd., Waidhan, Singrauli, Madhya Pradesh	314608
12.8.2014	Indigo Infra Project, Janakpuri, New Delhi	140000
12.8.2014	AP Mineral Dev., Hyderabad	1179780
7.10.2014	Indigo Infra Project, Janakpuri, New Delhi	123596
20.11.2014	SP Singh General Manager, NCL, Bina Project, Singrauli	14000
25.11.2014	GKC Power Pvt. Ltd., Dhanbad	421300
10.1.2015	Executive Engineer, Kanhar, Sonbhadra, Uttar Pradesh	56200
28.1.2015	Hindustan Zinc Ltd., Udaipur, Rajasthan	1000000
2.3.2015	Indigo Infra Project, Janakpuri, New Delhi	150000
2.3.2015	Indigo Infra Project, Janakpuri, New Delhi	140450
3.3.2015	WCL, Nagpur	65783
3.3.2015	Executive Engineer, Kanhar	188484
3.3.15	WCL, Nagpur	29618
26.3.15	Indigo Infra Project, Janakpuri, New Delhi	125843

4.10 Department of Pharmaceutics Engineering

Year of Establishment: 1932

Head of the Department: Dr. S. K. Singh

4.10.1 Introduction

Department of Pharmaceutics is pioneer in Pharmaceutical education in India at university level. It was started in July 1932 by Prof. Mahadev Lal Schroff under the auspicious guidance of Mahamana Madan Mohan Malaviya Ji. A two-year course was introduced in 1934 for the degree of B.Sc. (Pharmaceutical Chemistry). The department has expanded academically by the inception of B.Pharm. in 1937, M.Pharm. in 1941, Ph.D. in 1945 and M.Pharm.(IDD) in 2006 as its regular courses. The Department has also hosted many events at the national level and to name a few are the 17th, 34th& 59th session of Indian Pharmaceutical Congress in the years 1965, 1982 & 2007 in conjunction with Silver Jubilee, Golden Jubilee and Platinum Jubilee of the Department, respectively.

4.10.2 Academic Programmes offered

Academic courses offered

B. Pharma, M. Pharma and PhD

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	BL101	Biology	11
2	PH101	Basic Pharmaceutical Sciences	11

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech/B.Pharm	15	17	22	6	-
2.	Dual Degree	4	7	4	19	5
3.	M. Tech/M.Pharm	29	28	-	-	-
4.	Ph. D			51		

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
INDIA					
1	Harsh Vardhan	13161002	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28th February, 2015, DIT University	IIT (BHU)
2	Pooja Mittal	13161008	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28th February, 2015, DIT University	IIT (BHU)
3	Sarita Yadav	11621EN001	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28th February, 2015, DIT University	IIT (BHU)
4	Gayasuddin Khan	12621EN007	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28th February, 2015, DIT University	T (BHU)
5	Patel Ravi Rameshbhai	12621EN001	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28th February, 2015, DIT University	
6	Nagendra Kumar	10621EN001	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28thFebruary, 2015, DIT University	
7	Sundeep Chaurasia	10621EN050	4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER)	27th-28th February, 2015, DIT University	
8	Sarita Yadav	11621EN001	International Symposium on Innovations in Educational, Environmental and Health Research	23rd – 24th February, 2015, Varanasi	

9	Maya N		66th Indian Pharmaceutical Congress	23rd-25th January, 2015, Hyderabad, India	
10	Patel Ravi Rameshbhai	12621EN001	International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014),	27th-30th October, 2014,IIT Delhi, New Delhi, India.	
11	Sundeep Chaurasia	10621EN050	International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014),	27th-30th October, 2014,IIT Delhi, New Delhi, India.	IIT (BHU)
12	Nagendra Kumar	10621EN001	International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014),	27th-30th October, 2014,IIT Delhi, New Delhi, India.	IIT (BHU)
13	Gayasuddin Khan	12621EN007	International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014),	27th-30th October, 2014,IIT Delhi, New Delhi, India.	IIT (BHU)
14	KMR Srivalli	12621EN005	3rd International Conference and Exhibition on Biowaivers, Biologics and Biosimilars,	27th -29th October, 2014, Hyderabad.	IIT (BHU)
15	KMR Srivalli	12621EN005	2nd International Conference on Emerging Trends in Chemical & Pharmaceutical Sciences	15th-17th October, 2014, CSIR-IICT, Hyderabad.	IIT (BHU)
16	KMR Srivalli	12621EN005	International conference on Nanoscience and Engineering Application (ICONSEA-2014),	26-28June, 2014, JNTU, Hyderabad.	

17	Meenakshi singh	10621EN054	21st International Conference (ISCBC-2015)CURRENT TRENDS IN DRUG DISCOVERY AND DEVELOPMENTS	25-28th Feb,2015 Central Drug Research Institute, Lucknow	Institute travel grant support
18	Satheesh kumar S	13161011	21st International Conference (ISCBC-2015)CURRENT TRENDS IN DRUG DISCOVERY AND DEVELOPMENTS	25-28th Feb,2015 ,Central Drug Research Institute, Lucknow	Institute travel grant support
19	Sachin Mishra	13162017	21st International Conference (ISCBC-2015)CURRENT TRENDS IN DRUG DISCOVERY AND DEVELOPMENTS	25-28th Feb,2015 ,Central Drug Research Institute, Lucknow	Institute travel grant support
20	Priyanka Sharma	13161501	Indian Academy Of Neuroscience	1-3 November 2014 Bengaluru	IIT-BHU
21	Apurva Joshi	12621EN002	International Conference on integrating medicinal plants with forestry sector	8-9 November 2014 New Delh	-
22	Priyanka Sharma	13161501	47th Annual Conference of Indian Pharmacological Society	28th – 30th December 2014 Guwahati	IIT-BHU
23	Apurva Joshi	12621EN002	National Symposium and Workshop on Molecular and Ayurvedic Therapies for inflammation	7-9 February 2015 I.M.S.-B.H.U. Varanasi	-
24	Sonam	13161012	National Symposium and Workshop on Molecular and Ayurvedic Therapies for inflammation	7-9 February 2015 I.M.S.-B.H.U. Varanasi	-

25	Apurva Joshi	12621EN002	Seminar on Material characterisation techniques in pharmaceutical formulations and biomaterials	9 February 2015	-
26	Sonam	13161012	Seminar on Material characterisation techniques in pharmaceutical formulations and biomaterials	9 February 2015	-
27	Apurva Joshi	12621EN002	2nd International Congress of Society for Ethnopharmacology (SFEC-2015)	20-22 February 2015 Nagpur	-
28	Sonam	13161012	2nd International Congress of Society for Ethnopharmacology (SFEC-2015)	20-22 February 2015 Nagpur	-
29	Amitabha Dey	13161001	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	Self
30	Suruchi Verma	13161013	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	Self
31	Naveen Shivavedi	13161006	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	Self
32	Vaishali Yadav	13162027	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	Self

33	Amitabha Dey	13161001	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT (BHU), Varanasi
34	Suruchi Verma	13161013	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT (BHU), Varanasi
35	Naveen Shivavedi	13161006	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati	IIT (BHU), Varanasi
36	Ajit Kumar Thakur	11621EN003	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT (BHU), Varanasi
37	Ansul Shakya	10621EN052	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	Self
38	Vaishali Yadav	13162027	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT (BHU), Varanasi
39	Nikita Shrivastava	13162008	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT (BHU), Varanasi

40	Saba Anjum Khan	131620 16	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT Varanasi	(BHU),
41	Deepaneeta Sarmah	141620 21	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT Varanasi	(BHU),
42	Shobha	141620 25	47th Annual Conference of the Indian Pharmacological Society (IPSCON).	December 28-30, 2014 & Gauhati Medical College, Guwahati.	IIT Varanasi	(BHU),
43	Amitabha Dey	131610 01	2nd International Congress of Society for Ethnopharmacology (SFEC-2015).	February 20-22, 2015 & Rashtras ant Tukadoji Maharaj Nagpur University, Nagpur.	IIT Varanasi	(BHU),
44	Suruchi Verma	131610 13	2nd International Congress of Society for Ethnopharmacology (SFEC-2015).	February 20-22, 2015 & Rashtras ant Tukadoji Maharaj Nagpur University, Nagpur.	IIT Varanasi	(BHU),
45	Naveen Shivavedi	131610 06	2nd International Congress of Society for Ethnopharmacology (SFEC-2015).	February 20-22, 2015 & Rashtras ant Tukadoji Maharaj Nagpur University, Nagpur.	IIT Varanasi	(BHU),

46	Amrita Rawal	14162020	21st ISCB International Conference (ISCBC-2015).	February 25-28, 2015 & Central Drug Research Institute, Lucknow	IIT (BHU), Varanasi
47	Ansul Shakya	10621EN052	International Conference on Harnessing the Sub-Himalayan Plant Diversity for Human Welfare.	March 11-13, 2015 & Dibrugarh University, Dibrugarh.	Self
48	Rati K. P. Tripathi	11629EN002	International Symposium on Recent Advances in Medicinal Chemistry (ISRAM – 2014)	8th – 10th September, 2014, NIPER, Mohali	IIT (BHU)
49	M Santhosh	13162006	Conference	20.11.14 - 22.11.2014 & Mohali, India	IIT (BHU)
ABROAD					
1	Ajit Chandra Divedi		5thInternational Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems	16th -18th March, 2015,Crown Plaza, Dubai, UAE	IIT (BHU)
2	Patel Ankit		5thInternational Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems	16th -18th March, 2015,Crown Plaza, Dubai, UAE	IIT (BHU)
3	Maya N		5thInternational Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems	16th -18th March, 2015,Crown Plaza, Dubai, UAE	IIT (BHU)

4	Patel Ravi Rameshbhai	12621EN001	4thInternational Conference on Nanotek and Expo (Nanotek-2014),	1st-3rdDecember, 2014, San Francisco, USA	DST, DBT, IIT(BHU)
5	Sundeep Chaurasia	10621EN050	3rdInternational Conference and Exhibition on Pharmaceutical, Nutraceutical and Cosmeceutical Technology (Pharma Tech-2014),	1st-2ndDecember, 2014, Bangkok, Thailand.	DST, DBT, IIT(BHU)
6	Nagendra Kumar	10621EN001	3rdInternational Conference and Exhibition on Pharmaceutical, Nutraceutical and Cosmeceutical Technology (Pharma Tech-2014),	1st-2ndDecember, 2014, Bangkok, Thailand.	DST, IIT(BHU)
7	Deepali Pandey	12621EN003	International conference on natural products 2015	24-25 March 2015 Johor Bahru, Malaysia	DST
8	Apurva Joshi	12621EN002	International conference on natural products 2015	24-25 March 2015 Johor Bahru, Malaysia	ICMR
9	Ms. Saniya Jawed	13162018	5th International Conference and Exhibition on Pharmaceutics and Novel Drug Delivery System, OMICS Group	March 16-18 2015 Dubai, UAE	IIT (BHU)
10	Mr. Sorathiya Amit Keshubhai	13162021	5th International Conference and Exhibition on Pharmaceutics and Novel Drug Delivery System, OMICS Group, Dubai, UAE, March 16-18 2015	March 16-18 2015 Dubai, UAE	IIT (BHU)
11	Solanki Hardik Navnitlal	13162020	5thInternational Conference & Exhibition on Pharmaceutics & Novel Drug Delivery systems (Pharmaceutica -2015)	16-18 March, 2015, Dubai (UAE)	Self
12	Solanki Hardik Navnitlal	13162020	A Short term training Programme on Design of Experiments: An Optimization Tool (DOEOT -2014)	22 – 24 Dec, 2014	Self

Names of students/scholars who got prizes and awardsoutsidethe Institute

S. No.	Name of Student	Roll No.	Name of Prize	Date & Venue	Prize awarded by
1	Sundeep Chaurasia	10621EN050	Best student (PhD) Award	27th-28th February, 2015, DIT University, Dehradun, India	Society of Pharmaceutical Education & Research
2	Sarita Yadav	11621EN001	Young Scientist (Woman category)	27th-28th February, 2015, DIT University, Dehradun, India	Society of Pharmaceutical Education & Research
3	Patel Ankit Rameshchandra		Best Poster Award	16th -18th March, 2015,Crown Plaza, Dubai, UAE	5thInternational Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems
4	Patel Ravi Rameshbhai	12621EN001	Best Poster Award	1st-3rdDecember, 2014, San Francisco, USA	4thInternational Conference on Nanotek and Expo (Nanotek-2014),
5	KMR Srivalli	12621EN005		26-28June, 2014, JNTU, Hyderabad.	International conference on Nanoscience and Engineering Application (ICONSEA-2014),
6	Apurva Joshi	12621EN002	Best Poster Award	24-25 March 2015 Johor Bahru, Malaysia	International conference on natural products 2015, Universiti Technologi Malaysia
7	Amitabha Dey	13161001	Best Paper Award	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).
8	Suruchi Verma	13161013	Best Paper Award	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).
9	Vaishali Yadav	13162027	Best Paper Award	October 18-19, 2014 & S.V.D.V. Auditorium, BHU, Varanasi.	International Conference on Recent Advances on the Role of Basic Sciences in Ayurvedic Medicine (ICRARBSAM).

4.10.3 Faculty & their Activity

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	Brahmeshwar Mishra (M Pharm, Ph D, FBRS, FSPER, Dip. German, Dip. Yoga)	Pharmaceutics, Novel Drug Delivery Systems, Nanoformulations
2	Sushil Kumar Singh (M.Pharm., Ph.D.)	Drug design & development
3	Sanjay Singh (M.Pharm., Ph.D.)	Pharmacology and Pharmaceutics
ASSOCIATE PROFESSORS		
1	A.K.Srivastava(M.Pharm.)	Newer Drug Delivery Systems
2	S. Hemalatha(M.Pharm., Ph.D.)	Ethanopharmacology & Standardization of Traditional/Herbal Formulations
3	Vikas Kumar(M.Pharm., Ph.D.)	Neuropharmacology, Metabolic Disorders, Ethnopharmacology
4		
ASSISTANT PROFESSORS		
1	Senthil Raja A(M.Pharm., Ph.D.)	Medicinal Chemistry & Drug Design
2	Alakh Niranjan Sahu(M.Pharm., Ph.D.)	Quality control studies and standardization of medicinal plants and herbal formulations
3	Ruchi Chawla(M.Pharm.)	Nanotechnology, Novel Drug Delivery systems, Pharmacokinetics

Short-term courses/workshops/seminars/symposia/conferences organised by faculty members

S. No.	Cordinator	Title	Period
1	Prof. Sanjay Singh	Material characterization techniques in pharmaceutical formulations and biomaterials	9th February, 2015
2	Dr. Alakh Niranjan Sahu- Co-Convener	Material characterization techniques in pharmaceutical formulations and biomaterials	9th February, 2015
3	Dr. Alakh Niranjan Sahu, Organizing Secretary	SPIRIT'15	21-22 March 2015
4	Ms. Ruchi Chawla- Joint-Organizing Secretary - Seminar	SPIRIT	21-22 March 2015

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
1	Prof. Sushil Kumar Singh	3rd International Conference on Drug Design 2014	23-25September, 2014 in Oxford (U.K).
2	Prof. Sushil Kumar Singh	III InternationalConference on Antimicrobial Research - ICAR2014	1-3 October 2014, Madrid-Spain,
3	Prof. Sanjay Singh	ICMBPS 2015: XIII International Conference on Medical, Biological and Pharmaceutical Sciences	19-20, January, 2015, Holiday Inn London – Wembley, Middlesex, HA9 8DS, London
4	Prof. Sanjay Singh	ICPSE 2015: XIII International Conference on Pharmaceutical Science and Engineering	23-24, January, 2015, Holiday Inn Paris Montparnasse Avenue Du Maine, Paris, France
5	Mr. A.K. Srivastava	3rd International Conference in Pharma Tech 2014,Protemp Group, USA	December 1-2, 2014, Bangkok,Thailand
6	Mr. A.K. Srivastava	5th International Conference and Exhibition on Pharmaceutics and Nove Drug Delivery System, OMICS Group	March 16-18 2015 Dubai, UAE
7	Dr. (Mrs.) S. Hemalatha	International conference on natural products 2015	24-25 March 2015 Johor Bahru, Malaysia
8	Dr. Vikas Kumar	17th World Congress of Basic & Clinical Pharmacology.	July 13-18, 2014 and Cape Town, South Africa.
9	Dr. Vikas Kumar	3rd International Conference and Exhibition on Probiotics, Functional and Baby Foods.	September 23-25, 2014 and Naples, Italy.
10	Dr. Vikas Kumar	2nd Annual Conference of Probiotic Association of India (PAi).	November 03-04, 2014 and New Delhi, India.
11	Dr. Senthil Raja A	Tetrahedron Symposium, Asia Edition	28-31 October 2014, Singapore.
12	Dr. Alakh Niranjan Sahu	International Symposium on Innovations in Educational Environmental & Health Research.	23.02.2015 – 24.02.2015, Varanasi

13	Dr. Alakh Niranjan Sahu	National workshop on Faculty Development Program	29-31 March 2015, IIT (BHU)
14	Dr. Alakh Niranjan Sahu	National symposium on Molecular and Ayurvedic Therapies for inflammation	7 February, 2015 IMS, BHU
15	Dr. Alakh Niranjan Sahu	International workshop on Bridging development divide for inclusive growth through science, technology and innovation	16-17 January, 2015 BBA University, Lucknow
16	Dr. Alakh Niranjan Sahu	National Seminar on Ancient Indian Science and Technology	15th November 2014, IIT Kanpur
17	Dr. Alakh Niranjan Sahu	STC on"Ancient Science and Technology	10-14 November 2014, IIT Kanpur
18	Dr. Alakh Niranjan Sahu	Workshop on "Modular Object-Oriented Dynamic Learning Environment (MOODLE – 2014)"	6th September, 2014, IIT (BHU), Varanasi
19	Ms. Ruchi Chawla	5thInternational Conference & Exhibition on Pharmaceutics & Novel Drug Delivery systems (Pharmaceutica - 2015)	16-18 March, 2015, Dubai (UAE)

Special lectures delivered by faculty members in other institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Prof. Brahmeshwar Mishra	Understanding bioavailability and pharmacokinetics-application of biomathematics	Mini workshop on biomathematics, Department of Mathematics, Faculty of BHU	30th March, 2015
2	Prof. Brahmeshwar Mishra	*Pastillation technology based design and development of oral modified release multiparticulate drug delivery system*	5th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems, Crown Plaza, Dubai, UAE	16th -18th March, 2015
3	Prof. Brahmeshwar Mishra	*Pastillation technology based design and*	4th Annual International Conference and	27th February, 2015

		development of oral modified release multiparticulate drug delivery system	Exhibition, Society of Pharmaceutical Education & Research (SPER), at DIT University, Dehradun, India	
4	Prof. Brahmeshwar Mishra	Awareness of effective medication	Second Special Winter School at UGC-Academic Staff College, BHU.	1st January, 2015
5	Prof. Brahmeshwar Mishra	Shelf life and Effective Medication	68th Orientation Course, at UGC-Academic Staff College, BHU.	7th July, 2014
6	Prof. Sanjay Singh	Ayurveda in Indian Health Care System	Department of Health Science, Lulea University of Technology, Sweden	19, June, 2014
7	Dr. Alakh Niranjan Sahu	Applications of DNA based molecular markers in herbal drug technology	BIT MESRA, Ranchi	16th December, 2014

Visits abroad by faculty members

S. No.	Name of Faculty Member	Country Visited	Date of Leaving india	Date of Returning India	Purpose of Visit	Funding from
1	Prof.Brahmeshwar Mishra	UAE	15/03/2015	20/03/2015	Research Paper Presentation	IIT (BHU)
2	Prof.Brahmeshwar Mishra	Thailand	29/11/2014	04/12/2014	Research Paper Presentation	IIT (BHU)
3	Prof. Sushil Kumar Singh	England (U.K)	22.09.2014	----------	Poster Presentation	
4	Prof. Sushil Kumar Singh	Spain	----------	5.10.2014	Poster Presentation	
5	Prof. Sanjay Singh	Sweden	14, June, 2014	25, June, 2014	Deliver guest lecture on Ayurveda in Indian Health Care System	STINT Grant, SWEDEN
6	Prof. Sanjay Singh	London	17, January, 2015	------	To attend ICMBPS 2015: XIII International Conference on Medical, Biological and Pharmaceutical Sciences	CPDA Grant

7	Prof. Sanjay Singh	Paris	-------	27,January, 2015	To attend ICPSE 2015: XIII International Conference on Pharmaceutical Science and Engineering	CPDA Grant
8	Dr. (Mrs.) S. Hemalatha	Malaysia	22 March 2015	26 March 2015	Conference	IIT(BHU)
9	Mr. A.K. Srivastava	Thailand	November 29, 2015	-	3rd International Conference in Pharma Tech 2014,Protemp Group, USA	IIT (BHU)
10	Dr. Vikas Kumar	South Africa	July 11, 2014	July 20, 2014	To present a poster on the topic titled "Role of Andrographolide in analgesic and anti-inflammatory activity of *Andrographis paniculata*: An experimental study in diabetic rodents", during 17th World Congress of Basic & Clinical Pharmacology.	Department of Science and Technology (DST), New Delhi, India.
11	Dr. Vikas Kumar	Italy	September 21, 2014	September 27, 2014	To deliver an invited lecture on the topic titled "Potential clinical applications of probiotics", during 3rd International Conference and Exhibition on Probiotics, Functional and Baby Foods.	DD Innovations, Inc., Minneapolis, MN, USA
12	Dr. Senthil Raja A	Singapore	27.10.2014	02.11.2014	To attend A Symposia	IIT (BHU)
13	Ms. Ruchi Chawla	Dubai	March 14, 2014	March 20, 2014	Oral Presentation on 'Hydrogels of solid lipid nanoparticles of Curcumin' at Pharmaceutica 2015	Self

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	Prof. Brahmeshwar Mishra	**SPER Principle of the Year Award2015** by Society of Pharmaceutical Education and Research (SPER), given at DIT, Dehradun, India.
2	Prof. Sanjay Singh	2014 IIT (BHU) Publication Award
3	Prof. Sanjay Singh	Vice President (Elected), Indian Pharmacological Society
4	Prof. Sanjay Singh	Chairman, Scientific Session in the International Conference "ICMBPS 2015: XIII International Conference on Medical, Biological and Pharmaceutical Sciences" at Holiday Inn London – Wembley, Middlesex, HA9 8DS, London. 19-20, January, 2015.
5	Mr. A.K. Srivastava	Best Paper Presentation Award in 3rd International Conference in Pharma Tech 2014, Bangkok, Thailand

Books, monographs authored/co-authored

S. No.	Name of Co- Author	Title	Publisher
1	Prof. Sushil Kumar Singh	A simple scaffold with tremendous therapeutic potential, In: Chemical and Biochemical Engineering	Apple Academic Press,Inc.

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Dr. Vikas Kumar	Member	EC Pharmaceutical Science
2	Dr. Vikas Kumar	Member	Pharmacologia
3	Dr. Vikas Kumar	Member	Pharmacy & Pharmacology International Journal
4	Dr. Vikas Kumar	Member	TANG [Humanitus Medicine]
5	Ms. Ruchi Chawla	Member	Journal of Advance research in Biochemistry and Pharmacology

4.10.4 Design and Development Activities

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	Rotary evaporator with vacuum & chiller (1 No.)	5.6
2	Microwave reactor (1 No.), induction heater (1 No.), heating mantles (2 No.), Magnetic stirrer (1 No.), digital water bath (1 No.) and exhaust fan (1 No.)	1.2
3	MOE Package	2.95
4	Rotary Evaporator (Basic)	2.20
5	UV-Vis Spectrophotometer (Single Beam)	2.19
6	Rotary Evaporator	6.0

4.10.5 Research and Consultancy

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co- ordinator
1	Development of slow releasing device containing curcumin in the management of human periodontal disease	2014-2017	DST	56.93 Rs lakhs	Co-principle investigator – Prof. Brahmeshwar Mishra
2	Development and Evaluation of Nanocarrier System for Enhanced Anti-microbial Activity of Anacardic acid Against Human and Plant Pathogens	Ongoing	DST-State S&T Councils Programme (PI)	58.66 lacs	Prof. Sanjay Singh

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	13
2	Total Number of Papers Published in Refereed International Journals	59
3	Total Number of Papers Presented in National Conferences	5
4	Total Number of Papers Presented in International Conferences	36

Refereed National Journals

1. B. Mishra, N. Chaturvedi and R. Chawla (2014) Silymarin-Recent approaches for enhancing bioavailability. Pharmatechmedica. 3(3), 455-460.
2. Meenakshi Singh, Mayank Gangwar, Gopal Nath, and Sushil K. Singh (2014). "Synthesis, DNA Cleavage and Antimicrobial activity of 4-Thiazolidinones-Benzothiazole Conjugates" Indian Journal of Experimental Biology, 52(11):1062-1070.
3. Prasad SK, Laloo D, Kumar R, Sahu AN, Hemalatha S. 2014. Antidiarrhoeal evaluation of rhizomes of Cryptocoryne spiralis Fisch. ex Wydler: Antimotility and antisecretory effects. Indian Journal of Experimental Biology, 52,139-146. (Impact Factor: 1.3).

4. Prasad SK, Jain D, Patel DK, Sahu AN, Hemalatha S. 2014.Antisecretory and antimotility activity of Aconitum heterophyllum and its significance in treatment of diarrhea, Indian Journal of Pharmacology,46,82-87. (Impact Factor: 0.691).
5. Laloo D, Prasad SK, Kumar M, Hemalatha S.2014. Pharmacognostical and Phytochemical standardization of the roots from Potentilla mooniana Wight. Pharmacognosy Journal, 6(1),70-79. ISSN: 0975-3575.
6. Kumar M, Prasad SK, Laloo D, Joshi A, Hemalatha S. 2014. Pharmacognostical and Phytochemical standardization of Hottuynia cordata Thunb A potent medicinal herb of North east Indian and China. Pharmacognosy Journal, 6(1),34-42. ISSN: 0975-3575.
7. Pandey Deepali, Joshi Apurva, S.Hemalatha, 2015. Quality control standardization and invitro anti oxidant activity of Aganosma dichotama K schum Root. Pharmacognosy Journal,7(1),74. ISSN: 0975-3575.
8. Kumar M, Prasad SK, Hemalatha, S., 2014. A current update of Phytopharmacological aspects of Hottuynia cordata Thunb. Pharmacognosy Review, 8(15), 22-35. ISSN: Print -0973-7847, Online - 0976-2787.
9. A.K. Thakur, S.S. Chatterjee and V. Kumar (2014) Antidepressant-like effects of Brassica juncea leaves in diabetic rodents. Indian Journal of Experimental Biology 52(6): 613-622.ISSN: 0975-1009.
10. K.D. Yadav, K.R.C. Reddy and V. Kumar (2014) Beneficial effect of Brahmi Ghrita on learning and memory in normal rats. AYU 35(3): 325-329. ISSN: 0974-8520.
11. T.R. Singh, L.N. Gupta, V. Kumar and N. Kumar (2014) Characterization of an Ayurvedic drug (Shilajatwadi lauha): an approach to standardization. International Journal of Research in Ayurveda and Pharmacy 5(4): 424-427. ISSN: 2277-4343.
12. Satyendra K Prasad, Divya Jain, Dinesh K Patel, Alakh N Sahu and Siva Hemalatha (2014) Antisecretory and antimotility activity of Aconitum heterophyllum and its significance in treatment of diarrhea Indian Journal of Pharmacology 46(1): 82-87.IF: 0.68
13. Brahmeshwar Mishra, Neha Chaturvedi, Ruchi Chawla. Silymarin: Recent Approaches for Enhancing Bioavailability. PhTechMed, 2014; 3 (3), 455-460.

Refereed International Journal

1. M. Mishra, S.K. Yadav, B. Mishra (2015) Antibacterial loaded Spray Dried Chitosan Polyelectrolyte Complexes as Dry Powder Aerosol for the Treatment of Lung Infections, Iranian Journal of Pharmaceutical Research (Accepted 02 march 2015)
2. R.R. Patel, S. Chaurasia, G. Khan, N. Kumar,B. Mishra (2014) Biodegradable Core-Shell Polymeric Nanostructures as Oral Delivery Carrier for Cromolyn Sodium, Journal of Nanomedicine and Nanotechnology. 5 (5): 253.
3. R.R. Patel, N. Kumar, G. Khan, S. Chaurasia,B. Mishra (2014) Investigation of Critical Variables of Core-Shell Polymeric Lipid Hybrid Nanoparticles by Using Plackett-Burman Screening Design. Advanced Science Letters. 20 (5/6):1028-1038.
4. N. Kumar, S. Chaurasia, R.R. Patel, V. Kumar,B.Mishra (2014) Development and Optimization of Atorvastatin Calcium Loaded Oral Biodegradable Polymeric Nanoparticles Using Central Composite Design. Advanced Science Letters. 20 (5/6): 984-993.
5. S. Chaurasia, R.R. Patel, N. Kumar,B. Mishra (2014) Optimization of parameters for the fabrication of curcumin loaded polymeric nanoparticles using taguchi robust design. Advanced Science Letters.20 (5/6): 1028-1038.
6. R. Chawla, H.S. Solanki, S.C.Kheruka, S.Gambhir, V.Dube, L.M.Aggrwal, B. Mishra(2014)Polylactide-co-glycolide nanoparticles of antitubercular drugs-Formulation, Characterization and biodistribution studies. Therapeutic Delivery.5 (12): 1247-1259.
7. P. Chaubey, R.R. Pateland B. Mishra (2014) Development and optimization of curcumin-loaded mannosylated chitosan nanoparticles using response surface methodology in the treatment of visceral leishmaniasis. Expert Opinion on Drug Delivery. 11 (8): 1163-1181.
8. R. Chawla, R.K. Singh andB. Mishra(2014) RP-HPLC method for simultaneous estimation of antitubercular drugs in fixed dose combination tablets. Journal of Advanced Research in Applied Chemistry

and Chemical Engineering(Accepted).
9. S.K. Yadav, G. Khan, B. Mishra(2015) Advances in Patents Related to Intrapocket Technology for the Management of Periodontitis. Recent Patents on Drug Delivery and Formulation, 9 (1).
10. K.M.R. Srivalli and B. Mishra (2014) Drug nanocrystals: four basic prerequisites for formulation development and scale up. Current Drug Targets.(Accepted)
11. B. Mishraand R.R. Patel (2014) Gene therapy for treatment of pancreatic cancer. Austin Therapeutics, 1(1), 1-10.
12. K.M.R. Srivalli and B. Mishra(2014) Drug Nanocrystals: A way towards scale up. Saudi Pharmaceutical Journal (Accepted).
13. Bharti,S. Singh,S.K. "Design ,synthesis and biological evaluation of some novel benzyledine-2-(4 phenylthiazol-2-yl)hydrazines as potential anti-inflammatory drugs" Med Chem Res,23(2),1005-1015.
14. Meenakshi Singh and Sushil K. Singh(2014), Benzothiazoles: "How Relevant in Cancer Drug Design Strategy?" Anti-Cancer Agents in Medicinal Chemistry, 14(1), 127-146.
15. Kumar D, Harish,BG, Gangwar,M, Kumar,M, Kumar,D,K, Tilak,R, Nath,G,Kumar,A &Singh,SK (2014): "Synthesis, Molecular Docking and In Vitro Antimicrobial Studies of Novel Pyrazole Analogues of Curcumin" Letters in Drug Design & Discovery, 11(4), 474-483.
16. Meenakshi Singh, Sudhir K. Singh, Mayank Gangwar, Gopal Nath,and Sushil K. Singh(2014): "Design, Synthesis and mode of action of some benzothiazole derivatives bearing amide moiety as antibacterial agents" RSC Adv., 4 (36), 19013 – 19023.
17. Singh SK, Chouhan HS, Sahu A and Narayan G (2015): "assessment of in vitro antipsoriatic activity of selected Indian Medicinal plants"Pharmaceutical Biology, 53(9):1295-1301.
18. A. Mishra, P.R. Vuddanda and S. Singh (2014) Intestinal lymphatic delivery of praziquantel by solid lipid nanoparticles: formulation design, in vitro and in vivo studies. Journal of Nanotechnology: 1-7.
19. P. Shah, P.R. Vuddanda, S.K. Singh, A. Jain and S. Singh (2014) Pharmacokinetic and Tissue distribution study of Solid Lipid Nanoparticles of Zidovudine in Rats. Journal of Nanotechnology: 1-7.
20. A. Jain, S.K. Mishra, P.R. Vuddanda, S.K. Singh, R. Singh and S. Singh (2014) Targeting of diacerein loaded lipid nanoparticles to intra-articular cartilage using chondroitin sulfate as homing carrier for treatment of osteoarthritis in rats. Nanomedicine: Nanotechnology, Biology, and Medicine 10(5): 1031–1040.(Impact Factor: 6.93)
21. P.R. Vuddanda, A. Mishra, S.K. Singh and S. Singh (2014) Development of polymeric nanoparticles with highly entrapped herbal hydrophilic drug using nanoprecipitation technique: an approach of quality by design. Pharmaceutical Development and Technology 15: 1-9.(Impact Factor: 1.335)
22. B. Singh,P.R. Vuddanda, M.R. Vijayakumar, V. Kumar, P.S. Saxena and S. Singh (2014) Cefuroxime axetil loaded solid lipid nanoparticles for enhanced activity against S. aureus biofilm. Colloids and Surfaces B: Biointerfaces 121: 92-98. (Impact Factor: 4.287)
23. K.A. Singh, S. Singh and M.V. Jagannadham (2014) Structural functional and folding scenario of an anti platelet and thrombolytic enzyme crinumin. International Journal of Biological Macromolecules 68: 50-59.(Impact Factor: 3.096)
24. P.R. Vuddanda,M.R. Vijayakumar, M. Yashpal, and S. Singh (2014) Investigations on agglomeration and haemocompatibility of vitamin E TPGS surface modified berberine chloride nanoparticles. BioMed Research International: 1-11.(Impact Factor: 2.706)
25. G. Balaram, Saurabh, S. Pandya, S. Singh and A.R. Harbhai (2014) Mucoadhesive hydrogel films of Econazole nitrate: Formulation optimization using factorial design. Journal of Drug Delivery: 1-14.
26. G. Debapriya, S. Ankit, S. Sanjay and K. Sairam (2014) Protective effect of eugenol against restraint stress-induced gastrointestinal dysfunction: Potential use in irritable bowel syndrome. Pharmaceutical Biology 4: 1-7.(Impact Factor: 1.337)
27. S. Yuvraj, R.P. Parameswara, J. Achint, P.C. Thakur, P. Sarita and S. Sanjay (2015) Mucoadhesive gel containing immunotherapeutic nanoparticulate satranidazole for treatment of periodontitis: development

and its clinical implications. RSC Advances. (doi: 10.1039/C5RA02350E)(Impact Factor: 3.708)
28. A. Jain, R. Singh, S. Singh and S. Singh (2015) Histological and biochemical evaluation of iodoacetate induced osteoarthritic femorotibial joints of rat: disease progression and its treatment by diacerein. The Journal of Biomedical Research. (doi. 10.7555/JBR.29.20130092)
29. Kumar M, Prasad SK, Laloo D, Hemalatha S. 2014. Aldose reductase inhibitory potential of different fractions of Hottuynia cordata Thunb. Journal of Acute Disease,64-68. ISSN: 2221-6189
30. Sahu AN, Hemalatha S, Sairam K. 2014.Gastric-Ulcer protective activity of Argyreia speciosa Sweet leaves. International Journal of Biological and Pharmaceutical Research,4(12),1182-1186. (Impact Factor :1.34)
31. Kumar M, Prasad SK, Sairam K, Hemalatha S. 2014. Antihyperglycemic activity of Hottuynia cordata Thunb in streptozotocin – induced diabetic rats, Advances in Pharmacological Sciences, Article ID809438. 12 pages, 2014. doi:10.1155/2014/809438ISSN: 16876334, 16876342
32. Laloo D., Prasad S.K., Sairam K., and S. Hemalatha. 2014. Gastroprotective activity of polyphenolic-rich extract of Potentilla mooniana. Pharmaceutical Biology, 52(12),1532-1542 (Impact Factor :1.241)
33. Satyendra K.Prasad, Damiki Laloo,Alakh N.Sahu,Gopal Nath and S. Hemalatha.2014 Cryptocoryne spiralis, a substitute of Aconitum heterophyllum in the treatment of Diarrhea. Journal of Pharmacy and Pharmacology,66,1808-1817. (Impact Factor :2.264)
34. Apurva Joshi, Satyendra K Prasad, S Hemalatha 2015Anti-inflammatory, analgesic and anti-pyretic activities of standardized root extract of Jasminum sambac , Journal of Ethnopharmacology, 160,140-148. (Impact Factor :2.998)
35. Rashmi Sharma, Apurva Joshi, Deepali Pandey and S.Hemalatha. 2015 Pharmacognostical standardization, Anti oxidant activity and Phytochemical analysis of Leaves from Enicostemma verticillatum, Journal of Herbes and spices & Medicinal Plants.21,182-195,2015.ISSN 1049-6475 (Print), 1540-3580 (Online)
36. V. Kumar (2014) Probiotics: an overview. Nutraceuticals Now Autumn: 10-12.
37. A.J. Langstieh, P. Verma, A.K. Thakur, S.S. Chatterjee and V. Kumar (2014) Desensitization of mild stress triggered responses in mice by a Brassica juncea leaf extract and some ubiquitous secondary plant metabolites. Pharmacologia 5(9): 326-338.
38. N. Kumar, S. Chaurasia, R.R. Patel, V. Kumar, and B. Mishra (2014) Development and optimization of atorvastatin calcium loaded oral biodegradable polymeric nanoparticles using central composite design. Advanced Science Letters 20(5-6): 984-993.
39. V. Kumar, A.K. Thakur, and S.S. Chatterjee (2014) Perspective of Andrographis paniculata in neurological disorders. Clinical Pharmacology & Biopharmaceutics S2: 005.
40. N. Tiwari, A.K. Thakur, V. Kumar, A. Dey, and V. Kumar (2014) Therapeutics targets for diabetes mellitus: an update. Clinical Pharmacology & Biopharmaceutics 3: 117.
41. A. Shakya, G.K. Singh, S.S. Chatterjee and V. Kumar (2014) Role of fumaric acid in anti- inflammatory and analgesic activities of a Fumaria indica extracts. Journal of Intercultural Ethnopharmacology 3(4): 173-178.
42. A.K. Thakur, U.K. Soni, G. Rai, S.S. Chatterjee and V. Kumar (2014) Protective effects of Andrographis paniculata extract and pure Andrographolide against chronic stress-triggered pathologies in rats. Cellular and Molecular Neurobiology 34: 1111-1121.
43. A.K. Thakur, S.S. Chatterjee and V. Kumar (2014) Andrographolides and traditionally used Andrographis paniculata as potential adaptogens: Implications for therapeutic innovation. TANG [Humanitas Medicine] 4(3): e15.
44. G.M. Husain, R. Rai, G. Rai, H.B. Singh, A.K. Thakur and V Kumar (2014) Potential mechanism of anti-diabetic activity of Picrorhiza kurroa. TANG [Humanitas Medicine] 4(4): e27.
45. N. Shivavedi, S.S. Chatterjee and V. Kumar (2014) Stress response modulating effects of lactic acid in mice. Therapeutic Targets for Neurological Diseases 1: e418.
46. N. Shivavedi, S.S. Chatterjee and V. Kumar (2014) Evaluation of pharmacologically interesting dose range of ascorbic acid in mice. Scholarena Journal of Neurology 1 (1): 101.

47. V. Kumar and S.S. Chatterjee (2014) Single and repeated dose effects of phytochemicals in rodent behavioural models. EC Pharmaceutical Science 1(1): 16-18.
48. A. Shakya, S.S. Chatterjee and V. Kumar (2015) Efficacies of fumaric acid and its mono- and di-methyl esters in rodent models for analgesics and anti-Inflammatory Agents. EC Pharmaceutical Science 1.2: 76-88.
49. B.K. Rauniyar, A. Shakya, A.K. Thakur, S.S. Chatterjee and V. Kumar (2015) Anti-stress activity of phloroglucinol: A transient metabolite of some plant polyphenolics. Pharmacologia 6(1): 21-30.
50. S. Verma, S.S. Chatterjee and V. Kumar (2015) Metformin like stress response modulating effects of Turmeric curcuminoids in mice. Scholarena Journal of Neurology 1 (1): 102.
51. A.K. Thakur, G. Rai, S.S. Chatterjee and V. Kumar (2015) Analgesic and anti-inflammatory activity of Andrographis paniculata and andrographolide in diabetic rodents. EC Pharmaceutical Science 1(1): 19-28.
52. A.K. Thakur, S.S. Chatterjee and V. Kumar (2015) Adaptogenic Potential of Andrographolide: an Active Principle of the King of Bitters (Andrographis paniculata). Journal of Traditional and Complementary Medicine 5: 42-50.
53. A. Shakya, S.S. Chatterjee and V. Kumar (2015) Role of fumarates in adaptogenic like efficacies of traditionally used Fumaria indica extracts. TANG [Humanitas Medicine] 5(1): e6.
54. V. Kumar, A. Dey, M.B. Hadimani, T. Marcovic and M. Emerald (2015) Chemistry and pharmacology of Withania somnifera: an update. TANG: International Journal of Genuine Traditional Medicine 5(1): e1.
55. Sahu Alakh N, Hemalatha S and Sairam K (2014) Phyto-pharmacological review of Mesua ferrea Linn. International Journal of Phytopharmacology. 5(1): 6-14.
56. Satyendra K. Prasada,, Damiki Laloo, Alakh N. Sahu, Gopal Nath and Siva Hemalatha (2014) Cryptocoryne spiralis, a substitute of Aconitum heterophyllum in the treatment of diarrhea Journal of Pharmacy and Pharmacology66: 1808–1817. IF: 2.161
57. Ruchi Chawla, Rajiv K. Singh, Brahmeshwar Mishra. RP-HPLC Method for Simultaneous Estimation of Anti-Tubercular Drugs in Fixed Dose Combination Tablets. Journal of Advanced Research in Applied Chemistry & Chemical Engineering, 2014; 1 (1): 10-25.
58. Ruchi Chawla, Harshendra S.Solanki, Sanjay Gambhir, Subhash Chand Kheruka, Veeresh Dube, Lalit M.Aggarwal, Brahmeshwar Mishra. Formulation, Characterization and biodistribution studies of poly lactide-co-glycolide nanoparticles of Anti-Tubercular drugs. Therapeutic Delivery, 2014; 5 (12): 1247-1259.

Proceedings of National Conferences

1. B.Mishra, Ravi Padaliya, Maya N and Ravi R Patel. 2015. Exemestane Encapsulated Vitamin E-TPGS Cloaked Polymeric Nanoparticles for the Treatment of ER+ Breast Cancer in Post-Menopausal Women, 66th Indian Pharmaceutical Congress, Hyderabad, India, January, 2015.
2. Priyanka Sharma,Bhawani Singh Bithu, N. Ranga Reddy, Satyendra K. Prasad, Krishnamurthy Sairam and S. Hemalatha. Prosopis cineraria: a potential memory enhancer.Indian Academy Of Neuroscience. 1-3 November 2014.Bengaluru
3. Apurva Joshi, Sonam, S. Hemalatha. Cytomorphological, phytochemical and DNA fingerprinting analysis of Leea macrophylla. 2nd International Congress of Society for Ethnopharmacology (SFEC-2015) Nagpur 20-22 February,2015
4. Sonam, Apurva Joshi, S. Hemalatha. The genus Exacum: An ethnopharmacological and phytochemical review. 2nd International Congress of Society for Ethnopharmacology (SFEC-2015) Nagpur 20-22 February,2015
5. Rati K. P. Tripathi, Senthil R. Ayyannan 2014. Monoamine oxidase inhibitory evaluation of some 3-substituted-3-hydroxyoxindole analogues of isatin. International Symposium on Recent Advances in Medicinal Chemistry (ISRAM – 2014), Mohali, India, September, 2014.

Proceedings of International Conferences

1. A. C. Divedi, N. Singh and B. Mishra. (2015)Formulation, Optimization and Characterization of Mebendazole Solid Lipid Nanoparticles for Glioblastoma Multiforme Treatment, 5th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems, 16th -18th March, 2015, Crown Plaza, Dubai, UAE.
2. A. Patel, C.Pande and B. Mishra.(2015)Formulation, Optimization and Evaluation of Atorvastatin Calcium-Fenofibrate loaded PLGA Nanoparticles, 5th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems, 16th -18th March, 2015, Crown Plaza, Dubai, UAE.
3. N. Maya,B.Mishra, RChawla. (2015) Formulation and Characterization of Polymeric Nanoparticles of Antitubercular Drugs-Rifampicin, Isoniazide, Pyrizinamide and Ethambutol by Modified Solvent Emulsification Evaporation Method, 5th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems, 16th -18th March, 2015, Crown Plaza, Dubai, UAE.
4. B. Mishra(2015)Pastillation Technology Based Design and Development of Oral Modified Release Multiparticulate Drug Delivery System, 5th International Conference and Exhibition on Pharmaceutics & Novel Drug Delivery Systems, 16th -18th March, 2015, Crown Plaza, Dubai, UAE.
5. P. Mittal and B. Mishra.(2015) Screening of the Formulation Components for the Development of Nanostructured Lipid Carriers of AnticancerousPhytoconstituent, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Dehradun, India.
6. H. Vardhan andB. Mishra.(2015) Fabrication of PHBV based Polymeric Nanoparticles to Encapsulate an Antineoplastic Drug for Cancer Therapy, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Dehradun, India.
7. S.K. Yadav, G. Khan, M. Bansal andB. Mishra.(2015) Evaluation of Mucoadhesive ThermoresponsiveMicrogels Containing Antibiotic for the Targeted Delivery to Periodontal Pockets, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Dehradun, India.
8. S.K. Yadav, G. Khan, M. Bansal and B. Mishra. (2015) Injectable, Thermosensitive, In Situ Implants for the Treatment of Anaerobic Infections, International Symposium on Innovations in Educational, Environmental and Health Research, 23rd – 24th February, 2015, Organised by SEDER, India.
9. R.R.Patel, G. Khan, S. Chaurasia, N. Kumar andB. Mishra (2015) Oral Delivery of Cromolyn Sodium Encapsulated Solid-Lipid Nanoparticles for the Treatment of Allergic Diseases, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Dehradun, India.
10. S. Chaurasia, R.R.Patel, N. Kumar, G. Khan, and B. Mishra (2015) Naringenin Loaded Eudragit E 100 Nanoparticles: Optimization, Stability and In-vivo Anticancer Efficacy in Colorectal Cancer, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Dehradun, India.
11. G. Khan, R.R. Patel, S.K. Yadav, S. Chaurasia, N. Kumar andB.Mishra.(2015) Optimization of Formulation Variables Involved in Fabrication of Poly-e-Caprolactone Electrospun Nanofibers by Using Central Composite Design, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Dehradun, India.
12. N. Kumar, S. Chaurasia, R.R. Patel, G. Khan, V. Kumar andB. Mishra.(2015)Polymeric Nanoparticles of Atorvastatin Calcium: Assessment of Oral Bioavailability, Safety and Efficacy Studies, 4th Annual International Conference and Exhibition, Society of Pharmaceutical Education & Research (SPER), 27th -28th February, 2015, DIT University, Abstract No- PC-12, Page No – 31, Dehradun, India.
13. R.R.Patel, S. Chaurasia, G. Khan, N. Kumar and B. Mishra (2014) Biodegradable Core-Shell Polymeric Nanostructures as Oral Delivery Carrier for Cromolyn Sodium, 4th International Conference on Nanotek and

Expo (Nanotek-2014), 1st -3rd December, 2014, San Francisco, USA. (BEST POSTER AWARD).

14. S. Chaurasia, R.R.Patel, N. Kumar, G. Khan, and B. Mishra (2014) Naringenin Encapsulated Lipid-Carbohydrate Based Nanocarrier System to Enhance Oral Bioavailability and In-vivo Anticancer Efficacy, 3rd International Conference and Exhibition on Pharmaceutical, Nutraceutical and Cosmeceutical Technology (Pharma Tech-2014), 1st -2nd December, 2014, at Bangkok, Thailand.
15. B.Mishra, S. Chaurasia, R.R. Patel. (2014) Comparison of Curcumin Encapsulated Lipid and Polymeric Nanoparticles against Colon Cancer: In-vitro and In-vivo Efficacy Studies, 3rd International Conference and Exhibition on Pharmaceutical, Nutraceutical and Cosmeceutical Technology (Pharma Tech-2014), 1st -2nd December, 2014, Bangkok, Thailand.
16. N. Kumar, S. Chaurasia, R.R. Patel, G. Khan, V. Kumar and B. Mishra. (2014)Development of Atorvastatin Calcium Encapsulated Polymeric Nanoparticles Using Central Composite Design for the Treatment of Hyperlipidemia, 3rd International Conference and Exhibition on Pharmaceutical, Nutraceutical and Cosmeceutical Technology (Pharma Tech-2014), 1st -2nd December, 2014, Bangkok, Thailand.
17. R.R.Patel, S. Chaurasia, G. Khan, N. Kumar and B. Mishra (2014) Lipo-Polymeric Nano Hybrids for Oral Delivery of Cromolyn Sodium in Pancreatic Cancer, International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014), 27th-30th October, 2014, IIT Delhi, New Delhi, India.
18. S. Chaurasia, R.R.Patel, N. Kumar, P. Chaubey, G. Khan, and B. Mishra (2014) Enhanced Oral Bioavailability and Anticancer Efficacy of Naringenin Loaded Polymeric Nanoparticles in Human Colorectal Cancer, International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014), 27th-30th October, 2014, IIT Delhi, New Delhi, India.
19. G. Khan, R.R. Patel, S. Chaurasia, N. Kumar, P.K. Mishra and B.Mishra. (2014) Poly-e-Caprolactone Electrospun Nanofibers for Controlled Delivery of Ciprofloxacin and Tinidazole in the Treatment of Periodontitis, International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014), 27th-30th October, 2014, Abstract No-89, IIT Delhi, New Delhi, India.
20. N. Kumar, S. Chaurasia, R.R. Patel, G. Khan, V. Kumar and B. Mishra. (2014) Biodegradable Polymeric Nanoparticles of Rosuvastatin Calcium: An Attempt to Improve Oral Bioavailability, International Conference on Polymeric Biomaterials, Bioengineering and Biodiagnostics (Biomaterials-2014), 27th-30th October, 2014, Abstract No-95, IIT Delhi, New Delhi, India.
21. K.M.R. Srivalli and B.Mishra.(2014) Dissolution of nicotinamide co-crystals of a model BCS class-II drug, 3rd International Conference and Exhibition on Biowaivers, Biologics and Biosimilars, 27th -29th October, 2014, Hyderabad.
22. K.M.R. Srivalli and B.Mishra. (2014) Application of experimental design in the preparation and optimization of drug nanocrystals, 2nd International Conference on Emerging Trends in Chemical & Pharmaceutical Sciences, 15th-17th October, 2014, Abstract No-CP-05, Page No-81, CSIR-IICT, Hyderabad.
23. K.M.R. Srivalli and B.Mishra. (2014) Preparation of drug nanocrystals by controlled nanoprecipitation without surfactants, International conference on Nanoscience and Engineering Application (ICONSEA-2014), 26-28 June, 2014, PP-272, Page – 249, JNTU, Hyderabad. (BEST POSTER PRESENTATION AWARD) 24.S. Singh, K. Priyanka, R. Kosuru and R.P. Sharma (2015) Bioavailability enhancement of Ficus religiosa extract by solid lipid nanoparticles. ICMBPS 2015 : International Conference on Medical, Biological and Pharmaceutical Sciences at London (19-20 January 2015), United Kingdom. P-1027.
24. S. Singh and P.R. Vuddanda (2015) Studies on effect of nano size and surface coating on enhancement of bioavailability and toxicity of Berberine chloride; a p-gp substrate. ICPSE 2015: International Conference on Pharmaceutical Science and Engineering at Paris (23-24 January 2015), France. P-1667.
25. S. Hemalatha, D. Laloo. Isolation of agrimonolide andgastroprotective activity of ethyl acetate fraction of Potentilla mooniana.International Conference on Natural Products. 24 – 25 March 2015, Johor Bahru,

Malaysia.

26. Apurva Joshi, Rashmi Sharma, Deepali Pandey, S. Hemalatha. Gastroprotective potential of the standardized ethanolic leave extract of Enicostemma verticillatum (L.) International Conference on Natural Products. 24 – 25 March 2015 , Johor Bahru, Malaysia.
27. Deepali Pandey, Apurva Joshi, S. Hemalatha.Gastroprotective Study of Ethanolic Root Extract of Aganosma dichotoma.nternational Conference on Natural Products. 24 – 25 March 2015 , Johor Bahru, Malaysia.
28. Abhimanyu, Rati Kailash Prasad Tripathi, Senthil Raja Ayyannan. 2014. Anticonvulsant activity Of some isomeric dimethyl substituted aryl semicarbazones. Tetrahedron Symposium, Asia Edition, Singapore, October 2014

Brief Details of 5 Articles from the Department with maximum no. of Citations in last 5 years

S. No.	Article	umber of Citations*
1	**B. Mishra,** B. Patel and S. Tiwari. (2010) Colloidal nanocarriers: A review on formulation technology, types and applications towards targeted drug delivery, **Nanomedicine NBM** 6(1): 9-24.	263
2	*G.K. Singh and **V. Kumar** (2011) Acute and sub-chronic toxicity study of standardized extract of Fumaria indica in rodents. Journal of Ethnopharmacology 134(3): 992-995.*	21
3	*G.M. Husain, S.S. Chatterjee, P.N. Singh and **V. Kumar** (2011) Beneficial effect of Hypericum perforatum on depression and anxiety in a type 2 diabetic rat model.Acta Poloniae Pharmaceutica 68(6): 913-918.*	20
4	*G.K. Singh and **V. Kumar** (2010)Neuropharmacological screeningand lack of antidepressant activity of standardized extract of Fumaria indica: a preclinical study. Electronic Journal of Pharmacology and Therapy 3: 19-28*	17
5	*A.K. Thakur, S.S. Chatterjee and **V. Kumar** (2014) Neuropsychopharmacology of a therapeutically used Andrographis paniculata extract: a preclinical study. Oriental Pharmacy and Experimental Medicine 14(2): 181-191.*	13

Ultra Centrifuge

Particle Analyzer

HPLC with Electrochemical Detector

Elemental Analyzer

4.11 Department of Physics

Year of Establishment : 1985 (Formerly Department of Applied Physics, IT, BHU, Applied Physics Section 1968)

Head of the Department : Dr. Debaprasad Giri

4.11.1 Introduction

Department of Physics (formerly Department of Applied Physics, IT, BHU / Applied Physics Section, 1968) established in 1985, is a center of excellence for quality research and teaching in Physics & Applied Physics. Faculties of the department have been pursuing front line research in various areas and in collaboration with prestigious national and international institutes. The department also offers an excellent research programme in the field of Space Science, Solar Physics, Plasma Physics, Fibre Optics, Photonics & Optoelectronics, Condensed Matter & Materials Physics, Energy Studies, Remote Sensing and Nano-Technology.

Unique Achievement Preposition of the Department

Teaching and Training

Department offers two physics courses at B.Tech-Part-I level as an institute science course, and two physics courses to preparatory students. We have 5-year Integrated M. Tech. programme in Engineering Physics which started in 2005. Main objective of this course is to impart knowledge of various core technical disciplines without compromising on the basic physics and mathematics courses. The course gives an insight to the disciplines of engineering as well as science, and practical working experience through industrial training / summer internship, project / dissertation work to enhance the working skills of the students.

Students of Engineering physics are awarded with several fellowships to go abroad to pursue higher studies, involved in several project works in both science and technology, present their research works in different workshop/conference/symposia. They also pursue summer internship in industries and reputed institutions/universities in India and abroad. Many of these students are also recruited by reputed national and multinational companies. Department also has a strong Ph. D. programme in the above mentioned specializations and about 85 Ph.D students received their degree so far. Many of our alumni arewell placed in reputed Institutes / University in India and abroad.

Research and Development

The Department offers research programmes in the field of Solar Physics & Space Physics, Fibre Optics, Photonics & Optoelectronics, Condensed Matter Physics & Materials physics, Microwave Remote Sensing, Energy Studies, and Composite Materials.

The department has a rich heritage and history of scientific research in space physics including theoretical study of the planetary atmosphere. In the mid 1970s, the whistler wave at low latitude were recorded for the first time and published in the prestigious "Nature" by the group of our department. $(SP)^2RG$ has been making significant contributions to the theory and modeling of solar plasma in optical, ultraviolet, X-ray, gamma-ray, and in the atomic spectroscopy – especially in the field of diagnostics of electron and proton beams and of the plasmas they heat. This group has been making seminal contributions in the areas of 'MHD waves and transients in the solar atmosphere' and also in 'science communication'. Theoretical calculations related to pitch-angle, cross-sections, scattering are also being carried out. The SP^2RG has equipped with VLF-Antenna for upper Earth atmospheric measurements; Advanced Solar Computation and Analyses Laboratory (ASCAL) to analyse the large-scale solar observational data and model its magnetic atmosphere. SP2RG has global collaborations (e.g., UK, Poland, Russia, China, Austria, Spain, USA, Belgium, etc) as well as participation in international (e.g., Royal Society; Polish National Science Foundation etc.), and national (e.g., 2m- National Large Solar Telescope; Aditya-I) projects.

The Department carries out a wide range of frontier research activities related to magnetism and superconductivity and semiconductors, nanostructures, thin films and nano-materials and is backed by many sophisticated equipment and measurement techniques. Though the main emphasis of these work is on

fundamental aspects, many of the results have a potential for application in industries. In the materials science, we study the electronic, physical, mechanical, optical, and chemical properties of materials, most often in relation to their structure, and use this knowledge to understand and optimize their properties and create new, improved materials and devices. Work in Soft Condensed Matter is also a front-line research area of the department. "Soft" condensed matter research explores areas like adhesion, friction, wetting, the movement of fluids in porous media, understanding recent single molecule force spectroscopy experiments on biopolymers, Polymers under shear flow, etc.

Photonics and Fiber optics is emerging new field of research in our country. We establish a research lab with essential facilities to pursue the theoretical and experimental researches in the field of Photonics. We are engaged in the theoretical analysis of photonic crystals and quasi photonic crystals composed of graded, dispersive and negative index materials. These works would be useful in study of the photonic crystals having such type of materials for various applications. It will open new window to design several photonic crystal devices like sensors, reflectors, switches etc.

Many projects have been sanctioned in the department to different research groups. The Department has facilities for materials synthesis, measurements, Thin-film growth etc. Characterization tools range from optical spectroscopies, such as photoluminescence is available. Structural property is determined using x-ray diffraction measurements in the department. For measurements of magnetic properties at low temperature (~10K) ac-susceptometer is installed, while set-up for transport properties measurement at low temperature is also available. For thermal properties study we have DTA-TGA. For electrical properties study we have Impedance analyzer and as well as LCR meter. For sample preparation we have high temperature furnaces. We also have ball-milling units.

Research on remote sensing is also one of the frontline research areas in the Department. In this field, the growth of agricultural crops are monitored, classification of crops and the recognition of shape/size of buried objects are done by scatterometer measurements and satellite image analysis. Such studies are useful in designing of sensors, urban planning, crop classification, crop-yield and soil moisture estimation for agricultural planning.Moreover, one of the group is actively engaged in different types of luminescent materials, particularly inorganic nanostructures/phosphors having potential applications in the area of energy harvesting, bio-imaging and for advance lighting applications, etc. Composite material studies are also pursued at the Department and the lab for such studies is in development. The energy studies explore the various fuel cells, materials, etc to optimize the renewable energy sources, and related research is being conducted in the Department.

Department has a strong component to deliver popular science lecture and publish articles in magazines line Scientific American and news papers.

Department's vision is to promote new ideas and innovations in physical sciences. Our mission is to offer world class education, research guidance and also leadership in physical sciences. Our aim is to become a high ranking in Physics Department globally in terms of teaching quality, research contributions and academic leadership.

4.11.2 Academic activities

Academic Programmes offered

IMD and PhD

New Courses Introduced

Sl.No.	Course Code	Course name	Course credit
1	PHY-101 (Institute Science Course)	Classical, Quantum, and Relativistic Mechanics	13
2	PHY-102 (Institute Science Course)	Introduction to Engineering Electromagnetics	13
3	EP 101 (Departmental Core Course)	Modern Physics	8
4	EP 102 (Departmental Core Course)	Practices in Engineering Physics	6

Students on Roll

Sr. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	N.A.	N.A.	N.A.	N.A.	N.A.
	Dual Degree	N.A.	N.A.	N.A.	N.A.	N.A.
	M. Tech (IMD)	14	11	14	13	10
	Ph. D	5	6	6	4	1

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

Sr. No.	Name of Student	Roll No.	Conference/Seminar/ Symposia/ Workshop	Date & Venue	Financial Assistance From
INDIA					
1	Sampath Thammanaveni [IMD (Engg. Physics)]	11410EN008	Workshop on Recent Developments in Quantum Theories	24 – 28 February, 2015, Physics, BHU	Self
2	Dhruv Bargujar [IMD (Engg. Physics)]	11410EN012	National Conference on Nano Science and Instrumentation Technology	5 June, 2014 NIT-Kurukshetra	Self
3	Raghvendra (Research Scholar)	09610EN002	National Seminar on Recent Advances in Physical Sciences International Conference On Frontiers Of Spectroscopy (ICFS - 2015)	28 February 2015,U.P. Autonomous college, Varanasi 10-12 January 2015,BHU, Varanasi	Self Self
4	Bheeshma Pratap Singh (Research Scholar)	01010EN001	International Conference On Frontiers Of Spectroscopy (ICFS – 2015)	10-12 January 2015, BHU, Varanasi	Self
5	Dileep Kr. Gupta (Research Scholar)	11610EN002	URSI-One week International Workshop International Society for Photogrammetry and Remote Sensing ISPRS-2014	23-28 March, 2015, ICRS, Jodhpur 9-12 December, 2014, NRSC, Hydrabad	IIT(BHU) IIT(BHU)

6	Kaushal Kumar Shukla (Research Scholar)	11610EN003	Conference of Neutron Scattering CNS-2015	2-4 February, 2015, BARC, Mumbai	IIT(BHU)
7	Pravin Kumar (Research Scholar)	11610EN004	International Conference on Frontiers of Spectroscopy ICFS – 2015	10-12 January, 2015, BHU, Varanasi	IIT(BHU)
8	Bipin Kumar Singh (Research Scholar)	11610EN005	Photonics 2014 17th International Conference of International Academy of Physical Sciences (CONIAPS XVII)	16December, 2014, IIT Kharagpur 16-18 January, 2015 Jaipur, India	Self IIT(BHU)
9	Abhishek Singh (Research Scholar)	12610EN003	Conference on Neutron Scattering CNS-2015	2-4 February, 2015, BARC, Mumbai	IIT(BHU)
10	Md. Jawed Ansaree (Research Scholar)	12610EN006	ICONSEA-14 (International Conference on Nano Science & Engineering Application) CNCMAMS-2015 (National Conference on Microscopy and Advance in Material Science)	June 26-28 ,2014 Jawahar Lal Nehru Inst. of Tech, Hyderabad 2-4 March, 2015, University of Jammu	IIT(BHU) IIT(BHU)
11	Subhashish Tiwari (Research Scholar)	12610EN007	Conference – Photonics 2015 Conference AMSP-2014 (Advances of Materials Science in Physics)	16December,2014, IIT Kharagpur 20 December 2014, Janta College, Bakewar, Etawaha	Self Self
12	Achyutesh Dixit (Research Scholar)	13171002	AMSP-2014 (Advances of Materials Science in Physics)	20 December 2014, Janta College, Bakewar, Etawaha	Self
13	Rahul Singh (Research Scholar)	13171004	Conference on Neutron Scattering CNS-2015	2-4 February, 2015, BARC, Mumbai	IIT(BHU)

14	Saurabh Singh (Research Scholar)	13171005	International Conference on Frontiers of Spectroscopy ICFS-2015	10-12 January, 2015, BHU, Varanasi	Self
15	Varun Narayan Mishra (Research Scholar)	13171006	International Society for Photogrammetry and Remote Sensing	9-12 December 2014, NRSC, Hydrabad	IIT(BHU)
16	Vani Pawar (Research Scholar)	14171003	Workshop On Nanoscience and Life	26 February -02 March 2015	Self
17	Upendra Kumar (Research Scholar)	14171005	Characterization and functionalization of Nanomaterial (CFN-2015)	12-15 March, 2015, BHU, Varanasi	Self

Names of students/scholars who got prizes and awards outside the Institute

Sr. No.	Name of Student	Roll No.	Name of Prize	Date & Venue	Prize awarded by
1	Sahil	11410EN010	Inter IIT Cricket Tournament	20 December 2014 (IIT-Bombay), Mumbai	IIT-Bombay
2.	Subhashish Tiwari	12610EN007	Best Oral Presentation	21 December 2014, Janta College, Bakewar, Etawaha	
3	Achyutesh Dixit	13171002	Best Oral Presentation	20 December 2014, Janta College, Bakewar, Etawaha	

Names of scholars/students who won Convocation/Institute Day prizes

Sr. No.	Name of Student	Roll No.	Name of Prize	Prize awarded by
1	M. Anusha	11410EN009	Institute Color	IIT(BHU)
2	Himanshu Gangwar	11410EN007	Institute Color	IIT(BHU)

4.11.3 Faculty & their Activities

1.3.1 Faculty and their areas of specialisation

Sr. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	Prof. B.N. Dwivedi	Physics and Diagnostics of Solar EUV and X-ray Emission Processes; MHD Waves and Oscillations in the Solar Atmosphere; Science Communication
2	Prof. O.N. Singh	Spectroscopy, Fiber Optics
ASSOCIATE PROFESSORS		
1	Dr. D. Giri	Statistical Physics; Soft Condensed Matter Physics; Computational Bio-Physics
2	Dr. P. Singh	Experimental Materials Science (Ion Conducting Glasses; Electrolyte Materials for Fuel Cells and Electro-ceramics)
3	Dr. Sandip Chatterjee	Experimental Condensed Matter Physics; High Tc Superconductors and Colossal Magneto Resistive Materials; Heavy Fermions System; Critical Behavior; Strong Electron Correlations in Solids
4	Dr. Rajendra Prasad	Microwave Remote Sensing; Satellite Image Analysis for Crop Monitoring, Shape and Size Detection of Buried Objects
ASSISTANT PROFESSORS		
1	Dr. (Mrs.) Anita Mohan	Physics and Diagnostics of Solar, EUV and X-Ray Emission Processes; Synthesis of composites; Tribology
2	Dr. Praveen Chandra Pandey	Fiber Optics; Photonics; Non linear Optics; PBG and Metamaterials
3	Dr. (Mrs.) Shail Upadhyay	Materials Science; Electronic Ceramics
4	Dr. A.K. Srivastava	Physics of Solar Transients; MHD Waves; Coronal and Stellar Seismology
INSPIRE FACULTY		
1	Dr. Sunil Kumar Singh	Florescence and Laser Spectroscopy; Time Resolved Spectroscopy of Rare Earth Doped Micro/Nano Structures
2	Dr. Sunil Kumar Mishra	Nanomagnetism; Frustrated Magnetic Systems; Quantum Dynamics of Spin Characteristics; Strongly Correlated Systems
3	Dr. Neha Agnihotri	Photophysics, Computational Modelling of Light Harvesting Systems; Density Functional Theory; Molecular Dynamics Simulation
RESEARCH ASSOCIATE		
1	Dr. U.N. Singh	Fiber Optics; Optoelectronics; Photonics
EMERITUS PROFESSOR		
1	Dr. R.P. Singhal	Planetary and Space Physics; Plasma Physics; X-ray; Nuclear Physics; Atomic Collisions Physics

Short-term courses/workshops/seminars/symposia/conferences organised by faculty members

Sr. No.	Cordinator	Title	Period
1	Prof. B.N. Dwivedi (Convener) Dr. S. Chatterjee (Secretary) Dr. P.C. Pandey (Treasurer) Mr. S. Patwal (Student Convener)	Annual Physics Convention JIGYASA'15	21-22 March, 2015.

Short-term courses / workshops / seminars / symposia / conferences / training programmes attended by faculty members in academic institutions and public sector undertakings

Sr. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
1	Prof. B.N. Dwivedi	Workshop on "Light From Dark Side of the Universe" under UGC Networking Program	17-20 March 2015, BHU, Varanasi, India
		International Conference on Coupling and Dynamics of the Solar Atmosphere	10-14 November 2014, IUCAA, Pune
2	Dr. Prabhakar Singh	International Symposium on Materials Chemistry (ISMC-2015)	9-12 December, 2015, BARC, Mumbai
		39th International Conferences on Advances in Ceramics and Composite (ICACC-15)	25-30 January, 2015, Daytona beach, Florida, USA.
3	Dr. Praveen Chandra Pandey	17th International Conference of International Academy of Physical Sciences (CONIAPS XVII)	16-18 January, 2015 Jaipur, India
		International Conference on Photonics, Optics and Laser Technology (PHOTOPTICS-2015)	12-14 March, 2015, Berlin, Germany
4	Dr. Shail Upadhyay	CNCMAMS-2015 (National Conference on Microscopy and Advance in Material Science)	2-4 March, 2015, University of Jammu

5	Dr. A.K. Srivastava	Workshop on "Light From Dark Side of the Universe" under UGC Networking Program	17-20 March 2015, BHU, Varanasi, India
6	S.K. Singh	Lanthanide Doped Nanostructures for Multi-modal Emission and their Applications First "Networking-cum-Discussion" meeting (Northern Zone) of DST-INSPIRE Faculty Fellows	3-7 January 2015, Mumbai University, Physics Department. Date: 15-16 March 2015 Venue: IISER Mohali, Mohali
7	Dr. Sunil Kumar Mishra	Young Quantum – 2015 (YouQu-2015)	24-26 February, 2015 Harishchandra Research Institute Allahabad, UP, India
8	Dr. Neha Agnihotri	International Workshop & Conference on Frontiers of Spectroscopy	Banaras Hindu University, Varanasi, India (January 8-12, 2015).

Special lectures delivered by faculty members in other institutions

Sr. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Prof. B.N. Dwivedi	Informal Evening Talk on "My Interaction with Werner Curdt"	MPS, Göttingen, Germany	11-22 May 2014
		'Spectroscopic Signature and Modelling of Plasma Flows, Jets, and MHD Waves in the Solar Corona'	International Conference on Coupling and Dynamics of the Solar Atmosphere,IUCAA, Pune	10-14 November 2014
		Invited Lecture on "Physics of the Sunshine" under the Department of Science and Technology, innovative scheme called INSPIRE	Degree College Upardaha, Allahabad	24 January 2015

		Invited talk on 'Physics of the Sunshine'	"Recent Advances in Physical Sciences", 28 February 2015 (National Science Day) in Department of Physics, Udai Pratap (Autonomous) College, Varanasi	28 February 2015
		Invited Lecture on "Electromagnetic Waves" under the Department of Science and Technology, innovative scheme called INSPIRE	Dr M C Saxena College of Engineering and Technology, Lucknow	31 January 2015
		Evening Lecture on 'How does the Sun shine?'	Workshop on "Light From Dark Side of The Universe" under UGC Networking Program, BHU	17-20 March 2015
2	Sandip Chatterjee	Quantum Hall effect and Topological Insulators.	Physics Department, BHU	11 March, 2015
3	Dr. A.K. Srivastava	Transients and Waves in the Solar Atmosphere.	UMCS, Lublin, Poland	7 October 2014
		MHD Waves and Transients in the Sun's Atmosphere.	Workshop on "Light From Dark Side of The Universe" under UGC Networking Program, BHU	17-20 March 2015
4.	Dr. S.K. Mishra	Protocol using kicked Ising dynamics for generating states with maximal multipartite Entanglement.	Young Quantum -2015 (YouQu-2015)	24-26 February, 2015 Harishchandra research Institute Allahabad, UP, India

Visits abroad by faculty members

Sr. No.	Name of Faculty Member	Country Visited	Date of Leaving india	Date of Returning India	Purpose of Visit	Funding from
1	Prof. B.N. Dwivedi	MPS, Göttingen, Germany	12 May 2014	22 May 2014	Invited to discuss ongoing collaborative scientific projects at MPS, Göttingen,and to present an Informal Evening Talk on 'My Interaction with Werner Curdt'	MPS, Göttingen, Germany
2	Dr. P. Singh	USA	23January, 2015	1February, 2015	To deliver an Invited Talk	IIT(BHU)
3	Dr. A.K. Srivastava	Sheffield University; United Kingdom	18 December 2015	31 December 2015	Royal Society Project	Royal Society, U.K.
4	Dr. A.K. Srivastava	UMCS, Lublin, Poland	28 September 2015	09 October 2015	Research Collaboration	UMCS, Lublin, Poland
5	Dr. Praveen Chandra Pandey	Germany	10 March 2015	16March 2016	To Present Research Paper in International Conference on Photonics, Optics and Laser Technology (PHOTOPTICS-2015), March 12-14, 2015, Berlin, Germany	IIT (BHU)

Fellowships of academic and professional societies

Sr. No.	Name of Faculty Member	Name of Award
1	Dr. A.K. Srivastava	(a) Fellow of Royal Astronomical Society (FRAS) (b) Life-time member of Astronomical Society of India (ASI)
2	Dr. P.C. Pandey	(a) Life-Fellow of Optical Society of India. (b) Life member, International Academy of Physical Sciences; Allahabad, India

Editorial boards of journals

Sr. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Dr. A.K. Srivastava	Guest Editor; Special Issue : Dynamical Plasma Processes in the Sun and Sun-like Stars; March 2015 Issue	Journal of Astrophysics & Astronomy (JpA); Sprnger; Impact Factor : 0.711

4.11.4 Design and Development Activities

New facilities added

Sr. No.	Details	Value (in Lakhs of Rupees)
	Advanced Solar Computation and Analysis Laboratory (ASCAL)	~ 9.0
2	Joint Venture (VLF antenna and related setup) in an International Space Weather/Monitoring of Upper Earth Atmosphere Network	~ 2.0
	Monowave Reactor	~ 10.00
	Turbo Molecular Pump	~ 5.00
	Microwave Signal Generator, USB Based Sensor, Leaf Area Index Meter, GPS	~ 25.00
	High Energy Ball Mill	~ 15.00
	Nanomaterial synthesis facility	~ 4.7
	Thin Film Thickness Measurement System (Sprouting Grant)	~5.93
	d33 Meter(Sprouting Grant)	~5.65
	Table Top Spin Coating Unit (Sprouting Grant)	~1.06
	DC Poling Unit (Sprouting Grant)	~1.00
	Programmable Muffle Furnace(Sprouting Grant)	~0.50
	Balance with Density Kit(CSIR)	~2.50
	Ultrasonic Velocity Meter (CSIR)	~1.30

Sponsored research projects

Sr. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co-ordinator
1	Development of New Electrolyte Materials with Optimized Electrical / Ionic Conductivity for Solid Oxide Fuel Cells	2013-2016	Naval Research Board (NRB) DRDO.	24,72,360/-	Dr. P. Singh
2	Dynamics of Ions in Tellurite Glasses of Variable Composition	2013-2016	HRDG-CSIR	20,64,250/-	Dr. P. Singh

3	Development of $SrTiO_3$ based anode materials for Intermediate Temperature Solid Oxide Fuel Cells	2015-2018	BRNS	29,74,400/-	Dr. P. Singh
4	"A Systematic Study on the Correlation between Structural, Magnetic and Electrical Properties of Multiferroic $Cd_{1-x}A_xV_2O_4$ and $Bi(Mn_{1-x}A_x)O_3$ [A=Fe, Co, Ni] both in Bulk and Nano Phases"	February, 2015-January, 2016	BRNS, DAE	19.5	Dr. Sandip Chatterjee
5	Royal Society International Exchange Scheme with Prof. R. Erdelyi and his Group; Sheffield University, U.K.	2014-2016	Royal Society, UK	12,000 GBP; Approx 11 Lakh	Co-I & Indian Counterpart : Dr. A.K. Srivastava; UK PI : Prof. R. Erdelyi
6	Indo-Bulgarian Project	2013-2016	DST, India-Bulgarian Funding Agency	Approx. 13.50 Lakh	Bulgarian PI : Prof. Prof. Ivan Zhelyazkov; Indian PI : Dr. Ramesh Chandra; Indian co-PI : Dr. A.K. Srivastava
7	Rare-Earth Doped Luminescent Nanostructures for Bio-imaging and Photovoltaic Applications	Jan. 2013 to Dec. 2017	DST	35 Lakhs	Dr. S K Singh
8	Magnetization Dynamics of Antiferromagnetic Nanoparticles arranged on the Geometrically-Frustrated Arrays	2013-2018	DST	35 Lakhs	Dr. Sunil Kumar Mishra
9	Computational Modelling of Novel Materials for Efficient, Robust Organic Solar Photovoltaic Cells	2014-2019	DST (Inspire Programme)	35.00	Dr. Neha Agnihotri

10	Synthesis and Characterization of Nano-sized Powders of $BaTi_{1-x}Sn_xO_3$ ($0 \leq x \leq 1.0$) System for Multifunctional Applications	July, 2012 - July,2015	DRDO, New Delhi	26.00	Dr. Shail Upadhyay

Research Publications

Sr. No.		No.
1	Total Number of Papers Published in Refereed National Journals	
2	Total Number of Papers Published in Refereed International Journals	62
3	Total Number of Papers Presented in National Conferences	
4	Total Number of Papers Presented in International Conferences	06

*Book Chapter: 02 & Science Communication: 06

Refereed International Journal

1. N.C. Joshi, A.K. Srivastava, B. Filippov, P. Kayshap, W. Uddin, R. Chandra, D.P. Choudhary, and B.N. Dwivedi (2014) Confined Partial Filament Eruption and its Reformation within a Stable Magnetic Flux Rope. Astrophysical Journal 787: artical id 11, pp. 13.
2. H. Peter and B.N. Dwivedi (2014) Discovery of the Sun's million-degree hot corona. Frontiers in Astronomy and Space Sciences 1: article id 2: 2.
3. B. N. Dwivedi, A.K. Srivastava and Anita Mohan (2014) Possible Signature of Alfvén Wave Dissipation in the Localized Magnetic Funnels of the Equatorial Solar Corona. Publications of the Astronomical Society of Japan 66: article id S13: 1–11.
4. A.K.Srivastava, P. Konkol, K.Murawski, B.N.Dwivedi and A. Mohan, (2014) On Thermal-Pulse-Driven Plasma Flows in Coronal Funnels as observed by Hinode/EUV Imaging, Spectrometer (EIS) , Solar Physics 289: 4501-4515.
5. K.Wilhelm and B.N. Dwivedi (2015) Photon in a cavity -- a Gedankenexperiment. New Astronomy 34: 211-216.
6. K.Wilhelm and B.N. Dwivedi (2015) On the potential energy in a gravitationally bound two-body system. New Astronomy 34: 250-252.
7. Y. Guo, R. Erdélyi, A. K. Srivastava, Q. Hao, X. Cheng, P. F. Chen, M. D. Ding and B.N. Dwivedi (2015) Magnetohydrodynamic Seismology of a Coronal Loop System by the First Two Modes of Standing Kink Waves. Astrophysical Journal 799: article id. ISI: pp 10.
8. B. N. Dwivedi and K. Wilhelm, (2015) Solar coronal plumes and the fast solar wind, Journal of Astrophysics & Astronomy 36: 185-195.
9. B.N. Dwivedi and A.K. Srivastava (2015) Magnetic field in the gravitationally stratified coronal loops. Journal of Astrophysics & Astronomy 36: 225–232.
10. K. Murawski, A.K. Srivastava, Z. E. Musielak (2014) Fast Magnetic Twister and Plasma Perturbations in a Three-dimensional Coronal Arcade. Astrophysical Journal 788: article id. 8: pp. 9.
11. P.Chmielewski, K. Murawski, Z. E. Musielak, A.K.Srivastava (2014) Numerical Simulations of Impulsively Generated Alfvén Waves in Solar Magnetic Arcades. The Astrophysical Journal 793: article id.

43: pp. 13.
12. X. Cheng, M. D. Ding, J. Zhang, A.K. Srivastava, Y. Guo, Y., P.F. Chen, J.-Q. Sun (2014) On the Relationship Between a Hot-channel-like Solar Magnetic Flux Rope and its Embedded Prominence. The Astrophysical Journal Letters 789 : article id. L35: pages 7.
13. B.P. Filippov, P. Kayshap, A. K.Srivastava, O. V. Martsenyuk (2014) Effects of coronal mass ejections on distant coronal streamers. The Astronomy Reports58 : 578-586.
14. S. Yashiro, N. Gopalswamy, P. Mäkelä, S. Akiyama, W. Uddin, W., A. K.Srivastava, N.C Joshi, R. Chandra, P. K., Manoharan, K. Mahalakshmi, V. C. Dwivedi, R. Jain, A. K. Awasthi, N. V. Nitta, M. J. Aschwanden, D. P. Choudhary (2014) Homologous flare-CME events and their metric type II radio burst association. Advances in Space Research 54 : 1941-1948.
15. Ram Sagar, Manish Naja, G. Maheswar, A.K.Srivastava (2014) Science at High-Altitude Sites of ARIES - Astrophysics and Atmospheric Sciences. Proc Indian Natn Sci Acad 80 : 759-790.
16. B.F. Filippov, O. Martsenyuk, A.K. Srivastava, W. Uddin (2015) Solar Magnetic Flux Ropes. Journal of Astrophysics & Astronomy 36 : 157–184.
17. V. Fedun, A.K. Srivastava, R. Erdelyi, J. C. Pandey (2015) Editorial. Journal of Astrophysics & Astronomy 36 : 1–3.
18. P. Shahi, A. Kumar, Rahul Singh, Ripandeep Singh, P.U. Sastry, A. Das, Amish G. Joshi, A. K. Ghosh, A. Banerjee and Sandip Chatterjee (2015) Chemical Pressure effect at the boundary of Mott insulator and itinerant electron limit of Spinel Vanadates. Sci. Adv. Mater. 7: 1187-1196.
19. Satyam Kumar, G. D. Dwivedi, Shiv Kumar, R. B. Mathur, U. Saxena, A. K. Ghosh, A. G. Joshi, H. D. Yang, and Sandip Chatterjee (2015) Structural, Transport and Optical Properties of $(La_{0.6}Pr_{0.4})_{0.65}Ca_{0.35}MnO_3$ Nanocrystals: A Wide Band-gap Magnetic Semiconductor. Dalton Trans 44 : 3109.
20. A. Das, G. D. Dwivedi, Poonam Kumari, P. Shahi, H. D. Yang, A. K. Ghosh, and Sandip Chatterjee (2015) Neutron Diffraction study of multiferroic Mo-doped $CoFe_2O_4$. J. Mag. Mag Mater. 379 : 6–8.
21. Shiv Kumar, K. Asokan, R. K. Singh, S. Chatterjee, D. Kanjilal and Anup K. Ghosh (2014) Structural and optical properties of ZnO and ZnO:Co nanoparticles under dense electronic excitations, RSC Adv. 4 (107): 62123 – 62131.
22. Prashant Shahi, Harishchandra Singh, A. Kumar, K. K. Shukla, A. K. Ghosh, A. K. Yadav, A. K. Nigam, and Sandip Chatterjee (2014) Effect of Zn doping on the magneto-caloric effect and critical constants of Mott insulator MnV_2O_4. AIP Adv 4: 097-137.
23. P. Shahi, S. Kumar, N. Sharma, R. Singh, P. U. Sastry, A. Das, A. Kumar, K. K. Shukla, A. K. Ghosh, A. K. Nigam, Sandip Chatterjee (2014) Transport, magnetic and structural properties of Mott insulator MnV_2O_4 at the boundary between localized and itinerant electron limit. J. Mater. Sci. 49 : 7317.
24. Rahul Singh,G. D. Dwivedi, P. Shahi, D. Kumar, Om Prakash, A. K. Ghosh, and Sandip Chatterjee (2014) Effect of Pr- and Nd- doping on structural, dielectric, and magnetic properties of multiferroic $B_{i0.8}L_{a0.2}F_{e0.9}M_{n0.1}O_3$. J. Appl. Phys. 115 : 134102.
25. Nandini Jaiswal, Shail Upadhyay, Devendra Kumar & Om Parkash (2015) Enhanced ionic conductivity in La^{3+} and Sr^{2+} co-doped ceria: carbonate nanocomposite. Ionics 21 : 2277-2283.
26. Nandini Jaiswal, Shail Upadhyay, Devendra Kumar, Om Parkash (2015) Ionic conduction in Mg^{2+} and Sr^{2+}co-doped ceria/carbonates nanocomposite electrolytes. International Journal of Hydrogen Energy 40: 3313-3320.
27. Nandini Jaiswal, Devendra Kumar, Shail Upadhyay, and Om Parkash (2015) Preparation and characterization of $Ce_{0.85}La_{(0.15-x}Sr_xO_{\{2-(0.075+x/2)}$ solid electrolytes for intermediate temperature solid oxide fuel cells. Ionics 21: 497-505.
28. Nandini Jaiswal, Devendra Kumar, and Om Parkash, and Shail Upadhyay(2014) Ceria (La3+, Sr2+)/Carbonates Nanocomposite Electrolytes with High Electrical Conductivity for Low-temperature SOFCs. Int. J. Appl. Ceram. Technol. 11: 1–8.

29. Nandini Jaiswal, Shail Upadhyay, Devendra Kumar, Om Parkash (2014) Sm^{3+} and Sr^{2+} co-doped ceria prepared by citrateenitrate auto-combustion method. International Journal of Hydrogen Energy 39: 543 – 551.
30. M. Azimi, L. Chotorlishvili, S. K. Mishra, T. Vekua, W. Hübner, J. Berakdar (2014) Quantum Otto heat engine based on a multiferroic chain working substance. New Journal of Physics 16: pp 06308.
31. Sunil K. Mishra, L. Chotorlishvili, A. R. P. Rau, J. Berakdar (2014) Three-level spinsystem under decoherence-minimizing driving fields: Application to nitrogen-vacancy spin dynamics. Physical Review A 90: 033817.
32. Sunil K. Mishra, Arul Lakshminarayan, V. Subrahmanyam (2015) Protocol using kicked Ising dynamics for generating states with maximal multipartite entanglement. Physical Review A 91: 022318.
33. A K Mishra, O N Singh II (2015) Simplified study of guided modes in plasma cladded step-index optical fiber. Optics Communications, 345: 120-124.
34. A K Tripathi, R P Singhal, K P Singh, O N Singh II (2014) Electrostatic electron cyclotron harmonic instability near Ganymede. Astrophysics and Space Science 352 : 421-427.
35. Bipin K. Singh, Praveen C. Pandey (2014) A study of optical reflectance and localization modes of 1-D Fibonacci photonic quasicrystals using different graded dielectric material. Journal of Modern Optics (U.S.A.) . 61 : 887–897.
36. Bipin K. Singh, Praveen C.Pandey (2014) Influence of graded index materials on the photonic localization in One-dimensional Quasiperiodic (Thue-Mosre and Double-Periodic) photonic crystals. Optics Communications (U.S.A) 333: 84–91.
37. Bipin K Singh, Pawan K. Singh, Praveen C Pandey (2014) Tunable Photonic Band-gaps in One-dimensional Photonic Crystals containing Linear Graded Index Material.Applied Physics B: Lasers and Optics 117 (3) : 947-956.
38. S. Tiwari, B.K. Singh, G.G. Soni and P.C. Pandey (2015) A novel design of photonic crystal fiber containing square holes in a square lattice with high dispersion tolerance, flattened dispersion and low effective mode area. Optoelectronics and Advanced Materials – Rapid Communications 9 : . 319 – 323.
39. R.V. Yadav, SK Singh and SB Rai (2015) Effect of the Li^{+} ion on the multimodal emission of a lanthanide doped phosphor. RSC Advances 5 : 26321. ISSN: 2046-206.
40. M. Rai, G Kaur, SK Singh and SB Rai (2015) Probing a new approach for warm white light generation in lanthanide doped nanophosphors. Dalton Trans. 44: 6184. ISSN: 1477-9226.
41. S. K. Singh (2014) Red and near infrared persistent luminescence nano-probes for bio-imaging and targeting applications. RSC Advances 4 : 58674. ISSN: 2046-2069.
42. K. Mishra, S. K. Singh, A. K. Singh, M. Rai, B. K. Gupta and S. B. Rai (2014) New perspectives in garnet phosphors: low temperature synthesis, nano-crystalline structure, and observation of multi-mode luminescence. ACS Inorg. Chem. 53: 9561. ISSN: 0020-1669.
43. M. Rai, S. K. Singh, K. Mishra, R. Shankar, R. K. Srivastava and S. B. Rai (2014) Eu^{3+} activated $CaGa_2O_4$ wide band gap (WBG) material for solar blind UV converter: Fluorescence and photo-conductivity performance. J. Mat. Chem. C 2 : 7918. ISSN: 2050-7526.
44. R. V. Yadav, S. K. Singh, R. K. Verma and S. B. Rai (2014) Observation of multi-mode: UC, downshifting and quantum-cutting emission in Tm^{3+}/Yb^{3+} co-doped Y_2O_3 phosphor. Chem. Phys. Lett. 599 : 122. ISSN: 0009-2614.
45. A.K. Singh, S.K. Singh and S.B. Rai (2014) Role of Li^{+} ion in the luminescence enhancement of lanthanide ions: Favorable modifications in host matrices. RSC Advances 4 : 27039-27061. ISSN: 2046-2069.
46. O.N. Verma, N.K. Singh, Raghvendra, Prabhakar Singh (2015) Study of ion dynamics in lanthanum aluminate probed by conductivity spectroscopy. RSC Adv. 5: 21614-21619.
47. Raghvendra, Prabhakar Singh (2015) Influence of Bi_2O_3 additive on the electrical conductivity of calcia stabilized zirconia solid electrolyte.J. Eur. Ceram. Soc. 35 : 1485-1493.

48. Brijesh Kumar, Gagandeep Kaur, Prabhakar Singh, S.B. Rai (2015) Anomalous Electrical Properties of Poly Vinyl Alcohol film with Tb^{3+} ion and Copper nanoparticles in different solvents. RSC Advances 5 : 1648-1654.
49. A.K. Yadav, C.R. Gautam, Prabhakar Singh (2015) Crystallization and Dielectric Properties of Fe_2O_3 Doped Barium Strontium Titanate Borosilicate Glass. RSC Advances 5: 2819-2826.
50. B.P. Singh, A.K. Parchur, R.S. Ningthoujam, P.V. Ramakrishna, S. Singh, Prabhakar Singh, S.B. Rai, R. Maalej (2014) Enhanced up-conversion and temperature-sensing behaviour of Er^{3+} and Yb^{3+} co-doped $Y_2Ti_2O_7$ by incorporation of Li^+ ions.Physical Chemistry Chemical Physics 16: 22665-22676.
51. Raghvendra, Rajesh Kumar Singh, Prabhakar Singh (2014) Electrical conductivity of LSGM-YSZ composite materials synthesized via co-precipitation route. J. Materials Science 49: 5571-5578.
52. Pravin Kumar, Rajesh Kumar Singh and Prabhakar Singh (2014) Structural and Electrical Behavior of Double Perovskite Material $Sr_2NiMoO_{6-\delta}$. Adv. Sci. Lett. 20: 647-649.
53. Raghvendra, Rajesh Kumar Singh, Prabhakar Singh (2014) Influence of small DC-bias field on the electrical behaviour of Sr and Mg doped lanthanum gallate. Appl. Phys. A 116: 1793-1800.
54. Raghvendra, Rajesh Kumar Singh, Prabhakar Singh (2014) Electrical conductivity of barium substituted LSGM electrolyte materials for IT-SOFC. Solid State Ionics 262: 428-432.
55. Raghvendra, Rajesh Kumar Singh, Prabhakar Singh (2014) Synthesis of $La_{0.9}Sr_{0.1}Ga_{0.8}Mg_{0.2}O_{3-\delta}$ electrolyte via ethylene glycol route and its characterizations for IT-SOFC. Ceramics International 40 : 7177-7184.
56. B. P. Singh, A.K. Parchur, R.S. Ningthoujam, A.A. Ansari, P. Singh and S.B. Rai (2014) Influence of Gd^{3+} co-doping on structural property of $CaMoO_4$:Eu nanoparticles. Dalton Transactions 43 (12): 4770-4778.
57. B. P. Singh, A. K. Parchur, R. S. Ningthoujam, A. A. Ansari, P. Singh and S.B. Rai (2014) Enhanced photoluminescence in $CaMoO_4$:Eu^{3+} by Gd^{3+} co-doping. Dalton Transactions 43 (12): 4779-4789.
58. Neha Agnihotri and R. P. Steer (2015) DFT and TD-DFT calculations of axially substituted tin porphyrins and an ethynyl-linked tin porphyrin dimer. J. Porphyrins Phthalocyanines 19: 610-621.
59. Neha Agnihotri and R. P. Steer (2014) TD-DFT calculations of the excited states of metalloporphyrins relevant to organic solar photovoltaic cells, J. Porphyrins Phthalocyanines 18: 475-492.
60. Neha Agnihotri (2014) Computational studies of charge transfer in organic solar photovoltaic cells: a Review, J. Photochem. Photobiol. C: Photochemistry Reviews 18: 18-31.
61. D. K.Gupta, P. Kumar, V. N. Mishra, R. Prasad, P. K. S. Dikshit, S. B. Dwivedi, A. Ohri, R.S. Singh, V. Srivastava (2015), Bistatic measurements for the estimation of rice crop variables using artificial neural network, Advances in Space research, vol. 55, 6, pages 1613-1623.
62. P. Kumar, Dileep Kumar Gupta, Varun Narayan Mishra and Rajendra Prasad (2015) Comparison of support vector machine, artificial neural network, and spectral angle mapper algorithms for crop classification using LISS IV data. International Journal of Remote Sensing . 36 : 1604-1617.

Book Chapter:

1. Sunil Mohan, R. K. Gautam and A. Mohan, (2015) Tribology and Aluminium Matrix Composites In "Processing Techniques and Tribological Behaviour of Composite Materials, Editor: Dr. R. Tyagi and Prof. J. Paulo Davim, pp. 127-150, Publisher: IGI Global, USA.
2. Sunil Mohan and Anita Mohan (2015) Wear, friction and prevention of tribo-surfaces by coatings/ nanocoatings. Anti-Abrasive Nanocoatings: Current and Future Applications, Editor: Dr. M Aliofkhazraei, pp. 1-22, Publisher: Elsevier Ltd.

Science communication:

1. B. N. Dwivedi, "What ails higher education system?", Hindustan Times (Lucknow), July 3, 2014.
2. B. .N. Dwivedi, "Science and the social world", Hindustan Times (Lucknow) July 29, 2014.
3. B.N. Dwivedi, Dr Radhakrishnan, a messenger of humanity, Hindustan Times (Lucknow) September 4/5, 2014.
4. B.N. Dwivedi, The Extraordinary vision of Pt Madan Mohan Malaviya, Hindustan Times (Lucknow)

December 11, 2014.

5. B.N. Dwivedi, Bharat Ratna Mahamana: The teacher of teachers , Hindustan Times (Lucknow) December 26, 2014.
6. B.N. Dwivedi, BHU: A tale of 99 years of quality and success, Hindustan Times (Lucknow) January 24, 2015.

Proceedings of International Conferences

1. Prashant Shahi, K K Shukla, Rahul Singh, Sandip Chatterjee, A Das, A K Ghosh, A K Nigam (2014); Magnetic and structural properties of Zn doped MnV_2O_4. AIP Conference Proceedings, 1591(1) 81-83
2. Abhishek Singh, A. Kumar, S. Kumar, A. K. Ghosh, P. Maiti, S.Kumar, Sandip Chatterjee (2015); Synthesis and Optical Properties of Functionalized Graphene-$Zn_{0.98}Mn_{0.02}O$ Nanocomposite, International Conference on "Frontiers in Spectroscopy" -2015 (BHU, Varanasi)
3. K K Shukla, P Shahi, A Kumar, R. Singh, A. Singh, Gopal S, AK Ghosh, AK Nigam, A Das, S Chatterjee (2015); Neutron Diffraction of Credenrite $CuMn_{1-x}Fe_xO_2$ (with x = 0.05,0), Conference on Neutron Scattering – 2015 (BARC, Mumbai)
4. D. K. Gupta, P. Kumar, V. N. Mishra and R. Prasad (2014) Soil moisture Estimation by ANN using Bistatic Scatterometer Data, ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume II-8, Symposium, 09–12 December 2014, Hyderabad, India.
5. V. N. Mishra, P. Kumar, D. K. Gupta, R. Prasad (2014), Classification of Various Land Features using RISAT-1 Dual Polarimetric Data. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume II-8, 2014 Symposium, 09–12, December 2014, Hyderabad, India.
6. Bipin Kr. Singh and Praveen C. Pandey (2015), Tunable Mirror and Multi Channel Filter based on one-dimensional exponential graded photonic crystal, International Conference on Photonics, Optics and Laser Technology (PHOTOPTICS-2015),March 12-14, 2015, Berlin Germany (Accepted).

Brief Details of 5 Articles from the Department with maximum no. of Citations in last 5 years

1. A. K. Srivastava, B. N. Dwivedi, Signature of slow acoustic oscillations in a non-flaring loop observed by EIS/Hinode,New Astr 15, p. 8-15 (2010); Ciations : 24
2. G. D. Dwivedi, K. F. Tseng, C. L. Chan, P. Shahi, J. Lourembam, B. Chatterjee, A. K. Ghosh, H. D. Yang, and Sandip Chatterjee (2010): Signature of ferroelectricity in magnetically ordered Mo-doped $CoFe_2O_4$, Phys. Rev. B 82, 134428; Citation :32
3. A. R Singh, D. Giri, S. Kumar, Force induced melting of the constrained DNA, J. Chem. Phys. 132, 235105 (2010); Citation: 12
4. G. Mishra, D. Giri, M. S. Li, S. Kumar, Role of loop entropy in the force induced melting of DNA hairpin, , J. Chem. Phys. 135, 035102 (2011); Citation : 09

Distinguished Visitors

Sr. No.	Name of the visitor & Designation	Date of Visit	Purpose of Visit
1	Prof. A. R. Rao, TIFR, Mumbai	20-11-2014	Member of Peer Review Committee
2	Prof. R. Vijaya, IIT, Kanpur	20-11-2014	Member of Peer Review Committee
3	Prof. P. C. Pandey, IIT, Bhubaneswar	20-11-2014	Member of Peer Review Committee
4	Prof. Siraj Hasan, IIA, Bangalore	20-11-2014	Member of Peer Review Committee

5	Prof. Anurag Sharma, IIT, Delhi	20-11-2014	Member of Peer Review Committee
6	Prof. Debajyoti Chowdhuri, University of Delhi	20-11-2014	Member of Peer Review Committee
7	Prof. Jitendra Kumar, IIT, Kanpur	20-11-2014	Member of Peer Review Committee
8	Prof. Shiva Prasad, Dept. of Physics, IIT - Bombay	18-07-2014.	Delivering a talk
9.	Prof. K. Porsezian, Department of Physics, Pondicherry University, Pondicherry	10-11-2014	Delivering a talk
10.	Dr. Sebastian C. Peter, New Chemistry Unit, Jawaharlal Nehru Centre for Scientific Research, Jakkur Advanced, Bangalore	14-11-2014	Delivering a talk
11.	Prof. Boris P. FilippovPushkov Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Russian Academy of Sciences, Troitsk, Moscow 142190, Russia	25-11-2014	Delivering a talk
13	Prof. J. V. Narlikar, IUCCA, Pune	21-03-2015	Invited Speaker Jigyasa-2015
14	Prof. Mangala Narlikar, IUCCA, Pune	21-03-2015	Invited Speaker Jigyasa
15	Prof. Aranya Bhuti Bhattacherjee, JNU, New Delhi	21-03-2015	Invited Speaker Jigyasa
16	Prof H.C. Verma, IIT-Kanpur	21-03-2015	Invited Speaker Jigyasa
17	Dr. Mahadeva Bhat, GAETEC, Hyderabad	21-03-2015	Invited Speaker Jigyasa
18	Prof. Ashoke Sen, HRI, Allahabad	21-03-2015	Invited Speaker Jigyasa
19	Dr. K.P. Singh, Bangalore	21-03-2015	Invited Speaker Jigyasa
20	Prof. Robertus Erd´elyi, University of Sheffield, UK	21-03-2015	Invited Speaker Jigyasa; Royal Society (UK) Visitor
21	Dr. Amit Kumar Verma, Univ. Of Nortre-Dam, USA	21-03-2015	Invited Speaker Jigyasa-2015
22	Dr. Viktor Fedun; Sheffield University, UK	21-25 March 2015	VLF Collaboration; Royal Soeciety Project

4.11.5 Other activities

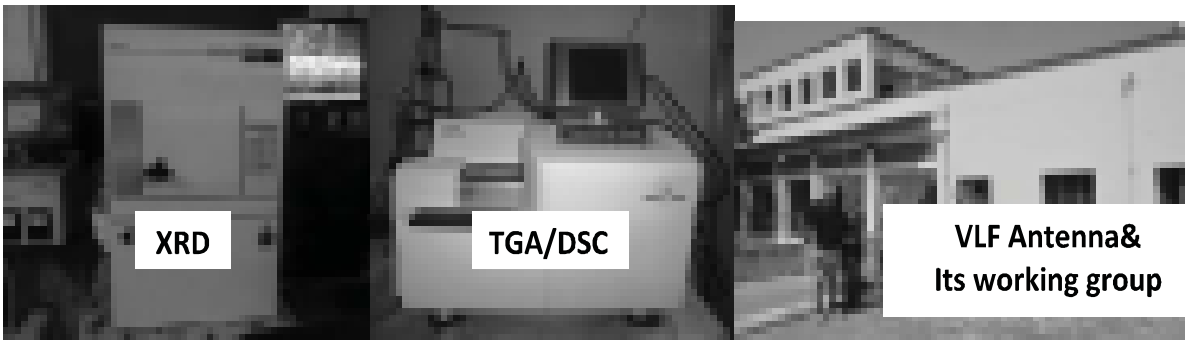
International collaboration/achievements by the department

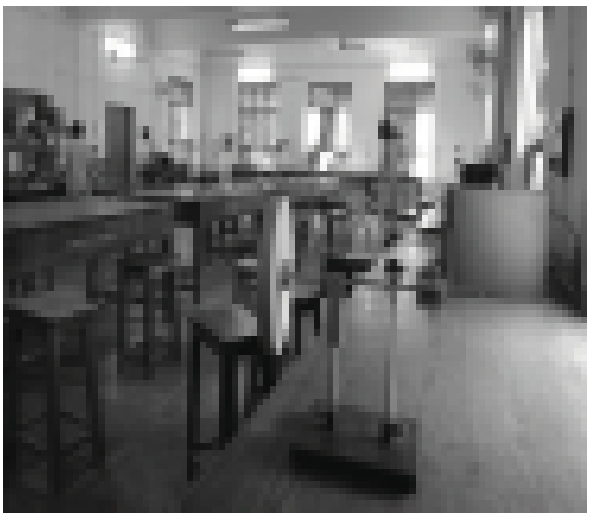
1) International collaborations of Solar & Space Plasma Physics Research Group (SP^2RG), Department of Physics, IIT (BHU):

Prof. Kris Murawski, UMCS, Lublin, Poland; Prof. R. Erdelyi, School of Statistics and Mathematics, The University of Sheffield, UK; Dr. Viktor Fedun, Department of Automatic Control and Systems Engineering, The University of Sheffield, UK; Dr. Boris Filippov, IZMIRAN, Russian Academy of Sciences, Troitsk, Mascow Region, Russia; Prof. Z.E. Musielak, Department of Physics, University of Texas at Arlington, Arlington, TX 76019, USA; Prof. P.F. Chen, School of Astronomy and Space Science, Nanjing University, Nanjing, China; Prof. Marcel Goossens, Centre for Mathematical Plasma Astrophysics, Department of Mathematics, KU Leuven, Leuven, Belgium; Prof. I. Zhelyazkov, Faculty of Physics, Sofia University, Sofia, Bulgaria; Prof. Klaus Wilhelm, MPS, Göttingen, Germany

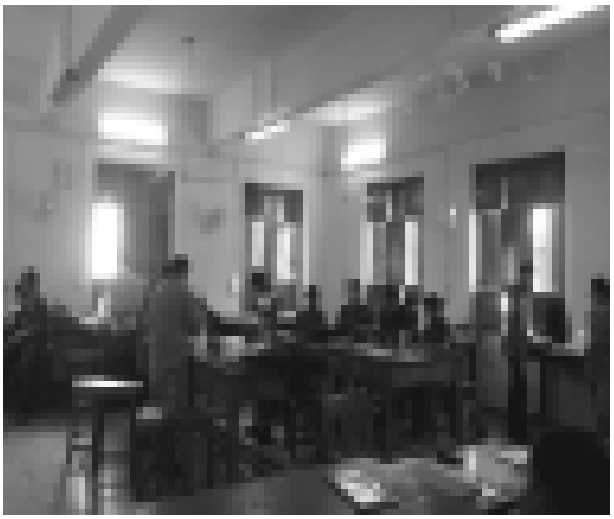
Foreign Faculty Visits

Sr. No.	Name of Faculty Member	Purpose of Visit	Date and Venue
1	Prof. Robert Erdelyi, University of Sheffield, UK	Royal Society Project and Research	March 2015, Department of Physics, IIT (BHU)
2	Dr. Viktor Fedun, University of Sheffield, UK	Royal Society Project and Research	March 2015, Department of Physics, IIT (BHU)
3	Dr. M. Korsos, University of Sheffield, UK	Royal Society Project and Research	March 2015, Department of Physics, IIT (BHU)
4	Dr. Boris Filippov, IZMIRAN, Russian Academy of Sciences, Moscow, Russia	Indo-Russian Project	November 2014, Department of Physics, IIT (BHU)
	Dr. Olesya Marsenyuk, IZMIRAN, Russian Academy of Sciences, Moscow, Russia	Indo-Russian Project	November 2014, Department of Physics, IIT (BHU)
5	Prof. Robert Erdelyi, University of Sheffield, UK	Royal Society Project and Reseach	March 2015, Department of Physics, IIT (BHU)





B.Tech Part-I
(Mechanics Lab)



B.Tech Part-I
(Optics & Electricity lab)

4.12 Department of Chemistry

Year of Establishment:1985

Head of the Department: Prof.RashmiBalaRastogi

4.12.1 Introduction

The Department of Chemistry, IIT-BHU, previously known as Department of Applied Chemistry (Institute of Technology), was established in the year of 1985. Earlier this Department was functioning as a Section in the School of Basic Sciences in Banaras Hindu University-Varanasi. This Department currently constitutes 16 faculty members including 10 Professors, 1 Institute professor, 2 Associate Professors and 3 Assistant Professors. The prime responsibility of the department is to organize the teaching of chemistry courses in various B.Tech and integrated M.Tech programs. In addition, this department is also providing an excellent research platform to the students in various thrust areas of chemistry.

The Department of Chemistry offers a five year integrated M.Tech program in Industrial Chemistry and Ph. D programs in Organic, Inorganic, Physical and Analytical chemistry. More than 100 PhD's have been awarded from this department and about 50 students are currently pursuing their research. Research programs in the department have been supported by DST, CSIR, BRNS, UGC and AICTE. The department has recently received 85 lakhs from DST-FIST for the establishment of research and teaching facilities. The department is presently equipped with primary instruments including AAS, AFM, UV-Vis spectrophotometers, FTIR, and powder-XRD, etc.

Teaching and running Course programs:

Teaching Chemistry to First year students, 5 Year IMD and PhD programs

4.12.2 Academic Activities

Academic Programmes offered

IMD and PhD

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	Ac-7203	Green Chemistry	13

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1	M. Tech.	14	9	13	10	04
2	Ph. D.	51 (Fifty One Research Scholars)				

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
INDIA					
1	Ashutosh Kumar		**BRNS-AEACI Ninth School on Analytical Chemistry (SAC-9)**	**October 27 – November 03, 2014**	**North Eastern Region, Atomic Minerals Directorate, Shillong**
2	Priyanka Singh	12611EN005	International conference on corrosion-Corcon-2014	12-15 Nov 2014 hotel Grand Hyat Mumbai	IIT (BHU)
3	ChandrabhanVerma	12611EN009	International conference on corrosion-Corcon-2014	12-15 Nov 2014 hotel Grand Hyat Mumbai	IIT (BHUh
4	Sitashree Banerjee	283830	XXXIII Annual Conference, Indian Council of Chemists	15-17 December 2014, at Department of Applied Chemistry in ISM Dhanbad	
5	PunitaMourya	11611EN004	XXXIII Annual Conference, Indian Council of Chemists	15-17 December 2014, at Department of Applied Chemistry in ISM Dhanbad	STGS, IIT (BHU) Varanasi
6	Surendra Kumar	283830	XXXIII Annual Conference, Indian Council of Chemists	15-17 December 2014, at Department of Applied Chemistry in ISM Dhanbad	STGS, IIT (BHU) Varanasi
7	Devendra Kumar Singh	12611EN013	CRSI-2015	6-8 Feb 2015 NCL Pune, India	IIT (BHU)

8	Sweta Mohan	12611EN007	CRSI-2015	6-8 Frebuary 2015 NCL Pune, India	IIT (BHU)
9	Vijay Kumar		CRSI-2015	6-8 Feb 2015 NCL Pune, India	IIT (BHU)
10	PunitaMourya	11611EN004	17th CRSI National Symposium in Chemistry	06-08 February, 2015 at CSIR-NCL, Pune	STGS, IIT (BHU) Varanasi
11	Sitashree Banerjee	283830	Lecture – Workshop on Current Trends in Chemistry held at Central Library	20-21Feb 2015,	U P College, Varanasi
12	Miss Shikha Dubey		"National Symposium on Nanomaterials & Sustainable Synthetic Strategies"	March 21-22, 2015.	Banaras Hindu University, Varanasi
13	Miss Veena Singh		"National Symposium on Nanomaterials & Sustainable Synthetic Strategies"	March 21-22, 2015.	Banaras Hindu University, Varanasi

Names of students/scholars who got prizes and awardsoutsidethe Institute

S. No.	Name of Student	Roll No.	Name of Prize	Date & Venue	Prize awarded by
1	Sitashree Banerjee	283830	Prof. G. Gopala Rao Centenary Commemorative Award	15-17 December 2014, at Department of Applied Chemistry, ISM Dhanbad	Indian Council of Chemists

Names of scholars/students who won Convocation/Institute Day prizes

S. No.	Name of Student	Roll No.	Name of Prize	Prize awarded by
1	Neeraj Gupta		Gold Medal	IIT (BHU), Varanasi

4.12.3 Faculty & their Activity

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	Prof. R. B. Rastogi	Evaluation of organic compounds, metallic and organometallic complexes for their antiwear and corrosion inhibition properties
2	Prof. P. C. Pandey	Sensors Technology, bioelectrochemistry, Organically modified silicate based Nanomaterial and optoelectrochemistry

3	Prof. M. A. Quraishi	Corrosion Inhibition of metals Alloys, Green Chemistry: MW & Ultrasound assisted synthesis of Organic compounds Synthetic Organic Chemistry
4	Prof. A. K. Mukherjee	Physical Chemistry, Computational Chemistry
5	Prof. S. H. Hasan	Nanomaterials, Nuclear Materials, Water Remediation
6	Prof. V. Srivastava	Synthetic Organic Chemistry, Carbohydrate Chemistry, Immunochemistry, Tribology
7	Prof. Y. C. Sharma	Renewable Energy and Bio-fuels, Development and characterization of heterogenous catalysts, Synthesis and application of nanoadsorbents, Macrophytes for Uptake of Metallic Species from industrial effluents.
8	Prof. R. Ghose	Coordination Chemistry, Air Pollution
9	Prof. D. Tiwary	Isotopic Application in Removal Processes Adsorption / Ion Exchange
10	Prof. K. D. Mandal	Electro -Ceramics, Nano-materials, Materials Chemistry, Solid State Chemistry
ASSOCIATE PROFESSORS		
11	Dr. S. Singh	Synthetic Organic Chemistry, Microwave Assisted Organic Synthesis
12	Dr. I. Sinha	Chemistry of Nanomaterials, Computational Physical Chemistry
ASSISTANT PROFESSORS		
13	Dr. M. Malviya	Nanoparticles of Transition Metal oxides
14	Dr. A. Durgbanshi (on lien)	Analytical Chemistry
15	Dr. J. Kandasamy	Organic Chemistry, Carbohydrate Chemistry

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
1	M. M. Singh	XXXIII Annual Conference, Indian Council of Chemists	15-17 December 2014, at Department of Applied Chemistry in ISM Dhanbad
2	Rashmi Bala Rastogi	Theoretical and Experimental Studies on the TribologicalBehavior of SAPS-free Salicylaldehydepropanoyl hydrazone Schiff base and its Cu (ll) Complex in Paraffin Oil for Steel-Steel Contact.	PES University, Bangalore Karnataka, India, Decembe 2014.
3	**M.A. Quraishi**	"International Conference on Green Initiative in Science and Technology"	January 15 -16 **2015**, ManavRachnaUniversityFaridabad

4	**M.A. Quraishi**	"International Conference on Corrosion and Degradation of Materials"	13-16 May **2014.**Institute of Materials, Kuala Lumpur, Malaysia
5	Yogesh Chandra Sharma	Fish waste for synthesis of biodiesel	21-22 August, 2014 Durban Workshop on green chemistry, Durban, South Africa
6	K. D. Mandal	Dielectric Properties of Ternary Composite based on Complex PerovskiteOxides Synthesized by Semi-wet Route	Presented in International Conference on Advanced Materials and Nanotechnology (ICAMN 2014), December, 18-19, 2014 , **Bangkok**, **Thailand**
7	K. D. Mandal	Dielectric properties of Nano-sized $Y_{2/3}Cu_3Ti_{3.90}Fe_{0.10}O_1$ Ceramic Synthesized by Semi-wet Route	Presented in International Conference On Recent Advances in Analytical Science (RAAS-2014)on 27-29 March 2014 in Deptt. of Applied Chemistry, **IIT B.H.U. Varanasi**

Special lectures delivered by faculty members in other institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	M. M. Singh	Corrosion and Its Prevention at Department of Chemistry	S.P. P. University,	26th March, 2015
2	M. M. Singh	An Overview of Physical Chemistry Research in Department of Chemistry, IIT (BHU), Varanasi	ISM Dhanbad	15th December, 2014
3	**M.A. Quraishi**	**Key note lecture**on Green Initiative Corrosion Science and Technology	ManavRachna University, Faridabad	15-16 January **2015**.
4	**M.A. Quraishi**	**Invited lecture:** Recent Advances on Corrosion inhibitors	Institute of Materials,Kuala Lumpur,Malaysia	13-16 May **2014**
5	P C Pandey	**Synthesis of Functional Nanomaterials and Their Applications**	University of Rajsthan, Jaipur under CONIAPS XVII	Jan, 17 2015

6	Yogesh Chandra Sharma	Invited lecture on Toxic Effects of metallic pollutants at DST sponsored winter science camp INSPIRE	Dr M C Saxena College of Engineering and Technology, Lucknow.	Jan 31, 2015
7	I. Sinha	Effect of starch functionalization of iron oxide nanoparticles on chromium removal from aqueous solutions	International Conference on Small Science (ICSS 2014) at Hong Kong, China from Dec. 8 to 11, 2014	I. Sinha* University of Electronic Science and Technology of China, China

Visits abroad by faculty members

S. No.	Name of Faculty Member	Country Visited	Date of Leaving india	Date of Returning India	Purpose of Visit	Funding from
1	RashmiBalaRastogi	Dubai,UAE	16 March 2015	20 March 2015	Conference	Institute as CPDA
2	**M.A. Quraishi**	Malaysia	13-16 May 2014.	17 May 2014	Attending Conference	CPDA
3	S. H. Hasan	USA			Conference	IIT (BHU)
4	P C Pandey	USA	Nov.29, 2014	December 7, 2014	Invited Speaker	DST+CPDA
5	**Yogesh Chandra Sharma**	Durban, South Africa	17-21 Aug, 2014	23 Aug 2014	To attend 5th International IUPAC conference on Green Chemistry	Sponsored by Royal Society of Chemistry, UK
	K. D. Mandal	Thailand	17th Dec. 2014	20th Dec. 2015	Conference	Institute as CPDA
6	Indrajit Sinha	Hong Kong	December 2014		Invited Talk in Conference	CPDA

Honours and awards

S. No.	Name of Faculty Member	Name of Award
1	**M.A. Quraishi**	Member board of Studies NIT Allahabad

Books, monographs authored/co-authored

S. No.	Authors	Title	Publisher
1	S.N. Kaul, D.R. Saini, Y.C. Sharma, PrateekKaul	Bio-Energy from Wastewaters	Astral International (P) Ltd.,New Delhi, India ISBN 9788170358541 2014

Fellowships of academic and professional societies

S. No.	Name of Faculty Member	Name of Award
1	**Yogesh Chandra Sharma**	Fellow Royal Society of Chemistry (FRSC), U.K.

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	**M.A. Quraishi**	Guest Editor	Innovations in Corrosion and Materials Science , Bentham Israel (Open Excess)
2	**M.A. Quraishi**	Member, Editorial Board	American Chemical Science Journal ,
			National University, Korea(Open Excess)
3	**M.A. Quraishi**	Member, National Advisory Board	International Journal of Nano Corrosion Science and Engineering , India
4	**Yogesh Chandra Sharma**	Editorial board member	Indian J Chemical tech., NISCAIR,

4.12.4 Design and Development Activities

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	BET Surface area(DRDO project)	10
2	Gas chromatograph(CSIR project)	10
3	UV-Vis spectrophotometer (Shimadzu)	06
4	X Ray diffractometer	35
5	FTIR	10

Patents filed

S. No.	Name of Faculty Member	Title of Patent
1	M.A. Quraishi	Technique for protection of ferrocement from corrosion, 3663/DEL/2014 A. (CSIR)
2	Prof. P C Pandey	4043/DEL/2014, A PROCESS FOR THE POLYETHYLENIMINE AND ORGANIC REDUCING AGENT - MEDIATED SYNTHESIS OF NOBLE METAL NANOPARTICLES

4.12.5 Research and Consultancy

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co-ordinator
1	Exploring the Effect of Processing Parameters on the Corrosion Behaviour of Iron – Alumina / Zirconia Metal Matrix Nanocomposites (MMNC)	Feb 2013 - 2016	CSIR (New Delhi),	23.92 Lakh	Prof M.M. Singh (PI Prof D. Kumar, department of Ceramic Engineering)
2	Exploring the Effect of Processing Parameters on the Corrosion Behaviour of Iron – Alumina / Zirconia Metal Matrix Nanocomposites (MMNC)	Feb 2013 - 2016	CSIR (New Delhi),	23.92 Lakh	M.A. Quraishi Co PI (PI Prof D. Kumar, department of Ceramic Engineering)
3	Synthesis of nanostructured adsorbents and study of their adsorption characteristics for the removal of selected metallic pollutants from water and wastewater (2011-2015)	2011-2015	DRDO	47.5 Lakhs	PI Yogesh Chandra Sharma
4	Evaluation and optimization of biodiesel production from microalgae (2014-2016)	2014-2016	DST	61 lakh	PI Yogesh Chandra Sharma
5	Superoxide Ion Induced Multicomponent Synthesis of Heterocyclic Compounds	2012-2015	UGC	9.9	Dr. S. singh

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed International/National Journals	66
3	Total Number of Papers Presented in National Conferences	21
4	Total Number of Papers Presented in International Conferences	11

Publications in Refereed International/National Journals

1. Sudheer and M.A. Quraishi(2015) The corrosion inhibition effect of Aryl Pyrazolo Pyridines on Copper in hydrochloric acid system: Computational and Electrochemical studiesRSC Advances 5: 41923–41933.

ISSN 2046-2069. IF-3.84
2. K.R. Ansari and M.A. Quraishi (2015) Isatin Derivatives as a non-toxic corrosion inhibitor for mild steel in 20% H_2SO_4. Corrosion Science 95: 62–70. ISSN: 0010-938X, IF-4.422
3. C.B. Verma, A. Singh, G. Pallikonda, M. Chakravarty, M.A. Quraishi, I. Bahadur, E.E. Ebenso (2015) Aryl sulfonamidomethylphosphonates as new class of green corrosion inhibitors for mild steel in 1M HCl: Electrochemical, surface and quantum chemical investigation. Journal of Molecular Liquids 209: 306-319. ISSN: 0167-7322. IF-2.515
4. P.Singh, C.B. Verma, I. Bahadur, E.E. Ebenso, M.A. Quraishi (2015) Electrochemical, thermodynamic, surface and theoretical investigation of 2-aminobenzene-1,3-dicarbonitriles as green corrosion inhibitor for aluminum in 0.5 M NaOH. Journal of Molecular Liquids 209: 767-778, ISSN: 0167-7322. IF-2.515
5. Ambrish Singh, M. A. Quraishi (2015) The extract of Jamun (Syzygiumcumini) seed as greencorrosion inhibitor for acid media. Research on Chemical Intermediates 41: 2901–2914. ISSN: 0922-6168. IF-1.221
6. K.R. Ansari, M.A. Quraishi(2015)Experimental and quantum chemical evaluation of Schiff bases of isatin as a new and green corrosion inhibitors for mild stell in 20% H_2SO_4. Journal of the Taiwan Institute of Chemical Engineers 000: 1-10. ISSN: 1876-1070. IF-3.00
7. K.R. Ansari, M.A. Quraishi(2015) Experimental and computational studies of naphthyridine derivatives as corrosion inhibitor for N80 steel in 15% hydrochloric acid. Physica E 69: 322–331. ISSN: 1386-9477. IF-2.00
8. K.R. Ansari, M.A. Quraishi, A. Singh (2015) Corrosion inhibition of mild steel in hydrochloric acid by some pyridine derivatives: An experimental and quantum chemical study. Journal of Industrial and Engineering Chemistry 25: 89-98. ISSN: 1226-086X. IF-3.515
9. K.R. Ansari, M.A. Quraishi, A.Singh (2014) Schiff's base of pyridyl substituted triazoles as new and effective corrosion inhibitors for mild steel in hydrochloric acid solution. Corrosion Science, 79: 5-15. ISSN: 0010-938X, IF-4.422
10. K.R. Ansari, M.A. Quraishi (2014) Bis-Schiff bases of isatin as new and environmentally benign corrosion inhibitor for mild steel. Journal of Industrial and Engineering Chemistry, 5: 2819-2829.ISSN: 1226-086X. IF-3.515
11. Laxman Singh, K. D. Mandal , U.S. Rai and Alok Kumar Rai (2014) Effect of site selection on dielectric properties of Fe doped CaCu3Ti4O12 electro- ceramic synthesized by citrate nitrate gel route, Indian Journal of Physics 88 665-670
12. Sunita Sharma, Shiv Sunder Yadav, M. M. Singh and K.D. Mandal (2014) Impedance Spectroscopic and Dielectric Properties of nano-sized $Y_{2/3}Cu_3Ti_4O_{12}$ Ceramic Synthesized by Semi-wet Route, J. Advanced Dielectrics 4 1450030
13. Laxman Singh, K. D. Mandal, U. S. Rai Youngil Lee (2014) Dielectric studies of a nano-crystalline CaCu2.90Zn0.10Ti4O12 electro-ceramic by one pot glycine assisted synthesis from inexpensive TiO2 for energy storage capacitors, RSC Advances 4(95) 52770-52784
14. Laxman Singh, U.S. Rai andK. D. MandalYoungil Lee, (2014) Comparative Dielectric Studies of Nanostructured BaTiO3, CaCu3Ti4O12 and 0.5BaTiO3·0.5CaCu3Ti4O12 Nano-composites Synthesized by Modified Sol-gel and Solid State Methods ,Materials Characterization 96 54-62
15. U.S.Rai, Laxman Singh, K.D.Mandal and Narsingh B. Singh (2014), An Overview on recent Developments in the Synthesis, Characterization and Properties of High Dielectric Constant Calcium Copper Titanate Nano-particles, Nanoscience and Technology 1 (2), 1-17
16. Laxman Singh, U.S. Rai, K.D.Mandaland N. B. Singh (2014), Progress in perovskite functional dielectric material $CaCu_3Ti_4O_{12}$, Progress in Crystal Growth and Characterizationof Materials, 60 15-62
17. Laxman Singh, U. S. Rai, K. D. Mandal , ByungCheol Sin, Sang-Ick Lee and Youngil Lee (2014) AC impedance, modulus studies on 0.5BaTiO3·0.5CaCu3Ti4O12 nano- composite, Ceramic International40 10073–10083
18. V. Jaiswal, R. B. Rastogi, R. Kumar, Laxman Singh and K. D. Mandal (2014) Tribological studies of

Stearic acid-modified $CaCu_{2.9}Zn_{0.1}Ti_4O_{12}$nanoparticles as effective zero SAPS antiwear lubricant additives in paraffin oil, J. Materials Chemistry A, 2 375-386

19. Alok Kumar Rai, JihyeonGim , Eui-chol Shin, Hyun-HoSeo, Vinod Mathew, K. D. Mandal , Om Parkash, Jong-Sook Lee, Jaekook Kim(2014), Effects of Praseodymium Substitution on Electrical Properties of $CaCu_3Ti_4O_{12}$ Ceramics, Ceramic International,40 181-189
20. C.B. Verma, M.A. Quraishi, A. Singh (2015) 2-Aminobenzene-1, 3-dicarbonitriles as green corrosion inhibitor for mild steel in 1 M HCl: Electrochemical, thermodynamic, surface and quantum chemical investigation. Journal of the Taiwan Institute of Chemical Engineers 49: 229–239. ISSN: 1876-1070. IF-3.00
21. Sudheer, M.A. Quraishi(2014) 2-amino-3,5-dicarbonitrile-6-thio-pyridines: New and effective corrosion inhibitors for mild steel in 1 M HCL. Ind. Eng. Chem. Res., (ACS Publication) 53: 2851-2859. ISSN 0888-5885. IF-2.587
22. Priyanka Singh, Ambrish Singh, M.A. Quraishi(2014) Inhibition effect of 1,3,5-tri-p-tolyl-1,3,5-triazene on the corrosion of brass in 0.5 M HCl solution.Research on Chemical Intermediates, 595-604. ISSN: 0922-6168. IF-1.221
23. C.B. Verma, M.A. Quraishi(2014) Schiff's Bases of Glutamic Acid and Aldehydes as Green Corrosion Inhibitor for Mild Steel: Weight Loss, Electrochemical and Surface Analysis. International Journal of Innovative Research in Science, Engineering and Technology 14601-146013. ISSN: 2319-8753. IF-5.442
24. P C. Pandey, and Gunjan Pandey "Tunable functionality and nanogeometry in tetrahydrofuran hydroperoxide and 3-Aminopropyl-trimethoxysilane mediated synthesis of goldnano-particles; Functional application in Glutathione sensing, J. Mater. Chem. B, 2(2014))3383-3390.
25. P C. Pandey*, A. K. Pandey and Gunjan Pandey, Functionalized alkoxysilane mediated controlled synthesis of noble metal nanoparticles dispersible inaqueous and non-aqueous medium" J. Nanosci. Nanotechnol., , 14 (2014) 6606-6613.
26. P C Pandey*A rvind Prakash and Ashish K Pandey, Studies on electrochemical and peroxidase mimetic behavior of Prussian blue nanoparticles in presence of Pd-WO_3-SiO_2 Nanocomposite; bioelectrocatalytic sensing of H_2O_2, ElectrochimicaActa, 127 (2014)132-137.
27. P C Pandey and Ashish K Pandey, Tetrahydrofuran hydroperoxide mediated synthesis of Prussian blue nanoparticles: a study of their electrocatalytic activity and intrinsic peroxidase-like behavior, ElectrochimicaActa, 125 (2014)465-472.
28. P C Pandey and Richa Singh, Tetrahydrofuran hydroperoxide and 3-Aminopropyltrimethoxysilanemediated controlled synthesis of Pd, Pd-Au, Au-Pd nanoparticles: Role of Palladium nanoparticles on the redox electrochemistry of ferrocenemonocarboxylic acid, ElectrochimicaActa, 138 (2014)163-173.
29. P.C. Pandey and Arvind Prakash, Electrochemistry of redox mediators encapsulated within organically modified silicate matrix in the presence of TiO_2 and palladium nanoparticles; application on electroanalysis of ascorbic acid, J. Electroanal.Chem., 729 (2014) 95–102.
30. P C Pandey, D. Pandey and G. Pandey, 3-Aminopropyltrimethoxysialne and organic electron donors mediated synthesis of functional gold nanoparticles and their bioanalytical applications, RSC Advances, 4 (2014) 60563-60573.http://dx.doi.org/10.1016j.jelechem.2014.07.011
31. P C Pandey and Richa Singh,. Controlled Synthesis of Functional Silver Nanoparticles Dispersible in Aqueous and Non-Aqueous Medium," J. Nanosci. Nanotechnol., 15 (2015) 5749-5759.
32. P C Pandey and Richa Singh,. Controlled Synthesis of Pd, Pd-Au, nanoparticles; effects of organic amine and silanol groups on the morphology and polycrystallinity of nanomaterials, RSC Advances, 5 (2015) 10964-10973.
33. P C Pandey, Gunjan. Pandey and Govind. Pandey, Role of organic carbonyl moiety and 3-Aminopropyltrimethoxysilane on the synthesis ofgold nanoparticlesspecific to pH- and salt- tolerance , J. Nanosci. Nanotechnol., 15(2015)1-9, in press doi:10.1166/jnn.2015.11104.

34. P C Pandey, Richa Singh, and Yashawa Pandey. Controlled synthesis of functional Ag, Ag-Au/Au-Ag nanoparticles and its nanocomposite with Prussian blue for bioanalytical applications, RSC Advances, 5 (2015) 49671-49679.
35. Ishwar Das, Namita Rani Agrawal, Avinash Kumar Pandey,1 RinkiChoudhary, P. C. Pandey, "Controlled Electrochemical Synthesis of Conductive Nanopolypyrrole and Its Application in the Design of a Solid-State Ion Sensor" J. Appl. Polym. Sci. 2015, DOI: 10.1002/APP.42729.
36. PunitaMourya, Praveen Singh, Ashish K. Tewari, Rashmi B. Rastogi and M.M. Singh (2015) Relationship between structure and inhibition behavior of quinolinium salts for mild steel corrosion : Experimental and Theoretical Approach. Corros. Sci. 95: 71-87.
37. Savita, NamrataChaubey, PunitaMourya, V.K. Singh and M.M. Singh (2015) Fruit extract as a green inhibitor for copper corrosion in nitric acid solution. International Journal of Innovative Research in Science, Engineering and Technology 4 (6): 4545-4553.
38. Monika Mishra, Karishma Tiwari, PunitaMourya and M. M. Singh (2015) Synthesis, spectral characterization, density functional theory and corrosion inhibition studies of Ni(II) and Cu(II) complexes of Schiff bases derived from propiophenone ligand. Polyhedron 89 : 29-38.
39. S. Sharma, M.M. Singh, U.S. Rai, K.D. Mandal (2015) Rationalization of dielectric properties of nano-sized iron doped yttrium copper titanate using impedance and modulus studies. Materials Science in Semiconductor Processing 31: 720-727.
40. V. Jaiswal, S.R. Gupta, R.B. Rastogi, R. Kumar and V.P. Singh (2015) Evaluation of antiwear activity of substituted benzoylhydrazones and their copper (II) complexes in paraffin oil as efficient low SAPS additives and their interactions with metal surface using density functional theory. Journal of Materials Chemistry A 3:5092-5109.
41. P. Mourya, P. Singh, A.K. Tewari, R.B. Rastogi and M.M. Singh (2015)Relationship between Structure and Inhibition Behaviour of Quinolinium Salts for Mild Steel Corrosion: Experimental and Theoretical Approach. Corrosion Science 95:71-87.
42. V. Jaiswal, Kalyani, R.B. Rastogi and R. Kumar (2014) Tribological studies of some SAPS-free Schiff bases derived from 4-aminoantipyrine and aromatic aldehydes and their synergistic interaction with borate ester. Journal of Materials Chemistry A 2: 10424-10434.
43. Kalyani, V. Jaiswal, R.B. Rastogi and D. Kumar (2014) Tribological investigations of β-lactum cephalosporin antibiotics as efficient ashlessantiwear additives with low SAPS and their theoretical studies. RSC Advances 4: 30500-30510.
44. Verma D. K.,Hasan S. H.,Singh D. K.,Singh S., Singh Y. (2014). Enhanced Biosorptive Remediation of Hexavalent Chromium Using Chemotailored Biomass of a Novel Soil Isolate Bacillus aryabhattai ITBHU02: Process Variables Optimization through Artificial Neural Network Linked Genetic Algorithm. Ind. Eng. Chem. Res doi.org/10.1021/ie404266k
45. Mohan S., Singh Y., Verma D. K. Hasan S. H. (2015).Synthesis of CuO nanoparticles through green routeusing Citrus limonjuice and its application as nanosorbent for Cr(VI) remediation: Process optimization with RSM and ANN-GA based model. http://dx.doi.org/doi:10.1016/j.psep.2015.05.005
46. ShivamBajpai, Vandana Srivastava&Sundaram Singh (2015). Rutile phase nano TiO_2 as an effective heterogeneous catalyst for condensation reaction of isatin derivatives with 1, 2-diaminobenzene under solvent free conditions: a greener "NOSE" approach, Arabian Journal Of Chemistry, In press (2015)
47. ShivamBajpai, Vandana Srivastava,&Sundaram Singh(2015). Nano Zirconia Catalysed One Pot Synthesis of Some Novel Substituted Imidazoles under Solvent Free Conditions, RSC Advances,5:28163.
48. Varsha Srivastava,Y.C. Sharma, Mika Sillanpää (2015) Application of nano-magnesso ferrite (n-$MgFe_2O_4$) for the removal of Co^{2+} ions from synthetic wastewater: Kinetic, equilibrium and thermodynamic studies. Applied Surf. Science, 338: 42-54.
49. P.K. Singh, S. Banerjee, A.L. Srivastava, Yogesh C. Sharma (2015) Kinetic and equilibrium modeling for

removal of nitrate from aqueous solutions and drinking water by a potential adsorbent, hydrous bismuth oxide. RSC Adv.,45: 35365-35376.
50. Shikha Dubey, Uma, LavanchaweeSujarittanonta, Yogesh Chandra Sharma(2015) Preparation and properties of hydrous bismuth oxides for nitrate removal from aqueous solutions, Desal. Water Treat., 53, 91-98.
51. Sushmita Banerjee, Mahesh Chandra Chattopadhyay, Yogesh Chandra Sharma (2015) Removal of an azo dye (Orange G) from aqueous solution using modified sawdust, J. Water, Sanitation Hygiene for Development, 5:235-243.
52. DevarapagaMadhu, Bhaskar Singh, Yogesh Chandra Sharma(2014)Studies on application of fish waste for synthesis of high quality biodiesel, RSC Advances, 4, 31462-31468(2014).
53. Sushmita Banerjee, Gopesh C. Sharma, Mahesh C. Chattopadhyaya, Yogesh Chandra Sharma (2014)Kinetic and equilibrium modeling for the adsorptive removal of methylene blue from aqueous solutions on of activated fly ash (AFSH) , Journal Environmental Chemical Engineering, 2, 1870-1880.
54. Arun Lal Srivastava, Prabhat Kumar Singh, Yogesh Chandra Sharma, Kinetic and equilibrium modelling for the removal of nitrate from aqueous solutions by a potential adsorbent, hydrous bismuth oxide, RSC Advances,(accepted manuscript), ID RA-ART-09-2014-011213
55. Deepak Gusain, FaizalBux, Yogesh Chandra Sharma(2014) Abatement of chromium by adsorption on nano crystalline zirconia using response surface methodology, Journal of Molecular Liquids,197, 131-14.
56. Arun Lal Srivastav, Prabhat Kumar Singh, Chih Huang Weng, Yogesh Chandra Sharma, A novel adsorbent, hydrous bismuth oxide for the removal of nitrate from aqueous solutions, J. Hazardous, Toxic, and Radioactive Waste (In press).
57. Deepak Gusain,Yogesh Chandra Sharma (2014) Assistance of coefficient of determination to sum of normalized error in determining the suitable isotherm and kinetic model of adsorption of Orange-G on nano zirconia, RSC Adv. 4, 18755-18762.
58. Deepak Gusain, Varsha Srivastava, Vinay K Singh, Y.C. Sharma(2014) Crystallite size and phase transition demeanor of ceramic steel,, Materials Chemistry Physics,145: 320-326.
59. Chih-Huang Weng, Yao-Tung Lin, Deng-Yen Hong, Yogesh Chandra Sharma (2014) Shih-Chieh Chen, KumudTripathi, Ecological Engineering, 67:127-133.
60. SubhransuSahoo, Uma, Sushmita Banerjee, Yogesh C. Sharma, Application of natural (unmodified) clay as a potential adsorbent for the removal of a toxic dye (methylene blue) from aqueous solutions, Desalination and Water Treatment,DOI: 10.1080/19443994.2013.816872.
61. Deepak Gusain, Varsha Srivastava, Yogesh Chandra Sharma (2014) Kinetic and thermodynamic studies on the removal of Cu(II) ions from aqueous solutions by adsorption on modified sand, Journal of Industrial and Engineering Chemistry, 20:841-847.
62. Sushmita Banerjee, Mahesh C Chattopadhyaya, Varsha Srivastava, Yogesh Chandra Sharma, (2014)Adsorption studies of methylene blue onto activated saw dust: Kinetics, equilibrium, and thermodynamic studies, Environmental Progress and Sustainable Energy, 790-799.
63. V. Srivastava, M. Shekhar, D. Gusain, F. Gode, Y.C. Sharma, Application of a heterogeneous adsorbent (HA) for the removal of hexavalent chromium from aqueous solutions: Kinetic and equilibrium modelling, Arabian J Chemistry, (In press) (2014).
64. Deepak Gusain, V.K. Singh, C.H. Weng, Y.C. Sharma(2014) Abatement of chromium by adsorption on nanocrystalline zirconia using response surface methodology, International Journal of Applied Engineering Research, 9(2014)145-148
65. Sushmita Banerjee, Mahesh C. Chattopadhyaya, Uma, Yogesh Chandra Sharma(2014)Adsorption characteristics of modified wheat husk for the removal of a toxic dye, methylene blue from aqueous solutions, Journal of Hazardous, Toxic, and Radioactive Waste Management, 18:56-63.
66. Varsha Srivastava, Yogesh Chandra Sharma, Synthesis and characterization of Fe_3O_4@n-SiO_2 nanoparticles from an agrowaste material and its application for the removal of Cr(VI) from aqueous solutions,

Proceedings of National Conferences

1. PunitaMourya and M.M. Singh. 2015. Inhibition action of semicarbazone and thiosemicarbazone on the corrosion of mild steel in 0.5M H_2SO_4. Poster 150: 100, 17th CRSI National Symposium in Chemistry, CSIR-NCL, Pune, India, February 2015.
2. Sitashree Banerjee*, P. Maiti and M.M. Singh. 2015. Nanoclay Substituted Sulphonated Polyurethane: A Highly Efficient Corrosion Inhibitor. PO-12: 179, XXXIII Annual Conference, Indian Council of Chemists, ISM Dhanbad, Jharkhand, India, December 2015.
3. PunitaMourya, Praveen Singh and M.M. Singh. 2015. Corrosion inhibition of mild steel in 0.5 M H_2SO_4 by imidazole derivatives. PO-13: 179, XXXIII Annual Conference, Indian Council of Chemists, ISM Dhanbad, Jharkhand, India, December 2015.
4. PunitaMourya, R.B. Rastogi and M.M. Singh. 2015. Inhibitive Effect of 4-(N,N-dimethyl amino)benzaldehyde thiosemicarbazone on corrosion of mild steel in 1N HCl. PP-09 : 193, XXXIII Annual Conference, Indian Council of Chemists, ISM Dhanbad, Jharkhand, India, December 2015.
5. Surendra Kumar*, Brijesh Kumar Yadav and M.M. Singh, 2015. Pyrazol-3-one Derivative as Corrosion Inhibitor for Mild Steel in Acidic Medium. PP-10:194, XXXIII Annual Conference, Indian Council of Chemists, ISM Dhanbad, Jharkhand, India, December 2015.
6. Savita, NamrataChaubey, V. K. Singh and M. M. Singh. 2015. Inhibition effect of VitexNegundo leaf extract on the corrosion of copper metal in 3M HNO_3 solution. PP-06: 192, XXXIII Annual Conference, Indian Council of Chemists, ISM Dhanbad, Jharkhand, India, December 2015.
7. P. C. Pandey and G. Pandey, Role of organic functionalities linked to alkoxysilanes precursors in nanomaterial synthesis and their biomedical applications, MRS Proceeding, Vol. 1719, 2015, doi: http://dx.doi.org/10.1557/opl.2015.635
8. Vinay Jaiswal, Kalyani, Rashmi B. Rastogi and Rajesh Kumar. 2014. Theoretical and Experimental Studies on the TribologicalBehavior of SAPS-free Salicylaldehydepropanoylhydrazone Schiff base and its Cu (ll) Complex in Paraffin Oil for Steel-Steel Contact. National Tribology Conference, PES University, Bangalore, Karnataka, India, December 2014.
9. Punita Mourya, Rashmi B. Rastogi and Madan M. Singh. 2014. Inhibitive Effect of 4-(N,N-dimethyl amino)benzaldehyde thiosemicarbazone on Corrosion of Mild Steel in 1N HCl XXXIII Annual Conference, Indian Council of Chemists, Department of Applied Chemistry, Indian School of mines, Dhanbad, India, December 2014.

Proceedings of International Conferences

1. S. H. Hasan, S. Mohan, D. K. Singh, V. Kumar. Synthesis of Graphene Oxide and Its Application for Efficient Removal of Fluoride from Water. Journa of solid waste technology and management at Philadelphia (March 30 to 2 April 2015) USA.
2. S. H. Hasan, D.K. Singh, Y. Singh, D. K. Verma. Synthesis and Characterization of γ-Fe2O3 /Multiwalled Carbon Nanotube Composite and its Application on Sorptive Removal of As(III) from Water. ATEMA'2014 at Montrial (June 16-20 2015) Canada.
3. Kalyani, V. Jaiswal, R.B. Rastogi and D. Kumar (2015)The investigation of different particle size magnesium-doped zinc oxide ($Zn_{0.92}Mg_{0.08}O$) nanoparticles on the lubrication behaviour of paraffin oil. 2nd Edition Nanotech Dubai (16-18 March 2015), United Arab Emirates organized by SETCOR.

Distinguished Visitors

S. No.	Name of the visitor & Designation	Date of Visit	Purpose of Visit
1	Prof Yuanhaun Lin	June 17,2014	Deliver a lecture

4.12.6 Other activities

International collaboration/achievements by the department

Prof Sharma got a tri-lateral collaborative research project, India-Brazil-South Africa (IBSA) on development of

4.13 Department of Mathematical Sciences

Year of Establishment:1968

Head of the Department : Prof. O.P. Singh

4.13.1 Introduction

The Department of Mathematical Sciences was awarded the status of a full-fledged department in 1985, which had earlier been functioning in the capacity of a section ever since 1968. Its importance lies in the fact that it caters to the needs of the undergraduate as well as post-graduate students of the Institute. In addition, the Department runs its own 5 year integrated M Tech course in Mathematics & Computing.

The contribution of the Department in the area of research and scientific publication has been enormous and one of the best in the Institute and the University. The Department has the pride of producing in scientific publication. A number of Emeritus scientists have further supplemented the endeavour with their genuine and sincere efforts. The Department has produced 190 Ph Ds and published over 1400 research papers in the journal of national and international repute. This reflects active involvement of the faculty. The Department had been recognized as the Department under Special Assistance Program (SAP), UGC since 2010.

4.13.2 Academic Activities

Academic programmes offered

IMD and PhD

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	CSM-101	Algebra	03
2	MA 101	Engineering Mathematics I	11
3	MA 102	Engineering Mathematics II	11

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech					
2.	Dual Degree (IMD)	19	23	20	15	17
3.	M. Tech					
4.	Ph. D	5	19	12		

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No.	Name of Student	Roll No.	Conference/Seminar/Symposia/Workshop	Date & Venue	Financial Assistance From
INDIA					
1	Mr. Sanjeev Kumar Maurya	12612EN007	International conference on Algebra and its applications (ICAA-2014)	December 15-17, 2014 Aligarh Muslim University, Aligarh	

4.13.3 Faculty & their Activity

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	O.P. Singh	Pseudo- differential Operators, Wavelets
2	T. Som	Functional Analysis, Fuzzy Set Theory, Mathematical Modeling, Image Processing
3	R. Srivastava	Fuzzy Topology
4	L.P. Singh	Non-Linear Waves, Computational Fluid Dynamics
5	S.K. Pandey	Bio Mechanics, Fluid Mechanics
ASSOCIATE PROFESSORS		
1	S. Mukhopadhyay	Mathematical Modelling on Coupled Thermo mechanical problems, Non-Fourier Heat Conduction, Fractional order Thermo elasticity.
2	Subir Das	Fracture Mechanics, Mathematical Modelling, Fractional Calculus, Nonlinear Dynamics
3	S.K. Upadhyay	Wavelet Analysis, Distribution Theory, Pseudo differential operator
ASSISTANT PROFESSORS		
1	Ashokji Gupta	Theory of Rings & Modules
2	Rajeev	Mathematical Modelling, Free Boundary Problems
3	Vineet K. Singh	Numerical Wavelets Method for Integral Equations and Differential Equations, Operational Matrix Methods, Signal Processing
4	Rajesh K. Pandey	Wavelets, Integral Transforms and Integral Equations, Signal Processing, Fractional Derivative
5	Anuradha Banerjee	Queueing Theory, Stochastic modeling, Operations Research

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
5	Dr. Ashok Ji Gupta	International conference on Algebra and its applications (ICAA-2014)	December 15-17, 2014 Dept. Of Mathematics, Aligarh Muslim University, Aligarh, INDIA
6	Dr. Rajesh K. Pandey	The 5th International Conference on Scientific Computing and Partial Differential Equations (SCPDE14)	December 8-12, 2014. Hong Kong Baptist University, Hong Kong
7	Dr Rajeev	International Conference on Recent Advances in Pure and Applied Mathematics,	6-9 Nov 2014 ANTALYA, TURKEY
3.	Dr Vineet Kumar Singh	SEOUL ICM 2014	August 13-21, 2014 , Coex, Seoul, Korea
4.	Dr Anuradha Banerjee	International Summer & Winter Term on Portfolio Optimization	May 19-30, 2014 at Indian Institute of Technology Kharagpur
5.	Dr Anuradha Banerjee	Workshop on Stochastic Modelling in Physical and Biological Sciences	5th February 2015 to 7th February 2015 at IASST

4.13.4 Research and Consultancy

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co- ordinator
1	Wavelets and operational matrix based techniques for integral and differential equations	2012-2015 (transferred to IIT (BHU) in Jan. 2015)	DST	10,20000/-	Dr. Rajesh K. Pandey

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	
2	Total Number of Papers Published in Refereed International Journals	20
3	Total Number of Papers Presented in National Conferences	
4	Total Number of Papers Presented in International Conferences	4

Refereed International Journal

1. M. P. Tripathi and O. P. Singh (2015) A Hankel Transform Approach to Inverse Quasi-Static Steady-State Thermal Stresses in a Thick Circular Plate.Int. J. Appl. Comput. Math DOI 10.1007/s40819-015-0081-3
2. Harendra Singh, Manas Ranjan Sahoo, Om Prakash Singh (2015) Weak asymptotic solution for a non-strictly hyperbolic system of conservation laws. Electronic Journal of Differential Equations.Vol. 2015 No. 01, pp. 1-12.
3. R. K. Pandey and O. P. Agrawal (2015) Numerical scheme for generalized isoperimetric constraint variational problems with A-operator. ASME Journal of Computational and Nonlinear Dynamics, Vol. 10, pp. 021003-6.
4. M. P. Tripathi B. P. Singh and O. P. Singh (2014) Stable Numerical Evaluation of Finite Hankel Transforms and Their Application. International Journal of Analysis Volume 2014 Article ID 670562, 11 pages
5. R. K. Pandey,Suraj Suman, K. K. Singh and O. P. Singh(2014) Approximate solution of Abel inversion using Chebshev polynomials. Applied Mathematics & Computations, 237120-132.
6. T. Som An α- fixed point theorem in complete metric spaces with ordering by iterations. Universal Journal of Computational Mathematics 2(2) (2014), 28-31. (DOI: 10.13189/ujcmj.2014.020202)
7. T. Som A unique common fixed point result in cone metric spaces under generalized altering distance functions, Asian Journal of Mathematics and Applications, Vol 2014, Article ID ama0133, 9 pages.
8. T. Som A weak contraction principle in partially ordered cone metric space with three control functions. International Journal of Analysis and Applications, 6(1)(2014), 18-27.
9. T. Som Existence of best proximity points in regular cone metric spaces. Azerbaijan Journal of Mathematics, 5(1)(2015), 44-53.
10. T. Som A fixed point principle for a pair of non-commutative operators. Advances in Fixed Point Theory 4(4)(2014), 525-531.
11. Seema Mishra and Rekha Srivastava(2015), Hausdorff fuzzy soft topological spaces, Annals of Fuzzy Mathematics and Informatics,Vol. 9, No.2(February, 2015), 247-260
12. R. Singh and L. P. Singh (2014) Solution of the Riemann Problem in magnetogasdynamics International Journal of Non-Linear Mechanics 67: 326-330.
13. L. P. Singh, R. K. Gupta and T. Nath (2014) On the decay of a sawtooth profile in non ideal magnetogasdynamics. Ain Shams Engineering Journal 6: 599-604.
14. Himanshu Gupta and L. P. Singh (2015) Simulation of Dam-Break Problem using Random Choice Method Computers & Fluids 111: 187-196.

15. D Tripathi, SK Pandey, A Siddiqui, Non-steady peristaltic propulsion with exponential variable viscosity: a study of transport through the digestive system, Computer Methods in Biomechanics and Biomedical Engineering, Volume 17, Issue 6, 591-603, 2014
16. S. K. Pandey, M. K. Chaube and Dharmendra Tripathi, Flow Characteristics of Distinctly Viscous Multilayered Intestinal Fluid Motion, Applied Bionics and Biomechanics, Volume 2015 (2015), Article ID 515241 (Accepted on March 07, 2015).
17. Rajeev. Homotopy perturbation method for a Stefan problem with variable latent heat. THERMAL SCIENCE: 2014, Vol. 18, No. 2, pp. 391-398.
18. A. Banerjee, U.C. Gupta and V. Goswami (2014) Analysis of finite-buffer discrete-time batch-service queue with batch-size-dependent service. Computers & Industrial Engineering 75, 121-128. ISSN: 0360-8352.
19. A.Banerjee (2014) Analysis of finite buffer queue with state dependent service and correlated customer arrivals. Journal of the Egyptian Mathematical Society In Press
20. A. Banerjee, U. C. Gupta and S. R. Chakravarthy (2015). Analysis of a finite-buffer bulk-service queue under Markovian arrival process with batch-size-dependent service. Computers & Operations Research, 60, 138-149.

Proceedings of National Conferences

1. T. Som"Some results on approximation theory and invariant points" at the 80th Annual Conference of Indian Mathematical Society held at ISM, Dhanbad, Dec 27-30, 2014.

Proceedings of International Conferences

1. T.Som Applications of fixed point results in Best and simultaneous approximation theory and results on invariant points at the 9thInternational Conference on Nonlinear Analysis and Convex Analysis" held by Dept. of Mathematics, Faculty of Science, Naresuan University at Chiang Rai, Thailand, Jan 21-25, 2015.
2. K. K. Singh, M. K. Bajpai, and R. K. Pandey, A Novel Approach For Edge Dectection of Low Contrast Satellite Images, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-3/W2, 211-217, doi:10.5194/isprsarchives-XL-3-W2-211-2015, 2015.
3. Koushlendra Kumar Singh, Manish Kumar Bajpai, Rajesh K. Pandey, Edge Detection in Low Contrast Images, XIII International Conferences on Image Processing 2015, Zurich, Switzerland, January, 13-14, 2015.
4. K K. Singh, R. K. Pandey and Suraj Suman, Fractional order differentiator using Legendre polynomials, IEEE Proceeding of 5th International Conference Confluence: The Next Generation Information Technology Summit (Confluence), 2014, pp. 246-250.

Publications in International Journals in last 5 years with maximum number of citations

1. Cited by 99: D. Tripathi, S K Pandey and S Das, Peristaltic Flow of Viscoelastic Fluid with Fractional Maxwell Model through a Channel, Applied Mathematics and Computation, 215, 3645–3654, 2010.
2. Cited by 36 : O. P. Singh, R.K.Pandey, V. K. Singh, An analytic algorithm for Lane –Emden equations arising in Astrophysics using MHAM, Computer Physics Communications 180 (2009) 1116-1124.
3. Cited by 32: S K Pandey, M K Chaube, Peristaltic flow of a microploar fluid through a porous medium in the presence of an external magnetic field, Communications in non-linear sciences and numerical simulation 16, pp. 3591–3601, 2011.
4. Cited by 32: D. Tripathi, S K Pandey and S. Das, Peristaltic Flow of Viscoelastic Fluids of Fractional Generalized Burgers' Model through Channels, Acta Astronautica , 69, Issues 1–2, , pp. 30–38, July–August 2011 (Accepted: Dec21, 2010)
5. Cited by 27: S K Pandey and D. Tripathi, Peristaltic Transport of a Casson Fluid in a Finite Channel: Application to Flows of Concentrated Fluids in Oesophagus, International Journal of Biomathematics, Vol. 3, no. 4 pp. 453-472, 2010.

4.14 School of Bio-Chemical Engineering

4.14.1 Introduction

The School was established for achieving several benchmarks in teaching and research in the modern field of Bioengineering. It has kept on modernizing its programmes to impart education in upcoming areas of Biochemical engineering. .

The School presently offers courses leading to IDD, M. Tech. and Ph. D. degrees in Biochemical Engineering. The School also offers courses to undergraduate students of Department of Chemical Engineering., Department of Pharmaceutics, and postgraduate students of School of Materials Science & Technology, School of Biomedical Engg, Department of Civil Engg, Department of Food Sc & Tech, IAgSc, and School of Biotechnology, Faculty of Science. In the new undergraduate curriculum, the School has been entrusted to offer a number of institute level courses either independently or jointly with other departments. The research facilities of the School are utilized not only by other departments of the institute and BHU but also by other teaching institutions and research laboratories. The faculty also guides inter departmental / interdisciplinary projects and dissertations.

The School has been functioning the premise of Dept of Chemical Engineering since its inception. However, the school developed two dedicated laboratories in the Dept of Biochemical Engineering, IIT(BHU), subsequently has also developed its own building adjacent to the Dept of Chemical Engg (Total Area about 5,000 sq ft). Recently the school has a new building, three storied which includes all teaching and Laboratories. The floor area of the new building of School is 10,000 sq. feet.(Total 30,000sq ft).The School has 08 laboratories, 06 lecture theatres, a 100 seat conference room, a small library with textbook bank and internet facility. The School also has a seminar room and a few instruction rooms and rooms for its faculty. The School enjoys an excellent professional interaction with various industrial organisations, Experts and consultants. Faculty members are engaged in high level research collaborations and consultancy work in industry, where as some others have projects funded by the industry. Besides these, the School also provides know-how for process improvement/ development, raw materials and products analysis, microbiological testing , etc to the industries in and around Varanasi.

Details of the courses (UG, PG, IDD, Research etc. including specialization): 1986 : M Tech Degree course & PhD degree 2006 : Five Year Integrated Dual Degree Course in Bio-chemical Engineering & Biotechnology

School IDD level courses are as follows: Introduction to Biochemical Engg., Advances in Biochemistry, Fundamentals of Microbiology, Microbial Process Principles, Bioprocess Calculation, Microbial Engineering, Bioprocess Technology, Bioinstrumentation & control, Enzyme Engineering, Molecular Biology/Genetic Engineering, Downstream Processing, Advance Fermentation Technology, Introduction to Bioinformatics, Food Engineering & Biotechnology, Bioreactor Design, Bioprocess Plant Design, Bio Business Planning and Management, Drug Delivery Techniques, Animal cell culture, Protein Engineering, Biotransport Processes.

School PG level courses are as follows: Microbiological Engineering, Fundamentals of Microbiology & Biochemistry, Fermentation Technology, Bioprocess Instrumentation & Control, Enzyme Engineering and Technology, Bioreactor Design, Down Stream Processing, Advanced Fermentation Technology, Genetic Engg.
In addition, School offers theory and laboratory courses to the students of M. Sc. (Food Sc& Tech) and M. Sc.(Biotechnology) programmes of the Banaras Hindu University.

The School offers Ph. D. Degree in Biochemical Engineering. The yearly intake varies between 10 and 20. Students with Biochemical engineering degree or allied disciplines (as listed in the ordinances) join the Ph. D. programme. The School also offers joint research programmes with other Schools of the Institute or other academic institution/ R & D organizations.

The School also offers many PG level courses to the students for their course credit requirement.

The School does not offer any specialization but runs a number of elective courses at PG/ Ph. D. level. Such courses include:

- Bioprocess Instrumentation & Control
- Enzyme Engineering and Technology
- Bioconversion
- Waste Water Treatment
- Bioinformatics
- Biobusiness Planning and Management
- Animal Cell Culture

List of Publications:

1. Abhinav Srivastava, A Poonia, A D tripathi, R P Singh, S K Srivastava, Optimization of nutritional supplements for enhanced lactic acid production utilizing sugar refinery by products, Ann microbial 64:1211-1221(2014).
2. Abhishek D trripathi, S K Srivastava, B P Singh, R P Singh, S P Singh, Alok jha, Poonam Yadav, Optimization of process variables for enhanced lactic acid production utilizing paneer whey as substrate in SMF, Appl food Biotechnology, 2(2)46-55(2015).
3. Shankar khade, S K Srivastava (2015) Uricase and its clinical applications: International journal of Biological and Medical research; 6(3):5211-5215 (BioMedSciDirect) (Review article: published)
4. Yogendra Singh, Vivek Kumar Singh, S. K. Srivastava. (2014) Evaluation of Thermal Inactivation Kinetics of Extracellular L-asparaginase from Bacillus aryabhattai ITBHU02. Enzyme Research (Hindawi Publications).
5. Ashish Verma, Neeraj Gupta, Shiv Kr. Verma, Mira Debnath (Das), Multifactorial Approach to Biosurfactant Production by Adaptive Strain Candida tropicalis MTCC 230 in the Presence of Hydrocarbons. J Surfact Deterg. DOI 10.1007/s11743-014-1608-z, 2014.
6. Shiv Kumar Verma, anand kumar, Moti Lal, Mira Debnath Das, Biodegradation of synthetic dye by endophytic fungal isolate in Calotropis procera root (IJASBT) page: 373-380, 2015.
7. Shiv Kumar Verma, anand kumar, Moti Lal, Mira Debnath Das,Antimicrobial Activity of Endophytic Fungal Isolate in Calotropis procera root (IJRELSc)-Accepted. 2015.
8. Sarada Mallick, Satyavrat Tripathi , Pradeep Srivastava, Advancement in Scaffolds for Bone Tissue Engineering: A Review, J of Pharmacy and Biological Sciences, IOSR, 2015,10, Issue 1, 37-54.
9. Shalini Singh, Rupika Sinha & Pradeep Srivastava, Molecular Docking studies of Myricetin and its analogues against Human PDK1 Kinase as candidate Drugs for Cancer, in Computational Medicine Biosciences, 2015,5, 20-33
10. Shruti Bajpai1, Shalini Singh1 , Rupika Sinha & Pradeep Srivastava, ANN-GA hybrid methodology based optimization study for microbial production of CoQ10, International Journal of Pharma Sciences and Research (IJPSR),6, (1), 2015,100-108, ISSN, 0975-9492
11. Shalini Singh, Pradeep Srivastava, Combined 3D-QSAR based Virtual screening and Molecular Docking Study of some selected PDK-1 Kinase Inhibitors, J of Computational Medicine, 2014 , Id 563080.
12. Shalini Singh, Pradeep Srivastava ,Efficacy of some natural Flavanoids against PDK 1 Kinase a: an Insilco molecular docking and molecular dynamics simulation study, International J of Helix, 4482- 453, 2014
13. Pradeep Srivastava,Bioremediation of Heavy metals from Drinking water by the help of microorganism using a bioreactor, International J of Technical Research and Applications, eISSN:2320-8163, Vol 2, Issue 5, Sep-Oct 2014, 52-60
14. Pradeep Srivastava Public Private Partnership and Business Development- Working together for Better Nutrition, Proceedings on National Conference on Pre /Post Harvest Losses & Value Addition in vegetables (July 12-13, 2014).
15. Sharad Verma, Amit Singh and Abha Mishra, Complex disruption effect of natural polyphenols on Bcl-2-Bax: Molecular dynamics simulation and essential dynamics study. Journal of Biomolecular Structure & Dynamics. Taylor & Francis Impact factor 4.986, 32 (7), 1064-1073, 2014
16. Kushagri Singh, Amit Singh, Abha Mishra, Effect Of Crosslinking Agent On The Size Of Polymeric

Nanoparticles, World J of pharmacy and pharmaceutical Sciences 3(12) 416-1420, 2014.
17. Kushagri Singh and Abha Mishra, Gelatin Nanoparticle: Preparation, Characterization And Application In Drug Delivery , Intl J Pharmaceutical Sci &Res,5(6) 2014.
18. Kushagri Singh, Amit Singh, Abha Mishra, Polymeric Biodegradable Nanoparticle: A Review, International J of Advanced Research, 2(30) 560-571, 2014.
19. Kushagri Singh and Abha Mishra ,chitosan Nanoparticulate And Their Applications: A Review, International Journal of Pharma and Bio-Sciences, 6(2) 557 – 566, 2015.
20. Amit Singh, Surendra Pratap Mishra, Abha Mishra, Effect of Ginkgobiloba on Renal Ischemia-Reperfusion Induced Oxidant Stress In Rats. RRJPTS, 2 (1) 2014.
21. Amit Singh, Abha Mishra, Sharad Verma, Vinay Purohit and Raj Kumar Goel, MMPs as molecular targets for wound healing by Ocimum Sanctum: in silico and in vivo evidences. IJBCP. 3(1), 1-7, 2014.
22. Amit Singh, Surendra Pratap Mishra, Abha Mishra, Comparative Study of Assay of Free Radical Damage in In Vivo, In Vitro and Ex Vivo Conditions. IJBCP. (doi: 10.5455/2319-2003.ijbcp20140411),2014.

Conferences

1. Mira Debnath Das Abstract Accepted for Poster presentation in the international conference "New Horizons in Biotechnology" 2015 Trivendrum.
2. Mira Debnath Das Research Paper accepted in the international conference Biomicroworld 2015 in Barcelona, Spain.
3. Abstract accepted on Comparative study of Bacillus subtillis sp. and Candida tropicalis MTCC 230 for production of surfactin (2014) Ashish. Mira Debnath (Das), national conference genesis HBTI, Kanpur, HCO 03 page 30.
4. Debashis Dutta, Mira Debnath Das, Oral & poster presentation (Abstract accepted) on "Studies on Production & purification of Antifungal Protein from Aspergillus giganteus (MTCC 8408)" at National Conference on "Biomedicine, unfolding the secrets from nature", held on January 10-11, 2014, organized by Institute of Bioinformatics & Biotechnology, University of Pune
5. Debashis Dutta, Mira Debnath Das, Poster presentation (Abstract accepted) on "Purification & Optimization of Antifungal Protein Production in Shake Flask Batch Culture from Aspergillus giganteus (MTCC 8408) using Taguchi Statistical DOE Approach" at International Conference on Proteomics held on December 6-9, 2014 at IIT Bombay.
6. Selected for Bioinformatics workshop (genomics, proteomics, drug design & high performance computing) held on September 16-25, 2014 at IIT Delhi (supercomputing facility for bioinformatics & computational biology, a center of excellence of DBT MST, Govt. of India).
7. Selected for workshop on MS-proteomics, held on December 11-12, 2014 at IIT Bombay

Patent :

1. An innovative polyherbal bio absorbable dermal patch for wound healing, Patent Application No 2087/Del/2015; Dr. Pradeep Srivastava

Invited Lectures:

1. Large scale cell processing strategies for Tissue Engineering, Oct 1-2, 2014,Cell Bioprocessing Forum, Berlin, Dr. Pradeep Srivastava .
2. Designer Milk: Future Need, NDRI, Karnal, August 2014, Dr. Pradeep Srivastava
   Academic – Industry Interface
   Dr. Pradeep Srivastava Advisor to Stem Cure (P) ltd, Ahemdabad.
   Dr. Pradeep Srivastava Advisor to Agati Health Care(P) Ltd, Mumbai.

4.15 School of Bio-Medical Engineering

4.15.1 Introduction

The School of Biomedical Engineering was established by the UGC during the Fifth Five Year Plan in the year 1978. The school is having multidisciplinary nature. It is involved in excellent Teaching and Research in collaboration with Institute of Medical Science, and also with different Departments of Indian Institute of Technology. Our students are doing well in the Industries. The school time to time updates the curriculum according to the requirements. The infrastructure developmental work of the School was started in 1985 with the appointment of core faculty members. The main objective of the School is to develop proper infrastructure for R&D work and also manpower development in the area of Biomedical Engineering. Since the academic session 1986-87, the School is offering M. Tech. and Ph. D. degree program in the field of Biomedical Engineering. Also, the School has started Integrated Dual Degree (IDD) program that offers B. Tech in Bio-Engineering and M. Tech in Bio-Medical Technology.

The School of Biomedical Engineering follows a constant path of progress and diversification to be in pace with the time of change. Apart from upgrading the UG/PG infrastructure of the existing laboratories the School has initiated the Biochemistry laboratory and soon envisions constituting a Molecular Biology laboratory. The research credentials of the School is multifarious and interdisciplinary so as to integrate all the thematic of the field in one common pool and thereby achieve progress is unison

Current research heads include

i. Biomedical signal and image processing,
ii. Design and fabrication of low cost diagnostic and therapeutic
iii. Development and characterization of functionally graded materials & conducting IPN composites and their medical application
iv. Nanomedicine based therapeutics for infectious diseases
v. Control system modelling, analysis and simulation in health and Diseases.
vi. Tissue Engineering and Biomicrofluidics
vii. Neurophysiology

Unique Achievement Preposition of the Department

The School makes sincere and consistent efforts to ensure progress in the quality of research as well as in teaching. Presently, the School envisions broadening of the scope of curriculum and research activities. The IDD Course curriculum as been throughly revised and the same is being followed from last year. With the appointment of two new junior faculties the School has set up one new laboratories namely 'Tissue Engineering and Biomicrofluidics' and another namely 'Molecular Biology and Nanotechnology' is next to completion. All through the years the School has developed two principle thrust areas of Biomedical Engineering: Bioinstrumentation and Biomaterials and the moto of practice-teach-practice is being followed for the same. With the advent of the new laboratories further achievements in Bioengineering is being envisioned.

4.15.2 Academic Activities

Academic Programmes offered

I. Integrated Dual Degree (IDD) in Bioengineering and Bimedical Technology
II. M. Tech in Biomedical Engineering
III. Ph D

New Courses Introduced

S. No.	Course Code	Course name	Course credit
1	BM 7108(DC)	Tissue Engineering	03
2	BM 2301(DC)	Biochemistry Practical	03
3	BM 101(DC)	Introduction to Biomedical Engineering	03
4	BM-3403 (DC)	Microbiology Practical	03

Students on Roll

S. No.	Programme	I Year	II Year	III Year	IV Year	V Year
1.	B. Tech	-	-	-	-	-
2.	Dual Degree	11	10	13	14	6
3.	M. Tech	7	10			
4.	Ph. D	4	5	1	4	2

Names of students/scholars who attended conferences/workshops/seminars and symposia abroad or in India

S. No	Name of Student	Roll No.	Conference/Seminar/ Symposia /Workshop	Date & Venue	Financial Assistance From
INDIA					
1	Ms. Anjali Chaudhry	13022008	INUP Hands-on Training Workshop on "Nanofabrication Technologies"	(Dec. 09-18, 2014), CeNSE, Indian Institute of Science, Bangalore	Through Indian Nanoelectronics Users Program (INUP) funded by DeitY, And MCIT, Govt. of India
2	Mr. Utkarsh V. Pancholi	13022007	INUP Hands-on Training Workshop on "Nanofabrication Technologies"	(Dec. 09-18, 2014), CeNSE, Indian Institute of Science, Bangalore	Through Indian Nanoelectronics Users Program (INUP) funded by DeitY, And MCIT, Govt. of India
3	Mr. Kiran Yellappa Vajanthri	14021004	INUP Hands-on Training Workshop on "Nanofabrication Technologies"	(2015), CeNSE, Indian Institute of Science, Bangalore	Through Indian Nanoelectronics Users Program (INUP) funded by DeitY, And MCIT, Govt. of India
4	Ms. Anjali	14022001	FTBH-2014	IIT (BHU), Varanasi	
5	Ms. Monika	10614 EN002	International conference on Electron Microscopy & XXXV Annual meeting of Electron microscope Society of India (EMSI).	July 9-11, 2014 at University of Delhi, Delhi. January 23-26, 2015 at IACS, Kolkata.	IIT-BHU IIT-BHU

			International Symposium on polymer Science and Technology (MACRO 15)	February 26-27, 2015, IIT-(BHU), Varanasi.	IIT-BHU
			Indian Institute of Technology (BHU) Workshop on Institute day		
6	Mr. K. Ramesh	10614 EN001	National Conference FTBH-2014	School of Biomedical Engineering, I.I.T (BHU), Varanasi during 17-18th October 2014	IIT-BHU
			International Symposium on polymer Science and Technology (MACRO 15)	January 23-26, 2015 at IACS, Kolkata.	IIT-BHU
7	Mr. Kaushal Kumar Mahato	130210 03	International Symposium on polymer Science and Technology (MACRO 15)	January 23-26, 2015 at IACS, Kolkata.	IIT-BHU
8.	Md. KoushikChowdhury	10614 EN050	IEEE International Conference on Advances in Engineering & Technology Research (ICAETR – 2014	August 01-02, 2014, Dr. Virendra Swarup Group of Institutions, Unnao, India.	IIT-BHU
			National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India	

9.	Sanjay Saxena	11614 EN001	IEEE International Conference on Medical Imaging, m Health & Emerging Communications System, MEDCOM 2014.	2014, Noida, India.	IIT-BHU
			IEEE International Conference on Computer and Communication Technology, ICCCT 2014.	2014, MNNIT (Moti Lal Nehru, National Institute of Technology), Allahabad.	
			National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.	
			Annual Conference of Association of Medical Physicists of India, AMPINC – CON 2014.	2014, KGMC Lucknow.	
10.	Anuj Srivastava	11614 EN005	IEEE International Conference on Advances in Engineering & Technology Research (ICAETR – 2014	August 01-02, 2014, Dr. Virendra Swarup Group of Institutions, Unnao, India.	Self
			National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.	
11.	Ankit Kajaria	12614 EN001	International Conference on Medical Physics Radiation Protection andRadiobiology "ICMPRPR- 2K15"	Department of Radiological Physics, SMS Medical College, Jaipur (Raj.) and AMPI-NC 2015	IIT-BHU

			Annual Conference of Association of Radiation Oncologists of India	by Department of Radiotherapy, King George's Medical University, Lucknow, (India) (2015)	
			Annual Conference of the Association of Medical Physicists of India (AMPI) - AMPICON 2015	Dept. of Radio Therapy Tirwanthpuram.	
			National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.	
12.	Jitendra		National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.	IIT-BHU
13.	Hemlata Shakya	13021005	National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.	IIT-BHU
			International Conference on Recent Trends in Engineering Science and Management (ICRTESM- 2015).	2015, JNU- Delhi.	

			International Conference on Innovation Techniques in Engineering and Management (ICITEM-2015). Workshop on signal, image processing, speech and language processing -2014 Workshop on Research Methodology for FutureResearchers -2015 Workshop on C and Matlab -2015	2015, Lucknow (u.p.), India Organized by DST-CIMS, BHU, Varanasi Organized by IIT (BHU), Varanasi Organized by DST-CIMS, BHU, Varanasi	
14	Uma Shankar Yadav	13022004	National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014)	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.	IIT-BHU

Names of students/scholars who got prizes and awardsoutsidethe Institute

S. No.	Name of Student	Roll No.	Name of Prize	Date & Venue	Prize awarded by
1	Ms. Shreya Gupta	11414EN011	IISER- Pune Research Fellowship-2014.		
2	Ms. Shreya Gupta	11414EN011	Khorana Fellowship		

Names of scholars/students who won Convocation/Institute Day prizes

S. No.	Name of Student	Roll No.	Name of Prize	Prize awarded by
1	Ms Anandia Deo	12314EN005	Gold Medal for highest marks in M.Tech	IIT-BHU
2	Mr Aditha Srihari	09414EN002	Gold Medal for highest marks in IDD	IIT-BHU

4.15.3 Faculty & their Activities

Faculty and their areas of specialisation

S. No.	Name & Qualification	Major Areas of Specialization (Max. 3 Areas)
PROFESSORS		
1	Prof. Amit K Ray Ph.D	Physiology, EEG signal analysis under different physiological conditions
2	Prof. Nira Misra Ph.D	Biomaterial, Polymer composite, Nanocomposite, Polymeric Hydrogel
3	Prof. Ranjana Patnaik Ph.D	Neurophysiology
ASSOCIATE PROFESSORS		
1	Neeraj Sharma B. E. Electrical Engineering, Ph.D.	Biomedical Instrumentation, Biomedical Signal and Image processing
ASSISTANT PROFESSORS		
1	Shiru Sharma, B.E. (Electrical Engineering), Ph.D.	Mathematical Modelling of physiological system, Bio-instrumentation.
2	Sanjay Rai, B.E. (Mechanical ENgineering) Ph.D	Biomechanics
3	Somdeb Bose Dasgupta, Ph.D	Molecular Biology and Biochemistry, Infection Biology
4	Sanjeev Kumar Mahto, PhD	Cell and Tissue Engineering, Biomicrofluidics and Neuroengineering

Short-term courses/workshops/seminars/symposia/conferences organised by faculty members

S. No.	Cordinator	Title	Period
1	Dr. Shiru Sharma	National Conference on Present Scenario and Future Trends in Biomedical Engineering and Healthcare Technologies (FTBH - 2014).	October 17-18, 2014, School of Biomedical Engineering, Indian Institute of Technology (BHU), Varanasi, India.

Short-term courses/workshops/seminars/symposia/conferences/training programmes attended by faculty members in academic institutions and public sector undertakings

S. No.	Name of Faculty Member	Title	Period and Venue
Seminars/Symposia/Conferences			
1.	Sanjeev Kumar Mahto	Workshop on MOODLE-2014	IIT (BHU) Sept 06, 2014
		DHR/ICMR – MHRD Medical Diagnostics and Devices Innovation Partnership Workshop	Indian International Centre in New Delhi, India (19th and 20th Sep. 2014)
		INUP Hands-on Training Workshop on "Nanofabrication Technologies"	Indian Institute of Science, Bangalore (Dec. 09-18, 2014).
		"International Conference on Molecular Pharmacology, Drug Discovery and Nanopharmaceuticals (MPDDNP-2015)"	Chitkara College of Pharmacy, Chitkara University (Mar. 27-28, 2015).
2.	Somdeb Bose Dasgupta	Workshop on MOODLE-2014	IIT (BHU) Sept 06, 2014
		INUP Hands-on Training Workshop on "Nanofabrication Technologies"	Indian Institute of Science, Bangalore (Feb. 03-12, 2015).
		National Workshop on Faculty Development Program-2014	IIT (BHU) March 29-31, 2015
3.	Neeraj Sharma	Workshop on MOODLE-2014	IIT (BHU) Sept 06, 2014
4.	Shiru Sharma	Workshop on MOODLE-2014	IIT (BHU) Sept 06, 2014

Special lectures delivered by faculty members in other Institutions

S. No.	Name of faculty Member	Topic of Lecture	Institution	Date
1	Neeraj Sharma	"Non-invasive glucometer" at CARDIBICON-2014	HHI Hotel, Varanasi, organized by Pancea Biotech	Nov 2014

Honours and awards

S. No.	Name of Faculty Member	Name of Honour/Award
1	Prof. Ranjana Patnaik	Rashtriya Gaurav Award (2014) Best Citizens of India Award (2014) Rajiv Gandhi Excellence Awards (2014)
2	Neeraj Sharma	Selected as one of the Panel Moderators for the Thematic Area "Instrumentation" in a DHR/ICMR – MHRD Medical Diagnostics and Devices Innovation Partnership Workshop held at Indian International Centre in New Delhi, India (Sep. 2014).
3	Sanjeev Kumar Mahto	DST-INSPIRE Faculty Award Selected as one of the Panel Moderators for the Thematic Area "Synthetic Organs/Tissues" in a DHR/ICMR – MHRD Medical Diagnostics and Devices Innovation Partnership Workshop held at Indian International Centre in New Delhi, India (Sep. 2014). Participation in the INUP Hands-on Training Workshop on "Nanofabrication Technologies" held at Indian Institute of Science, Bangalore (Dec. 09-18, 2014).
4	Somdeb Bose Dasgupta	Participation in the INUP Hands-on Training Workshop on "Nanofabrication Technologies" held at Indian Institute of Science, Bangalore (Feb 3-12, 2015. Online Podcast for an article in FEBS J, 2015 http://www.yadayada.co.uk/Blackwell/PAI/Audio/Somdeb_BoseDasgupta_March15.mp3

Editorial boards of journals

S. No.	Name of Faculty Member	Position (Editor/ member)	Name of Journal
1	Sanjeev Kumar Mahto	Editorial Board Member	*American Journal of Bioscience and Bioengineering*.
2	Somdeb Bose Dasgupta	Editorial Board Member	International Journal of Biotechnology and Biomedical Engineerin

4.15.4 Design and Development Activities

Sponsored research projects

S. No.	Title	Period	Funding Agency	Amount (in lakhs of Rs.)	Co- ordinator
1	*Development of Microfluidic Tools for Neuromuscular Synaptogenesis and Nanotoxicological Studies*	Jul. 2014 – Jun. 2019 (5 years)	Department of Science and Technology, Govt. of India (DST-INSPIRE Scheme)	Rs. 35,00,000/-	Sanjeev Kumar Mahto

New facilities added

S. No.	Details	Value (in Lakhs of Rupees)
1	Biosafety Cabinet Class II type A2 CBS 900, Mehrotra Biotech Pvt. Ltd.; 2014-15	1.5
2	Galaxy CO_2 Incubator Model-170S, Eppendorf India Ltd.; 2014-15	3.6
3	-86 Deg C Ultra Low Temp Freezer Premium U410 Upright, Eppendorf India Ltd.; 2014-15	4.4
4	Mini UV/Vis Spectrometer	14
5	1. Understanding characteristics of MOSFET, FET, UJT, Wevis, 2. Zener Diode Voltage regulator NV 6508 3. Experimentation with transistor NV -10 6502 4. BJT Amplifier emitter flower NV 6542 5. Experimentation with Diode NVIO 6501	4
5	Microbiological Biosafety Cabinet CBS 900, Mehrotra Biotech Pvt. Ltd.; 2014-15	1.5
6	Thermal Cycler, Veriti, Applied Biosystems	3
7	Neon-Transfection System	4
8	Orbital Shaker-Incubator	1.5
9	Fume Hood	1
10	Vortex shaker	0.11
11	Controlled Sonicator Bath	0.3
12	Water Bath	0.2
13	pH Meter	0.42
14	Magnetic Stirrer with thermocouple	0.25
15	Autoclave	0.60
16	Rotomantle	0.10
15	Minicentrifuge MC01	0.36

4.15.5 Research and Consultancy

Faculty members' participation with other universities under MoUs

As a first Project, Pravartan Technologies P. Ltd. GURGAON – HARYANA, INDIA and SBME wish to jointly collaborate for the following projects:

1. Wearable bio medical device for stress" ("LesStress").
2. Non Invasive glucometer

Research Publications

S. No.		No.
1	Total Number of Papers Published in Refereed National Journals	
2	Total Number of Papers Published in Refereed International Journals	22
3	Total Number of Papers Presented in National Conferences	9
4	Total Number of Papers Presented in International Conferences	9

Refereed International Journal

1. Monika, S.K. Singh and N. Misra (2014) Chemical Modification of Poly(vinyl chloride) by thiourea: Influence of Surface Characteristics.Advanced Science, Engineering and Medicine, 11: 1167-1170.[ISSN 2164-6627, Online ISSN: 2164-6635]
2. G.Kapusetti, Monika, A.K.Ray and N.Misra(2015) Thromboresistance of functionalized poly (methyl methacrylate): The effect of surface polarity. Bulletin of Material Science, 38:1–4.
3. S. Jaiswal, K. Ramesh, G. Kapusetti, A.K. Ray, B. Ray, N. (2015) Misra Mangiferin as chain transfer agent: effect on the molecular weight of poly(methyl methacrylate) and polystyrene. Polymer Bulletin, 72, 1407, 1343-2.[ISSN: 0250-4707]
4. G. Kapusetti, N. Misra, V. Singh, S. Srivastava, P. Roy, K. Dana and P. Maiti (2014) Bone cement layered nanohybrid as a super biomaterial for faster bone healing. Journal of Material Chemistry B: 2: 3984-3997.[ISSN 2050-750X, Online ISSN 2050-7518]
5. C. S. Biswas, K. Mitra, S. Singh, K. Ramesh, N. Misra, B. Maiti, A. K.Panda, P. Maiti, M. Kamigaito, Y. Okamoto, and B. Ray (2015) Study of the Effect of Isotacticity on Some Physical Properties of Poly(–isopropylacrylamide. Colloid and polymer science: 293, 1749-1757. [ISSN V, Online ISSN 1435-1536]
6. N. K. Vishwakarma, V. K. Patel,S. K. Hira,K. Ramesh,P. Srivastava,K. Mitra, S. Singh,D. Chattopadhyay, P. Maiti, N. Misra, P. P. Manna,B. Ray (2015) Tadpole-shaped α-Cyclodextrin-tagged Poly(N-Vinylpyrrolidone): Synthesis, Characterization and Studies of Its Complexation with Phenolphthalein and Anti Tumor Activities. RSC Advances: 5, 15547–15558.[ISSN 2046-2069]
7. Chowdhury, M.K., Srivastava, A., Sharma, N., Sharma, S., 'Error Grid Analysis of Reference and Predicted Blood Glucose Level values as obtained from the Normal and Prediabetic Human Volunteers', American Journal of Biomedical Engineering, 5(1); 2015, pp.6-14. ISSN-2163-1050
8. Srivastava, A., Chowdhury, M.K., Sharma, S., Sharma, N., 'The utilization of ultrasonic standing waves for predicting glucose concentration levels in dextrose mixed intralipid based tissue phantom', Research Journal of Biotechnology, Vol.10(6), 50-56, 2015.ISSN-0973-6263
9. Chowdhury, M.K., Srivastava, A., Sharma, N., Sharma, S., 'Estimation of fasting Blood glucose levels by invasive and indigenously developed noninvasive technology and its correlation with the glycated hemoglobin (HbA1c) biomarker in healthy and diabetic subjects', Research Journal of Biotechnology, Vol. 9(12), December, 2014, pp.64-71. ISSN-0973-6263
10. Chowdhury, M.K., Srivastava, A., Sharma, N., Sharma, S., 'Prospective Analysis of Developing Noninvasive Blood Glucose Monitoring Biosensors for Diabetic population', Bioscience Biotechnology Research Asia, December 2014. Vol. 11(3), December, 2014, pp.593-602. ISSN: 0973-1245
11. Chowdhury, M.K., Srivastava, A., Sharma, N., Sharma, S., 'The role of amplitude modulated ultrasonic standing waves in noninvasive blood glucose level detections', Advances in Bio Research, Vol 5 (4)

December 2014, pp.103-109.ISSN, 0976-4585
12. Chowdhury, M.K., Srivastava, A., Sharma, N., Sharma, S., 'Five days daily sessions of noninvasive blood glucose level predictions based on amplitude modulated ultrasound and infrared technique over a healthy and diabetic subject', Journal of Electrical and Electronics Engineering, Vol.5.Ver. IV , Sep-Oct, 2014, pp-34-41. ISSN:2329-1613
13. Chowdhury, M.K., Srivastava, A., Sharma, N., Sharma, S., 'The potential application of amplitude modulated ultrasound with Infrared Technique for blood glucose level determination in non invasive manner'. Biomedical and Pharmacology Journal, Vol.7, No.1, June, 2014 , pp.195-206.ISSN 0974-6242
14. Srivastava, A., Chowdhury, M.K., Sharma, S., Sharma, N., 'Measurement of Glucose Concentration using Amplitude Modulated Ultrasound with Infrared Technique in Intralipid Phantoms and Human Whole Blood mixed intralipid phantom of Healthy and Diabetic Subjects', Bioscience Biotechnology Research Asia, August 2014. Vol. 11(2), 593-602 (2014).ISSN: 0973-1245
15. Srivastava, A., Chowdhury, M.K., Sharma, S., Sharma, N., 'Determination of glucose concentration in various optical phantoms by indigenously developed ultrasound collaborated infrared technology', Biomedical and Pharmacology Journal, Vol. 7(2), 727-736 (2014). ISSN 0974-6242
16. Srivastava, A., Chowdhury, M.K., Sharma, S., Sharma, N., 'Prospective utilization of Modulated Ultrasound with Infrared unit to predict three different ranges of known glucose concentration levels in various human whole blood mixed intralipid samples and its performance evaluation by Clarke and Parkes Error Grid Analysis', Adv. Biores., Vol 5 (4) December 2014:131-139.
17. Srivastava, A., Chowdhury, M.K., Sharma, S., Sharma, N., 'The viability of Intralipid optical phantom for developing noninvasive blood glucometer'. Adv. Biores., Vol 5 (4) December 2014: 80-87. ISSN, 0976-4585
18. Sanjay Saxena, Neeraj Sharma, Shiru Sharma, "Multithreaded Approach for Registration of Medical Images using Mutual Information in Multicore Environment and Its Applications in Medical Imaging" in International Journal of Computer Application, IJCA, New York, USA, 113(3):23-32, March 2015.ISSN-2250-1797
19. S Bose Dasgupta and J Pieters (2014) Coronin 1 trimerization is essential to protect mycobacteria within macrophages from lysosomal delivery. FEBS Lett. Nov 3; 588(21): 3898-905, ISSN-014-5793
20. S BoseDasgupta and J Pieters (2014) Striking the right balance determines TB or not TB. Frontiers in Immunol.Oct 8, 5; 455, ISSN-1664-3224
21. S Bose Dasgupta and J Pieters. (2014) Enhanced Pathogen Clearance through Reprogramming of the Macrophage Endocytic Pathway by Coronin 1 Phosphorylation. Inflamm. Cell Signal. Vol 1, No 4, e199, ISSN: 2330-7803.
22. S. K. Mahto; V. Charwat; P. Ertl; B. Rothen-Rutishauser; S. W. Rhee and J. Sznitman (2015) Microfluidic Platforms for Advanced Risk Assessments of Nanomaterials. Nanotoxicology 1-15, ISSN-1743-5390.

Proceedings of National Conferences

K. Ramesh, R. K. Gundampati,M. V. Jagannadham, D. Chattopadhyay, N. Misra, B.Ray. In Vitro Antileishmanial Activity And Antimicrobial Activity Of Aba Type Double Hydrophilic Poly(–Vinylpyrrolidone)-B-Poly(D,L-Lactide)-B-Poly(N-Vinylpyrrolidone Tri-Block Amphiphilic Copolymers. National Conference (FTBH - 2014) (17-18th October 2014) Organized By School Of Biomedical Engineering, I.I.T (Bhu), Varanasi.

1. Chowdhury, Mk., Srivastava, A., Sharma, N., Sharma, S., 'A Significant Analysis For Noninvasive Glucose Biosensors', National Conference On Present Scenario And Future Trends In Biomedical Engineering And Healthcare Technologies (FTBH - 2014), October 17-18, 2014, School Of Biomedical Engineering, Indian Institute Of Technology (BHU), Varanasi, India.
2. Srivastava, A., Chowdhury, M.K., Sharma, N., Sharma, S., 'Vital Role Of Intralipid As Tissue Phantom For The Design And Development Of Noninvasive Blood Glucometer', National Conference On Present Scenario And Future Trends In Biomedical Engineering And Healthcare Technologies (FTBH - 2014),

October 17-18, 2014, School Of Biomedical Engineering, Indian Institute Of Technology (Bhu), Varanasi, India.

3. Sanjay Saxena, Shiru Sharma, Neeraj Sharma, "Parallel Approaches Of Image Processing Techniques And Its Implementation In Abdominal Image Segmentation" In FTBH - 2014, Conference On Present Scenario And Future Trends In Biomedical Engineering And Healthcare Technology, School Of Biomedical Engineering, Indian Institute Of Technology (Banaras Hindu University), Varanasi, India, 2014.
4. Ankit Kajaria, Neeraj Sharma, Shiru Sharma, Satyajit Pradhan, Lalit.M.Aggarwal "Design Of Monte Carlo Simulation Model For Telecobalt Machine" Was Presented In National Conference atFTBH - 2014, School Of Biomedical Engineering IIT (Bhu), Varanasi.
5. Ankit Kajaria[1], Neeraj Sharma[1], Shiru Sharma[1], Satyajit Pradhan[2], Lalit.M.Aggarwal[2] "Monte Carlo Study Of A Flattening Filter-Free 6 Mv Varian Linac Using The Beamnrc Cod" Was Communicated To The "37th Annual Conference Of Association Of Radiation Oncologists Of India" Is Being Organized And Hosted By Department Of Radiotherapy, King George's Medical University, Lucknow, (India).
6. Lalit.M.Aggarwal[1], Ankit Kajaria[2], Satyajit Pradhan[1], Shiru Sharma[2], Neeraj Sharma[2]"Clinical Implementation And Application Of Monte Carlo Methods In Photon And Electron Dose Calculation" Was Communicated To The "37th Annual Conference Of Association Of Radiation Oncologists Of India"Is Being Organized And Hosted By Department Of Radiotherapy, King George's Medical University, Lucknow, (India).
7. Jitendra Singh Parihar, Dr Neeraj Sharma And Anchal Singh "Information Retrieval From Derived Features Of Gsr Readings To Recognize Emotions" National Conference On Present Scenario And Future Trends In Biomedical Engineering And Healthcare Technology, Iit Bhu Varanasi,(2014).
8. Lalit.M.Aggarwal[1], Ankit Kajaria[2], Satyajit Pradhan[1], Shiru Sharma[2], Neeraj Sharma[2] "Monte Carlo Simulation In Treatment Planning For Radiation Oncology" Was Communicated To"Medical Physics - Expanding The Vision, Enhancing The Capabilities"36th Annual Conference Of The Association Of Medical Physicists Of India (Ampi) - Ampicon 2015.

Proceedings of International Conferences

1. Monika and N. Misra (2015) Synthesis of functionalized Poly(vinyl chloride)/Layered double hydroxide nanocomposite in International Symposium on Polymer Science and Technology (MACRO 2015) (January 23-26, 2015), India organized by IACS Kolkata.
2. Monika, S.K.Singh and N.Misra (2014) Synthesis and cytotoxicity of PVC/LDH nanocomposite in International conference on Electron Microscopy & XXXV Annual meeting of Electron microscope Society of India (EMSI) (July 9-11, 2014), India organized by University of Delhi, Delhi.
3. K. Ramesh, S. K. Hira, P. P. Manna,N. Misra, B. Ray, Synthesis and Self-assembly of PLGA-b-PNVP Amphiphilic Diblock Copolymers for Targeted Drug Delivery of Doxorubicin in Cancer. International symposium on Polymer Science and Technology (MACRO-2015), (January 23-26, 2015), India organized by IACS Kolkata.
4. K.K. Mahato, N. Misra, P. Maiti, B. Ray, Development of Agar gelatin hydrogel as Drug delivery Matrices. International Symposium on polymer Science and Technology (MACRO 15) (January 23-26, 2015), India organized by IACS Kolkata.
5. Chowdhury, M.K.,AnujSrivastava, Shiru Sharma, Neeraj Sharma, 'Glycemia levels relation with blood pressure in normal and hyperglycemic subjects: Its evaluation by invasive and indigenous noninvasive glycemic level detecting technology', IEEE International Conference on Advances in Engineering & Technology Research (ICAETR - 2014), August 01-02, 2014, Dr. VirendraSwarup Group of Institutions, Unnao, India.
6. Srivastava, A., Chowdhury, M.K., Sharma, N., Sharma, S., 'Measurement of Glucose by Using Modulating Ultrasound with Optical Technique in Normal and Diabetic Human Blood Serum, 'IEEE International Conference on Advances in Engineering & Technology Research (ICAETR - 2014), August 01-02, 2014,

Dr. VirendraSwarup Group of Institutions, Unnao, India.

7. Sanjay Saxena, Shiru Sharma, Neeraj Sharma, "Parallel Computation of Mutual Information in Multicore Environment and Its Applications in Medical Imaging" IEEE Xplore in International Conference on Medical Imaging, m Health & Emerging Communications System, Noida, India, pp 272-277, 2014.
8. Sanjay Saxena, Shiru Sharma, Neeraj Sharma , "Image Registration Techniques Using Parallel Computing in Multicore Environment and Its Applications in Medical Imaging" IEEE Xplore in International Conference on Computer and Communication Technology, ICCCT, MNNIT (Moti Lal Nehru, National Institute of Technology), Allahabad, pp 97-104, 2014.
9. Hemlata Shakya, Shiru Sharma, Neeraj Sharma "ECG Biofeedback System: A Survey" ICITEM- 2015 International Conference on Innovation Techniques in Engineering and Management, Lucknow (u.p.), India

5 Articles from the Department with maximum no. of Citations in last 5 years

1. Synthesis of well-defined amphiphilicpoly(D,L-lactide)-bpoly(N-vinylpyrrolidone) block copolymers using ROP and xanthate-mediated RAFT polymerization K. Ramesh,AvnishKumarMishra, Vijay Kumar Patel, Niraj Kumar Vishwakarma, Chandra SekharBiswas, Tapas Kumar, PairaTarun Kumar Mandal, PralayMaiti, NiraMisra, Biswajit Ray, Polymer, 53 (25), 5743-52, 2012.[Citation-8].
2. Physical and Conductivity properties of Poly (vinyl chloride) Ionomers. Nira Misra, H.S. Panda,Govinda Kapusetti, Shilpa Jaiswal,Subhratanu Bhattacharya. Indian Journal of Physics, 85(2);271-279, 2011. [Citation-11].
3. Toughening of bone cement using nanoparticle: The effect of solvent. NiraMisra,GovindaKapusetti, ShilpaJaiswal , PralayMaiti, Journal of Applied Polymer Science, 121; 1203–1213, 2011. [Citation-9].
4. Shiru Sharma, RanjanaPatnaik, Neeraj Sharma, and Tiwari, J.P.(2011). 'Simulated annealing based PSO with adaptive jump strategy for modelling of dynamic cerebral pressure auto regulation', International Journal of Bio-Inspired Computation, Vol. 3, No. 4, pp 225-237 [Citation-9].
5. Md. K. Chowdhury, A. Srivastava, N. Sharma, &S.Sharma,(2013) The influence of blood glucose level upon the transport of light in diabetic and non-diabetic subjects. International Journal of Biomedical and Advance Research, 4(5) (2013), pp.306-316. Doi:10.7439/ijbar.v4i5.357.[Citation-10].

4.16 School of Materials Science and Technology

4.16.1 Introduction

The School of Materials Science and Technology is an internationally renowned Centre of Materials Research and Education. It was established in 1978 following the recommendations of the V Plan Visiting Committee of the UGC. It serves as Institute's nodal center for fostering interdisciplinary teaching and research in the field of materials science and technology. School runs successful Ph.D., M.Tech. and Integrated Dual Degree programmes since 1982, 1984 and 2005, respectively. All these students are gainfully employed, several of them in premier R & D organizations, industry and teaching institutions. The syllabi are revised periodically to include topics of current significance in the field. Five year dual degree programme leading to B.Tech. andM.Tech. degrees together has been initiated from the session 2005-06 with an annual intake of 19 students through JEE.

The School has a modest building of about 10,000 sq. ft. floor area and recently two more wings with ~6000 sq.ft area have been added. The laboratories are equipped with modern and sophisticated equipment for materials preparation, characterization, processing and phase transformation studies. Working in these frontiers areas the faculty members of the School have generated nearly Rs. 9.0 crores during the last five years through various projects/schemes funded by agencies like DST, SERB, DBT, DIT, DRDO, UGC-DAE-CSR, IUAC etc. and hve published more than 200 research papers in reputed journals such as Phys. Rev. Lett., Appl. Phys. Lett., Phys. Rev. B, J. Phys. Cond. Matter, J. Appl. Phys., ActaMaterialia, Macromolecules, Dalton Trans., J. Controlled Release, J. Mater. Chem, J. Phys Chem., Nanoscale, RSC Advances, Polymer, Electroanalysis, Langmuir, Sensors and Actuators B. etc.

Future expansion about department:

Modernization of laboratories and creation of sophisticated instrument facility of the School is in progress.

4.16.2 Academic Activities

Academic programmes offered

IDD, M.Tech and PhD
PhD: Awarded-3, Submitted-2
M.Tech/IDD- M.Tech. 22

Workshops/ Symposia conducted:

International workshop on "Symmetry relationships between crystal structures with application to structural phase transitions"October 27-31, 2014

Key Note addresses

1. National Conference on Materials Science and Technology (TEQIP sponsored) at Madan Mohan Malaviya University of Technology, Gorakhpur on March 10-11, 2014 On "Nanoparticles Induced Phenomena in Polymeric Materials"

Invited talks

1. Key Note Lecture at International Union of Crystallography Congress in Montreal in August 2014
2. Synchrotron powder XRD measurements at PETRA III, Hamburg (Germany), January, 2014
3. Invited lecture on "Functional Conducting Polymers and Nanocomposites: Morphology Control Synthesis" in Indo-UK Seminar on "Molecular Imprinting: Strategies, Applications and Future Perspectives" at NEERI CSIR lab Nagpur during February 05-07, 2014.
4. Invited lecture on "Novel Electroactive Materials for Sensors and Biosensors" in the Department of Physics and Nanotechnology, BB Ambedkar University, Lucknow on 26th Feb 2014.
5. Invited lecture on "Advance Polymers and Sensors Application" in IIT-BHU and KIT-Japan Meet an IIT (BHU) Varanasi10th March 2014.
6. Invited lecture on "Morphology Control and Chain Ordering of Functional Polymers: Electroactive Materials for Sensor Application" in the International conference on Recent Advances in Analytical Science RAAS 2014 at IIT (BHU) Varanasi during 27-29 March 2014.
7. Invited lecture on New generation Bio-Sensors in University of Applied Sciences, Russelsheim, Germany 3rd June 2014.
8. National School on Sustainable Polymers at IIT Guwahati during 6-8 January, 2014 Processing of Biodegradable Polymers and its Composites
9. "Synthesis of $SrAl_2O_4$ and ZnO composites: Structure and Optical Properties", 31st OPS Convention and National Seminar "RTCMP-2014", ITER, Bhubaneswar 8-9 February 2014
10. "Characterization of Nano-materials : Extensive summer workshop on Advances in Preparation and Characterization of Heterogeneous Catalysts" June 8-20, 2015, Chemical Engineering IIT(BHU), Varanasi.
11. "Stabilization of High Temperature Hexagonal Phase and anomalous luminescent properties in $SrAl_2O_4$ and ZnO composite: National conference on Solid State Chemistry and Allied Areas (ISCAS-2015)" May 8-10 2015, Bhaskaracharya College of Applied Sciences (University of Delhi), Delhi.
12. "Anomalous Magnetic Properties in Nanostructured Semiconducting Materials" 26thAnnual General Meeting, Materials Research Society of India (MRSI) Feb 9-11, 2015, Department of Physics, University of Rajsthan, Jaipur.
13. "Transport and Magnetic Properties of Epitaxial $Ti_{1-x}Co_xO_{2-\delta}$ Thin films under Swift Heavy Ion Irradiation: Indo-Japan Workshop on Magnetism at Nanoscale (IJWMN) " Jan 9-12, 2015 , NISER, Bhubaneswar.
14. "Current research work on nanostructured materials in "nanoparticle club" meeting held at JCNS-2, ForschungszentrumJuelich GmbH 52425 Juelich, Germany on 19th Sep 2014.

4.16.3 Faculty and their Activities

Awards/ Honors / Chair Positions

- J.C. Bose National Fellowship
- President, Indian Crystallographic Association (2014-16)
- Expert UGC project committee for Materials Science (2013-onwards)
- Member India Vision 2035 TIFAC committee (2014- onwards)
- Co-editor, Journal of Applied Crystallography (2014 onwards)
- Bulletin of Materials Science (Member Editorial Advisory Board 2013-2015)
- Best poster award in the International Conference in Asia of International Union of Materials Research Society (IUMRS-ICA 2013), held at IISc, Bangalore during December 16-20.
- Editor-in-Chief Frontiers in Sensors (FS), Science and Engineering Publishing Company, USA. http://www.seipub.org/fs/. ISSN Print: 2327-7297
- Member Editorial Board of Journal of Sensor Technology, Scientific Research Publishing, USA http://www.scirp.org/journal/jst/. E-ISSN: 2161-1238 P-ISSN Print: 2161-122X
- Member Editorial Board of German Journal of Materials Engineering (GJME)http://grsci-techpress.org/index.php/GJME/index
- Member Editorial Board of Biosensors Journal, Ashdin Publishing, UK. http://www.ashdin.com/journals/bj/Rajiv_Prakash.aspx. E-ISSN: 2090-4967; P-ISSN: 2090-4959
- Editor and Member, Board of Academic matters and Publication-NST Consortium Journal Nano Trends < http://www.nstc.in/journal/publicationmanagement.aspx> P-ISSN 0973-418X

4.16.4 Design and Developmental Activities

Industry Collaborations

NLC Nalco, Pune and Max India Pvt Ltd, Chandigarh

Patents and Technologies

Sl. No	Name of Authors	Title of Patents	Patents File No.	Year
	Rajiv Prakash	A process for a development of solid state sensor for Anti HIV drug and sensor for AZT.	3780/DEL/2014	2014

Sponsored Projects

Sl. No	Name of Authors	Title of Projects	Funding Agency	Amount (Rs.)	Year
1	Dhananjai Pandey	J.C. Bose Fellowship	SERB	68.00 Lakhs	2012-2017
2	PralayMaiti	Synthesis and characterization of novel segmented polyurethane-graphene nanocomposites for biomedical applications	CSIR	22 lakhs	2013-2016
3	Akhillesh Kr. Singh	Development of Ferroelectric and Rare Earth Manganite Based Radar Absorbing Materials for Stealth Applications	DRDO	25 lakhs	2012-2016

4	ChandanUpadhyay& Dhananjai Pandey	Synthesis of Ni-Zn, Co-Zn and Ni-Co-Zn ferrites and studies effect of shape, size and composition on their microwave properties	Defense Laboratory, Jodhpur (DRDO)	9.95 Lakhs	2012-2014
5	Rajiv Prakash &ChandanUpadhyay	DNA Based Molecular Electronics	Department of Bio-Technology	38 Lakhs	2013-Ongoing
6	Rajiv Prakash	Graphene-polymer based materials for coating and packaging applications	Max- Specialty Films, Max India Pvt. Ltd. consultancy project	10 Lakhs	2014-2015
7	Rajiv Prakash	Development of Azidothymidine (Anti HIV drug) and its Reactive Phase-I Metabolite Electrochemical Sensor based on Low Cost Screen Printed Electrodes	DST	41 Lakhs	2013-2015
8	Rajiv Prakash (Co-PI)	sponsored projecton "A Strategic Approach to Develop "Ideal" O2 Sensor Platforms Based on Doped Ormosils" PI: Dr. I Tiwari, Chemistry, BHU.	DBT	30 Lakhs	2012-2015
9	ChandanaRath	Growth of Nanowires and Nanotubes of Transition Metal Doped TiO_2: Structure, Properties and Photocatalytic Application	University Grant Commission, New Delhi	11.5 Lakhs	2012 ~ 2015
10	ChandanaRath	Nanostructured Materials: Synthesis, Microstructure and their Properties	IIT(BHU)	5.0 Lakhs	2014
11	ChandanaRath	Cation distribution in A and B sites of Fe substituted $CoCr_2O_4$multiferroi by EXAFS	UGC-DAE ConsortiumforScientificResearch, Indore	1.35 Lakhs	2015
12	ChandanaRath	Neutron diffraction studies on Nanoparticles of Cobalt Chromite by A/B site mixing	UGC-DAE Consortium for Scientific Research, Mumbai	12.3 Lakhs	2015

Equipments Purchased

Sl. No	Name of Equipments	Department	Amount	Year
1.	PQMS Model Xplore1.2,	SMST	~12.5 lakhs	2014
2.	Electrospinning Apparatus ESPIN NANOModel V1, Sr. No.12122014	SMST	~4.0 lakhs	2014
3.	Thermal Vapour Deposition Unit, Hind Hivac, India	SMST	~ 10 lakhs	2014
4.	Biojet/Inkjet printing setup for processible materials	SMST	~22 lakhs	2014

4.16.5 Research and Consultancy

Research Papers published in peer-reviewed Journals [Authors, Title, Journal, Vol. (year), page]

1. Magnetic transitions and site-disordered induced weak ferromagnetism in (1-x)BiFeO3-xBaTiO3, Anar Singh, AnatoliySenyshyn, HartmutFuess, Shane J. Kennedy, and Dhananjai Pandey Phys Rev B 89, 024108 (2014).
2. High-resolution synchrotron x-ray powder diffraction study of the incommensurate modulation in the martensite phase of Ni2MnGa: Evidence for nearly 7M modulation and phason broadening", Sanjay Singh, V. Petricek, Parasmani Rajput, Adrian H. Hill, E. Suard, S. R. Barman, and Dhananjai Pandey, Phys. Rev. B 90, 014109 (2014).
3. Incommensurate modulations in stoichiometric Ni2MnGa ferromagnetic shape memory alloy: An overview S Singh, SR Barman, D Pandey ZeitschriftfürKristallographie-Crystalline Materials (2014)
4. Photochemical Assisted Formation of Silver Nanoparticles by Dithizone and its Application in Amperometric Sensing of Cefotaxime Sandeep Gupta and Rajiv Prakash J. Mater. Chem. C, 2 (2014) 6859 – 6866
5. Directed Self Assembly of Poly (3, 3‴-dialkylquarterthiophene) Polymer Thin Film: Effect of Annealing Temperature.Rajiv Pandey, Arun Singh and Rajiv Prakash J. Physical Chemistry C, 118 (2014) 22943-22951
6. Molecular Self Ordering and Charge Transport in Layer by Layer Deposited Poly (3,3‴-dialkylquarterthiophene) Films formed by Langmuir- Schaefer Technique Rajiv K. Pandey, Arun Kumar Singh, ChandanUpadhyay and Rajiv Prakash J. Applied Physics, 116 (2014) 094311-094318
7. A Comparative Study of Spin coated and Floating Film Transfer Method coated Poly (3-hexylthiophene) / Poly (3-hexylthiophene)-Nanofibers based Field Effect Transistors Shashi Tiwari, Wataru Takashima, S. K. Balasubramanian, S. Nagamatsu and Rajiv Prakash J. Applied Physics, 116 (2014) 094306-094311
8. Musa Paradisica Peel Extract as Green Corrosion Inhibitor for Mild Steel in HCl Solution Gopal Ji, ShadmaAnjum, ShanthiSundaram, Rajiv Prakash Corrosion Science, 90 (2014) 107-117
9. Chitosan-based Polyaniline-Au Nanocomposite Biosensor for Determination of Cholesterol Monika Srivastava, S. K. Srivastava, N. R. Nirala, Rajiv Prakash Analytical Methods, 6 (2014) 817-824.
10. Photochemical Assisted Formation of Silver Nano Dendrites and its Application in Amperometric Sensing of Nitrite.Sandeep Gupta and Rajiv Prakash RSC Adv., 4 (2014) 7521-7527
11. Phenothiazine-Capped Gold Nanoparticles: Photochemically Assisted Synthesis and Application in Electro-sensing of Phosphate-Ions. Sandeep Gupta, Akhilesh K. Singh, Ravish K. Jain, Ramesh Chandra and Rajiv Prakash Chem Electro Chem, 1 (2014) 793-798
12. One pot synthesis of coordination polymer 2,5-dimercapto-1,3,4-thiadiazole–gold and its application in voltammetric sensing of resorcinol.Madhu Tiwari, Sandeep Gupta and Rajiv Prakash RSC Adv., 4 (2014) 25675-82.
13. Nano-dimensional Self Assembly of Regioregular Poly (3-hexylthiophene) in Toluene: Structural, Optical,

and Morphological Properties Ashish Kumar, Wataru Takashima, Keiichi Kaneto and Rajiv Prakash J. Appl. Polym. Sci., 131 (2014) 40931-9.

14. Ninety Second Electro-synthesis of Palladium Nanocubes on ITO Surface and its Application in Electro-sensing of Cefotaxime Sandeep Gupta and Rajiv Prakash Electroanalysis, 26 (2014) 2337-2341
15. Electric field induced cubic to monoclinic phase transition in multiferroic 0.65 Bi (Ni1/2Ti1/2)O3-0.35 PbTiO3 solid solution"Rishikesh Pandey and Akhilesh Kumar Singh Appl. Phys. Lett. 105, 162901 (2014).
16. Presence of a Monoclinic (Pm) Phase in the Morphotropic Phase Boundary Region of Multiferroic (1-x)Bi(Ni1/2Ti1/2)O3-xPbTiO3Solid Solution: A Rietveld Study" Rishikesh Pandey and Akhilesh Kumar Singh J . Appl. Phys. Vol. 116, 044102 (2014).
17. Electronic structure and stability of hydrogen defects in diamond and boron doped diamond: A density functional theory study"AUpadhyay, Akhilesh Kumar Singh, A Kumar Computational Materials Science 89, (2014) 257-263.
18. Phase Coexistence and the Structure of the MPB Region in (1-x)Bi(Mg1/2Zr1/2)O3- xPbTiO3 Solid Solution, Rishikesh Pandey, Ashish Tiwari, AshutoshUpadhyay and Akhilesh Kumar Singh ActaMaterilia 76 (2014) 198–206.
19. Structural analysis of nanostructured iron antimonate by experimental and quantum chemical simulation and its LPG sensing" Satyendra Singh, Vineet Gupta, B.C. Yadav, Poonam Tandon, Akhilesh Kumar Singh Sensors and Actuators B 195 (2014) 373–381
20. Structural and dielectric characterization on multiferroic xNi0.9Zn0.1Fe2O4/(1-x) PbZr0.52Ti0.48O3 particulate composite"Rishikesh Pandey, Braj Raj Meena and Akhilesh Kumar Singh Journal of Alloys and Compounds 593 (2014) 224–229.
21. Defects Induced Phase Transformation & Anomalous Luminescent Properties in ZnO and SrAl2O4 Composites V. P. Singh, P. Mohanty, S. P. Lochab and ChandanaRath RSC Advances, 4 (2014), 36765 – 36770
22. Synthesis of SrAl2O4 and ZnO composites: Structure and Optical Properties V.P.Singh and ChandanaRath Advanced Science Letters 20 (2014), 748-750
23. Evolution of structural and magnetic properties of Co doped TiO2 thin films irradiated with 100 MeV Ag7+ ions P Mohanty, V P Singh, N C Mishra, S Ojha, D Kanjilal and ChandanaRath J. Physics D: Applied Physics 47 (2014) 315001-8
24. Tuning of magnetic transition temperatures in nanoparticles of CoCr2O4 multiferroic by B-site mixing D. Kumar, P. Mohanty, V.P. Singh, A.Banerjee, V. Ganeshan and ChandanaRath Materials Research Bulletin 54 (2014) 78–83
25. Stabilization of High Temperature Hexagonal Phase of SrAl2O4 at Room Temperature: Role of ZnO V. P. Singh, S.B. Rai, H. Misra and ChandanaRath Dalton Transactions 43 (14) (2014) 5309 - 5316
26. Evidence of Room temperature ferromagnetism in Argon/Oxygen annealed TiO2 thin film deposited by electron beam evaporation technique P. Mohanty, D. Kabiraj, R. K. Mandal, P. Kulriya, A.S. K. Sinha, ChandanaRath J. Magn. Magn. Mater 355 (2014) 240-245
27. Molecular self ordering and charge transport in layer by layer deposited poly (3, 3'-dialkylquarterthiophene) films formed by Langmuir-Schaefer technique, RK Pandey, AK Singh, ChandanUpadhyay, R Prakash, Journal of Applied Physics 116 (2014), 094311
28. Mössbauerite, Fe3+O4 (OH)8 [CO3]3H2O, the fully oxidized 'green rust' mineral from Mont Saint-Michel Bay, France, J.-M. R. Génin, S. J. Mills, A. G. Christy, O. Guérin, A. J. Herbillon, E. Kuzmann, G. Ona-Nguema, C. Ruby, Chandan . padhyay, Mineralogical Magazine 78 (2014) 447 DOI: 10.1180/minmag.2014.078.2.14
29. Bone cement based nanohybrid as super biomaterial for bone healing GovindaKapusetti, NiraMisra, Vakil Singh, Swati Srivastava, Partha Roy, Kausik Dana and PralayMaiti Journal of Materials Chemistry B (2014)

30. Mechanical and dielectric properties of CaCu3Ti4O12 and La doped CaCu3Ti4O12 Poly (vinylidene fluoride) composites Anshuman Srivastava, PralayMaiti, Devendra Kumar and Om Parkash Composites Science and Technology 93, 83-89 (2014)
31. Self-assembled Aliphatic Chain Extended Polyurethane Nanobiohybrids: Emerging Hemocompatible Biomaterials for Sustained Drug Delivery AbhinayMishra, Sunil K Singh, Debabrata Dash, Vinod K. Aswal, BiswajitMaiti, ManjusriMisraandPralayMaitiActaBiomaterialia 10, 2133–2146 (2014)
32. 5-Florouracil loaded poly (lactic acid)-poly(caprolactone) hybrid scaffold: potential chemotherapeutic implant Kamal K. Gupta, Namrata Pal, Pradeep K. Mishra, Pradeep Srivastava, Sujata Mohanty, PralayMaiti Journal of Biomedical Materials Research: Part A (2014)

4.16.6 Other Activities

Technology available for industrial absorption

1. Radar absorbing materials are being developed for Defence Laboratory Jodhpur of DRDO for stealth applications.
2. Polymer-Graphene based materials for coating and packaging applications are being developed for Max-Specialty Films, Max India Pvt. Ltd and expecting technology transfer in this project.

   A process for preparation of homogeneous blends of polycarbonate and poly (methyl methacrylate) for CD substrates has been developed under Moser Baer India Ltd. sponsored project.

5. LIBRARY

Date of Establishment: 1916

Introduction :

The Indian Institute of Technology (Banaras Hindu University), Varanasi library system consists of a Main Library, and five departmental libraries, which collectively support teaching, research and extension programs of the institute. All students, faculty members and employees of the institute are entitled to make use of the library facilities on taking library membership. The library, besides having an excellent print collection of over 1,20,000 volumes of books , journals, theses, reports, standards, pamphlets, it also provides access to over 13,000 electronic journals, 60,000 standards (BS Euro code, AWWA and Indian Standards) and more than 30,000 of electronic books and databases in science, engineering and technology.

STATISTICS RELATED TO LIBRARY INFORMATION SERVICES

Items	2013-14	2014-15
A. COLLECTIONS		
Books	87933	88609
Thesis	221	223
Pamphlets & Reports	NA	NA
Microfilms/fische	NA	NA
Book Bank	18017	18132
Current periodicals by subscription	27 Print, 14000 Approx. Online	31 Print, 14000 Approx. online
Current periodicals by exchange/gifts	286	328
Back volumes of periodicals	17738	17738
Foreign Language collection	NA	NA
CD-ROMs		
Audio/video cassettes		611
e-Books	40,000 Aprox.	45,000 Aprox.
TOTAL		
B. MEMBERSHIP		
Staff Member	350	400
Faculty Members	240	260
Students	**5000**	**5000**
Alumni members	**NA**	**NA**
Corporate members	**NA**	**NA**
Special Members	**NA**	**NA**
IAS Members	**NA**	**NA**
Project Co-ordinators	**NA**	**NA**
TOTAL	**5590**	**5660**
C. CIRCULATION		
Number of books/journals issued	**5000**	**5500**
Number of books issued—Book Bank (GS)	**5000**	**5500**
Number of books issued—Book Bank (WS)	**15000**	**18000**
Overdue and other charges collected (in Rupees)	**12925**	**18569**
Photocopy charges collected (in Rupees)	**16517**	**26940**
Loss of Books	**10481**	**55812**

D. **Project Loans to Departments / Centre**		
Books issued	**NA**	**NA**
E. INTER -LIBRARY LOAN TRANSACTIONS	**NA**	**NA**
Borrowed from other libraries		
Loaned to other libraries		
F. **Reprint Service**	**NA**	**NA**
Reprints received from other institutions		
Reprints supplied to other institutions		
G. **SMART CARDS GENERATED/ ISSUED**	**NA**	**NA**
H. **EXPENDITURE (in Lakhs of Rupee)**		
Purchase of books	**9,44,028**	**4,62,847**
Subscription of journals	**86,38,846**	**2,27,96,319**
I. **NEW JOURNALS/ DATABASE ADDED**		
	Science Direct, Metadex, Ceramic abstract, ASM HANDBOOK (Online) Advance Science, Engineering and Medicine	**Scopus, RSC Gold, AWWA Standards, BIS EURO CODES, MERCK INDEX** Journal of Chemical Education (ACS) International Journal of Non-linear Sciences and numerical simulation Functional Calculus and Applied Analysis Pharmaceutical Biology

		Expert opinion on Drug Delivery Journal of Pharmacy and Pharmacology Geophysical Research Letters Lubrication Science Steel Research International

2. MAJOR INITIATIVES: Construction of 1st floor of existing library building started by the agency CPWD which will be handed over to the library in May, 2016. The library has purchased two library servers for creating digital library and upgrading the library software LIBsys 4.0 by LIBsys 7.0.

2.1 Equipment Added: Two Servers

2.2 On-line Access to e-Journals: Access able more than 14000 e-journals through different publishers platforms. The list of available on IIT(BHU) website.

2.3 Extended Working Hours on Sundays & Holidays: 10.00 a.m to 5.00 p.m

2.4 Systematic Re-shelving of Books: Daily as a practice and re-shelving during the semester break

2.5 Major Reorganization of Library Books in Stacks: Shifted from the old classification system DDC to CC. Currently , we have two type of arrangements.

2. LIBRARY AUTOMATION: Library is using old version of LibSys 4.0. Library operations like OPAC, Circulation, Technical processing is fully automated. However, the periodical and Acquisition section is partially automated.

SHORT TERM COURSES/WORKSHOPS/SEMINARS/SYMPOSIA/CONFERENCES/TRAINING PROGRAMMES/MEETINGS ATTENDED BY FACULTY/STAFF MEMBERS IN RECOGNIZED ACADEMIC INSTITUTIONS: (Journal article and book chapter)

S. No.	Name of Staff member	Title	Institution	Period
1.	Dr. Navin Upadhyay	Assistant Librarian	Participated in the 6th Refresher course in Library and Information science from Organized by the UGC Academic Staff College, BHU, Varanasi	22-11-14 to 12-12-14.

2.	Dr. Navin Upadhyay	Assistant Librarian	4th IEEE International symposium on Emerging Trends and Technologies in Libraries and Information Services" 06-08 Jan 2015, JIIT, Noida, India .	06-08 Jan 2015
3.	Dr. Navin Upadhyay	Assistant Librarian	"ProQuest e-books day on ebrary and ebook library(ebl) models : Addressing the challenges of acquiring e-books in Indian scenario" organized by University of Delhi, South campus, New Delhi on 9th June, 2014.	on 9th June, 2014

1. Upadhyay, N (2014). Impact of Environmental conditions on library documents : A review. Prajna, vol.60, no. 02, Year 2014-15.
2. Upadhyay, N. (2014). Impact of E-Resources on Collection Development. In Dr. B.G. Mukhyadal (Ed.), Advancement of electronic resources in libraries (124-130). Jalgaon : Atharva Publications.

1. FUTURE PLANS:

1. Creating Digital Institutional Repository; Digitization of more than 3000 old book which is out of Copyright Act.
2. To open the library 24x7 after the construction of first floor of existing building
3. To improve the IT infrastructure of library and adding more e- resources
4. Appointment of library cadre staff and opening children's library
5. Complete automation of library housekeeping jobs and implementation of RFID
6. A state-of-the art library building of area more than one lakhs sq feet

6. STUDENT LIFE

IIT (BHU) has a vibrant student life, encompassing almost all possible aspects of students' activities under the guidance of Chief Counsellor of Gymkhana and the Student Parliament. The first ever Student Parliament came into existence in IIT (BHU) in January, 2015 through a democratic process of elections with the participation of about 5000 students. The Student Parliament represents a deliberative body discusses various issues affecting students' life. It has various standing committees headed by their respective Conveners which work towards improving the academic, extra-curricular and hostel life of the students.

The executive wing of the Parliament is represented by various General Secretaries and Secretaries who are appointed through a rigorous selection process as prescribed by the Students' Constitution. These secretaries guide the mass of students in organizing the multifarious activities of the Students' Gymkhana through the Clubs.

6.1 Gymkhana

The IIT (BHU) Gymkhana is housed in the Kings Pavilion, named after the founder principal of BENCO, Prof. Charles A. King. The Gymkhana has four councils.

1. Games & Sports Council
2. Cultural Council
3. Science & Technology Council
4. Film & Media Council

These councils are headed by their respective Counsellors, with the Dean of Student Affairs being also the Chief Counsellor of Gymkhana.

6.2 Games & Sports Council

It takes care of all games and sports events in the Institute. It organizes inter-hostel competitions in 16 games and also all-Institute open competitions. Students may enroll in any of these games by contacting the student General secretary and the respective captains. The highly popular Adil memorial Football tournament is generally held in the month of August every year. The Institute also sends its team to participate in outstation events and competitions of other IITs. Our Institute has been participating in the Inter-IIT Sports meet for the last two years and is all set to participate again in the upcoming meet at IIT, Madras in December.

The major festival organized by this council is “SPARDHA” in which many leading colleges participate.

The Institute has made it mandatory for first year students to participate in games and sports for at least fifty hours per semester as a non credit course. They should spend 4 hours a week on the ground in the games of their choice. There is also a gymnasium which opens in the morning and evening.

6.3 Cultural Council

The cultural council has clubs like Quiz, Literary, Theater, Debate, Dance, Fine Arts, Indian and Western Music etc. These clubs organize workshops in their respective areas for first year students. They also organize various cultural events and competitions during the first semester for the freshers and later IIT open competitions for all students. The major Inter Collegiate Festival organized by Cultural Council is “Kashi Yatra”.
The student's chapter of SPIC MACAY has also been added recently to the Cultural Council.

6.4 Science & Technology Council

This Council consists of major clubs like Aeronautical Club, Astronomy Club, Robotics Club, Automobile Club etc. They organize various workshops on above areas and also workshops on Hacking, Networking, C++, Java, Android etc. The Major festival organized by this Council is the Techno Management Fest “Technex” in which students present technical models. Students are also sent to other IITs to participate in their Technical festivals.

6.5 Film & Media Council

This is a recently formed council and has Photography, Film, Animation, Design clubs etc. They organize workshops and competitions round the year. They also bring out an Institute Magazine for students. The major Fest organized by them is a “Film Festival” in which critics also come and help students to learn the finer aspects of films.

6.6 Healthcare

The Institute has provision for a comprehensive Students Health Welfare Scheme through Students Health Care Complex of Banaras Hindu University (BHU), Varanasi. Indoor services are available at Sir Sunder Lal Hospital

(superspeciality PG Hospital) and routine outdoor clinical service at University Students Health Care Complex centrally located in BHU Campus. To avail this facility a student has to get Health Diary issued from the University Students Centre Complex after completing the formalities as prescribed by Students Health Care Complex.

Every bonafide student of the Institute is covered under this scheme which covers the cost of investigations required in connection with the treatment done in S.S. Hospital, BHU or recommended by University Students Health Care Complex. In an emergency situation, tests done outside the S.S. Hospital on recommendations of the consultant I/C of the case will also be covered, provided a certificate from the Head of the Department of Radiology/Pathology is attached stating that the test required could not be done in that department. In such cases the rate of payment will be same as has been fixed for the S.S. Hospital.

Students should visit the Students Health Care Complex which will refer, if required, to a consultant at S.S. Hospital who in turn will advise for investigation. The investigations will be performed free of charge by the respective departments of the IMS/SSH like Radiology, Clinical Pathology, Immunology, Endocrinology etc.

Under this scheme the cost of Indoor Treatment of the students at S.S. Hospital will be free. This includes cost of all investigations, operation charges, anesthesia, etc. However the students will have to purchase medicines and claim reimbursement after being discharged from S.S. Hospital from the office of the Chief Medical Officer I/C, University Students Health Care Complex on the prescribed format.

Under no circumstances reimbursement will be made for medicines purchased for OPD treatment and room rent of Special Ward in S.S. Hospital, Banaras Hindu University.

Students are required to approach University students' health care Centre with their Registration Card and fill up the Health Diary registration Form available at University Students' Health Care Centre and submit the same to the Chief Medical Officer In-charge, University students' health care Centre.

6.7 Hostels

Indian Institute of Technology (BHU) Varanasi provides on-campus housing to students and research scholars. Students are required to live in one of the 16 hostels throughout their stay at the institute. There are 13 boys hostels and 3 girls hostels. All the hostels are equipped with common room and indoor game facilities like table tennis, badminton, volley ball etc. Inter-hostel competitions are organized for various games with the help of Gymkhana of the Institute. Integrated cultural programs are also arranged time to time. Hostels at IIT (BHU) are conceived to be a home away from home. Safety, security, comfortable stay, cultivation of good habits, and health of the students are the primary concerns of the IIT (BHU) team of hostel administration. The team of Council of Wardens at IIT (BHU) encourages students to create a clean, congenial and lively environment in the campus to nurture an individual to grow as a responsible person of the society with a trait of academic and research excellence.

Accommodation

Sl.No.	Name of Hostel
➢ **Boys Hostels**	
1.	Vishwakarma Hostel
2.	Vivekanand Hostel
3.	Dr. S.C. De Hostel
4.	Limbdi Hostel
5.	Rajputana Hostel
6.	Visvesvaraya Hostel
7.	Dhanrajgiri Hostel
8.	Morvi Hostel
9.	C.V. Raman Hostel
10.	A.S.N. Bose Hostel
11.	S. Ramanujan Hostel
12.	R.N. Tagore Hostel
13.	Aryabhatta Hostel
➢ **Girls Hostels**	
14.	Gandhi Smiriti Girls Hostel (GSMC)
15.	Gandhi Smriiti Girls Hostel (GSMC-Extn.)
16.	I.I.T Girls' Hostel (Saluja) & IIT Girls' Hostel 2 (Limbdi Warden's Quarter)

7.Resource And Alumni Relations

7.1 Introduction: IIT (BHU) wishes to engage Alumni for development of academic activities and professional development of students. We have our alumni spread over all major places in India and abroad. We have possibility of involvement of our alumni in mentoring the students through our innovative newer dimensions like Design & Innovation Hub, Project Varanasi, Green Cell, Unnat Bharat Abhiyan and Malaviya Centre for Innovation Incubation & Entrepreneurship We have some international students at Masters and PhD levels. We need to attract young and fertile minds from SAARC and BRICS nations in various streams of sciences and Engineering at our place.

7.2 Vision: We aim at involvement of alumni in such a manner so as to attract best of minds from India and abroad to work with us for achieving excellence in Research and Innovation driven Engineering Sciences Education.

7.3 Mission: We have the mission of involving our undergraduate, postgraduate students research personnel and faculty colleagues to put concerted efforts in processing and creation of knowledge, application of knowledge and development of solutions to problems for the purpose ofaddressing professional issues and concerns of society through innovative ways for sustainable and humanistic development.

7.4 Events: The Alumni of the following batches assembled in the institute for reunion and deliberated on possibilities of continued association with the institute

1. 1976 batch
2. 1981 Batch
3. 1989 Batch
4. 1984 Batch

7.5 Distinguished Alumnus Awards: We are planning to give distinguished Alumnus/Alumna awards in the First Alumni Meet to be held in December'2015 in the Institute. The Alumni Portal was organized and now it is operational for on-line registration in database.

1.6 Other Activities: Institute Industry Interface (i3), Initiatives of Association of IIT (BHU) Alumni has been taken up.

I-3 Initiatives.

They forwarded a list of ongoing projects currently being pursued by students at IIT BHU under the supervision of the Design and Innovation Cell IIT BHU

At the September and the Nov 2014 meeting at IIT BHU with the Director and Deans, AIBA under the i3 initiative had promised assistance to the projects.

A request was sent to AIBA for the I-3 to appoint one alumnus each to assist ,review and evaluate each of these projects being listed in the excel sheet sent by Design & Innovation Hub. Since each of these projects are pretty much detailed industry experts are needed

AIBA decided to identify 22 alumni members to support the effort so that each member is not overloaded nor slowing down the output of the students / teachers of the Institute.

Around 4 Alumni members from Chemical Engg, 3 each from Mining and Metallurgy, 2 each from Mechanical, Electrical and Civil Engineering and 1 each from Electronics, Computer Science, Ceramics, Material Science, Physics, Chemistry and Biochemical disciplines were identified to support the effort of the Design and Innovation Cell.

The work involved is to review / evaluate the projects and give suggestions in consultation with the concerned professors associated.

I-3 Initiative discussed with functionaries of AIBA and Director & Deans.

During the meeting with the Director IIT and Deans on the 6th of Nov 2014, in which both AIBA and IBGAA representatives were present, Three proposals were submitted and adopted as Serial No 7, 8 and 9 of the minutes

of the discussion. Whereas proposal 7 was introduced as a fresh i3 initiative, the proposals 8 and 9 were in response to the Director IIT's request for Alumni input on Workshop on Design and Innovation and Project Varanasi respectively. The excerpts from the meeting are as under:

7) Convener of Institute Industry Interface (i3) activities informed the members that an offer from Mr. Vikram Sinha Project Director of Tata Motors has been received for robotics training of IIT BHU students at the Tata Motors plant where they are planning two new cars to be readied by March 2015.

8) A request was made for alumni involvement in the Workshop on Design and Innovation by Director IIT BHU Professor Rajeev Sangal to AIBA members on 5 Sept 2014. The first theme of the document 'Energy: non - fossil fuel' had four verticals namely solar, wind power, bio fuels and waste to energy. Over 40 companies were identified in these verticals with whom it is possible to connect the Institute under the i3 initiative.

9) Inputs were additionally furnished by the i3 to connect the Institute to the industry on waste to energy WTE projects identified to manage solid waste in the city under 'Project Varanasi' whose document was furnished by Director Professor Rajeev Sangal to AIBA members on 5 September 2014.

As part of the Industry Institute Initiative i3 contribution to the Institute they are listedthree items for detailed discussion for the 6th January meeting with the Dean, the faculty and the students of IIT BHU

1) Tata Motors offer to train IIT BHU students on robotics
2) Assistance in connecting with the Industry for both the Design and Innovation Workshop
3) Assistance in connecting with the Industry for Project Varanasi as detailed below.

Details are given below

1) Tata Motors offer on robotics training

Tata Motors Project Director Vikram Sinha has offered to facilitate operations and maintenance training on robots for students of IIT BHU in Tata Motors. They have over 300 robots for spot welding, mig welding, handling and assembly. Most of these are spot welding. The makes are principally Kuka, ABB and Nachi.

2) Industry Grid Map-Energy, no-fossil fuel

Reference:
Minutes of Meeting with Director IIT BHU and Dean on 5 September 2014
Brainstorming workshop on design & Innovation 7 to 9 March 2014

At the meeting with IIT BHU Director Professor Rajeev Sangal and the Dean of Alumni affairs Professor A K Tripathi on 5 of September 2014 the Director handed over two documents to the alumni, namely report on design and innovation workshop and report on Project Varanasi and asked them to associate with the projects of importance identified in those reports by the Institute.

Debashish Bhattacharya President AIBA confirmed that the Industry Institute Initiative i3 group of AIBA would take up the task of actively associating with the IIT BHU on projects identified by the Institute in these documents.

On going through these documents the i3 found that 10 themes have been identified in the workshop on design and innovation and 4 themes under Project Varanasi.

As part of the Institute Industry Initiative i3 activities are sending you as a first step basic info on each of your themes separately to inform you that which are the industries you could connect in India and globally on areas of your interest and how to do it for each of your themes.

The first theme being from the report on design and innovation workshop is

Energy (Non- fossil fuel) the subgroups of which defined by you are as under

Solar
Wind energy,
Bio-fuels and alternate fuels
Waste to energy

The industries in these verticals which are operating in India are as under :

SOLAR

States with most solar plants

(I) Andhra, (II) Gujarat, (III) Karnataka, (IV) Madhya Pradesh, (V)Maharashtra, (VI) Rajasthan (VII) Tamilnadu

Solar power Utilities :

NTPC Ltd (II) New & Renewable Energy Development Corporation of Andhra Pradesh (NEDCAP), (III) Gujarat Energy Development Agency (GEDA), (IV) Karnataka Power Corporation Limited (KPCL). (V) Tata Power Renewable Energy Limited (TPREL) (VI) Sri Vinayaga Green Power Generation Private Limited (VII) Surat Municipal Corporation (VIII) Maharashtra Energy Development Agency (MEDA) (IX) MP new and renewable energy department (MPNRED) (X) Rajasthan Renewable Energy Corporation (RREC) (XI) Tamil Nadu Energy Development Agency (TEDA) (XII) Adani Power Gujarat (XIII) PLG power Gujarat. (XIV) Astonfield Solar Gujarat (XV.) LANCO solar Gujarat (XVI) Solitaire

Solar power manufacturers and EPC contractors :

Tata Power Solar (II) BHEL (III) Bosch (IV) GE (V) Siemens (VI) AEG (VII) ABB. (VII) Insolare(VIII) Schneider (IX) Sharp (X) Kyocera (all with India operations to whom we can help you connect)

Wind Energy

States with most wind plants

(I) Tamilnadu, (II) Gujarat, (III) Karnataka, (V)Maharashtra, (VI) Andhra

Wind Power Utilities :

(I) DLF , (II) MSPL (III) Madras Cement (IV) Tata Power (V) Enercon (VI) Green Infra (VII) CLP (VIII) Techno Electric (IX) Hindustan Zinc (X) ADAG

Wind Power Manufacturers :

Vestas, (II)Gamesa, (III) Enercon (IV) Suzlon (V) Siemens (VI) GE Energy (VII) Acconia (All with India operations to whom we can help you connect)

In Biomass we not know of any successful and continuously operating project other than Auro Mira of Chennai. In Waste to Energy there are 6 unsuccessful projects and in March 2015 the first RDF based WTE project by ILF&S at Ghazipur Delhi will be commissioned which could be successful because it is similar to several European projects with boiler of Keppel Seghersof Belgium which has over 100 successful installations worldwide. The details of this is scheduled in the i3 input for project Varanasi listed below

3) Modern waste management plant.

Reference :

1) Minutes of Meeting with Director IIT BHU and Dean on 5 September 2014
2) As part of i3 contribution to Project Varanasi

Another area of interaction could be in the waste management area, where again India is lagging behind most other nations despite being the third largest waste producer in the world. IL&FS a reputed infrastructure company is building a 12 MW fully integrated Waste to Energy plant that will ultimately consume 1300 TPD of waste from the 29 hectare Ghazipur landfill at Delhi. The process is involving 7 steps of screening, sizing, manual segregation, separation, shredding, drying and air classification that will segregate non combustibles, dead animals, plastic and paper, silt and stones, as well as matter suitable for composting and finally process 500 TPD of refuse derivative fuel RDF to be fired into a 3 pass boiler to produce steam for a 12 MW turbine generator, in phase I

There are six other Waste to Energy plants in India that are all unsuccessful and non operating because of poor technology inputs and the fact that many were just incinerators.

I have visited the plant site last year and feel that IIT BHU students could gain immensely from a plant visit to

understand the challenges in such waste to energy projects as well as the composting site to understand the current day technology in this vertical. IIT Delhi is already a partner to IL&FS but if the Director wishes we could also try to enlist the support of IL& FS for the waste management project of the city of Varanasi.

7.7 Funds Received:

S. No.	Name of person/Trust	In favor of	Type	Purpose
1	Shri R.K. Deora	IIT (BHU)	Endowment	alumni funded Gold Medal
2	Dr. G.N. Pandey	IIT (BHU)	Endowment	Prof. Gopal Tripathi Memorial Chair
3	Mrs. Ganga Tripathi	IIT (BHU)	Endowment	Prof. Gopal Tripathi Memorial Chair
4	Mr. TrinetraBajpai	IIT (BHU)	Endowment	Prof. Gopal Tripathi Memorial Chair
5	Prof. S.N. Upadhyay	IIT (BHU)	Endowment	Prof. Gopal Tripathi Memorial Chair
6	Prof. I.M. Mishra	IIT (BHU)	Endowment	Prof. Gopal Tripathi Memorial Chair
7	Mr. T.C. Mittal	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
8	Rajkumar Sharma	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
9	Shiam Sunder sharma	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships

10	HarBhatnagar	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
11	MohanlalChandrawati	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
12	Mr. ViswanathHarihar	IIT (BHU)	Endowment	BENCO'64 Medals/Cash
13	Ramesh Chandra Verma	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
14	Arjun Bhola	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
15	UtpalDhar	IIT (BHU)	Endowment	BENCO'64
				Medals/Cash Prizes/ Scholarships
16	BrajendraNath Roy	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
17	Ashok Bajaj	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
18	HarBhatnagar	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
19	M.C. Pradhan&S.M. Pradhan	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
20	M.C. Sachdeva	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships

21	Krishna Keswani	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
22	NoshirFramjee	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
23	Mr./Mrs. Sandip Sengupta	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/ Scholarships
24	SubirMajumdar	IIT (BHU)	Endowment	BENCO'64 Medals/Cash Prizes/

7.8 Year-Wise funds & Donors

1, 00,000$ (58,15650 INR) from Shri Naresh C Jain were received for loan basis Scholarship. 22/11/2014

IBGA

US Dollar 1, 00,000.00 - IIT (BHU) Global Alumni Association (IBGAA),
US Dollar 3,965.00- IIT (BHU) Global Alumni Association (IBGAA),
US Dollar 4,000.00- IIT (BHU) Global Alumni Association (IBGAA),
US Dollar 10,965.00 IIT (BHU) Global Alumni Association (IBGAA),
US Dollar 8700.00- IIT (BHU) Global Alumni Association (IBGAA),
Rs. 58, 15,650.26- IIT (BHU) Global Alumni Association (IBGAA),
Rs.29, 825.00- IIT (BHU) Global Alumni Association (IBGAA),
Rs.2, 32,506.64- IIT (BHU) Global Alumni Association (IBGAA),
Rs. 2, 40,230.40- IIT (BHU) Global Alumni Association (IBGAA),
6, 65,285.40- IIT (BHU) Global Alumni Association (IBGAA),
Rs. 5, 26,868.67- IIT (BHU) Global Alumni Association (IBGAA)

8.Research and Development

8.1 MoU Foregin and Indian Organizations

MoUs April, 2014 to March, 2015 Financial Year

Sl.No.	Name of the field	Particulars	Date
		Signed Indian MoU	
1	MoU	CSIR-National Environmental Engineering Research Institute, Nagpur	31-05-2014
2	MoU	CSIR-Indian Institute of Petroleum, Dehradun	31-05-2014
3	MoU	Establishment of Centres of Excellence for Training and Research in frontier Areas of Science & Technology (FAST), Centre for Energy and Resources Development (CERD), (MHRD)	07.08.2014
4	MoU	WWF-India (World Wide Fund for Nature-India)	17-12-2014
5	MoU	National Institute of Technical Teacher Training and Research, Chandigarh	09-01-2015
6	MoU	(SMDP),Deity and CEERI, Pilani	13-02-2015
7	MoU	Ministry of Human Resource Development (MHRD), Design and Innovation Centre between BHU and IIT (BHU)	16-02-2015
8	MoU	Stem Cure Pvt. Ltd., Ahmadabad	26-03-2015

MoUs April, 2014 to March, 2015 Financial Year

Sl.No.	Name of the field	Particulars	Date
		Signed Foreign MoU	
1	MoU	Institute of frontier materials, Deakin University, USA	05-05-2014
2	MoU	Universidad De Los Andes, Bogota, Colombia	25-06-2014
3	MoU	Finnish Higher Education Institution, Finland	15.10.2014
4	MoU	Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Kitakyushu, Japan	22.01.2015

8.2 Sponsored Projects

Sponsored Project which received the grant during the session 2014-15

S.No.	Title of Project	Name of the PI/Co-PIs	Department	Name of the Funding Agency	Period of the Project Sanction
1.	Fractional Calculus approached for Two Dimensional Ground Water Contamination in Unsaturated Porous Media	Dr. Subir Das	Mathematical Sciences	BRNS, BARC, Mumbai	3 Years
2.	Effect of Mean Stress on High Cycle Fatigue (HCF) Properties of GTM-SU-718 Alloy	Prof. Vakil Singh, P.I/ Dr. G.S. Mahobia, Co-P.I.	Metallurgical Engg.	DRDO	18 Months
3.	Development of Microfluidic tools for neuromuscular synatogenesis and nanotoxicological studies	Dr. Sanjeev Kumar Mahto	Biomedical Engg.	DST	5 Years
4.	Development and evaluation of an innovative poly herbal Bi layer wound dressing material	Dr. Pradeep Srivastava	Biochemical Engg.	DRDO	3 Years
5.	Analysis, Design and Simulation of an S Band MILO	Prof. P.K. Jain, P.I./ Dr. M. Thottappan, Co-PI	Electronics Engg.	DRDO	03 Years
6.	Development of Air Breathing Microfluidic Fuel Cell for the Direct Use of Ethanol as fuel for Power Generation	Dr. Hiralal Pramanik, P.I.	Chemical Engg. & Tech.	SERB	3 Years
7.	DAE-Raja Ramanna Fellow	Prof. S.N. Upadhyay (Emeritu Professor),P.I.	Chemical Engg. & Tech.	DAE	12.01.2016
8.	Development of technology for the generation of biological hydrogen: a second generation fuel	Mr. Neha Srivastava under guidance of Prof. P.K.Mishra	Chemical Engg. & Tech.	DST	3 Years
9.	DST/INSPIRE Faculty Award (IFA-12-PH-21)	Dr. S.K. Singh	Physics	DST	5 Years
10.	IFA-12-Ph-22 DST/INSPIRE FACULTY Award/2012 INPIRE FACULTY AWARD	Shri Sunil Kumar Mishra	Physics	DST	5 Years
11.	Development of new Electrolyte materials with optimized electrical/ionic/conductivity for Solid Oxide Fuel Cells	Dr. Prabhakar Singh	Physics	DRDO	3 Years
12.	Dynamic of Ions in Tellurite Glasses of Variable Composition	Dr. Prabhakar Singh (PI.)	Physics	CSIR	3 Years
13.	Development of Sheet Hydro-forming Process for missile Components	Prof. Santosh Kumar, P.I.	Mechanical Engg.	Defence Research & Developmen Lab (DRDL0 Hyderbad	2 Years

Sponsored Project which received the grant during the session 2014-15

S.No.	Title of Project	Name of the PI/Co-PIs	Department	Name of the Funding Agency	Period of the Project Sanction
14.	Assessment of residual stress upon friction stir welding of steel	Dr. Mohd. Zaheer Khan Yusufzai	Mechanical Engg.	SERB	3 Years
15.	Quenching behavior of dry heated ord with nanofluid	Dr. Pradyumna Ghosh	Mechanical Engg.	BRNS	2 Years
16.	Cognitive Linguistic study of perception verbs in Hindi and English: In the context of machine translation	Dr. Swasti Mishra	Computer Engg.	DST (CSRI)	2 Years
17.	Design of High Temperature Facility for Graphite Dust Formation and Transport.	Dr. Prasant Shukla	Mechanical Engg.	BRNS (DAE)	2 years
18.	Development & evaluation of nanocarrier for enhanced anti-microbai activity of anacrdic acid against human and plant pathogens	Dr. Sanjay Singh	Pharmaceutics	DST	3 Years
19.	Centre for Energy and Resources Development	Dr. S.K. Shukla	Mechanical Engg.	MHRD FAST Scheme	2 Years
20.	FIST Programme under the Head, Department of Chemical Engineering, IIT(BHU)	A.S.K. Sinha	Chemical Engg.	DST (INSPIRE & First Division)	5 Years
21.	J.C. Bose Fellowship	Prof. Dhananjay Pandey	SMST	SERB	5 Years
22.	Design and Synthesis of novel Matrix Metallo Proteinase (MMP-2 & 9) Inhibitors as therapeutic agents for Alzheimer's Disease	Dr. S.K. Singh	Pharmaceutics	Deptt. of Biotechnology	3 Years
23.	Wavelets and operational matrix based techniques for integral and differential equations	Dr. Rajesh Kumar pandey	Mathematical Sciences	SERB, New Delhi	3 Years
24.	INSPIRE Faculty Award	Dr. Neha Agnihotri	Physics	DST, New Delhi	5 Years
25.	Neutron Diffraction Studies on Nanoparticles of Cobalt Chromite by A/B Site Mixing	Dr. Chandana Rath	SMST	UGC, New Delhi	3 Years
26.	Design Development and Fabrication of an Incremental Sheet Hydro forming Machine Setup	Dr. Santosh Kumar	Mechanical Engg.	SERB	3 Years

Seed Grant Sanctioned in the Financial Year 2014-15

Name of P.I.	Department	Letter No.	Date	Project Entitle	Sanctioned Amount
Dr. Pradeep Kumar Roy	Ceramic Engineering	IIT(BHU) /R&D/14-15/1787/L	23.05.2014	Development of Srferrite with high electromagnetic properties for rotating machine	1,000,000.00
Dr. Sweta	Chemical Engg. & Tech.	IIT(BHU) /R&D/14-15/1791/L	23.05.2014	Development of Organic Inorganic based Hybrid Catalysts	1,000,000.00
Dr. J.P. Chakraborty	Chemical Engg. & Tech.	IIT(BHU) /R&D/14-15/3014/L	24.06.2014	Pyrolysis of Lignocellulosis Biomass	1,000,000.00
Dr. Abhishek Kumar Srivastava	Physics	IIT(BHU) /R&D/14-15/4674/L	31.07.2014	To establish an Advanced Solar Computation & Analysis Laboratory	900,000.00
Dr. Sanjeev Kr. Mahto	School of Biomedical Engg.	IIT(BHU) /R&D/14-15/6077/L	09.09.2014	Tissue Engineering and Biomicrofluidics	1,000,000.00
Dr. Jeyakumar Kandasamy	Chemistry	IIT(BHU) /R&D/14-15/6073/L	09.09.2014	Synthesis and Application of Sugar Based Di-amine Ligands in Copper Catalyzed Organic Transformations	950,000.00
Dr. Somdeb Bose Dasgupta	School of Biomedical Engg.	IIT(BHU) /R&D/14-15/7037/L	30.09.2014	Molecular Biology and Nanotechnology Laboratory	1,000,000.00
Dr. Rajesh Kumar Pandey	Mathematical Sciences	IIT(BHU) /R&D/14-15/8719/L	12.11.2014	Fractional Derivative and its Applications in Calculus of Variations and Biomedical Signal Processing	963,889.00
Dr. Kishor Sarawadekar	Electronics Engineering	IIT(BHU) /R&D/14-15/8723/L	12.11.2014	Study and design of DPEGXR, HEVC image/video coating standards	1,000,000.00
Dr. Vineet Kumar Singh	Mathematical Sciences	IIT(BHU) /R&D/SGF(SM) /2014-15/314/L	16.12.2014	Numerical Wavelets Method for Signal Analysis and Fractional Calculus	905,689.00
Dr. Anuradha Banerjee	Mathematical Sciences	IIT(BHU) /R&D/SGF(SM) /2014-15/1426/L	04.03.2015	Study on some bulk queues with or without state dependence	835,000.00
Dr. Manish Kumar	Electrical Engineering	IIT(BHU) /R&D/SGF(SM) /2014-15/1439/L	04.03.2015	Integrated Diary and Smart Hybrid Energy System	400,000.00
				Total	**10,954,578.00**

Sprouting Grant to Faculty (during Financial Year 2014-15)

Name of P.I.	Department	Name of Co-P.I.	Letter No.	Date	Project Entitle	Sanctioned Amount
Prof. S.P. Singh	Ceramic Engineering	Prof. Ram Pyare Dr. Anil Kumar	IIT(BHU)/Dev/14-15/1254/L	07.05.2014	Studies on preparation and characterization of IR-Transmitting glass for photo voltaic solar cells	1,500,000.00
Dr. Rajendra Prasad	Physics	Prof. P.K.S. Dikshit Dr. Shyam Bihari Dwivedi Dr. Anurag Ohri Deptt. Of Civil Engg. Dr. Vinayak Srivastava Dr. Ravi Shankar Singh Deptt. Of Computer Sc. & Engg.	IIT(BHU)/Dev/14-15/1261/L	07.05.2014	Crop-signature studies by Microwave Remote Sensing with Soft with Soft Computing Techniques	2,500,000.00
Dr. S.K. Shah	Mechanical Engineering	Prof. J.P. Dwivedi Prof. V.P. Singh	IIT(BHU)/Dev./14-15/1247/L	07.05.2014	Synthesis and Characterization of Novel Solid Lubricating Coating	1,500,000.00
Prof. Ram Pyare	Ceramic Engineering	Dr. R.K. Chaturvedi, R.A. Dr. Sudama Singh, R.A.	IIT(BHU)/Dev./14-15/2856/L	18.06.2014	Glass Nutrients	399,900.00
Prof. (Mrs.) N.C. Santhi Srinivas	Metallurgical Engineering	Prof. Vakil Singh Dr. Om Prakash Sinha Dr. Kaushik Chattopadhyay Dr. Girija Shankar Mahobia	IIT(BHU)/Dev./14-15/2877/L	19.06.2014	Hot deformation behaviour of indigenously developed nitrogen bearing stainless steels for critical applications	2,000,000.00
Prof. S. Jit	Electronics Engineering	Prof. S.K. Balasubramanian Mr. Amritanshu Pandey	IIT(BHU)/Dev./14-15/2863/L	18.06.2014	Modeling and Simulation of Advanced Nano-Scaled CMOS Devices	1,500,000.00
Prof. S.P. Singh	Electronics Engineering	Prof. P.K. Jain Dr. M.K. Meshram Dr. A.K. Singh Dr. M. Thattappan	IIT(BHU)/Dev./14-15/5081/L	09.08.2014	Microwave Antennas and Electron Beam Devices	2,500,000.00
Dr. Pradeep Srivastava	School of Biochemical Engg.	Prof. Subir Kundu Prof. S.K. Srivastava	IIT(BHU)/Dev./14-15/5093/L	09.08.2014	Studies on Cell Processing Technology	1,500,000.00
Prof. N.K. Mukhopadhyay	Metallurgical Engineering	Prof. R.K. Mandal Dr. N.K. Prasad	IIT(BHU)/R&D/14-15/6081/L	09.09.2014	Mechanical Milling of metallir alloy powder and subsequent consolidation through hot pressing	1,500,000.00
Dr. Vinay Kumar Singh	Ceramic Engineering	Dr. Rajkumar Chaturvedi, RA Dr. Sudama Singh, RA	IIT(BHU)/R&D/SGF/2014-15/299/L	16.12.2014	To develop technology for Fabrication of Low Cost Nano Absorbants Ceramic Filtration Systems for Hygienic Drinking Water by the Removal of Inorganic, Organic, Bio and Medicinal Contaminants	400,000.00
Dr. Rampada Manna	Metallurgical Engineering	Prof. G.V.S. Sastry Deptt. Of Metallurgical Engg. Prof. R.K. Pandey Deptt. Of Electrical Engg.	IIT(BHU)/R&D/SGF/2014-15/307/L	16.12.2014	Microstructural Modification of high strength metals and alloys for ductilisation by Electropulsing	1,500,000.00
Prof. Aarif Jamal	Mining Engineering	Sri. Ram Pratap Singh Dr. Arun Kumar Singh, RA	IIT(BHU)/R&D/SGF/2014-15/318/L	16.12.2014	Characterisation and learning behaviour of fly ash for its utilisation in mines / Studies on heavy metal pollution problems in mining areas and its abatements by environmentally-friendly absorption techniques	1,500,000.00

Dr. Amrendra Kumar	Mining Engineering	Dr. S. Gupta Dr. Sanjay Kumar Palei Prof. N.C. Karmakar	IIT(BHU)/R&D/SGF /2014-15/925/L	19.01.2015	Application of Data Analytics tools to Enhance Decision Making for better productivity and safety in Mines	500,000.00
Dr. Sanjay Kumar Palei	Mining Engineering	Dr. S. Gupta Dr. Amrendra Kumar Prof. N.C. Karmakar	IIT(BHU)/R&D/SGF /2014-15/932/L	19.01.2015	Studies on Machine Induced Vibration on Health and safety of Equipment Operations in surface Mines	1,500,000.00
Prof. A.K. Agrawal	Mechanical Engineering	Dr. P. Bharadwaj Dr. C. Samuel	IIT(BHU)/R&D/SGF /2014-15/1444/L	04.03.2015	Ergonomics in Life and work	1,500,000.00
Dr. Pradumna Ghosh	Mechanical Engineering	Dr. Jahar Sarkar Dr. R.R. Sahoo Dr. Swati Sundar Mondal	IIT(BHU)/R&D/SGF /2014-15/1431/L	04.03.2015	Facility to measure Liquid Termo Physical property	1,936,770.00
Dr. P. Bala Ramudu	Civil Engineering	Dr. Arun Prasad Dr. B. N. Singh, RA Mr. Suresh Kumar	IIT(BHU)/R&D/SGF /2014-15/1411/L	04.03.2015	Assessment of Liquefaction Resistance of Pond Ash amended with polypropylene Fiber by Experimental Studies (Triaxial & Shake Table Tests)	2,000,000.00
Dr. Sanjay Kumar Rai	School of Biomedical Engg.	Dr. S.K. Panda Dr. Arnab Sarkar Deptt. Of Mechanical Engg.	IIT(BHU)/R&D/SGF /2014-15/1425/L	04.03.2015	Finite Element Modelling to Total Hip Replacement	1,500,000.00
Prof. Piyush Rai	Mining Engineering		IIT(BHU)/R&D/SGF /2014-15/1455/L	04.03.2015	Characterization of Particle Size and its Distribution in Bench Blasting	200,000.00
					Total	**27,436,670.00**

9.Design and innovation Hub

Design & Innovation Hub is a project proposal from IIT(BHU) duly approved by the Ministry of HRD, Govt. of India for study of the extra ordinary city of Varanasi and its surrounding eastern region of India in all its aspects.

9.1 Introduction

There is a need for engineering education to connect with society and industry. While striving for excellence in specialized fields of engineering and technology, it has become clear that it is extremely important to provide holistic education.

The goal of education is to produce students with three qualities:

A. Analytical ability (ability to analyse given situations),
B. Building ability (ability to design and innovate with creativity), and
C. Caring and character (sensitivity to others and courage to act on one's beliefs)

These are the ABC of education. They are not to be construed in a narrow disciplinary sense, but in the widest possible context of life and living. A and B pertain to "how to do" and C pertains to "what" and "why" of life. In this proposal, the emphasis will be on B.

Many students, when they enter engineering, are full of enthusiasm to understand new areas, to build systems and to experiment and play with them. For some, it might be a passing fancy but the real question is whether this enthusiasm can be tapped so that it leads to exploration and sustained pursuit by the student. If nurtured, what can follow is the development of a deeper interest in the chosen area or topic of study.

The academic program should encourage the creative expression of the student in the areas chosen by him or her in the light of the goals of the institution. In fact, many students join our leading technology institutions with the enthusiasm to learn about technology and build things. One should be able to capture this enthusiasm and lead the student in fulfilment of his or her dreams. It would also indicate to the student that the fulfilment of dreams also requires hard work, and that it can be a journey of joy.

Projects

Perhaps, the best way to achieve this is to introduce projects in the academic program. The projects may pertain to research (discovering new principles) or innovation (building prototypes or developing processes for new contexts). Projects allow flowering of creativity on the one hand and application of concepts learnt in diverse courses on the other. Thus, they contribute to enhancement of abilities of analysis as well as synthesis. In this proposal, the focus shall be on innovation.

When the projects are based on real life needs, it contextualises the problem being worked upon, thereby allowing for creative definition or redefinition of the problem itself. It also provides satisfaction to students in working to solve problems of society and industry.

Projects need to be coordinated or even synchronized with relevant theory courses. The relevant courses might lie in different disciplines, including across engineering and humanities. They are naturally inter-disciplinary or trans-disciplinary. This would synergize both practice and theory components of the curriculum across disciplines.

9.2 Goals

The goals of this proposal are the following :

(a) To facilitate redesign of engineering education based on project based learning that integrates course work with design and innovation projects.
(b) To help in creation of new kind of courses and academic programs that emphasize design, so that a design spine gets introduced in engineering education.
(c) To support projects within and across disciplines so that the students get a holistic experience of learning which integrates analytical ability with creativity.
(d) To encourage projects that connect with needs in society whether social, industrial or strategic thereby placing projects in real life contexts.

(e) To develop sensitivity among students through projects that benefit the under privileged sections of society including craft communities, rural artisans, weaker sections, etc. which sometimes require much greater levels of innovation.
(f) To take up activity that converts advanced prototypes to product designs that can go out into society (in the social, industrial or strategic sector).

9.3 Design and Innovation Hub

To accomplish the above goals, a Design and Innovation Hub will be set up at IIT (BHU) Varanasi.

The main purpose of the Hub would be to permeate design and innovation thinking and action in the entire institute, which means in all the departments and schools and in the engineering curricula itself.

In due course of time, on approval by Academic Senate and other appropriate bodies, degree programs could also be started in Design and Innovation.

The Hub will have core expertise in design, ergonomics, user interfaces, graphic design, and knowledge of craft and other social communities. This expertise, however, would not work in isolation but in conjunction with expertise in departments and schools.

The design and innovation activity promoted by the Hub would primarily use resources (in terms of equipment, consumables etc.) located in the departments and schools. The Hub might have some labs of its own to augment other labs or workshop, particularly for rapid prototyping.

9.4 Methodology

The Hub will provide support to projects running in the Institute as a part of curricula or otherwise to meet the educational and societal goals outlined earlier. This support would include the following kinds of help:
(a) Setting up collaborations between departments and schools within IIT(BHU) and across with BHU,
(b) Bringings in experts from other institutions, academic or otherwise, including grass roots inventors,
(c) Connecting with industrial needs,
(d) Engaging users and user communities with projects,
(e) Facilitating and encouraging engagement of departments/schools with real world issues that require negotiations with multiple disciplines and stakeholders with possibly conflicting interests (ref. Design Manifesto),
(f) Providing expertise with design particularly related to ergonomics, user interfaces, aesthetics, social aspects, etc.

All this would be done not only while individual projects are being formulated but also while they are being implemented and evaluated. It is expected that tens and even hundreds of such design and innovation projects would start running in the Institute. Many of them will relate to needs of society. All of them will be good learning experiences.

The Hub will also be able to sanction funds for carrying out projects to cover the cost of men and materials. The UG students earning academic credit during semesters would not ordinarily be paid, and the PG/Ph.D. students would already be receiving assistantship. However, funds may be needed for external manpower at times. The infrastructure of equipment (including existing labs and workshops) and space would be provided by the respective departments and schools.

The Hub may also formulate iconic projects at the Institute level involving departments, schools as well as students and faculty at large. Outline of a few projects under the iconic Project Varanasi are included in the Appendix.

9.5 Project Governance

A Design and Innovation Steering Group would be set up with Director as Chairman and Head/Coordinator of the Hub as Convenor. It would be in overall charge of the project in overseeing that the goals are being fulfilled on a continuous basis. It would set up appropriate sub-groups as required.

9.6 Finances

Project duration : 3 Years.

1) About 200 projects would be seeded. (Goal would primarily be educational to work in a societal context with potential stakeholders).
2) It is expected that about 40 of these projects will go to the next stage (stage 2) (Goal would be to take them to societal use).
3) About 20 projects would need to go to another stage for fruition (stage 3) (Goal would be to take them to societal use).

	No.	Cost per project (Rs. In lakh)	Total Cost (Rs. In lakh)
Projects seeded	200	5	1000
Projects Stage 2	40	20	800
Projects Stage 3	20	30	600
Contingency			100
Total			2500

(Rupees twenty five crores)

The above numbers show average cost of a project. Individual costs of projects would vary depending on project requirements and would have to be approved by the Design & Innovation Steering Group.
Below mentioned are five specific group projects around iconic Project Varanasi that would be taken up immediately. More projects may be added later.

PROJECT VARANASI

A1. Introduction

The Project Varanasi seeks to undertake the study of the extra-ordinary city of Varanasi and its surroundings in all its aspects -- the living aspects as well as the dead, contemporary as well as the immortalized, its knowledge of the inner world as well as its indifference to the external conditions, its glory as well as its wretchedness. It will address its communities as well as the individuals, its crafts as well as the industry and its relation with its traditions as well as with modernity.

It would connect with the local surroundings ranging from the city of Varanasi to the larger eastern region of India. It can draw its topics from the city and the region, and their relation with the country and outside.

It will require creative scholarship to be carried out through a critical enquiry, cutting across disciplines. It would promote synergistic studies connecting humanities with science and technology. Such studies undertaken for a city and the Eastern region would, hopefully, throw new light on existing issues and problems of the other region, the country and the contemporary human society.

Such a study would also help create a new generation of people rooted in a new ethos. People with such an ethos would be better connected to society, and are likely to be better professionally.

It would also serve as a platform for engineering students for creative combination of humanities with science and technology. Such a platform would create conditions for unearthing interdisciplinary insights and confluence of disciplines. Theory should help with practice, and practice should lead to theorizing.

A2. Areas of Work

A large project of this kind will naturally need inter-disciplinary inputs. It will require cross disciplinary insights. The project would look for niche areas of work, which would connect scholarship to society using different disciplines.

Work will be carried out on a large number of carefully selected projects. These fall in the following areas :

1) History & Civilization
2) Culture
3) Development Studies
4) Language, Literature, Linguistics & Cog. Sc.
5) Philosophy
6) Education

The research projects would collectively create a larger picture of times and society. Five example group projects which would be started immediately are outlined next.

Group Project 1 : Ganga

This Group Project would primarily focus on ecology but in the context of Varanasi, also on spirituality and culture. It will address issues related to water flow, pollution, sewage treatment and sanitation on the one hand, and spirituality and festivals linked with the river, on the other hand.

Specific sub-projects related to science and engineering for measurement, modelling, and intervention to make the river clean would be defined. Work would be carried out through student projects as UG/PG/PhD level.

Principal Investigator : Heads, Deptt. of Civil Engg., Chemistry, Chemical Engg. & Tech., and Humanities at IIT (BHU), Varanasi
Time : Three Years

Group Project 2 : Varanasi City

This Group Project would address the living functioning city of Varanasi. It will address urban design, public spaces around ghats, road traffic and transport, and also the temples and people and their behaviour at market place.

Principal Investigator : Heads, Deptt. of Mechanical Engg., and Deptt. of Humanities at IIT (BHU), Varanasi
Time : Three Years

Group Project 3 : Craft Communities

Study will be made of craft communities through such clusters as toy makers, saree weaving, boats men, etc. It will include a study of implements and equipment, their work places, graphic designs, as well as social relations within and outside the community.

Principal Investigator : Heads, Deptt. of Mechanical Engg., and Deptt. of Humanities at IIT (BHU), Varanasi
Time : Three Years

Group Project 4 : Ramayana & Literature

A study of Ramayana & literature from this city, which at the same time is national as well as universal. Such a study will yield connections with contemporary life leading to an understanding of character, human relationships, family as well as society. Through this, one could incorporate elements in education that enhance human sensibilities and human values.

This project would also be used to connect young people with language and literature of Hindi and other languages spoken in Varanasi and surrounding region.

A translation effort which would use machine translation tools would also be tried. Students from IIT (BHU), BHU and other institutions as well as at large (thru internet) would be involved through crowd sourcing effort.

Principal Investigator : Heads, Deptt. of Humanities, Deptt. of Computer Sc. & Engg. at IIT (BHU), Varanasi
Time : Three Years

Group Project 5 : Sarnath

This would mean studying the material and building of Sarnath as well as philosophy, history and art. Related Buddhist communities of Tibet and Bhutan might also be explored, so also connections with Japan, Korea and China.

Principal Investigator : Heads, Deptt. of Humanities, and Deptt. of Metallurgy at IIT (BHU), Varanasi.

Time : Three Years.

Costs are listed separately in Section 6 in the main body of the proposal.

Societal outcome of the R & D activities undertaken under Design & Innovation Hub

1. Students summer project: Rs 1,16,117/- for expenditure on summer projects and Rs. 8,96,000/- for stipend (Total Rs 10,12,117/-)
2. Student extended project: 30.0 lacks approx.
3. Project Varanasi: Rs. 51,93,000/-
4. Projects showcased in national and international competitions: Rs. 14,56,096/-
5. Co organiser of a seminar

Achievements :

1. 69 student summer projects of 2 month duration carried out in summer of 2014. (list attached)
2. 58 student projects of one year duration are currently running from Jan-Dec 2015. (list attached), more projects will start soon
3. 6 faculty projects of one year duration are running under Project Varanasi. (list attached)
4. Innovative projects of Three student groups have been supported to participate in national and international competitions. (list attached)
5. Co-organiser of "Aagrah"(Seminar on Varanasi) with Kashi Katha.

List of 69 student summer projects of 2 month duration carried out in summer of 2014.

S. No.	Title of the Project
1	Performance evaluation of 4-stroke 4-cylinder S.I. Engine using alternative Fuel
2	To determine and improve efficiency of 4-stroke S.I. Engine
3	To determine the efficiency and brake specific fuel consumption of the diesel engine generator by combustion of different fuel
4	Nano fluid heat transfer analysis in radiator of an IC engine
5	Soret effect in mixtures in microgravity and g-jitter
6	Quenching Behaviour of heated rod nano-fluid
7	Developing kits to convert conventional bikes into e-bike
8	Design and CAD development of a 3-D printing machine
9	Solar lighting using acrylic rods and plane lenses
10	Numerical analysis of Sandwiched Armour Plates
11	Cold Storage Solution for Villages
12	Catalyst for the production of Hydrogen
13	Water treatment using nanotechnology
14	Spray drying of green chilli powder
15	Spray drying of bitter guard juice
16	Extraction of Gum from Tamarind seeds
17	Flat Plate solar collector with collector plate facing downward
18	Solar energy based Photoreactor
19	Real Time Remote Access Tool
20	Implementation of facial expression recognition using eigen faces

21	Implementing Lossy and Lossless data Compression
22	Recipe management system
23	Developing NLP tools based on machine learning for natural languages, such as part-of-speech (POS) tagger, chunker, stemmer etc for languages spoken in the Eastern region
24	Development of tools for handling HTML pages in Wikepedia etc.
25	Creation of translated texts using automatic machine translation systems
26	To develop basic concept for integrated pavement design
27	To find solutions for issues concerned with widening of roads
28	(1) Expansion Plan of IIT(BHU) & BHU Campus for 50 years (10 years revision) (2) Hazard and Risk Analysis of Varanasi City (3) Study on use of public spaces
29	Optimization: Analysis and Design of the structures.
30	Develop a residential solar power system that will reduce the cost of and area requirement of current benchmarks by 50% with no cement work and minimum anchor bolting installation
31	Study of feasibility of recyclability / usability of old computer monitors.
32	To design a micro controller based Data acquisition system (DAS)
33	Detachable Flash for Smart Phases and Tablets synchronised with inbuilt Camera
34	Analysis of Induction Motor
35	Development for 5 Phase Inverter for BLDC Motor operation (3/5 /7 in modular form)
36	Fourier Transform Analysis of Rotary and Linear Induction Motors
37	Modelling and Simulation of Power electronic converter
38	Survey of Ghats of Varanasi
39	Synthesis of magnetic nanoparticle supported corrosion inhibitors and study of this corrosion inhibition properties.
40	Development of Green inhibitor for corrosion inhibition of aluminum control
41	Synthesis and Characterization of Graphene and its Nanocomposites and their use in Biomedical Application.
42	Renewable Energy Resources
43	Crops monitoring using image processing technique
44	Comparative Study of in-situ and ex-situ degradation of polymers by micro-organism
45	Synthesis and characterisation of nanostructured ZnO
46	Pantom-less bone mineral density of spine from CT images
47	Biofeedback system
48	Study of heating effect of micro/nano particles under high frequency pulsed magnetic field and its application in killing of tumor cell.
49	Design and development of CPAP using Piezoelectric micro-motor as a micromechanical system controlled with microcontroller which can serve the dual purpose of recording and assisting sleep apnea related disorders.
50	Design and development of Non-invasive blood glucometer
51	Novel Drug To Treat Peptic Ulcers.
52	To design a common format of R & D webpages using CMS for all departments of IIT(BHU)
53	Synthesis and Characterization of Graphene Nanoribbon from CNT
54	Content Based Image Retrieval
55	Assessment of pollution levels in the Assi River
56	Design and interfacing of sensors with general purpose single- board computers for automated capture of ambient parameters using Apache Hadoop Framework

57	Study of Sensor Specifications and identification of compatible interfacing with Arduino, Raspberry Pi and Beaglebone Black
58	Development of an interface-ready and networkable general purpose sensor node on Arduino, Raspberry Pi and Beaglebone Black
59	Deployment of Hadoop remote client on RPi and Beagle Bone Black for capturing sensor data in a programmed manner and to configure it for integration with remote Hadoop Head Node
60	Design and implementation of a remote head node on Apache Hadoop for its integration with pre-configured sensor nodes, to receive and store sensor responses from sensor nodes. The data so stored should be analyzed and results be generated, in an stipulated manner.
61	Implementation of various applications and protocols for setting up scalable and secure LAN services in IIT (BHU).
62	Design and configuration of secure SSL based Virtual Private Network for Internet Access with-in and from out-side LAN.
63	Setting-up Proxyless Internet access facility with advanced features such as Captive Portal, Deep packet inspection, High Availability and exhaustive logs using free, open-source solutions on the servers, for its use at IIT(BHU)
64	Creation of an android App to receive analog signals from Arduino, Raspberry Pi and Beagle bone Black interfaced through Bluetooth module.
65	Image processing for recognition of static hand posture used in ASL (American Sign Language) using Matlab
66	Design, configuration and implementation of a Video wall
67	Fan ramp profiles Vs performance
68	Improve performance of Linux NFS Servers
69	Training different Neural Networks with pre-processed Brain wave EEG signals and comparing their performances relative to different real time situations

List of 58 student projects of one year duration are currently running from Jan-Dec 2015.

S.No	Title of Project
1	Development of an improved cement capsule formulation for better performance of rock bolts
2	Numerical modelling of rock bolting for support of mine openings
3	Biocomapbility of indigenously developed High Nitrogen Stainless Steel.
4	Effect of grass on cricket pitch
5	Modeling of the rock-bolt and grout interaction
6	Design analysis and Development of Permanent Magnet Synchronous Generator
7	Design and development of Matrix converter for Aerospace application
8	Design and Investigation of Split Pi converter for Hybrid Electric Vehicles
9	Design and development or driver circuit for Power factor improvement and harmonic reduction in LED based lighting applications
10	Characterization of Piezoelectric Materials as sensors and actuators
11	To study the bio-sensing applicaations of chemically produced grapheme nano-ribbons (GNRs).
12	Tissue Engineering of Functional Skeletal Muscle Constructs
13	Enzymatic Production of Biodiesel
14	Synthesis of TiO2 nanoparticles
15	Rice Husk to Bio- Oil
16	Furfural from Biomass
17	Silica from Rice- Husk
18	Zeolites from Fly ash

19	Design and synthesis of drug adsorbed carbosilane dendrimers and testing its immunomodulatory efficac in context of mycobacterial infection
20	New Engine design for optimum speed and other smart applications
21	Design and fabrication of an Automotive cooling systems
22	Development and use of glasses as plant nutrients to prevent soil fertility for better productivity in a cheaper way over chemical fertilizers
23	Land Use Land Cover Change Detection and Urban Sprawl Mapping of Varanasi District Using Satellite Images By Remote Sensing Technique.
24	Optimisation of parameters to improve ventilation in a longwall panel of an underground mine using computational fluid dynamics (CFD)
25	Absorption of SO2 and NOx from coal fired thermal power plant stack gases
26	To determine the quality and quantity of water near Ganga River to supply water for Varanasi.
27	Hydrogels for drug delivery
28	Biodegradation of plastics using microbes in and around Varaansi
29	Design and development of an efficient air bubble dispersion mechanism for non-conventional bioreactors to enhance and economize the production of secondary metabolites in actinomycetes.
30	Development of low cost lathe tool dynamometer for lab work
31	Evaluation of mechanism of anti-ulcer activity of silibinin
32	Tensile deformation of Al alloys
33	Suitability of nitrogen containing stainless steels for domestic applications
34	Stress corrosion cracking in aerospace components
35	Inducing Ferromagnetism in some Topological Insulators
36	Numerical simulation of Induced caving of strata in underground mine workings
37	Development of a numerical modelling procedure for simulation of the response of a mining structure under dynamic loading condition
38	Support Design for Longwall Gate Roads Subjected to High Abutment Load
39	Development of Nanopolymers as Corrosion Inhibitors for Multimetal Systems in Biodiesel.
40	Development of underwater welding electrode and its testing setup
41	Development of a Electrochemical machining/polishing setup
42	Development of Iron Based Nanoparticle Using Sol Gel Technique and Its Application for Waste Water Treatment
43	Carbonization of Cellulosic (Low Lignin) Bascd Agro — Waste and Its Application for waste water Treatment
44	Development of Biofuels Using Agrowates
45	Carbonization of Lignocellulosic Based Agro - waste and Its Application for Waste water Treatment
46	Design and Development of Ground Penetrating Radar
47	Estimation of concentration of particulate matters in the vicinity of Varanasi City and nearby mining fields
48	Force induced unfolding of Biopolymers in a cellular environment
49	To study the water pollution parameters in nearby mining areas and in Varanasi Ghats
50	To study of the noise pollution level In mining Industries and prominent locations of Varanasi city
51	Application of Data analytics tools to enhance decision making for better productivity and safety in mines
52	To study the impact of value education (Human value course) in the students of IIT BHU , Varanasi
53	Physico-chemical characterization and bio activity of synthesized glass inomer cements for dental restorative purposes
54	To Develop Bio active composite materials for bone and tissue replacement
55	Elucidating the role of mycobacteria induced SOCS1 and CISH in dampening IFNg signalling in infected macrophages
56	Investigation into the loading mechanism of chain pillars and design of longwall panels layouts under high depth of cover
57	Treatment of bio-digester effluent
58	Removal of CO2 from biogas stream

Project Varanasi

Sl. No	Title	Cost (Rs)	PI	Co-PI
1	Development of Anusaraka Support Modules	10,36,000	Dr. Anil Kumar Singh	Dr. sanjukta Ghosh
2	Resource Creation and Language Technology tools development of Bhojpuri, Magahi, and Maithili	8,68,000	Dr. Anil Kumar Singh	Dr. sanjukta Ghosh
3	Machine readable Dictionary of Bhojpuri, Magahi, and Maithili	10,82,000	Prof. Rajeev Sangal	Dr. Swasti Mishra, Dr. Anil Singh
4	Design of Low Cost Pyrolysis machine for plastic waste conversion into liquid hydro carbon fuel.	4,46,000	Prof. M. A. Quraishi	
5	World Famous Ramlila of Ramnagsr: The cultural Heritage of Varanasi	6,50,000	Prof. P.K. Mishra	
6	Pedestrian flow characteristics along the side walks of IIT(BHU) and proposed pathways.	5,00,000	Ankit Gupta	
7	Development and maintenance of Websites of Project Varanasi and IIT(BHU)	4,96,000	Prof. Devender Singh	Prof. R.K. Mishra
8	Co-organizer of "Aagrah"(Seminar on Varanasi) with Kashi Katha	1,15,000	-	

Innovative projects of student groups that have been supported to participate in national and international competitions.

S. No.	Title of the Project	Amount sanctioned (Rupees)
1.	Shell Eco Marathon	9,92,353/-
2.	Society of Automotive Engineers BAJA	3,38,619/-
3.	Society of Automotive Engineers Efficycle.	1,25,124/-
	Total	14,56,096/-

10. Teaching learning Cell

A new cell on "Teaching-Learning Cell" (T-L-C) was initiated by the Institute on December 5th to strengthen the Teaching environment of the institute by way of initiating several programs to enhance teaching-learning processes at IIT(BHU). It covers all aspects of teaching, pedagogy, laboratory projects, assessment concerning the following areas but not limited to it:

- Course Delivery

i. Planning of the course delivery
ii. Organizing course material using Moodle or other software support
iii. Designing laboratory sessions
iv. Dealing with large classes
v. Organising tutorials for courses
vi. Effective handling of tutors and teaching assistants

- Role of design in course
- Project based learning (within course or without)
- e-learning

i. Coordinate with national efforts in e-learning
ii. Designing MOOC type of courses etc.

- Evaluation and assessment

i. Designing good examinations
ii. Grading at the end of semester
iii. Evaluation projects

- Sharing best practices in teaching by effective teachers at IIT(BHU)

i. Running remedial programs in specific areas of weakness in teaching
ii. Faculty development program
iii. Running National program on Quality Enhancement in Engineering Education (QEEE) to run: Live Lecture, Live Tutorials, Live Labs, MOOC (Open Courseware) and Bridge Courses.
iv. Moodle initiatives at IIT(BHU)

Special Programs organized by TLC during year April 2014- March 15

- A three days 'Brain-storming Workshop on Teaching Pedagogy' was held on June (28-30, 2014).
- A two days 'Brainstorming Workshop on Best Teaching Practices' was held on (July 19 – 20, 2014).
- QEEE-CII Industry – Bridge Session by FLEXTRONICS was held on (October 30, 2014).
- 14th IIRS Commencement of Online classes was held on (Jan 27, 2015 to March 27, 2015)
- QEEE Phase III Program was held during (Jan – April, 2015).
- A two days 'National Workshop on Mathematical Modelling & Computer Simulation' war held on (20-21 March 2015).
- A one day 'Symposium on Research Methodology for Future Researchers' (RMFR -2015) was held on (March 22, 2015).
- A three days 'National Workshop on Faculty Development Program' (FDP-2015) was held on (March 29-31, 2015).

11.Student Placements

Introduction:

The Training and Placement Cell of the Indian Institute of Technology (BHU) was developed as a separate unit in the Institute as early as 1977-78. Since its inception, the Cell is coordinating placement of final year students in various industries and research organizations and making arrangements of summer internship for B.Tech./B.Pharm/IDD/IMD students every year as a part of their academic curriculum. More than 15,800 students of B.Tech./B.Pharm., IDD/IMD and M.Tech./M.Pharm./ Ph.D. have been placed through this Cell with lucrative compensation package in leading industries in the country and abroad.

Placement Activities:

Large number of prestigious multi-nationalcompanies have visited our Institute and their number has greatly increased from mere 16 in 1977 to 129 in 2014-15. Though during the academic session, the recruitment process started only on December 01, 2014, large number of prestigious companies such as Microsoft, Oracle, Adobe, Morgan Stanley, Accenture, CISCO, Mentor Graphics, nVidia, Samsung, Hindustan Unilever, Tata Motors, Maruti, L&T, Reliance Industries, Coal India, Citrix, Walmart etc., who had been our regular visitors to the Institute, continued to show their faith in our students' performance and made large number of recruitments. There had been the first time visitors to our institute which include companies like EXL Services, Visa, Value Edge, Nutanix, Snapdeal, Hospira, ServicesNow, Proptiger, Global, Axsiom, PayU, Sigmoid, Lexinova, PayTM, Nagarro, DoverTech, DMT, Reppify, Mitosis, TRL Krosaki, EMeure, Inmobi, etc.

This year a total of 719 job offers were received among 471 B.Tech/ B.Pharm students, 112 job offers for 159 outgoing students of IDD/IMD programs. A total of 93 job offers have been given to the postgraduate students and 03 Ph.D. scholars have also been placed. Besides, 59 students have been given Pre-Placement Offers by various esteemed companies like Microsoft, GoldmanSachs, Qualcomm, GetMeAShop, Amazon, Mentor Graphics, etc. Further, the Cell has conducted placement activities for MCA and M.Sc. (Computer Science) students of BHU and a few students have been selected.

The highest pay package that is offered during the session was Rs.2.03 Crore per annum which was from a multi-national software company.

Starting date of Placements	1st December 2014
Total No. of companies visited for placements	129
Total job offers made	719
Students receiving 2 offers	65
Students receiving more than 2 offers	3
Studnets receiving more than 3 offers	Nil
Pre-placement Offers	59
Highest placement package offered	Rs.2.03 Crores
Lowest placement package offered	Rs.3.11 Lakh
Average package for eligible students	Rs.10.46 Lakh

Total Eligible Students for Placement

Branch	B.Tech.	IDD	IMD	M.Tech.	B. Pharma	IDD	M. Pharma	Ph.D.
Ceramic Engineering	42	12		9				2
Chemical Engineering	104			39				
Civil Engineering	65	17		23				
Computer Engineering	64	14						12
Electrical Engineering	85	20		31				1
Electronics Engineering	82			26				8
Mechanical Engineering	84	18		39				3
Metallurgical Engineering	56	11		6				
Mining Engineering	81	8		2				
Pharmaceutics	6	5		28	6	5	28	10
Biochemical Engineering		6		9				2
Biomedical Engineering		6		10				
Material Science & Tech.		11		13				8
Chemistry			4					2
Physics			10					1
Mathematical Sciences			17					
Total	669	128	31	235	6	5	28	49

Total Number of Eligible Students : 112

Details of the number of students placed during 2014-2015

Branch	B.Tech.	IDD	IMD	M.Tech.	B. Pharma	IDD	M. Pharma	Ph.D.
Ceramic Engineering	30	6		0				
Chemical Engineering	57			14				
Civil Engineering	33	9		3				
Computer Engineering	63	13						2
Electrical Engineering	69	18		6				
Electronics Engineering	17			10				
Mechanical Engineering	70	17		13				1
Metallurgical Engineering	35	9		3				
Mining Engineering	44	4		0				
Pharmaceutics		1		8	3	1	8	
Biochemical Engineering		4		2				
Biomedical Engineering		4		5				
Material Science & Tech.		7		1				
Chemistry			2					
Physics			3					
Mathematical Sciences			15					
Total	471	92	20	65	6	5	28	3

Total Number of students placed in the year 2014-15: 651

12.Institute Works Department

The Institute Works Department, IIT(BHU) has been established in recently, it is entrusted with the responsibility of construction and maintenance of hostel and administrative building and providing various services. This department also awards contracts in a transparent manner and in the best interest of the Institute by ensuring that all round integrity as well as the best possible standard are maintained, with adequate supervision.

Under the Institute Works Department the following works are in progress through CPWD during the period April 2014 to March 2015.

Major works in progress (Civil)

Sl. No.	Name of Work	Amount (in lacs of Rs.)
1.	C/o 3rd floor of IT-A hostel at IIT(BHU) at BHU, Varanasi	75.000
2.	C/o Dinning and kitchen block (G+1) of Visheshwarya Hostel at IIT-BHU, i/c providing E.I. & Pans	272.220
3.	C/o Providing and fixing seating arrangement in the Lecture Theatre for the Building of L.T. No-1 behind Applied Physics and Ceramic Engineering.	26.620
4.	Construction of Transit Married Hostel at BHU (Block B)	828.670
5.	Construction of Ground floor and complete construction of first floor of Girls Common Room of IIT (BHU) behind Director's Office at BHU, Varanasi and C/o 1st Floor over existing Library Building of IIT (BHU).	975.936
6.	Construction of Transit Married Hostel at BHU (Block C)	451.560
	Total Rs.	**2630.006**

Major works in progress (Electrical)

Sl. No.	Name of Work	Amount
1.	Power Improvement Project in IIT (BHU)	22,00,00,000.00
2.	Rewiring Works & Electrical work at ground floor in Department of Physics at IIT(BHU), Varanasi	8,99,340.00
3.	Rewiring Works & Electrical work at first floor in Department of Physics at IIT(BHU), Varanasi	8,77,931.00
4.	Rewiring work at 1st floor of C.V. Raman Hostel, IIT(BHU)	7,67,808.00
5.	Electrical work at 1st floor (Part A) of C.V. Raman Hostel, IIT(BHU) and rewiring work at ground floor (Part B) of C.V. Raman Hostel, IIT(BHU)	6,98,240.00
6.	Rewiring work & Electrical work at ground floor of C.V. Raman Hostel, IIT(BHU)	6,54,535.00
	Total Rs.	**22,38,97,854.00**

13.1 Malviya Centre for Innovation Incubation and Entrepreneurship (MCIIE)

ACTIVITYREPORT2014-15

TechnologyBusinessIncubator
MalaviyaCentreforInnovation,Incubation andEntrepreneurship
IndianInstituteofTechnology (BHU),
Varanasi

Mr. TanmayPandya, Co-promterBridgedots receiving DST-Lockheed Martin award 2015

Foreword

Post libera lisation India is being seen in creasing lyasarising economic power by the world at large. Globlisation, libera lisation and growth of ICT has created an enormous opportunity for our country to be a world leader in knowledge based industries. Totap this opportunity our growth engines needs to be driven by innovation and entrepreneurship.

India can boast of the talented human resource pool it has in science and technology but when it comes to techno entrepreneurship many of promising ventures die outearly due to lack of initial support from support agencies and due to inherent risk in innovative ventures.

To counter this challenge and promote Innovation and Techno Entrepreneurship, policymaker sand other stakeholders increasingly view business incubation as an important tool to unleash human ingenuity, enable competitive enterprises and create sustainable jobs. Keeping this in view, the Government of India (GoI) has initiated setting up of Technology Business Incubators (TBIs) to nourish and promote techno entrepreneurial ventures through incubation. The process is aimed at enabling individual and group level technology ventures to contribute towards wealth creation and new job creation in their regions.

TBI sprovide incubatees, with necessary infrastructure support, technology/prototype development support, research assistance, help in getting funding, business consulting assistance and do whatever is necessary to make the start-upasuccess.

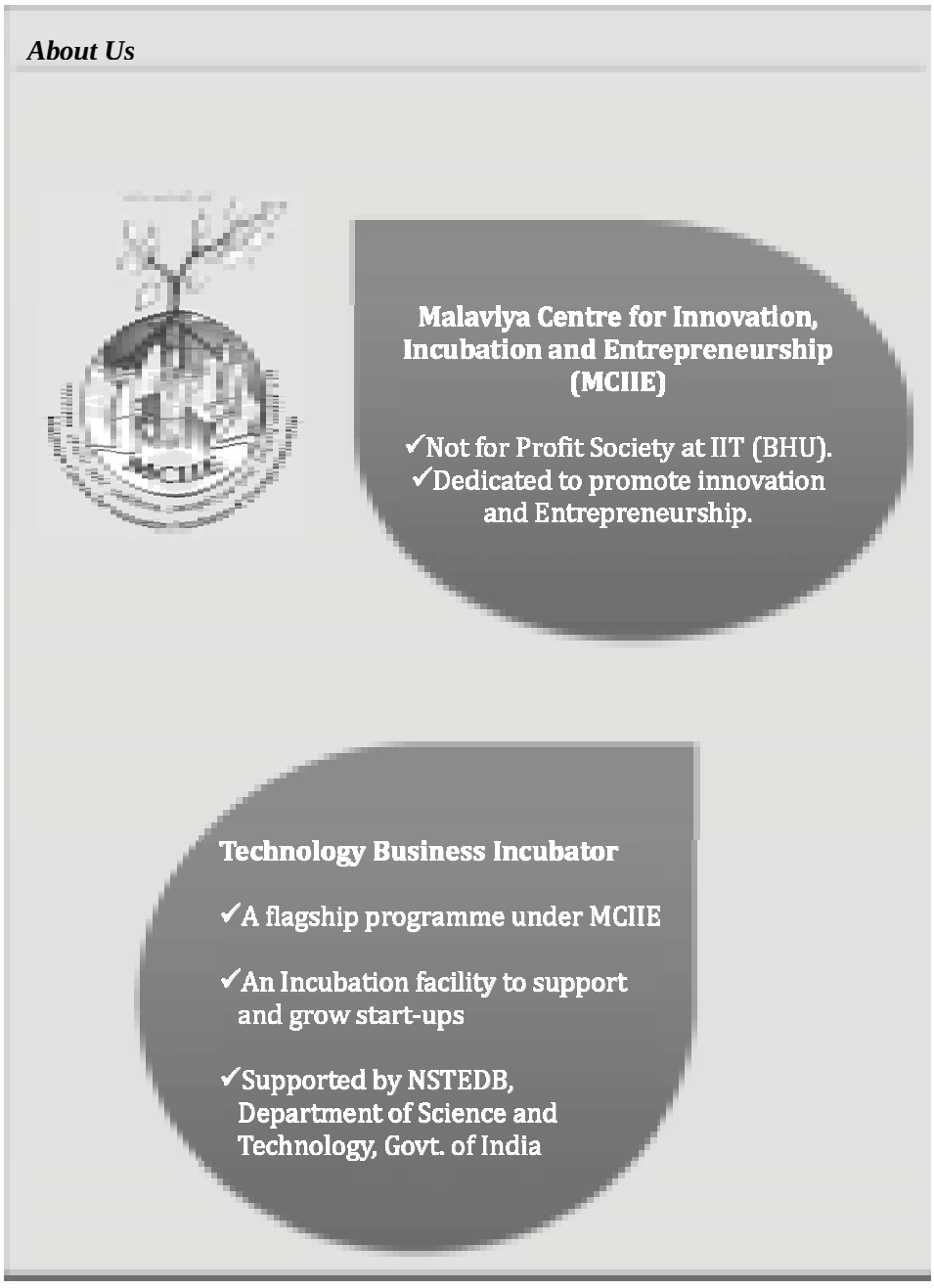
Technology Business Incubator (TBI) at Malaviya Centre for Innovation Incubation and Entrepreneurship at Indian Institute of Technology, BHU is supported by National Science and Technology Entrepreneurship Development Board(NSTEDB)under Department of Science & Technology, Government of India.

Information and Communication Technology, Biotechnology, Food Technology, Agriculture and allied sector sare the thrust are asin which the incubation facilities at MCIIE, IIT BHUare being extended.

There quire dinfrastructure for making astart-up work smoothly is in place.

TBI has furnished office spaces for incubated companies, conference room, a library, auditorium with as it ting capacity of 200 audiences, highspeed internet, video conferencing, Hitech laboratory and other value added support services.
Through this facility of Technology Business Incubator weendeavourto provide specialised support service stoin cubated companies during their critical start-up phase, such that these young companies continue to innovate and grow in to successful business ventures.

Coordinator
TBI, MCIIE, IIT(BHU)



Prof.P. K.Mishra
Coordinator, Technology Business Incubator, MCIIE, IIT (BHU)

OurLeadershipTeam

Dr.PradeepSrivastava
Coordinator, Technology Business Incubator, MCIIE, IIT (BHU)

What We Do

Incubation

We provide incubation facility to technology start-upsthroughour flag ship programme Technology Business Incubator.

About the Technology Business Incubator

Technology Business Incubator (TBI) at IIT (BHU) is supported by National Science and Technology Entrepreneurship Development Board(NSTEDB)underDepartment of Science & Technology, Govt. of India.TheTBIisoperationalsince2011.

Objectives of TBI

TBI at IIT BHU aims to achieve the following:

- New Venture Creation through providing incubation and host of other support in the are as of Information and Communication Technology (ICT), Biotechnology, Food Technology, Agriculture and all iedsectors.
- Technology Commercialisation, targeted at providing a much needed platform for speedy commercialization of technologies developed in the academic and R & D institutions to reachtheend users.
- Interfacing and Networking between academic, R & D institutions, industries and financial institutions.
- Value Addition through its services provided to its incubates as well as to the existing technology dominated SMEs, TBI aim at value addition.
- Creating value added jobs & services,
- Fostering the entrepreneurial spirit.

For whom?

The admission to Technology Business Incubator is open to aspiring start-up sintheare as of, Information and Communication Technology (ICT), Biotechnology, Food Technology, Agriculture and allied sectors, promoted by:

- Students and alumni of IIT (BHU).
- Faculty members (present or former) of IIT (BHU)
- R&D partners (sponsors of R&D and consultancy projects),

How to get incubated?

TBI follows as election process which is exhibited in the following page.

What services are offered by theTBI?

TBI offers office infrastructure support including work space, shared off ice services, access to high speed internet specialized equipment and value added services like mentoring, seed support, access to finance, technical assistance and networking support. Host of services provided by TBI has been exhibited in following page.

Other Activities

- Training & Capacity Building
  - Entrepreneurship Development Trainings
  - Hands-on Technical training
  - Business Plan Competitions, Workshops & Talk series.
- Supporting local MSMEs
  - Facilitating grassroots level innovation.
  - Technology Gap Analysis of local MSME clusters
  - Technology exhibition, awareness camp and entrepreneurial development plan.

ServicesOffe

Status of Incubation at TBI, MCIIE, IIT (BHU)

Sr. No	Name of Start-up	Promoter/ Innovator	Product/Services	Other Comments
1.	BridgedotsTechservicesPvt. Ltd. http://www.bridgedots.com/	Nikhar Jain [B Tech, IIT (BHU), Chemical Engg.; 2009] TanmayPandya [B Tech, IIT (BHU), Chemical Engg.; 2009] AbhishekPoddar [B Tech, IIT (BHU), Chemical Engg;. 2008]	Technology development related to Cleantech, Polymers and Advanced Materials	Winner of DST-Lockheed Martin Award 2015 In conversation with investors to start a commercial plant. Developed technologies related to Extraction of Silica from Rice Husk Ash. Water Repellent Coating for Non-Woven PP bags. Construction Chemicals. In process of graduating out has established an office in Delhi.

2.	MagzhubPvt. Ltd. http://www.magzhub.com/	Ambrish Nigam [B Tech, IIT (BHU), Metallurgy Engg. ; 2010] AnugrahAgarwal [B Tech,MTech IIT (BHU), 2011]	One stop magazine online portal	Winner of Start-up 20-20 competition at IIM, Ahmedabad. 1000 paid subscribers.
3.	IblazionPvt. Ltd. http://www.internlelo.com/	Vishesh Sharma [B Tech, IIT (BHU), Ceramic Engg. 2011-2015 Batch]	Has promoted internlelo.com a platform for hiring interns from top colleges in India.	Has helped over 100 organisations to hire interns from top colleges. INTUIT Fortune 500 Co. First paid customer. One of the most popular sites (based on Google Analytica)
4.	Karpa IT Solutions LLP http://www.karpa.biz/	Suresh Shukla [B Tech, IIT (BHU), Chemical Engg. 2000 Batch]	Adult-content filters for browser (PC/laptop)	97 Paid subscriptions till May 2015
5.	Agati Health Care Pvt. Ltd	Mamta Sharma [PhD, Biochemistry, BHU, 1998]	Nutraceutical Products Colostrum based Products	Agreements signed; Space allocated to begin its work shortly.
6.	Anaglob Technology Services Pvt. Ltd. http://www.shuru-art.com/	GauravTiwari [BTech] UditaDhruv [Bachelor of Fine Arts, BHU]	SHURUA(R)T is an online platform for selling original art works made by professional visual arts students which can finance their education and Connect art lovers to original works of art.	Presently selling its products
7.	Kashi Handicrafts Pvt. Ltd. http://www.craftemporio.com	Prince Diwakar OshoSidhant Sonveer Singh [Pursuing B Tech, from IIT (BHU)]	Craft Emporio aims to do online selling of art and crafts made by indigenous artisans and craftsmen of India. It brings on scene the local designers/ artists from the hinterland of India to showcase their talent to a bigger audience.	Presently selling its products.

8.	iMinBitTechIndiaPvt. Ltd. http://www.aquvio.com/	Naveen Kumar[B Tech, IIT (BHU), Civil Engg. ; 2014 [Rohit Mittal [B Tec&MTech, IIT (BHU), Civil Engg. ; 2015]	Water saving RO water filters	Patent applied Prototype tested
9.	KritikaPolycorpPvt. Ltd. http://waxz.me/	PratyushUpadhyay [*BA, BHU*]	Artistic models using modified wax.	Won gold medal in IITF, PragatiMaidan, New Delhi in 2013. Presently developing Kalagram Near Ganges in Varanasi.
10.	Arise Naturals	Pradeep Singh *[Pursuing PhD in Chemical Engg. From IIT (BHU)* GyanedraTripathi, M.Sc Biotech, 2013	Arise Naturals focuses on extraction of green products such as natural dye, natural extract and Bioactive Compounds.	Samples developed & tested
11.	Synergy	Sunny Singh [*B Tech, IIT (BHU), Chemical Engg.; 2009*] Amardeep [*B Tech, IIT (BHU), Metallurgy Engg.; 2009*]	Waste to Energy Conversion of Sewage sludge.	Has developed a lab scale prototype successfully.
12.	Minimoc	KalpeshPatil, Pursuing MTech, IIT BHU, Biomedical Engg.; 2013-15 Rahul Jain, BTech, Mtech, IIT BHU, Biomedical Engg.; 2014	MiniMoc is a sensor packed scanner that enables anyone to conduct sophisticated physical exams in a snap	Designed miniature module for pulse plethysmograph signal measurement

Graduates					
1.	ArteyeSoftwares http://www.eteach.co.in/	• AjitMaheshwari [*B Tech, IIT (BHU), Ceramic Engg.; 2008*]	A technology platform for co-creation of multi-media educational content in an intuitive, easy and cost effective manner	Graduated	Merged with DesignomediaPvt. Ltd. Has office at Nagpur. The company has come out with *Eduslide* in association with iball.

2.	Edulution Technologies LLP http://etlabs.in/	•	RaghavKansal [*B Tech, IIT (BHU), Civil Engg.; 2011*]	Digital Marketing Solutions	Gradu ated	Various services offered by the company includes online media buying, social media marketing, search engine marketing, mobile marketing, e-commerce solutions, mobile applications and corporate blogging among others.

Seed Funding Status at TBI, MCIIE, IIT (BHU)

- Seed Fund availed from NSTEDB.
- Seed Fund of Rupees Two Crores sanctioned.
- First instalment of Rupees Fifty Lakhs released on 26 October 2012.
- Rules and agreements for seed funding to incubate developed.
- Sanction and disbursement status of seed fund loans to incubates are as under:

Name of company	**Seed loan sanctioned**	**Seed loan disbursed**
BridgedotsTechservicesPvt. Ltd.	Rs. 13,20,000 sanctioned on 5th October'13	• First instalment of Rs. 4,40,000 released on 25 March' 14 • Second instalment of Rs. 4, 40,000 released on 8 Sept'14. • *Repayments being made by company as per schedule*
IblazionPvt. Ltd.	Rs. 2,50,000 sanctioned on 8 September'14	• First instalment of Rs.1,00,000 released on 8 Sept'14.
Iminbit Tech India P Ltd.	Rs. 6,40,000 sanctioned as 50% loan & 50% equity	• Rs. 3,20,000 Disbursed

DST – Lock Heed Martin Innovation Award for this year Won by Bridgedots Tech Services P Ltd., An Incubated Company of MCIIE

The Bridgedots Techservices P. Ltd. an incubatee company of MCIIE, IIT (BHU) Varanasi, has been awarded with prestigious DST – Lock Heed Martin Innovation Award for this year. Bridgedots has been placed among the Top 10 most innovative companies and will be mentored by IC2 institute of Texas, Austin.

The Bridgedots technologies P Ltd. has been initiated by Mr. Abhishek Poddar - Chemical Engg. Batch 2008, Mr. Tanmay Pandya & Nikhaar Jain both Chemical Engg. Batch 2009 of IIT (BHU), Varanasi.

Bridgedots Techservices have been awarded for developing a technology to use rice husk ash and extract highly dispersible silica from it. This silica can be used in tyres and can improve the fuel mileage of vehicle by 5-7%.

The India Innovation Growth Programme is a joint initiative of the Department of Science and Technology, Govt. of India; Lockheed Martin Corporation; Indo-US Science and Technology Forum, Federation of Indian Chambers of Commerce and Industry; Stanford Graduate School of Business and the IC2 Institute at the University of Texas. The aim of this programme is to accelerate innovative Indian technologies into the global markets. The India Innovation Growth Program is the only program of its kind, because of its focus on teaching using world-class commercialization strategies and the business development assistance provided.

During the first phase of the programme, the project team comprising of subject matter experts from FICCI selected 100 innovative technologies from a wide range of sectors. During the second phase of the program, the selected 50 innovators was given week long advanced training in basic principles of product commercialization, readiness for market, business models, IP rights, competitive positioning, and mechanisms for revenue by experienced faculty members from the Stanford Graduate School of Business. The top 50 innovators presented their innovations to a panel of judges comprising renowned technologists and commercialization experts from India and the United States. At the end of the competition, 30 best innovations are awarded, thereafter, the top 10 innovators receive professional business development assistance from FICCI and the IC2 Institute, University of Texas The business development managers at FICCI and IC2 Institute work towards assisting the winners in commercializing their technological innovations and finding them suitable business partners in India as well as global markets.

The technology developed by Bridgedots has been selected in the top 10 companies who will be receiving professional business development assistance from FICCI and top 10 both by FICCI and the IC2 Institute, University of Texas.

Other Activities at TBI, MCIIE

Visit of Secretary, Department of Skill Development and Entrepreneurship, March 2015

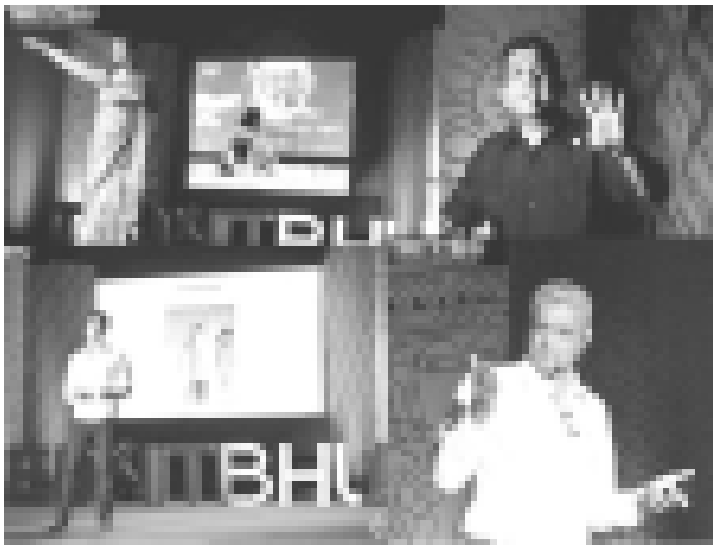
Mr. Sunil Arora, first Secretary, of newly formed Department of Skill Development and Entrepreneurship, Govt. of India made a visit to Malaviya Centre for Innovation, Incubation and Entrepreneurship on 27 March 2015. He was accompanied with Smt. Jyotsna Sitling, Joint secretary of the department, Smt. Ritu Maheshwari, Director, Skill Development Mission, Govt. of U.P, Mr. R.C.M. Reddy, Managing Director & CEO of IL&FS Education & Technology Services Ltd. and other officials were on a visit to Malaviya Centre for Innovation, Incubation and Entrepreneurship (MCIIE), IIT (BHU) to assess the working of MCIIE.

Prof. P.K. Mishra, Coordinator, MCIIE explained Mr. Arora on the working of Technology Business Incubator (TBI) at MCIIE which helps technology start-ups in growing from idea stage to flourishing businesses. He also updated him on the training and skill development initiatives undertaken by MCIIE.

Mr. Arora also met with promoters of start-ups incubated at MCIIE and learnt about their initiatives and challenges from the perspective of operating from TBI at MCIIE. Mr. Arora appreciated the role of MCIIE and IIT (BHU) in promoting entrepreneurship and skill development in the region and invited Prof. Mishra for further discussions on possible collaboration with Department of Skill Development and Entrepreneurship, Govt. of India.

Also present in the meeting on behalf of MCIIE were Dr.PradeepSrivastava, Dr. N. L. Singh and Mr. Arun Keshav. On behalf of Govt. of U.P. Smt. Ritu Maheshwari, Director, Skill Development Mission, Govt. of U.P, P.D., DRDA, Mr. Chitrasen Singh, G.M. DIC Mr. Umesh Singh and Project Office IED, U.P. Mr. R.K. Mishra participated in the meeting.

TEDx IIT BHU, March 2015



This year MCIIE organised TEDx IITBHU. The theme Order in Chaos was in line with the TED framework of a generic topic yet simple in driving the point home. We thus hoped to spike the quest for recognizing the patterns, deciphering the unknown and reducing the non-sense. As is turns out we were successful in our mission as our speakers gave impeccable talks relating to the theme driving the point home.

The speakers included:

- **Raghu Raman :** A tactical genius and a person gifted with tremendously accurate insight, he is the former CEO of the National Intelligence Grid of India. He teaches "leadership" at top notch business schools.
- **Abhina Aher :** The baton holder for transgendered. A person of absolute resolve, she has brought mirth and contentment to many people of her kind and has contributed significantly to uplift the marginalized section of the society. Her talk was about the ignorance towards the transgender people by the government and the populous in general. Although she did point out the progressive steps being taken towards their uplift.
- Harun Robert: ROB, anchor of the kid's show M.A.D on POGO, is one of India's biggest and most popular icons of creativity. The award winning designer continues to redefine art and craft as not only a high entertaining catalyst for children's development but an innovative tool for brand experiences.
- Kartik Iyer: CEO of the seven year old creative 'ideashop', he is the man who gave birth to the "No kidding. No worries" campaign. The creative mastermind modelled the "World's Best Tourism Award" winning, Incredible India campaign.
- Kanishk Sinha: The Imperial College attendee has an expertise in designing customised programs that address strategic HR and business needs. Presently the Head of Research and Development, Stillwater, the brilliant trainer is an epitome of expertise.
- Jahan Peston Jamas: Jahan leads the strategy and collaborations function at the Bombay Hemp Company (BOHECO) by identifying viable stakeholders in the hemp ecosystem that share BOHECO's vision. Jahan also plays an important role in developing growth strategies and raising capital for BOHECO.
- Sanjeev Kapoor: Sanjeev Kapoor is the most celebrated face of Indian cuisine today. He is better known as Chef extraordinaire and runs a successful TV Channel 'FoodFood'.
- Ananda Shankar Jayant: Imbued to the technique of dance, the Padmashree awardee bristles with life. Her vivacity draws one into the vibrant canvas of dance. Turned out by cancer, this 'Mahishaasuramardhini' turned into dance.
- Zubin Sharma: Zubin Sharma is endeavoring towards making a change in our society. A graduate from University of Pennsylvania, this stalwart is unswervingly em-powering the uncapped potential of India. His talk was about the order that he has to see through the chaos related to setting up his organization.

IGNITE – B Plan Competition, March 2015

A B-plan competition was organised at MCIIE on 28 March 2015. The contestants presented their B-Plan in front of an elite panel of judges including coordinators of MCIIE. Three participants came out as winners of the competition which are:

- GreenLit (IIT Kanpur)
- Sattva Foods (IIT BHU)
- Right2Write (IIT BHU)

Visit of Professor David Richard Bell, February 2015

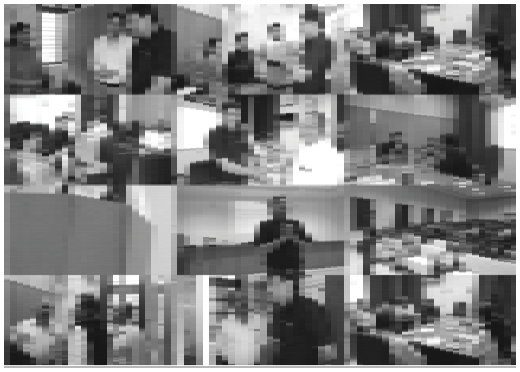
Professor David Richard Bell of Wharton School, University of Pennsylvania, visited TBI at IIT (BHU) Varanasi and delivered a lecture on "Educate to innovate, innovate to change" to the incubates and students of IIT (BHU) Varanasi.

Prof. Bell also visited MCIIE and had discussions with the start-ups and provided them marketing tips to them. Prof. Bell has shown interest in revising the incubator in near future.

Visit of IIT Alumni(s), November 2014

Mr. B.V. Jagadeesh, Silicon Valley entrepreneur; Managing Partner of KAAJ Ventures visited MCIIE at IIT (BHU) Varanasi on 6th November 2014 along with Prof. Pankaj Chandra, Former Director of IIM Bangalore and Mr Vish Narayanan, President of IIT BHU Global Alumni Association.

They interacted with Incubates, pre-incubates of MCIIE along with other interested in entrepreneurship & incubation. Further strengthening the functioning of MCIIE and other entrepreneurship programs of EDC, IIT (BHU) Varanasi was also discussed.



Mr. B.V. Jagadeesh also delivered a talk on "Thoughts on Entrepreneurship" to the IIT students at Gopal Tripathi Auditorium, Chemical Engineering Department, IIT (BHU) Varanasi.

Visit of Dr. Rakesh Pandey, Mentor, Legatum Center, MIT, USA; November 2014

Dr. Rakesh Kr. Pandey (Distinguished Research Scientist, Olin College of Engineering, Needham, MA; Executive-in-Residence, Northeastern University, Boston, MA; Mentor, Legatum Center, MIT, Cambridge, MA) and Mr. Naveen Jha, CEO, Deshpande foundation visited our TBI on 25th Nov. 2014, to interact with incubatees and MCIIE office bearers.

Deshpande foundation http://www.deshpandefoundation.org / which works with a motto of Entrepreneurship for All ; works in India (karnataka) and in U.S. is looking to extend its outreach in India and in this connect they are exploring the option to partner with MCIIE to work for developing entrepreneurship in BHU, Varanasi and in eastern U.P, at large.

Amazon Web Services, October 2014

A workshop of Amazon Web Services – Activate was held on 9 October 2014 at E- Hall, TBI, MCIIE, IIT BHU. Recently MCIIE has collaborated with Amazon Web Services which would be providing Technical & Business support to all the incubatee companies. To kick start this engagement, Amazon has conducted this workshop. Possible benefits of AWS are as follows:

- Commercial Enablement – Helps with AWS Credits and reduces cost structure as the business scales.
- Go to Market Enablement – AWS Marketplace, Partner Network, public case studies, joint white papers, conference showcasing, etc.

Teaching Faculty Members Meet, September 2014

A meeting of teaching faculty members was held at Malaviya Centre for Innovation incubation and entrepreneurship (IIT-BHU) under the chairmanship of the Director (IIT-BHU) to discuss various issues pertaining to MCIIE.

Discussions were made upon how being a premier institute in this part of the country the institute can contribute to supporting local SMEs.

Dr. Usha Dixit's Visit to TBI, September 2014

Dr. Usha Dixit, Scientist 'D' and Programme In-charge, Technology Business Incubator, NSTEDB, Department of Science and Technology,GOI, New Delhi made a two-day visit to the Malaviya Centre for Innovation Incubation and Entrepreneurship (MCIIE) on 22 and 23 September 2014 to monitor the progress of Technology Business Incubator Programme implemented by MCIIE, IIT (BHU) and supported by NSTEDB, DST.

To deliberate upon the present status in detail the Executive Committee of MCIIE, which makes policy and executive decisions for MCIIE including TBI and representatives of incubated companies were invited for a meeting with Dr. Usha Dixit on 22 September 2014. The aim was to involve all important stake holders: the funding agency, the implementing agency and TBI incubates for a holistic appraisal and discussions.

B Plan Cum Talk Series, April 2014

A two days Business Plan (B-Plan) competition cum talk series was inaugurated at MCIIE, IIT BHU on 5th April 2014.

In the first round of B Plan competition, participation from 55 teams were received from leading education institutes across India of which 15 teams were shortlisted for final presentations in front a panel of experts from business and academia. The panel experts included Prof. Alok Rai of FMS BHU, Shri D.S. Mishra of India Ink, Shri Shushanto Mitra of Lead Angels, Ms.Mishell Abraham of Villgro and others.

Apart from the BPlan event, eminent experts gave away their insights for starting and managing an enterprise. Sh. Shushant Mitra, CEO, Lead Angels Mumbai gave a scenario about angel investment in India and how to approach an angel investor, Ms. Michelle Abraham of Villgro foundation gave insights on social entrepreneurship and existing scenario of social entrepreneurship in country and Sh. Arvind Kaushik G.M., L&T Hydrocarbons spoke of opportunities in energy sector in the country.

MAGNATE 2014
5th & 6th April 2014

Stage I : 55 Participants selected
Stage II: 15 Short listed
Winners selected

- Speakers
- Shashank Mani, Jagriti Yatra
- Atul Singh, Fair Observer
- Sushanto Mitra, Lead Angels
- Michelle Abrahim, Villgro

13.2 Centre for Energy and Resources Development (CERD)

13.2.1 Workshop / Seminar

I. Brainstorming workshop on Renewable Energy (RE) & Carbon capture and storage (CCS), December 18-19, 2014.

Following recommendations emerged out of the discussions:

1. The task of assessment of RE potential and its sustainability as a CO_2 controlled Power plant has to be carried out from the stage of planning of coal mining activities for the coal based thermal Power plants. CO_2 emissions need to be assessed as a resource along with the coal and power output for its sustainability and conservation. The excess CO_2 in the atmosphere which is not utilised may be linked to the carbon grid networks (centre as well as state) and thus to be used for many purposeful industrial option in a sustainable, efficient, and cost effective manner on a long term basis. Sustainable management of CO_2 emission offers an alternate source of CBM exploration in the coal mining belts/ thermal power plants.
2. For sustainable production of energy supply and environmental protection completed and comprehensive plans are required to be drawn based on the CO_2 hot spot frame work for conservation and management of carbon resources due to mining activities resulting into an imbalance in the carbon cycle.
3. Co_2 mapping program needs to be taken up to understand and develop a relationship with land and energy resources for assessment, conservation and sustainable management of land and energy resources and their development.
4. In Coastal region the possibility of CO_2 sequestration has been experimented with positive result worldwide. Area specific R&D studies need to develop the CCS as eco-friendly and cost effective technique.
5. For the purpose of modelling and simulation of CO_2 system for planning of carbon resources, the applications of suitable software to be designed by CERD members.
6. Capacity building measures of power engineers and geologists apart from other scientific personnel is required by introducing oriented training programmes.

7. Forests cover about 25-30% area of the country which can be fully utilised for CO_2 conservation and CCS technique. This may be made a mandatory scheme of the new Forest Policy of Government of India.
8. Air quality is a major concern of health. Pollution by GHG and other toxic pollutants are prevalent in the coal mining belts and other power plant areas which need to be investigated in a planned way by carrying out systematic analysis of air samples from different type of sources by involving the research institutes and the state departments.

II. Inaugural Meeting-cum-workshop, at Mechanical Engg. Deptt. IIT (BHU) Varanasi, on 19th January 2015: A detailed discussion was held in this workshop with eminent persons from other IITs and industries to decide future directions of CERD. Thrust areas were indentified and joint projects were discussed.

III. International Workshop on Energy and Resources Development (IWERD 2015) at Centre for Energy and Resources Development, Mechanical Engg. Deptt. IIT (BHU) Varanasi, May 16-17, 2015.

No. of Participation in IWERD-2015		**Theme and outcome** (Some of the important outcomes have been mentioned)
National	**International**	
30	02	• Wind power systems have potential and should be introduced as one of the power sources in rural area by proper designing of blades for their speed and turbulence effect. • Blade designing simulation and experiment facility can be developed in CERD, IIT (BHU). • Development of Waste material treatment and power generation technology is one of the focus area nowadays and CERD should do further research and development in this area. • In order to develop cost effective methods and equipments to harness power from biomass and other agro wastes in this region, more research activities should be promoted in the centre. To carry out the monitoring of emissions and air pollutions, the facilities may be initiated at CERD, IIT (BHU).

13.2.2 Innovations:

I. In downdraft gasifier, reduction of tar in producer gas by using catalyst based innovative model
II. In order to solve the high cost and low efficiency problem of PV system, a significant amount of expensive photovoltaic material can be replaced by an optical concentrator using hologram
III. Solar Thermal plants coupling with river interlinking project (under review& consideration)
IV. Reducing the cost of solar concentrators, identifying suitable solar receivers, and develop a heat-transfer medium

13.2.3 MoU's with industries participation

a. Taylor made Solar, Ahmedabad
Theme: Solid Waste Managment Project by solar energy for Research & Development
b. Urja Gasifier Pvt. Ltd., Gorakhpur
Theme: Development and Promotion of Pyrolyser for Converting the Agro Waste to Bio Oil
c. Gamesha Wind Power, Chennai (Under Process)
Theme: Implication on cost and loss of energy for high voltage Balance of Systems (>1500 volt DC) system in solar
d. Swaraj Herbal Pvt. Ltd., Barabanki (Under Process)
Theme : Development of Novel system for estimation of new biodiesel blends

e. Tata Motors
Theme: Biodiesel blending estimation and performance of tata vehicles

13.2.4 MoU's with Academic and Research Institutions

(i) School of Architectural Engineering of politecnico di Milano, ITALY
Theme: Energy efficient building and passive solar architecture

(ii) University of Pune Status: Under Process
Theme: Renewable Energy and Concentrating Solar Power

(iii) BRNS Mumbai Status: Under Process
Theme: Heat Transfer Characteristics of Nano Fluid Describing as Coolant of Reactor

13.2.5 Award / Achievement of the members

1. Dr.S.K.Shukla has visited GIFU University Japan under JSPS Fellow award during Feb-March 2015. Also Exchange visits of students and CERD members are expected in future with GIFU and Osaka University.
2. Dr.J.V.Tirkey along with his team of students have Participated in Shell Eco- Marathon at Manila Philippines during 26 February -01 march, 2014. Further, they are working to develop green car (Solar Car) at our centre.
3. Dr.H.L.Pramanik has been working on DST fast Track project on "Development of Air Breathing Micro fluidic Fuel Cell"

13.2.6 Research work which remains to be done under the project (for on-going projects)

1. Technological development to increase the use of solar based energy systems, PV Cells, solar dryers, biomass based devices (biogas, biomass combustors, and biomass gasifiers), Natural Power including wind power.
2. Development of efficient materials and technological development for Photovoltaic Solar Cells Manufacturing
3. Testing facility for the materials
4. Technological development for energy conservation and its evaluation
5. Development of an up-to-date breakdown of energy consumption by the various components of a facility (including process, heating, cooling, lighting, etc.) for all major energy sources (electricity, gas, petrol, diesel, renewable energy, etc.)
6. Carbon Capture and Sequestration Technologies

Following other initiatives will be undertaken by the project in coming years;

1. Development of baseline data on energy emissions, and emission factors.
2. Exploring the opportunities for energy projects under the clean development and Energy Conservation Mechanism.
3. Assistance to SMEs and other Industries of the region through technical advice/consultancy on energy matters.

13.2.7 Phd Guidance/Training/Research Publications

Ph.Ds Produced no:	Technical Personnel trained	Research Publication out of the present project:
6 (Ongoing)		
Registered since 2013= 3	**03**	**05**
Registered since 2014= 3		

13.2.8 Salient Research Achievements:

Summary of Progress

A) Research and Training of Students in CERD, IIT (BHU) (Including other IITs, NITs and Reputed Engg. Institutions, Foreign universities)

S.N	No. of B.Tech. Students	Area of training /research	Period
1.	25	Biodiesel production from edible and non edible oil and performance test in VCR Engine, Solar thermal energy system, Energy harvesting through wind power and solar cell.	15th May to 25th July
2.	04	Hybrid Vehicle (Biofuel +Electric+ Solar)	15th May onward
	No. of M.Tech Student		
3.	11	Solar concentrating power, Solar Refrigeration, Gasifier, Performances analysis of VCR engine run with blending of fuels, wind energy etc.	Two semesters (July –June 2015)
	No. of PDF and INSPIRE Fellow		
4.	2 (PDF)	In this regard we would like to mention that We had received two applications for PDF of students from China and Taiwan.	We are trying to accommodate them in CERD
5.	1 (DST-INSPIRE fellow)	We have received one application for DST INSPIRE fellow	We are trying to accommodate in CERD
Note: Both Serial No. 4 and 5 are under consideration with Dean (R& D) and will be sent to DOFA office IIT (BHU) for reconsideration as per new SEPC resolution.			

B) Creating New Area for training and Research

(i) CERD had submitted a proposal with detailed course structure and syllabus to float an interdisciplinary program in Energy system Engineering spread over the area pertaining to Mechanical, Electrical and Chemical Engg.

Followings have been approved by SENATE Educational Policy Committee, IIT (BHU) in this regard.

a- Some key courses as part of this program can be floated with the help of CERD faculty and this way centre will show its active potential.

b- Joint appointment of faculty can be made in concerned department and no. of courses for centre and departments will be prescribed jointly

c- An interdisciplinary M.Tech. Program in the area can be worked out with a suitable time.

d- For smooth functioning of CERD, a centre faculty affairs committee (CFAC) has been constituted and selection of INSPIRE faculty and PDF can be processed through CFAC and approved by Director.

(ii) Creation of data collection centre (DCT) for surveying and quantifying the different energy resources like Rice husk, Bagasse, Agro waste etc in the vicinity as well as Purwanchal region. Institution of Engineers (India), Allahabad centre has given space for opening a data collection centre. Two more DCTs have been approved by CERD and would be placed in Singrauli and Gorakhpur. The space identification for operation of data collection centre is under progress. This may help small and medium Industries in the region.

(iii) Emission Monitoring, Energy Auditing and Management
A proposal for creation of sub-centre for estimation of emissions from NCL coal fields has been submitted to NCL head office Singrauli after receiving a request.

All the above actions at points (ii) & (iii) will facilitate the academia and industry to work closely and will expose them with useful knowledge in the area of the centre. Also, It is expected that no. of doctoral and post doctoral students will increase in coming years in the specialized area of the centre like Solar thermal, Bio-fuel up- gradation, Wind energy, Fuel cell and PV etc.

Photo Gallery

9.1. Brain Storming Workshop on Renewable Energies "Carbon Capture and Storage" at NP University , Daltonganj on November 18-19, 2014.






Inaugural Meeting –cum-workshop on 19th January 2015.






Summary of Plan/Non-Plan Funds Utilisation for 2014-15

14.1 Plan

(Figures in Crores of Rupee)

Opening Balance	Nil
Normal Plan Grant Sanctioned during 2014-15	80.00
Total Available	**80.00**
Capital Expenses during 2014-15	**81.03**
Buildings & Constructions	22.68
Furniture & fixtures	1.17
Equipment	29.87
Books, journals & periodicals	0.48
Revenue expenditure: Scholarship payments	20.59
Other	6.24
Total (closing balance)	**Nil**

a. Non Plan

Grant Sanctioned during 2014-15	80.00
Opening Balances	26.08
Tuition Fees	2.26
Hostel fees	0.14
Entrance Examination Fees	0
Administrative Income	0
Interest Income	1.48
Other Fees	0.47
Other Income	0
Total Available	**110.43**
Expenditure During 2014-15	**82.35**
Pay & Allowances	62.63
Service pension & family pension: Retirement benefits	1.85
Library Services	0.74
Health Services	0.45
Student Scholarship	0.02
Hall Subsidy	0
Administrative Expenses	1.35
Departmental/laboratory/workshop expenses	3.10
Transport subsidy	0.07
Student support activities	0.98
Computer facilities	0
Housekeeping & estate maintenance	0.37
Water/electricity charges	7.27
Examination expenses	0.54
Other Expenses	2.98
Total utilised	**82.35**
Depreciation provided	**0.62**
Total expenditure	**82.35**
Deficit	**28.08**

Endowment account balance as on 31 March 2015 : Rs. 0.039 Crore

Corpus account balance as on 31 March 2015 : Rs. 7.74 Crore

15.Project

15.1 Unnat bharat Abhiyan (UBA)

Coordinator: Prof. B.N. Rai
Associate Coordinator: Dr. R.K. Chaturvedi
Ad-hoc Staff: Ajeet Kumar Yadav and Rakesh Kumar Chaudhary,

Report of Unnat Bharat Abhiyan of IIT (BHU)

IIT (BHU) has been working on a number of aspects and their related technology from last one year which are faced by Indian villages and small town under Unnat Bharat Abhiyan programme. As we all are aware that the problems of solid waste management, technical support for rural problems, portable water quality, hygiene and sanitation, energy, education, housing and health care of the villagers are main objectives to be undertaken in this programme.

List of villages adapted by IIT (BHU)

1. Sarai Dangri (KV Block, Varanasi)
2. Tikari (KV Block, Varanasi)
3. Rajpur (Arajiline Block, Varanasi)
4. Adma Pur (Sewapuri Block, Varanasi)
5. Nagepur (Arajiline Block, Varanasi)
6. Kaneri (Arajiline Block, Varanasi)
7. Hardattpur (Arajiline Block, Varanasi)
8. Gopalpur (Adalhat Block, Mirzapur)
9. Bhaipur (Jamalpur Block, Mirzapur)

Vision and Mission

- Rain water harvesting
- Drinking water quality
- Counseling for sanitation and hygiene
- Forestation
- Vermicomposting
- Adult education
- Decentralized gasifier
- Maintenance of electronic equipment
- Up gradation of ITI and Diploma holders
- Preservation and promotion of rural crafts
- To identify the need of villagers and take their inputs on the issues
- Storage, package of local food(fruit, grains, vegetables, etc.) : value addition
- To connect the local small industries and suggest methods for better efficiency

Keeping above aspects, we have initially taken the following problems of different villages and which are still in the progress.

(i) Rain water harvesting
(ii) Drinking water quality
(iii) Sanitation and hygiene
(iv) Identification of guilds and small scale industries.

In initial phase IIT (BHU) students teams have gone to concerning villages for collecting the samples and interacted with villagers to understand the actual problems faced by the villagers and their technological remedies in a cheaper way for the problems. Every team was supported by teacher mentor. Our students teams had collected samples from the various villages at different locations and analyzed all the parameters of water in laboratory and the same results were analyzed and recorded.

Ongoing projects and their outcomes:

1. **To check the potable water quality in and around Sarai Dagri:** (Mentor: Dr. S K Mishra, Department of Pharmaceutics)

Outcomes:

- Sarai Khurd village, Water is hard and alkaline. Fluorine content is more than desirable limit in most of water sources in area.
- In Bhagautipur, water is very alkaline and moderately hard.
- In Dhobi Basti, water is very hard, hardness exceeds 500 ppm.
- In Yadav and Gupta Basti of Tarapur, the quality of water very poor. It is very hard, alkaline, turbid and have very high concentration of sulphates and chlorides.
- In Ladauni, Mushar and Patel Basti water quality is moderately hard but other properties are within desired limit.
- In Mallah Basti, water is hard, alkaline and turbid.

2. **Study of potable water quality in Tikari (KV Block) and its impact on health:** (Mentor: Prof. KK Pandey, Department of Civil Engineering)

Outcomes:

- Hardness and alkalinity are at an alarmingly high range in this village, which may have an adverse effect on health in near future.
- TDS was within range except a few alarming zones. Precautionary measures should be taken immediately.
- Iron and Chromium are below detectable limit.
- Flourides are within the normal consumption range of water.
- Turbidity is within range except in monsoon that is due to soil runoff.
- COD is relatively high in most of the areas. Though the monsoon has reduced the COD level in most part of the village, it is still a matter of great concern. It may accelerate algae bloom in water bodies.

3. **To identify possible areas for rainwater harvesting at Tikari village:** (Mentor: Prof. Rajesh Kumar, Prof. KK Pandey, Deppt of Civil Engg.)

Outcomes:

- This project is about how rain water can be stored & it can be used in many ways for required purposes (by suggested engineering models).
- Takari village can be divided into seven parts: Kashipur, Nonhiyapur, Dheravir, Naimaliya basti, Harjan basti, Kiskindhapur, Main tikari basti
- This project fulfills the need of villagers in the following manner:
  (i) To overcome the inadequacy of surface water to meet our demands.
  (ii) To arrest decline in ground water levels.
  (iii) To enhance availability of ground water in a specific place.
  (iv) To improve ground water quality.
  (v) To increase agriculture production and ecology.

4. **To study on the quality of all the hostels of IIT (BHU):** (Mentor: Prof. B.N. Rai, Department of Chemical Engineering)

Outcomes:

- It is always important to be assured of good quality of water we consume. The tests do add to this assurance.
- pH change,
- COD values
- Turbidity
- Chloride ion concentration
- Fluoride ion concentration
- TDS values
- Heavy metal presence
- Electrical conductivity of water were tested.
- It was found that the quality of water being supplied in our hostels is most suitable for consumption.
- The study only considered physio-chemical parameters.

5. **Counseling for sanitation and hygiene in Gopalpur:** (Mentor: Prof. R.S. Singh, Department of Chemical Engineering)

- There are mainly three types of people on the basis of family income:
  (i) Upper cast people
  (ii) Middle cast people
  (iii) Lower caste people
- The condition of sanitation and hygiene is bad.
- Steps and suggestions from our side :
  (i) Creating social awareness program about sanitation and hygiene in the village.
  (ii) To arrange a talk along with tehsildar and Gram Pradhan for the improvement of water facilities and toilet condition in the village.

6. **To identify guilds and small scale industries in Kaneri and Nagepur and to explore the possible means for improved efficiency:**
(Mentor: Prof. K.K. Pandey, Civil Engg., Dr. P. Bhardwaj, Mech. Engg.)

- This report shows the conditions of existing guilds and SSI's in the Kaneri and Nagepur villages.
- The economic condition of the people in these villages is poor which can be improved by strengthening of the guilds and SSI's.
- The major problem faced by these businesses like ornament threading and handloom weaving which can be made successful made coming up together of people with similar interest. But, because of their differences they deny for a new venture.
- These problems can be addressed when people come together for their and society's benefits.
- Government help and appreciation to these businesses can help them grow.

Monitoring

(i) On 22nd August 2015, Unnat Bharat Abhiyan coordinators organised a seminar in the seminar hall of Department of Civil Engineering, IIT (BHU) in which all the student teams working under Unnat Bharat Abhiyan programme presented their work and submitted the reports. At this platform an open discussion has also taken place between committee members and students teams regarding their work and outcomes.

(ii) On 16th September 2015, a Unnat Bharat Abhiyan coordinators interaction meeting from all the premier institutions as IITs, IIMs and Central Universities were convened in IIT Delhi along with a brief presentation in the presence of Hon'ble minister Ch. Virendra Singh., Dr. R.K. Chaturvedi, Associate Coordinator attended the same. In this meeting a further strategy to run Unnat Bharat Abhiyan programme was also discussed in length among the coordinators invited from all over the country.

(iii) An article regarding the developments and awareness programme made by Unnant Bharat Abhiyan cell of IIT (BHU) from time to time has already been published in Hindustan times (Lucknow edition) on 30th September 2015 (on page No .2) for the reference.

(iv) Unnat Bharat Abhiyan cell developed a Unnat Clay Water Filter for solving the problem of drinking water whose cost is below Rs. 250/- which is easily affordably by poor villagers.

Future Plan

1. Recently a Unnat Bharat Abhiyan cell office has been established in a small segment of Industrial Pollution Control Lab of Department of Chemical Engineering. All the related projects reports documents and articles are placed in the cell office for ready reference.
2. After semester exams students will be advised to continue the project works for next phase.
3. Unnat Bharat Abhiyan cell is planning to consider the other important aspects beyond the running projects. For this purpose Unnat Bharat Abhiyan cell will invite soon faculty members as mentor along with students team and can work for the successes of this Unnat Bharat Abhiyan programme on the remaining aspects which has taken by IIT (BHU) as its mission.

KBD printers # 9336673008